

THE JOURNEY OF THE SPIRAL HAIR ORNAMENTS DURING THE THIRD MILLENNIUM BC. HOW DID IT BECOME SO POPULAR?

Zheni VASILEVA*

Cuvinte-cheie: *Balcani, sud-estul Europei, Epoca Bronzului timpuriu, mileniul al III-lea a.Chr. inele de păr.*

Keywords: *the Balkans, Southeastern Europe, Early Bronze Age, 3rd millennium BC; hair-rings.*

Rezumat: *În timpul mileniului al III-lea a.Chr., arta confecționării bijuteriilor a înflorit în Balcani, Marea Egee, Anatolia și în lumea apropiată. Societățile antice creau și foloseau diverse obiecte ca bijuterii. Scopul prezentului studiu este de a extinde istoria inelelor de păr de metal din mileniul al III-lea a.Chr. dincolo de studiile tipologice tradiționale și de a examina răspândirea lor prin societăți, prin prezentarea unora dintre cele mai reprezentative piese. Evidența arheologică specifică unui anumit număr de situri arheologice demonstrează evoluția remarcabilă a inelelor metalice de păr.*

Abstract: *During the 3rd millennium BC., the art of jewelry making flourished in the Balkans, the Aegean, Anatolia, and in the world beyond. Ancient societies made and use various pieces of jewelry. The aim of the present study is to extend the history of metal hair rings of the 3rd millennium BC. beyond traditional typological studies and to examine their journey through societies by presenting some of the most representative pieces. The archaeological evidence from a number of archaeological sites demonstrates the remarkable evolution of metal hair rings.*

Whether cultural, religious, ethnic, worn to underscore a person's status or simply for adornment, jewelry has a long tradition in all cultures around the world. Each piece of jewelry tells a long story that begins with the selection and value of raw materials, the technology of manufacture, the skills of the artisan, the propensity for form, the ethnic, cultural and social affiliation of the wearer, and so on. During the 3rd millennium BC., the art of jewelry making flourished in the Balkans, Aegean, Anatolia and the world beyond. The ancient societies made and wore various pieces of jewelry. In a study dealing with the European hair rings of the Late Bronze Age, G. Eogan emphasizes that the hair rings, despite their modest appearance, were significant objects indicating social status and probably trade activities¹. This idea

* Zheni VASILEVA: National Archaeological Institute with Museum, Bulgarian Academy of Sciences, Sofia; e-mail: vassileva.jeni@gmail.com.

¹ EOGAN 1997.

is also of great importance for the 3rd millennium BC., when the increasing trade and cultural contacts strongly influenced the style preferences of jewelry fashion. Archaeological evidence from a number of excavation sites shows the remarkable development of metal hair rings. It is no coincidence that the fashion of metal hair rings spread over a wide geographical area. Hair rings were probably the most characteristic and distinctive type of jewelry.

This study aims to extend the history of metal hair rings of the 3rd millennium BC. beyond traditional typological studies and to examine their journey through societies by presenting some of the most representative pieces. Various types of hair rings were produced in the 3rd millennium BC., but the most popular type is rