

# Birds of Prey in the Art of Early Asian Herders and the Problem of the Origins of Falconry

## ABSTRACT

This paper studies a series of the most ancient bird of prey images associated with Asian steppe, forest-steppe and arid zone herders. They date back to the mid-3<sup>rd</sup> to early 2<sup>nd</sup> millennium BC and have been recorded in the territory between the Amu Darya river in the west and the Yenisei river in the east, in present-day Uzbekistan, Kazakhstan, Mongolia, and Russia. Certain similarities in iconography and style and the relative synchronicity of the spread reflect complex local and interregional interaction across this part of the continent and some herder groups' movement from the west to the east, as well as their contacts with the agricultural communities of western central Asia. The increased importance of the bird of prey in the life and beliefs of the herders, recorded in petroglyphs and portable art, and its role in some visual compositions do not exclude that the first practice of training it for hunting occurred at this time. The earliest form of falconry was apparently the foot falconry, while horseback falconry, well known today in the culture of the Asian herders, is undoubtedly a later form, dating back to the first millennium BC.

## KEYWORDS

Asian steppe / Early Bronze Age / Early Iron Age / rock art / bird of prey / foot falconry / horseback falconry

## Introduction

In recent years, the history of falconry, which refers to the taking of quarry in its natural state and habitat by means of trained birds of prey (Definition of the International Association for Falconry and Conservation of Birds of Prey: [www.iaf.org](http://www.iaf.org)), became a subject of targeted studies by experts from different fields of knowledge (Gersmann/Grimm 2018; Grimm 2020). The emergence of this practice has not been well understood so far, even though the hypothesis of a steppe origin seems most likely (Soma 2015; Gersmann/Grimm 2024). At the same time, studies of materials from the early steppe societies themselves are still rare and are mostly limited to separate cultures or even sites, and it is not clear when the tradition first emerged.

Some researchers, referring to the cases where bird bones were discovered in barrows, sanctuaries, and settlements connect it with the cultures of the Saka and Sarmatians at one point or another in the 1<sup>st</sup> millennium BC (Samashev et al. 2007; Kosintsev/Nekrasov 2018; Yablonsky 2018; Nagler 2020). The earliest finds of this kind date back to the 8<sup>th</sup>–7<sup>th</sup> century BC (Omarov et al. 2024). However, the difficulty lies in that there is no complete certainty that the birds (sometimes only represented by separate parts) were associated with humans and were not wild, since no distinctive tools related to falconry were found at the sites. The latter, however, may be due to the fact that these were made of perishable materials – leather and wood (Wang et al. 2023, 8).

The possibilities of solving this problem using stable isotope analysis seem quite distant at present (Pokrovsky 2018). Some observations made by archaeozoologists on the European medieval material (Prummel 2018) about the predominance of females among hunting birds (which are larger than males), plus cases of pathological changes in the metatarsal bone and fracture healing, may be more useful for modern research.

Another archaeological source is visual materials. Among them, the strongest evidence for falconry is a composition in which a bird of prey is depicted perching on an arm, especially on a rider's arm (Grimm/Gersmann 2018, figs 1–5), as many researchers associate falconry with horseback riding (see, for example: Reiter 2018c, 1659). Sometimes it is supplemented by another important piece of evidence – images of traditional falconry equipment known from present-day Turkic and Mongolian people: a leash for the legs, a hood for the bird's head, a glove for the hunter's arm, etc. One of the earliest known depictions of a bird of prey on a rider's fist is on a bronze belt plaque from Xichagou 西岔沟 cemetery (ZII5) in north-eastern China<sup>1</sup> (fig. 1a). This plaque undoubtedly shows characters from some heroic epic. They are depicted sitting on mythical beasts instead of normal horses, but their clothing, weapons and harnesses are realistic (fig. 1b) and correspond well to the historical period of the burial. This cemetery's main temporal range covers the second half of the 2<sup>nd</sup> century to the mid-1<sup>st</sup> century BC, and it was most likely a burial site for the Wuhuan 烏桓, who were under the influence of the Xiongnu 匈奴 (Pan et al. 2020). It became the basis for the conclusion about the origin of falconry during the Xiongnu period in the eastern part of the Asian steppe (Bunker et al. 1997, 80; Soma 2015). On the belt plaque one rider is shown on a tiger (which has three tongues or is holding something in its teeth), and the other one sits on a beast with the body of a horse, but with a horn (shown in the form of a bird of prey's beak) at the end of the muzzle, two bull's tails (?), and the claws and ears of a predator. The beast with the horse's mane and a horn is especially indicative. It has some parallels in the art and myths of the Xianbei 鮮卑 of the early 1<sup>st</sup> millennium AD (Komissarov 1996; Bunker et al. 1997, 279 figs W16–W17), who considered such a beast to be their main symbol and divine protector. It also corresponds to the 4<sup>th</sup>–3<sup>rd</sup>-century BC descriptions of the Bo 駃 or Bo-Horse, the form of which resembles a horse but

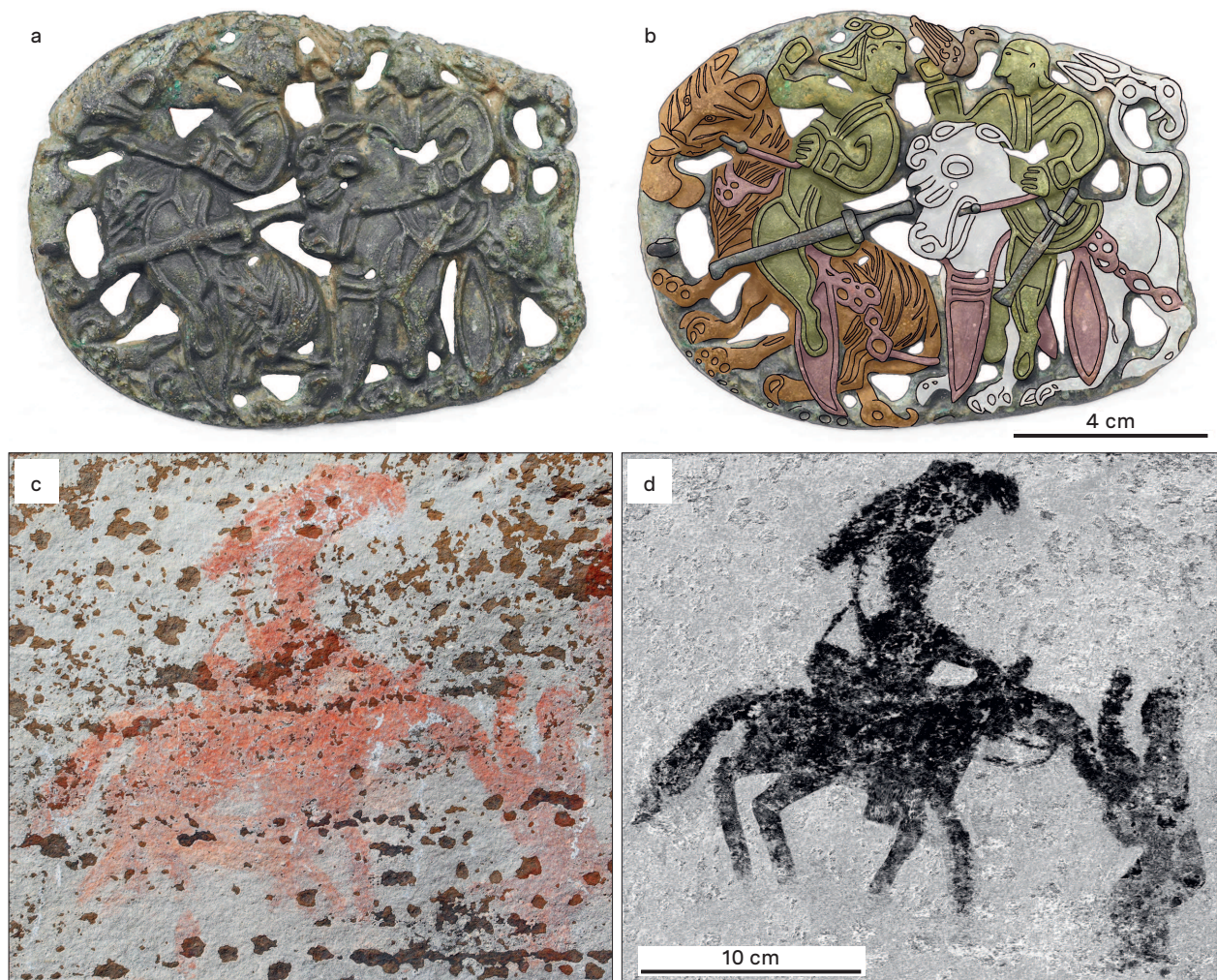
with a white body, an ox's tail (some commentators mentioned two or three tails), a single horn, and a tiger's teeth and claws, that lived in the northern and western mountains according to the *Shanhai-jing* 山海經 »Classic of Mountains and Seas« (Strassberg 2002, II6. 127). The Xianbei and Wuhuan, who dwelled north of the ancient Chinese states, were close relatives (both belonged to the Eastern Hu 東胡 and most likely were proto-Mongol) and apparently shared some beliefs and narratives. At the same time, the image of this divine beast identified on the belt plaque from Xichagou is different from the known Xianbei iconography and style. This is an additional argument in favor of the Wuhuan origin of the find. Moreover, the rider on the horse with a horn, whom we can tentatively associate with the Xianbei, is shown as having a slightly lower status than the rider on the tiger (whose sword is larger, who looks a little older and rides first), so the first rider and his beast must presumably be associated with the Wuhuan itself. In this case, perhaps the riders shown are related to the genealogical myth of the Wuhuan and Xianbei and represent their ancestors (possibly two brothers).]

A similar but more realistic and informative composition from the 2<sup>nd</sup> to the 1<sup>st</sup> century BC is painted in red on a rock near Kavkazskoe village in the Minusinsk Basin in southern Siberia, Russia (Miklashevich/Solodeinikov 2013, 186; Monna et al. 2022, 95), which depicts a larger bird of prey with a leash hanging from its legs (fig. 1c–d). The direct meaning of the composition is not connected with hunting, since in front of the horse's muzzle there is a figure of a man with half-bent legs and raised arms. This can be interpreted as a scene of a horseman subduing a man on foot, where the presence of the bird emphasizes the high social status and power of the man on horseback.

Both compositions are reliable records of the use of hunting birds among herders in the eastern part of the steppe belt at the end of the 1<sup>st</sup> millennium BC. By the end of the 1<sup>st</sup> century AD, hunting with trained birds of prey had been transmitted from the steppe to China as an elite pastime, and the first narrative depictions of actual hunting scenes appeared there in Eastern Han (AD 25–220) tomb reliefs; they are supplemented by the first references to this type of hunting in Chinese written sources (Wallace 2018).

Evidence from the late 1<sup>st</sup> millennium BC, however, does not exclude the emergence of falconry, the possibility of the initial use of other devices to con-

<sup>1</sup> I am grateful to Pan Ling and Huan Limin for their consultation regarding the Xichagou collection and for providing photographs of several belt plaques.



**Fig. 1** Images of riders with raptors on their right fists, 2<sup>nd</sup>–1<sup>st</sup> century BC. **a** bronze belt plaque from Xichagou, Xifeng, Liaoning. – **b** results of tracing and identification of its visual elements. – **c-d** rock painting from Kavkazskoe, Minusinsk Basin, Siberia. – (a after Pan et al. 2020; b graphics Y. Esin; c-d photo and visualization [ERA software] Y. Esin).

trol a bird, a different method of hunting, nor other forms of expression of this practice in steppe art at an earlier time.

A recent study of earlier depictions of birds of prey in the art of pastoralists east of the Altai has led to the hypothesis that falconry emerged in the Late Bronze Age (Sodnomjams/Batbold 2024). This conclusion, however, was not a result of an analysis of the images themselves, but was based on the assumption that the reason for the depiction of birds of no food value could have been the beginning of their use for hunting. The given separate images of birds at the same time allow for an interpretation that is not related to falconry; moreover, the first images of birds of prey appeared in the archaeological materials of Asian herders long before the Late Bronze Age.

One more hypothesis dates the emergence of falconry to the 3<sup>rd</sup> millennium BC (Erdenebat 2018, 590; Töpfer et al. 2023, 150; Gersmann/Grimm 2024). This was based on one rock art composition at the Tsagaan Salaa site in the Mongolian Altai, which depicts an archer riding a camel accompanied by a flying falcon (Erdenebat 2018, fig. 2). Its interpretation as a falconry-related scene is possible, although less convincing than an image of the bird on the arm. The dating of this scene to the Early Bronze Age, however, does not take into account the stylistic features of the carvings, the historical period in which images of camel riders first appeared in Sayan-Altai, nor the chronological sequence of these carvings alongside other petroglyphs on the same stone<sup>2</sup>. Considering these factors, the estimated time when the Tsagaan

<sup>2</sup> I am grateful to Umirbyek Bikhumar, Head of the Mongolian Altai Rock Art Complex Protection Administration, Bayan-Ulgii, Mongolia, for the opportunity to study the petroglyphs on this stone in detail.

Salaa composition with a bird was pecked is the end of the 1<sup>st</sup> millennium BC. So, it turns out that images associated with the Early Bronze Age have not yet been studied in the context of the problems surrounding the history of falconry. At the same time, they represent a large series and very much deserve special attention. I have had an opportunity to document a significant portion of them by myself using photography, rubbing on thin paper, and 3D modelling.

## Geography, Chronology, and Archaeological Context of the Oldest Bird of Prey Images

The steppe belt as it appears today was formed in Asia about nine to eight thousand years ago, after the climatic changes of the early Holocene. Its inhabitants in the Neolithic-Eneolithic era were few in number and mainly practiced hunting and fishing along the shores of lakes and rivers, where their settlements could be found. Among the known images of birds that decorate the ceramic vessels and are represented in the portable art of such communities are waterfowl species (Matyushchenko 1963, fig. 2, 7; Leont'ev 2003, 44–45 fig. 5, 6; Kalieva 2013, fig. 2, 6; Kiryushin 2019, 107 fig. 2, 9). A more complex development of this ecological zone began in the 4<sup>th</sup> millennium BC with the spread of livestock farming here. By the end of this millennium, groups of pastoralists, originally associated with the Yamnaya culture area, reached the Sayan-Altai and even the Khangai Mountains in the east. Their barrows and settlements are classified as the Afanas'ev archaeological culture (late 4<sup>th</sup> to early 3<sup>rd</sup> millennium BC). These people could be connected with one of the oldest rock art traditions here (Molodin 1996; Esin 2010b). Among its characteristic images are large birds in side view with folded wings, long necks and legs, which can be identified as cranes, since the most detailed figures at the Khurugiin Uzuur site in Khangai have indicative long feathers at the back of the head (Esin et al. 2012, 208). One image of a bird of prey from Aral-Tolgoi in the Mongolian Altai (fig. 2), shown in side view with folded wings, without legs, but with two egg-shaped ovals inside the body contour (fig. 31), possibly belongs to this tradition (Kubarev 2002). The chronology of such petroglyphs, however, remains controversial: some researchers allow their dating to the late Palaeolithic and interpret the birds with long legs and necks as ostriches (Tseveendorj 2005, 74–76; Jacobson-Tepfer et al. 2010, fig. 2, 3; Zabelin 2010, fig. 4; Molodin 2024, 196).

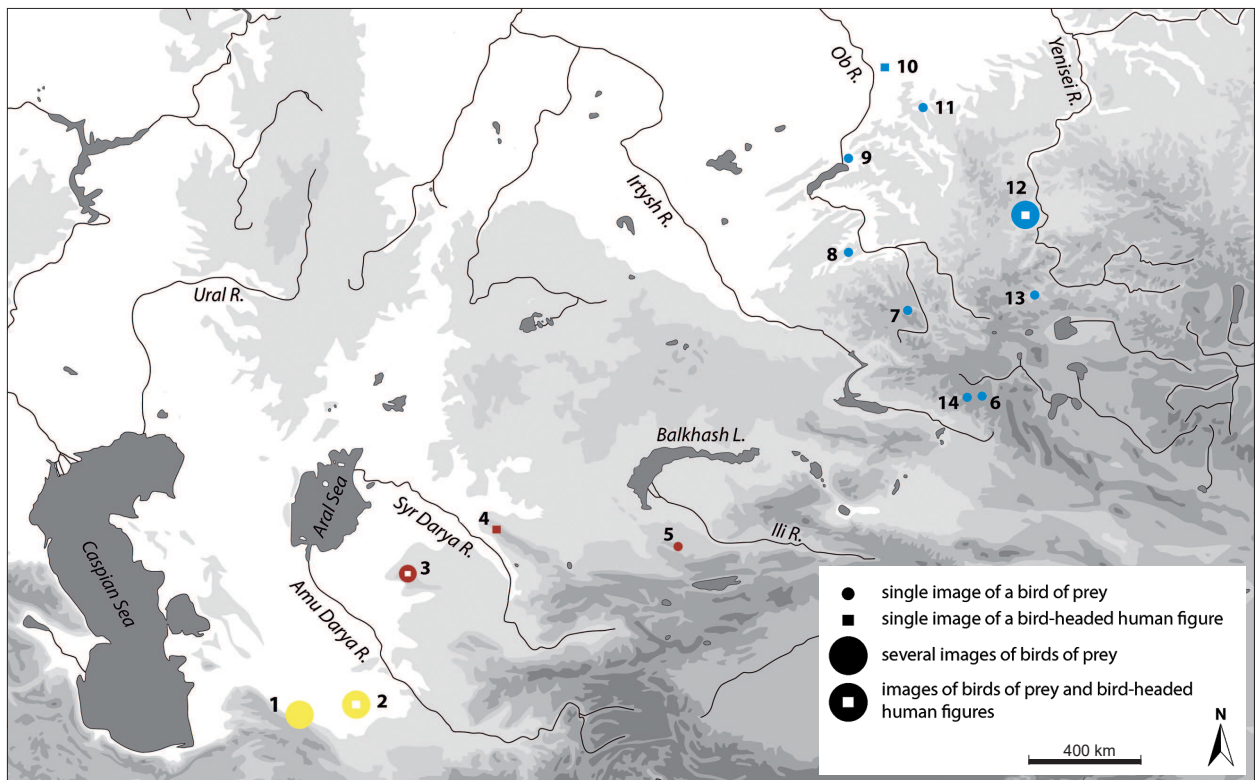
Thus, the purpose of this article is an analysis of the oldest images of birds with characteristic diurnal predator features (primarily a large curved beak, claws, etc.) in the herder cultures of the steppe, forest-steppe, and arid zones of Asia and to study their chronology, geographical distribution, iconography and stylistics, contexts of their use and the possible evidence of taming and use for hunting.

The first reliable indications of a special attitude towards birds of prey appear in herder cultures from the middle of the 3<sup>rd</sup> to the early 2<sup>nd</sup> millennium BC. They are represented in the petroglyphs and portable art of several archaeological cultures in two different regions at the same time: 1) in the lands between the rivers Amu Darya and Ili in the territories of Uzbekistan and Kazakhstan; 2) in the Sayan-Altai Mountains and their northern foothills in between the Irtysh and Yenisei rivers in the area of present-day Mongolia and Russia (fig. 2).

The first, western region, includes steppes, semi-deserts and deserts, with the most interesting sites located in the Bukantau Mountains (50–60 km to the north of Uchquduq city, Navoi Region, Uzbekistan). Here, on the rocks near springs, wells, and copper deposits, the carved images of large birds of prey were found (Os'kin 1976; Rozwadowski 2004, fig. 70). The birds are depicted in side view with folded wings. More schematic profile images at the Akkainar and Kulzhabasy sites (Almaty region, Kazakhstan) probably belong to a similar time period (Zheleznyakov 2019, fig. 4, 6), though it has not yet been determined what culture they can be attributed to, due to the poor knowledge of the Bronze Age before the spread of the Andronovo culture.

The second, eastern region, is characterized by mountain-steppe and forest-steppe landscapes, where there are images of birds of prey engraved and pecked on rocks, stelae, and slabs, and also stone and bone figures of birds that were once attached to clothes. Most of the images were found as a result of the excavation of burials and settlements that allow us to date the images reliably to the Early Bronze Age. They belong to different archaeological cultures:

- the Khemtseg (Chemurchek) culture (2600–1800 BC) in the territory of north-west Mongolia and neighbouring lands; Khar Chuluut 1 burial



**Fig. 2** Location of the main sites with images of birds of prey along the Asian steppe and arid zones in the late 4<sup>th</sup> to early 2<sup>nd</sup> millennium BC. 1 Kara Depe. – 2 Gonur. – 3 Kyrbukan. – 4 Karasuyir. – 5 Akkainar. – 6 Khar Chuluut I. – 7 Karakol. – 8 Berezovaya Luka. – 9 Turist-2. – 10 Samus IV. – 11 Lake Utinka. – 12 Tas Khazaa, Bel'tyry, Itkol II, Lake Belyo, Shalabolino. – 13 Bizhiktig Khaya. – 14 Aral-Tolgoi. – Sites of the agricultural communities of western central Asia are indicated in yellow, sites of the western group of herders indicated in red, sites of the eastern group of herders in blue. – (Map Y. Esin).

- and ritual site, A. Kovalev and Ch. Munkhbayar's excavation, 2015,
- the Karakol culture (c. mid-3<sup>rd</sup> to early 2<sup>nd</sup> millennium BC) in the Russian part of the Altai mountains: Karakol cemetery, V. D. Kubarev's excavation, 1985–1986,
- the Elunino culture (c. 2500–1800 BC) in the territory of eastern Kazakhstan and the Altai Region of Russia: Beryozovaya Luka settlement, Yu. F. Kiryushin, A. A. Tishkin, S. P. Grushin's excavation, 1999–2003,
- the Samus and Krokhal'yovka cultures (c. late 3<sup>rd</sup> to early 2<sup>nd</sup> millennium BC) in western Siberia: Lake Utinka grave, stray find, 2004; Samus IV settlement, V. I. Matyuschenko's excavation, 1974; cemetery at the Tourist-2 settlement, N. V. Basova's excavation, 2017,

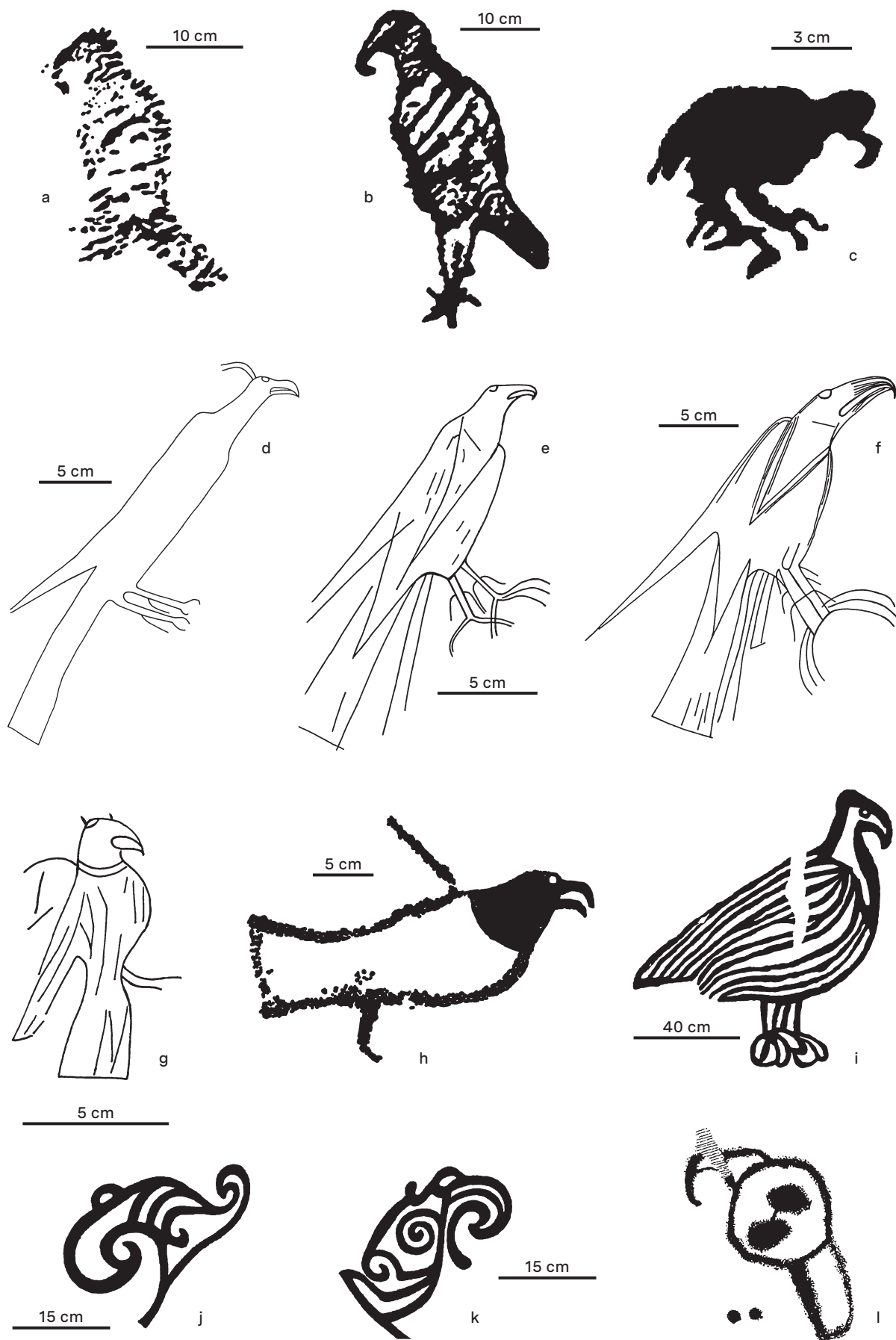
- the Okunev culture (c. 2600–1700 BC) in the Minusinsk Basin on the Yenisei river: Bel'tyry, Ust'-Es and Tas Khazaa cemeteries, A. N. Lipskiy's excavation in the 1950s; Itkol II cemetery, A. V. Polyakov's excavation, 2017; stone stelae from the villages of Bel'tyry and Kyzlas and from Lake Belyo; Shalabolino rock art site,
- the Bronze age culture in Tuva: Bizhiktig Khaya rock art site.

Further east, there is one stylistically comparable image of a bird of prey in a side view with folded wings among the petroglyphs of Zhongwei 中卫 in Ningxia, north-western China (Zhou 1991, fig. 92; Cheremisin 2022, 796). In terms of landscape, this distant find is comparable to some of the sites discussed above. However, its age and archaeological context require special study.

## Forms of Representation

Images of birds with characteristic predatory features on a flat surface can in both regions be divided into several types and subtypes depending on

the completeness of the figure, the chosen projection of the body and the position of the wings.



**Fig. 3** Images of birds in side view. Uzbekistan: **a-b** Kyrbukan. – Southern Kazakhstan: **c** Akkainar. – Minusinsk Basin: **d-g** Tas Khazaa, grave 5 and I; **h** Kyzlas; **j-k** Lake Belyo. – Tuva: **i** Bizhiktig Khaya. – Mongolia: **l** Aral-Tolgoi. – (a–b after Rozwadowski 2003, fig. 70; c after Hermann 2016, fig. 7A; d–h tracing and graphics Y. Esin; j–k after Leont’ev et al. 2006, stela I40; i after Devlet/Devlet 2005, fig. 64; l after Kubarev 2002, fig. 1, 7). – l not to scale.

## Type 1. Bird in Side Projection

*Subtype 1A* combines figures with folded wings. These were depicted on the stelae and slabs of Tas Khazaa barrow (Lipskii/Vadetskaya 2006b, table XIX, 3), on a slab from the village of Ust'-Es (Leont'ev et al. 2006, fig. 238), on the stela from Lake Belyo, and at Bukantau, Akkainar, and Bizhiktig Khaya (one very large image, probably life-size) (fig. 3a-g. i. k). The tips of the wings may be pressed against the tail or slightly raised above it. This subtype may also include a miniature and very schematic flat image of a bird made of bronze (Matyushchenko/Sinitsyna 1988, fig. 7, 5), found in grave 2 at Rostovka cemetery (late 3<sup>rd</sup> to early 2<sup>nd</sup> millennium BC), which in recent years has come to be associated with the Krotovo culture.

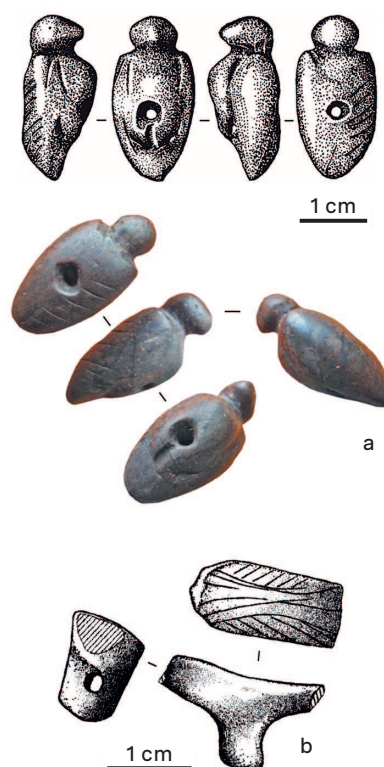
Regarding the position of the wings, two miniature sculptures (both carved from brown stones) are related to this group: one was found at the Elunino culture's Berezovaya Luka settlement (fig. 4a) and was possibly attached to the side of a headdress (Kiryushin et al. 2010); the other (fig. 4b) was part of a necklace from a Samus culture burial at Lake Utinka (Bobrov/German 2007; Bobrov et al. 2010).

*Subtype 1B* includes images in side projection with their wings raised upwards (in the currently known cases only one wing is shown; fig. 3h. j). The same birds are distinguished by the display of only one leg without details, although two legs are typical for the other type I images (in most cases with claws). In possibly only one case of subtype 1A, the bird is depicted with one leg (fig. 3g).

## Type 2. Bird in Front-and-Bottom Projection with Spread Wings, Shown Symmetrically on Each Side

*Subtype 2A* is represented by a bird on a slab from the Khemtseg culture site of Khar Chuluut I (Kovalev/Munkhbayar 2015, 165), in which the ends of the wings are extended towards the head (fig. 5a).

*Subtype 2B* is distinguished by wings extended towards the tail, shown on the slab in the Itkol II cemetery and on the stela from the Okunev barrow at Tas Khazaa as well as on the Karakol stela (fig. 5c-e). It is also represented by two flat figures made of white stone from the Okunev burial in Bel'tyry cemetery, barrow 6 (fig. 5b), which were sewn onto the chest of a woman's costume (Lipskii/Vadetskaya 2006a, 75). A flat and single-sided bone figure of a bird with a broken off beak from a male burial (grave 6) in the Krokhal'yovka culture's Turist-2 settlement also belongs to this subtype (fig. 5f). It appears that it was



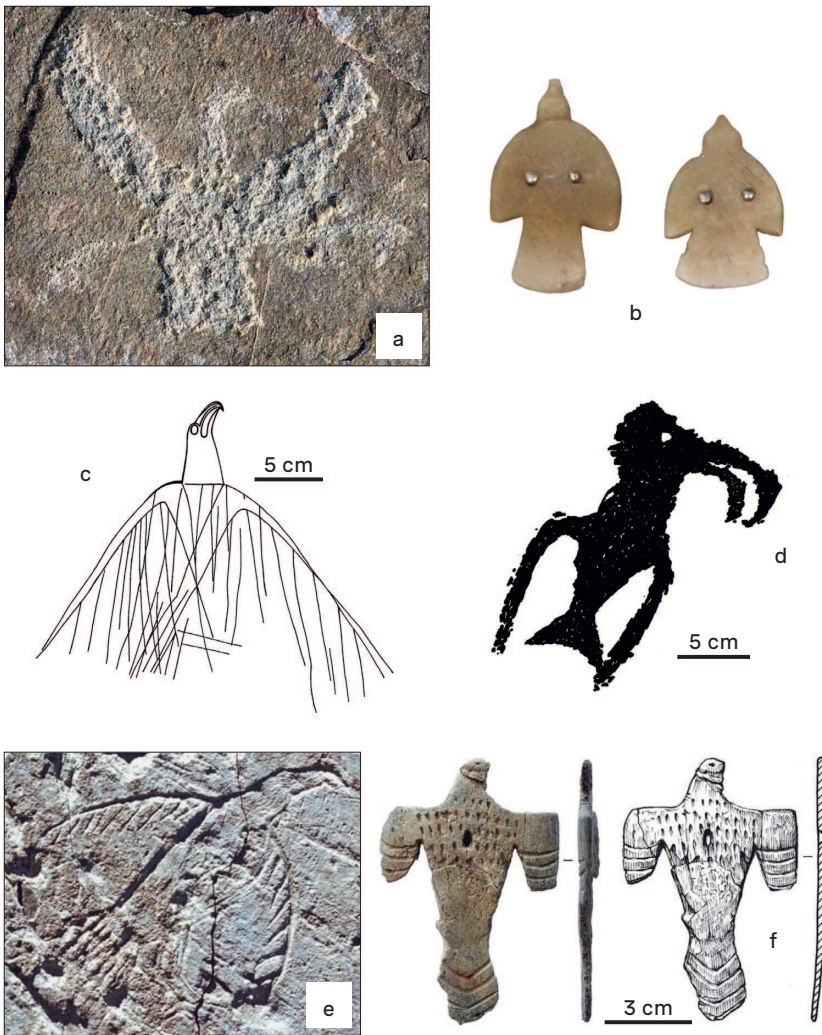
**Fig. 4** Stone sculptures of birds. **a** Berezovaya Luka settlement, Elunino culture. – **b** Lake Utinka grave, Samus culture. – (a after Kiryushin et al. 2010, with graphical modification by Y. Esin; b after Bobrov/German 2007, with graphical modification by Y. Esin).

also sewn onto the deceased's costume in the center of the chest (Basova et al. 2019, 57).

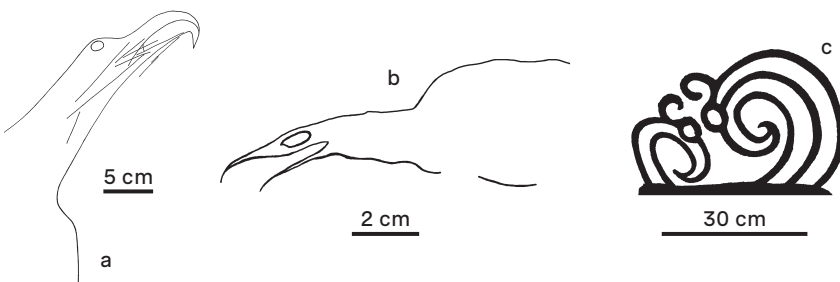
Among the less significant differences within type 2, it is necessary to note two ways of depicting the head: a) in a bottom projection (fig. 5b), and b) in a side projection (fig. 5a. c-f). There are also differences in how the legs are depicted: they are either a) not shown, i. e. they are assumed to be pressed to the body (fig. 5b. d. f), b) positioned on both sides of the body (fig. 5a), or c) located on one side of the body, i. e. in a side projection (fig. 5c. e).

## Type 3. The Bird's Head

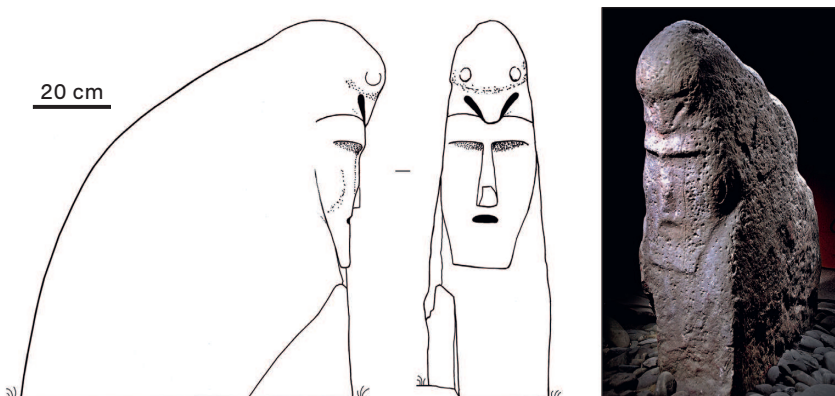
These are mainly individual images shown in profile on a flat surface (fig. 6), but there is also one sculptural image above a man's head at the top of a stone stela from the neighbourhood of Bel'tyry village (fig. 7). In the latter case, the bird's head is perceived as part of a special headdress. In addition, in Okunev (see below) and Samus art (fig. 8), on the petroglyphs of the Karatau (fig. 9b) and Bukantau Mountains (?) (fig. 10a), the bird's head was used as a component part of male figures. However, this type of image goes beyond the image of a bird.



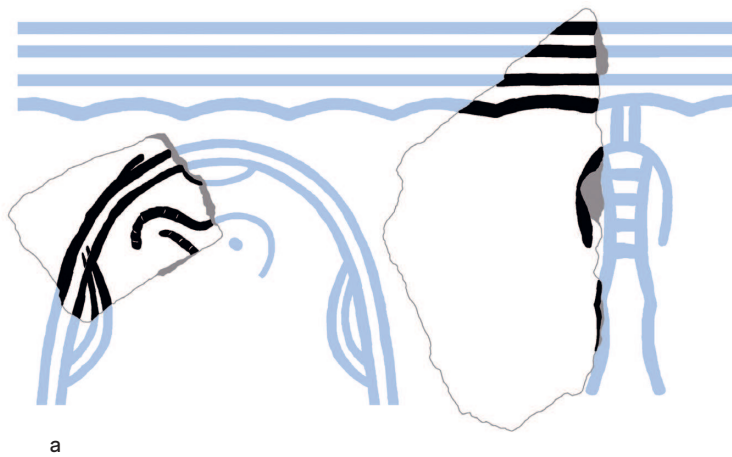
**Fig. 5** Images of birds in front view with spread wings. **a** Khar Chuluut I, Mongolian Altai. – **b** Bel'tyry, barrow 6, Minusinsk Basin, collection of the Khakass National Museum (iron pins are modern). – **c** Tas Khazaa, Minusinsk Basin. – **d** Itkol II, barrow I, Minusinsk Basin. – **e** Karakol, barrow 2, Russian Altai. – **f** Turist-2, grave 6, Novosibirsk. – (a after Kovalev/Munkhbayar 2015, fig. 52; b–d tracing and photos Y. Esin; e after Kubarev 2009: fig. 62; f after Basova et al. 2019, fig. 6). – a–b. e not to scale.



**Fig. 6** Images of birds' heads (sometimes with the front part of the body) from the Minusinsk Basin. – **a** Tas Khazaa, grave 5. – **b** Shalabolino. – **c** Lake Belyo. – (a–b tracing and graphics Y. Esin; c after Leont'ev et al. 2006, stela 140).



**Fig. 7** Stone stela from Bel'tyry, Minusinsk Basin, curated by the Khakass National Museum. – (Drawing Y. Esin; photo after Esin 2010).



a



b

**Fig. 8** Reconstruction of the composition on the upper part of a ceramic vessel of the Samus culture, Samus IV settlement, collection of the Museum of Siberian Archaeology and Ethnography of Tomsk State University. – (Photo, tracing and graphics Y. Esin).



2 cm

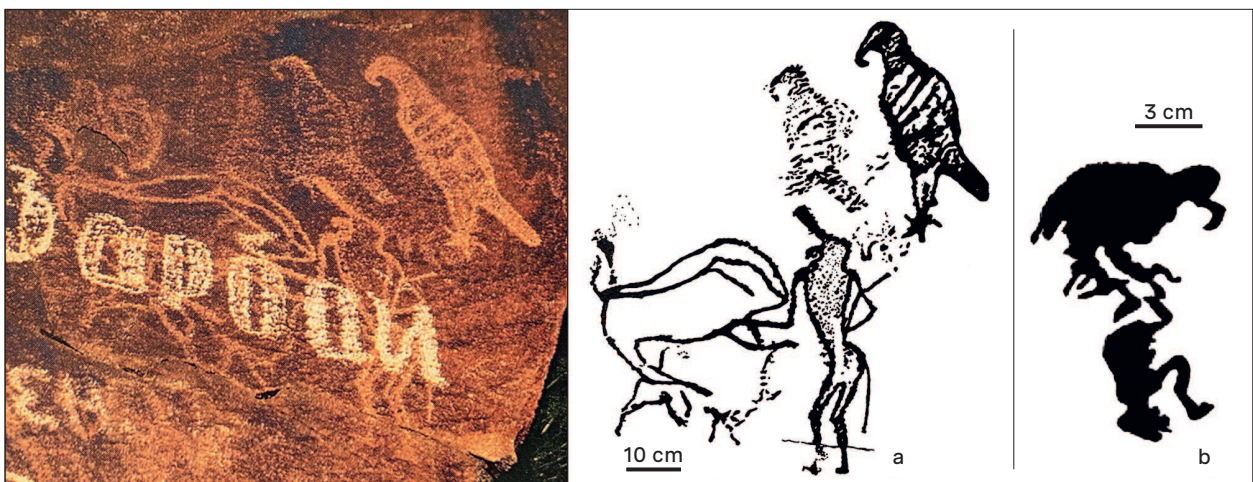
2 cm

2 cm

a

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**Fig. 9** Male figures with (a) human and (b) eagle heads from Karasuyir, Karatau Mountains. – (Tracing and graphics Y. Esin, after Murgabaev/ Maldybekova 2021, fig. 3).



10 cm

3 cm

a

b

**Fig. 10** Birds and possibly a bird-headed male figure in petroglyphs. a Kyrbukun, Bukantau Mountains. – b Akkainar. – (a after Rozwadovski 2003, photo 29 fig. 70; b after Hermann 2016, fig. 7A).

## Discussion of Types

In general, among the currently known images of birds, those with folded wings in a side view predominate. Lesser in number are birds with two spread wings in a projection from below and with the head shown in profile. Individual images of the head are the rarest. A common technique used to depict birds of different types, archaeological cultures and territories, is the display of large feathers (primarily on the wings and tail) using parallel lines (figs 3a-b, g, i; 4; 5c, e-f). There is also a similarity in the horizontal line on the necks of the Okunev and Krokhavevka birds (figs 3g, j; 5c, f). The head is separated from the body in a different way in two more birds from the Minusinsk Basin and Tuva (fig. 3h-i).

The largest series of images, which includes the most types and subtypes, is found in the Okunev culture of the Minusinsk Basin. The early group of images found here are depicted on petroglyphs from

Tas-Khazaa, Bel'tyry, Ust'-Es, Shalabolino (figs 3d-g; 5b-c; 6a-b), and the late group is represented by the images from barrow 1 in the Itkol II cemetery and on the stela near the village of Kyzlas (figs 3h; 5d). The early images are the most realistic and detailed, while the later ones are more schematic. The birds on the stela from near Lake Belyo (figs 3j-k; 6c) look somewhat separate from both groups. They are distinguished by the circle of the eye shifted beyond the outer contour of the head, a spiral line behind the eye, a spirally twisted end of the wing, and a spiral on the body. All these features are close to the art of the Early Iron Age herders, commonly named the »Scytho-Siberian animal style«. However, signs of a later addition of these images to the Early Bronze Age stela have not been identified. It is clear that these should be assessed as evidence of the early formation of some stylistic features that became widespread later.

## Problems of Species Identification

Archaeologists, biologists and ornithologists have already proposed taxonomic identifications for some of the bird images considered here (Potapov 1957, 430; Kubarev/Zabelin 2006; Basova et al. 2019, 57; Pankina/Ermakov 2020). To discuss the same question, I also consulted with several ornithologists from Siberia and Kyrgyzstan<sup>3</sup>. However, the conclusions of the specialists often differ greatly. For example, the bird from Bizhiktig Khaya (fig. 3i) has been identified as a golden eagle (*Aquila chrysaetos*), a black vulture (*Aegypius monachus*), and a snowcock, the bird from Har Chuluut 1 (fig. 5a) as a bird of prey, a swan or a cormorant, the bird on the stela from the village of Kyzlas (fig. 3h) has been identified as an eagle and a seagull, one of the Tas Khazaa burial mound birds (fig. 3g) has been interpreted as a bird of prey, a cuckoo, or a horned lark, and one ornithologist has identified the beak of the bird on the slab from the Itkol II cemetery (fig. 5d) as that of a flamingo, etc. This problem deserves a special comment.

The identification of images with real bird species is indeed a difficult task, since even the most »realistic« of them are not an exact reproduction of the prototype: the shape and size of some parts of the bird can be greatly distorted under the influence of the iconographic and stylistic conventions that had developed in a particular culture for this type

of image, as well as the individual preferences and talents of specific »artists«, and the chosen material and technique. Most often, significant distortions affect the beak (figs 3j-k; 5d) and feet (fig. 3c, e-f), but they can also affect the wings (figs 3h, j; 5d), and the general shape of the body (fig. 3d). Some features of the images may not be connected at all with the biological features of birds of prey – for example, the triangles on the chest of some figures (fig. 3e-f) are related to the mythological nature of these beings. Without taking into account this specificity of ancient art, determining the taxonomic affiliation of the depicted birds opens up possibilities for identifying a wide variety of species and even orders based on the same images, depending on which element of them is considered most important by a particular specialist. Rock art researchers also do not always take this into account sufficiently, sometimes creating long lists of identified bird species (Chigaeva 2007, 10–13). In traditional art, however, the set of objects was limited and was reproduced many times within each culture (with the inevitable variations noted above within the established iconography and style) due to the repetition of situations in which the corresponding images were in demand (Esin 2009b, 50).

<sup>3</sup> I would like to thank ornithologists Tamara Zlotnikova (Abakan, southern Siberia) and Erik Shukurov (Bishkek, Kyrgyzstan) for consultations on the possible taxonomic affiliation of the bird images.

Taking into account the specificity of ancient art, all the images of birds presented here can be identified in the most general sense as diurnal predators of

the Accipitridae (most of the images) and Falconidae (perhaps some of the images) families.

## Analysis of Contexts

The contexts in which bird of prey images are found can be divided into four types:

1) A bird of prey is adjacent to an image that can be interpreted as its prey. One such case is the image on the slab from the Itkol II cemetery, which seems to depict a scene of a bird of prey hunting a waterfowl. The bird's wings are spread out, pointed towards the tail and pressed against the body, as if the bird were attacking prey (**fig. 11**). The second case can be seen on the rocks of Akkainar, where a type 1A bird is shown above the figure of a dead man on his side (his head is directed downwards, and his arms and legs are bent; **fig. 10b**). These compositions allow for both a realistic and a ritual-mythological interpretation.

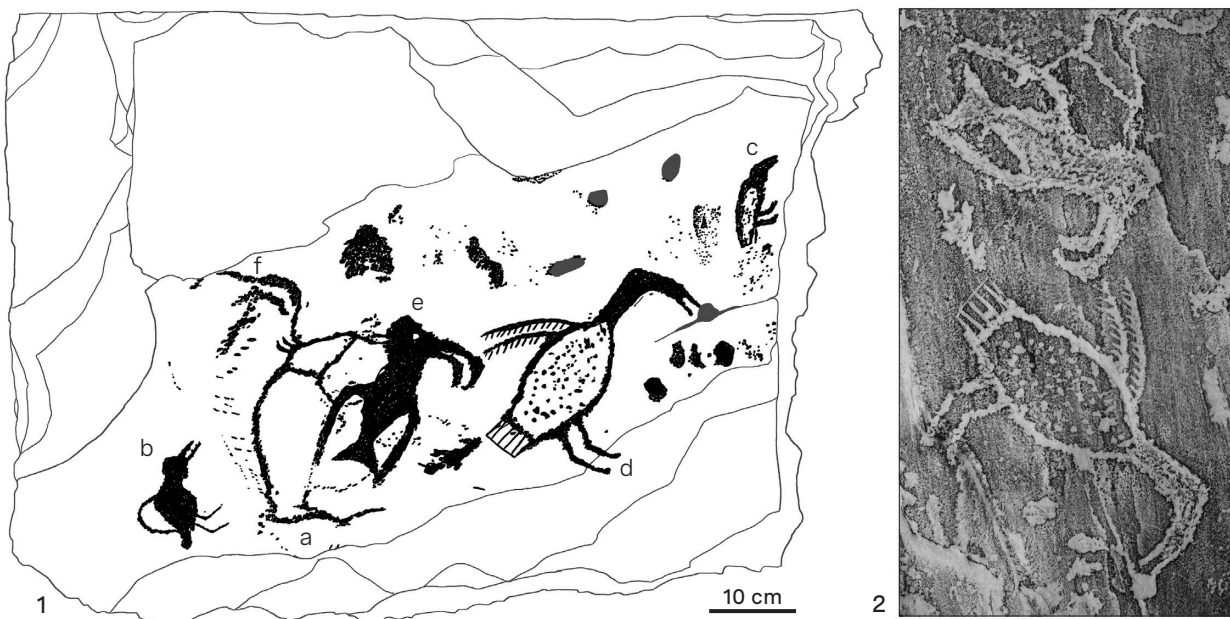
2) A bird of prey is combined with the image of an anthropomorphic mythological character, where the bird is a character of lower status, with the function of an assistant. In particular, on one stela from Tas Khazaa, two birds of type 1 accompany the two anthropomorphic beings wearing pointed headdresses, which may be interpreted as deities (**fig. 12a-d**). Rays protrude from the chief deity's head and body, and lines, resembling lightning, are drawn down from the outstretched arm. The rays on the figure's back resemble feathers and form a bird's tail at the bottom, but this bird-like feature is depicted not as a natural part of the character, but as part of his clothing. The next character has a bird's tail as well. Arms are absent: they are instead possibly represented by wings folded behind the back (Esin 2009a, 91 fig. 3). In this context, the birds of prey appear as images associated with the heavenly world of the deities, playing the role of assistants to the latter. At the same time, they themselves may be deities, since some attributes of the anthropomorphic and ornithomorphic figures match, such as wings and tails on the figures and triangles on the chests of both human characters and birds. It appears that the type 2 bird (**fig. 12e**) was added to this stela a little later, since it is engraved on top of the described composition.

On another stela from Tas Khazaa, a bird of prey accompanies a figure with a human body (covered with feathers, judging by the parallel lines on it) and the head of a bird of prey (**fig. 13c-d**). The bird is carved above his left arm. Although it does not touch the arm, it is depicted in a perched pose and was probably intended to be perched on the outstretched

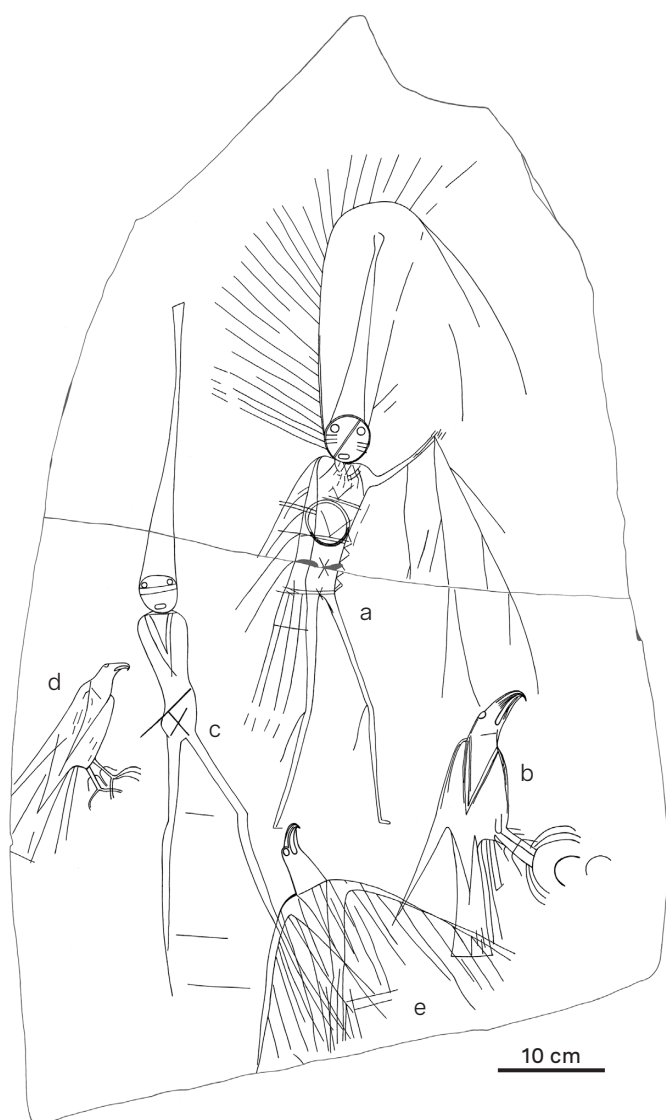
arm of the bird-headed figure. What is also noteworthy is the difference in the depiction of both arms: the right arm ends in a bird's claw, and the left one looks as if it is wrapped in something that protects it from the claws of a perched bird. The double line on the bird's neck (**fig. 13d**) is also curious. Although various ways of separating heads from bodies are one feature of Okunev art, widely represented primarily in animal images and associated with the practice of sacrifice (Esin/Polyakov 2025), the double line may be an image of a collar/neckband (see, for example, a similar collar on a horse's neck: Leont'ev et al. 2006, stela 181). In this case, it is then also a sign of a tamed bird. The protruding transverse line on the neck of the bird of prey from Tourist-2 may show a similar device (**fig. 5f**). The use of a bird of prey as an assistant and the carrying of it on the arm resembles the practice of modern hunters with raptors. The figure with this bird on the arm is the largest and the most powerful among the other figures on the stela. The two »rods« on his head resemble the two vertical lines on top of the face of the deity carved in the centre of the stela (**fig. 13a**). It is possible that these are the same character. The smaller bird-headed figure with a large number of rays and a bull's horn above the eye (**fig. 13e**) is holding out some kind of treat to him (a similar action, but in relation to the face in the center of the stela, is performed by another bird-headed figure with rays: **fig. 13b**). In the context of this composition, the presence of a bird of prey on the arm can be considered an additional sign of high social status.

The combination of a male figure and birds of prey at the Kyrbukan rock art site (**fig. 10a**) is comparable to compositions from the Tas Khazaa barrow (**figs 12-13**), although in this case it is less clear whether they were a single composition. One bird is carved directly above the head of the figure, and the other is slightly behind him. The latter, however, is equal in size to the male figure itself. This character is confronted by some sort of large animal.

3) In the third type of composition, a bird of prey is combined with the image of another predator. On the stela from Lake Belyo in particular, complete images of birds of prey and individual heads are included in the image of the lower jaw of the predator's open mouth (**fig. 14**). In the art of the Okunev culture, the image of this beast is one of the most important



**Fig. 11** A stone slab from Itkol II, barrow I, Minusinsk Basin (1) and a fragment of it with another possible orientation (2). – a Bull. – b-c Birds. – d Waterfowl. – e Bird of prey. – f Head of a bird of prey. – (Tracing, rubbing, graphics and photo Y. Esin).



**Fig. 12** Stone stela from Tas Khazaa barrow, grave I, Minusinsk Basin, collection of the Khakass National Museum. – (Tracing and graphics Y. Esin).

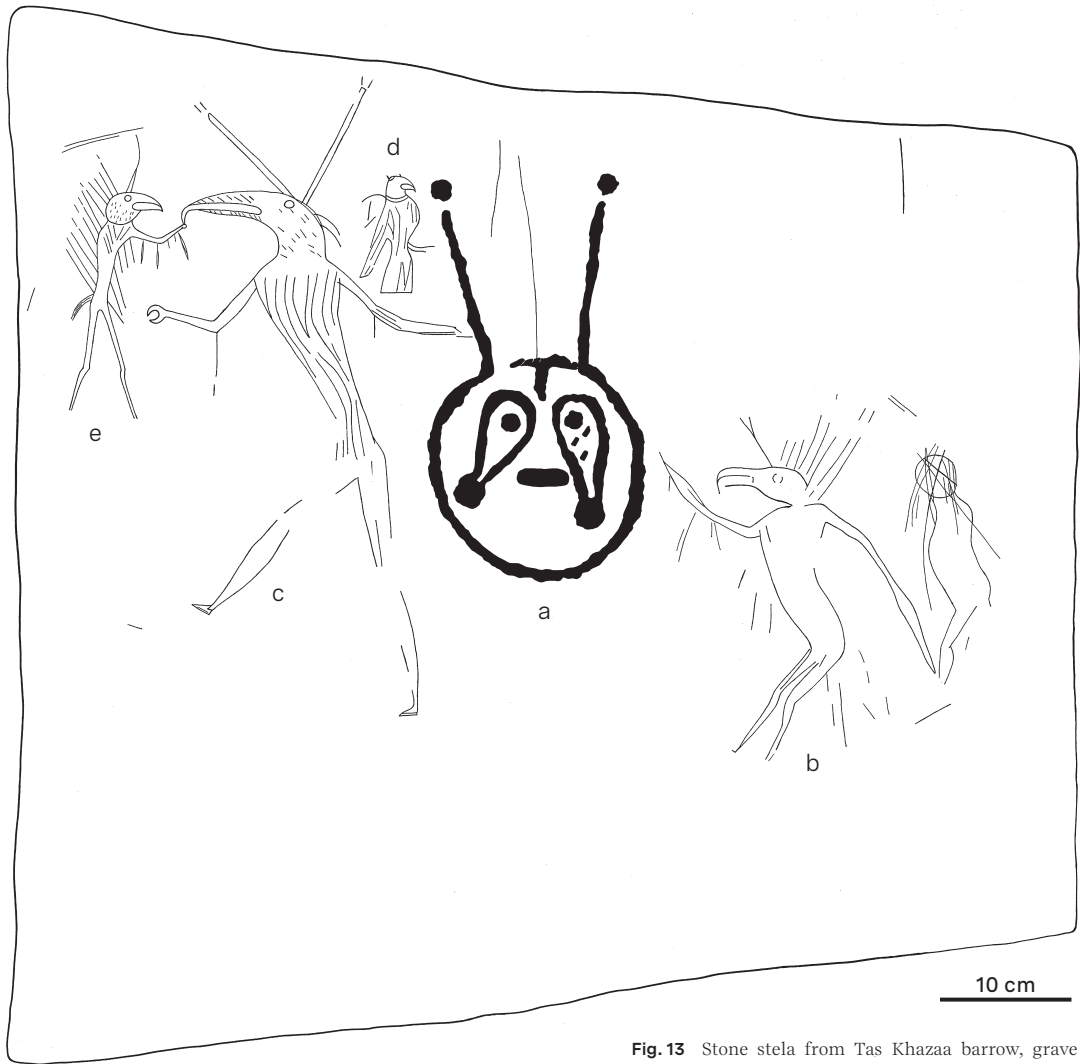


Fig. 13 Stone stela from Tas Khazaa barrow, grave I, Minusinsk Basin, collection of the Khakass National Museum. – (Tracing and graphics Y. Esin).

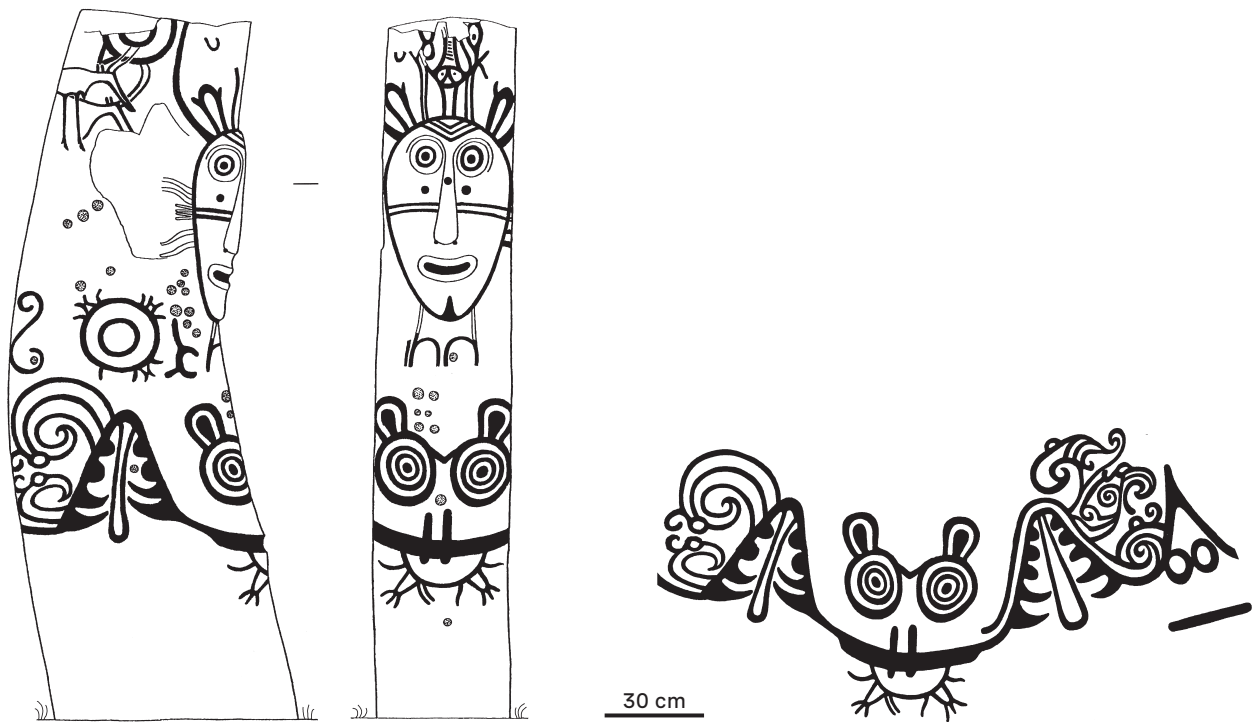


Fig. 14 Stone stela from Lake Belyo, Minusinsk Basin. – (After Leont'ev et al. 2006, stela 140, with graphical modifications by Y. Esin).

and complex: it combines the muzzle of a bear with parts of other animals: a bull, an elk, a snake, a bird of prey, etc. (Esin 2010a, 126–127, 129, 131). In depictions of the whole figure of this animal in profile, it is often endowed with the feet of a bird of prey. This character is associated in Okunev art with the ideas of the change of day and night and the maintenance of seasonality and cyclicity in the world (in the most realistic compositions, the beast is shown pursuing or swallowing a luminary or solar deity; Esin 2010a, 108, 130). Thus, the composition on the stela from Lake Belyo united two different types of predators: those associated with the lower world and those with the sky.

A certain parallel to the composition on the Okunev stela is the combination of figures of a bird of prey and a bear (Bobrov et al. 2010, fig. 1) on a necklace from a Samus culture's grave at Lake Utinka. The

bird on this necklace, as well as the bird figurines sewn onto clothing (Bel'tyry cemetery, Turist-2), provided magical help and protection to the owners.

4) Another composition is a combination of a bird's head and a human head on a stela from Bel'tyry. This composition, which presents a special male headdress, could only be depicted if it existed in the real life of the herders. This required hunting for a bird of prey. The same headdress existed in parallel with another one, on which a crane's head was used (Polyakov/Esin 2015, 54; Esin 2015). The remains of cranes' heads, probably parts of such headdresses, have been found in some Okunev graves. The reason for placing the bird's head on a headdress is attributed to its role in the beliefs of the early herders. By wearing such a headdress, a man linked himself to the mythical bird-headed character that is represented in their art.

## Discussion

There is a certain similarity in the forms used by different communities of early herders to depict birds of prey that cannot be explained solely by the similarity of their natural characteristics. This is also corroborated by the relative synchronicity of the spread of this image. Both aspects testify against its independent emergence under the influence of internal developments within each local community. They rather reflect the formation of an interaction network across a vast area of the steppe belt and the migration processes of groups of herders from west to east in the 3<sup>rd</sup> millennium BC that influenced all the above listed cultures in the eastern region.

For the question of the emergence of the discussed bird images and the related beliefs, sites from the western region are of special interest. These are located near ancient agricultural areas, where as early as the end of the 4<sup>th</sup>/the beginning of the 3<sup>rd</sup> millennium BC, images of a bird of prey (with spread wings and, possibly, with folded wings) appear in the decor on vessels in the Kara Depe settlement, Turkmenistan (fig. 15a–c) (Masson/Merpert 1982, tables XXI, 26, 29; XXIV). Among the compositions, there are combinations of birds with images of circles (probably the sun) and with ungulates (fig. 15b–c). In the second half of the 3<sup>rd</sup> millennium BC, the Bactria–Margiana Archaeological Complex (BMAC) or, alternatively, the Oxus civilisation, emerged in

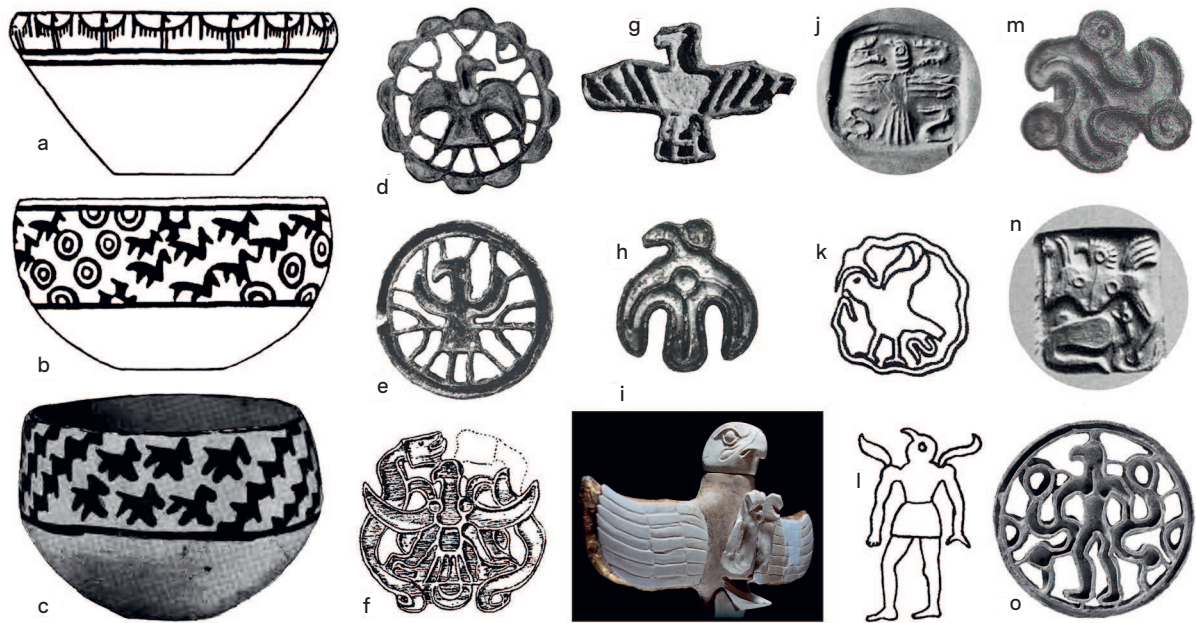
the same area, where the image of a bird of prey became even more important. BMAC seals and amulets depict birds with both folded and spread wings. The latter are particularly characteristic and include a subtype with the ends of the wings lifted up and two feet (fig. 15f), the specific iconography of which has many parallels in the art of western Asia. It is indicative that one image from Altai follows the same iconography (fig. 5a)<sup>4</sup>. Also on the BMAC seals (fig. 15h, k–m), there are depictions of eyes and wings in a style similar to those recorded on the stela from Lake Belyo (figs 3j; 6c).

The accuracy of falcon characteristics on the figurine from a royal burial in Gonur (fig. 15i) has given rise to the assumption that its inhabitants were already familiar with falconry (Sarianidi et al. 2020, 94). This argument by itself, however, does not seem sufficient for the conclusion drawn, since, for example, detailed depictions of a Horus Falcon in Ancient Egypt are not associated with falconry (Warburton 2018). At the same time, it should be noted that images on seals and amulets, as the main form of BMAC art known to us, have their own thematic and compositional limitations, and the size of the objects makes it difficult to distinguish small details.

The image of an anthropomorphic character with a predatory bird's head underwent parallel distribution in BMAC art. It is significant that the same

<sup>4</sup> In addition to the similarity in iconography, it is worth noting the presence in the genetic profile of the Khemtseg culture individuals of a component related to the population of the BMAC, which reflects physical contact with

the agricultural communities several generations earlier (Jeong et al. 2020, 893).



**Fig. 15** Birds and bird-headed deities in the art of Bactria and Margiana in the late 4<sup>th</sup> to early 2<sup>nd</sup> millennium BC. **a–c** ceramic vessels from Kara Depe. – **d–h, j–o** seals and amulets from different places. – **i** falcon from the royal tomb 3200 in Gonur. – (a–c after Masson 1959; Masson/Sarianidi 1972; d–h, j–o after Sarianidi 1998; Winkelmann 2013; i after Sarianidi et al. 2020). – Not to scale.

character, which is deprived of a prototype in nature, is also represented by pastoralists. Possibly, one can consider the male wearing a headdress with a predatory bird head, as depicted on the stela from Bel'tyry (fig. 7), as a way of claiming the powers of such a mythological being. A similar intention may be the reason for the popularity of the eagle-headed deity in BMAC art: some of the male elite who commissioned the seals apparently chose this image as they associated themselves with this being. Notably, in all cases, the character's torso is shown *en face* and the head in profile, as is common in Near Eastern art. In addition, the bird-headed figure in the Karatau Mountains holds a round mirror with a handle, a typical element of BMAC material culture (fig. 9b). It is also no coincidence that the main character on one of the Tas Khazaa stelae has a slanted line on his face (fig. 12a), similar to a male character related to BMAC art (Francfort 1994, figs 3–5). The number of such parallels with BMAC art could be increased further. All this additionally testifies to relations between the herders of the steppe and the population on the northern periphery of the ancient agricultural area as early as the Early Bronze Age. These interactions undoubtedly had an impact on both groups of communities, but the general iconographic models for ornithomorphic images were probably developed in the cultural environment of the agricultural communities of western central Asia, where they are a bit older as well.

At the same time, of course, there are considerable differences due to the different preferences and beliefs of these population groups. For example, in the pastoralist art of this period, birds with folded wings are more common, whereas, in the art of the agricultural communities, birds with spread wings predominate. The subject of a struggle against snakes is most popular for compositions with eagles and eagle-headed deities on BMAC seals and amulets (Francfort 1994), whereas, among the herders, birds in comparable compositions are not found, although images of anthropomorphic deities with snakes have been discovered (Esin 2008, table V, r. 2).

Details of some of the bird images allow for a comparison with traditional devices used in falconry. These include a pair of long curved lines behind the head and single lines above each foot in one of the Tas Khazaa bird depictions (fig. 3d): the first is reminiscent of the leather hood with strips that covers the head of a trained bird of prey; the second resembles the short leather straps that fasten each leg of a bird to a perch when necessary.

Paired long lines behind the head are also shown in the depiction of the eagle-headed character with a human body from the same barrow (fig. 13c), as well as behind the head of the male figure with the beak of a bird of prey in the Karatau Mountains (fig. 9b). The latter were previously compared to horns or long feathers (Murgabaev/Maldybekova 2021). The lines at the back of the head are also shown on the

birds on the Okunev stela from Lake Belyo (fig. 14), but they are single and more curved, providing a stronger argument for interpreting them as feathers. In this case, such feathers indicate some special qualities of the bird, and therefore the mythological nature of the image itself, similar to the triangle on the chest already discussed above. Lines behind the head of a raptor or bird-headed character are also found in 2<sup>nd</sup>-millennium-BC Hittite and Syro-Hittite glyptiques (Contenau 1922, figs 70. 142; Canby 1989, 113), where it is possible that they depict feathers or braids.

The lines on the legs of some bird depictions from Tas Khazaa are in pairs (fig. 3e-f). The simplest explanation for these is a comparison with the long feathers around an eagles' legs. At the same time, similar lines were depicted in the knee area of some anthropomorphic figures (fig. 12a; Leont'ev et al. 2006, stela 180), which, in the context of a man's costume, might rather show ties on trousers. Otherwise, this was one more way to assimilate anthropomorphic characters with birds of prey or vice versa.

The compositions in which birds of prey are first presented together with anthropomorphic figures are clearly mythological in nature. However, the reasons why they became part of these compositions in the role of assistants at that time are probably connected with changes in the society that increased the interest in such bird images. Of particular importance is the image of a perched bird near the outstretched arm of one figure (fig. 16). This composition can be interpreted as an image of a deity with a bird on his left arm. The nature of the relationship between anthropomorphic figures and birds most likely had a prototype in the real life of herders. This may indicate that herders had acquired experience in training birds of prey and interacting with them. Although the 3<sup>rd</sup>-millennium-BC visual compositions that are known today do not contain direct evidence of falconry, it is difficult to imagine that, in the artistic tradition of this early type, with its inherent set of themes and pragmatics, it could have been depicted in the narrative form we are accustomed to, even if it had already appeared.

The use of the left arm to carry the bird differs from the method recorded among Asian pastoralists at the end of the 1<sup>st</sup> millennium BC, who used the right arm for the same purpose (fig. 1). Nevertheless, a similar function of the left arm is found among depictions of both divine and human characters on foot in pre-Hittite and Hittite Anatolia and neighbouring lands (fig. 17; Görke/Kozal 2018, figs 5. 7. 10; see also Contenau 1922, seal 166). This, however, is not the only method registered there in the 2<sup>nd</sup> millennium BC since, parallel to it, there are also images



Fig. 16 Bird-headed deity with a raptor presumably perched on his left arm, Tas Khazaa, Minusinsk Basin. – (Tracing and graphics Y. Esin).

of birds perching on a right fist (Görke/Kozal 2018, figs 4. 6. 11. 13; see also Pittman/Aruz 1987, seal 57). If this is not the result of insufficient knowledge on the part of some of the Anatolian image makers then perhaps, at the initial stage of using tamed birds of prey, people preferred to use the left arm, but experimented with both.

The interpretation of these images from the Hittite lands, however, has been controversial in recent decades, whether they relate to hunting (Canby 1989, 116; 2002; Streck 2014–2016, 580; Cammarosano 2018, 69; van den Hout 2018, 117) or ritual activity (Reiter 2018a; 2018b; Osten-Sacken 2020, 301). The most balanced study, which has classified and compared all the available data in detail, has provided solid evidence that some of these images are indeed related to hunting (Görke/Kozal 2018). This raises the question of the relationship between the possible practice of falconry in Anatolia in the 2<sup>nd</sup> millennium BC (or at least the knowledge of the existence of such a method of using birds of prey) and evidence from the steppe belt. In this context, the BMAC, whose artistic tradition shows similarities with those of both the steppe and the Syro-Anatolian (Sarianidi 1994; 1998), appears to be a natural link between them.

Less clear possible early manifestations of taming birds of prey are also visible in south-eastern Iran in the second half of the 3<sup>rd</sup> millennium BC, where



**Fig. 17** Two deities related to wildlife and the hunt with raptors (wearing collars/neckbands?) perched on their left fists worshiped by hunters after a successful hunt (b), depicted on a silver relief vase rhyton (a), Hittite Empire, central Anatolia, c. 14<sup>th</sup>–13<sup>th</sup> century BC. – (Photos courtesy of the Metropolitan Museum of Art, New York, #1989.281.10).

some images of birds of prey with a neckband-like detail were carved on relatively large chlorite objects used for various purposes (Warburton 2020, fig. 13; Perrot/Madjidzadeh 2003). These need to be studied

thoroughly in the future. Stylistically, the images on these objects also have some parallels in the culture of the northern oases.

## Conclusion

Summing up the results, we note that the period from the middle of the 3<sup>rd</sup> to the beginning of the 2<sup>nd</sup> millennium BC was the time of the emergence and widespread use of the bird of prey image in various herder communities in the territory between the Amu Darya river in the west and the Yenisei River in the east. Based on a comparative analysis of the available material, the similarity in iconography and stylistic features can be best explained as a result of complex local and interregional interaction across a large part of the Asian steppe, forest-steppe and arid zones and migrations of groups of herders along them from the west to the east. At the same time, the western images are close to the northern periphery of the ancient agricultural civilization, where, in the second half of the 3<sup>rd</sup> millennium BC, the BMAC formed, with a sharp increase in the number of images of predatory birds, the iconography of which is close to the herder ways of depicting the birds. In both cultural areas, in addition to images of birds themselves, the representation of an eagle-headed deity became widespread. This further strengthens the hypothesis of a connection between the ornithomorphic images of the herders and their southern agricultural neighbours.

Compositions in which a bird accompanies an anthropomorphic character, in one instance apparently perched on his arm, do not exclude the possibility that, as early as the middle of the 3<sup>rd</sup> millennium BC, Asian herders had experience with training predatory birds. The compositions themselves are not of a domestic nature, but mythological, and reflect the spread of beliefs associated with the special role of birds of prey in the life of man and nature. There is no indisputable evidence for the emergence of hunting with birds at this time among the visual materials or in the funeral rites of either the herders of the Asian steppe or the neighboring central Asian agricultural communities. If at this time the first practice of using birds for hunting appeared, which is only indirectly reflected in the archaeological sources available today, then it was foot falconry. This type of falconry is entirely consistent with the foot hunting method that was the only one available for the Early Bronze Age pastoralists. In this case, the use of a raptor replaced the hunter's bow and arrows. Another peculiarity is that the hunter carried his raptor on his left arm, rather than the right, as would become typical from the late 1<sup>st</sup> millennium BC. Visual compositions with raptors also show that

early falconry, in addition to its practical purposes, must have acquired ritual significance.

Early falconry equipment could include a collar/neckband, jesses and a leash for the bird's legs, and a cover for the hunter's arm. Obviously, the collar/neckband could not be an effective tool for controlling a bird, unlike livestock, dogs, etc. Rather, it had a symbolic meaning, as a sign of a trained bird, and subsequently fell out of use. At the same time, it is also comparable to the neckband used in some recent regional falconry traditions (Canby 2002, 164; Ali/Arshad 2010; Parikh 2020).

We should agree with the experienced falconer Karl-Heinz Gersmann's opinion that raptors for falconry at such an early historical stage were probably taken as young birds from the nest. It was only later that wild birds were caught. Goshawk, golden eagle, and saker falcon, which hunt on the ground, would have been the most suitable as the first game birds<sup>5</sup>.

An early form of falconry, i. e. foot falconry, differs from the later horseback falconry known from present-day Turkic and Mongolian people. Although the first archaeological evidence of tamed horses appears in the art (for example, several depictions of horses with a collar, halter, and reins in the art of the Okunev culture, on the handle of a knife from grave 2 in the Rostovka cemetery, etc.) and ritual practice (the burial of a horse's head together with other livestock at one of the Okunev culture cemeteries: Nagler/Parzinger 2006, 107) of Asian steppe herders, alongside images of birds of prey, riding equipment (a saddle with a system of fastening straps and a reliable bridle) had not yet been devel-

oped at that time. This excludes the possibility of the origin of the modern form of falconry in the 3<sup>rd</sup> millennium BC. Its origin could not have occurred earlier than the beginning of the 1<sup>st</sup> millennium BC, when horseback riding became a common practice in the pastoral societies of the Asian steppe. The use of horses opened up new prospects for falconry, as it made it easier to transport the raptor to the desired location, making hunting more efficient, which could have contributed to its wider distribution. The onset of this historical period coincides with the appearance of bird of prey skeletons in barrows and some other types of archaeological sites of the herders mentioned in the introduction. The materials of this time and the problem of the early stage of the modern form of falconry among the nomads of Asia deserve special study.

As for the question of a single or multiple invention of falconry (Gersmann/Grimm 2024), the early archaeological materials considered here support the former. The authors of this invention apparently lived on the north-eastern periphery of the ancient agricultural communities of western Asia. The combination of the herders' environmental conditions and way of life created the ideal setting for the emergence and maintenance of hunting, driven by the practical necessity of obtaining meat and fur. Their mobility and various contacts both within the steppe and with sedentary communities must have contributed to the spread of the invention, but the form and role of falconry, due to many natural and cultural factors, did not remain constant in time and space.

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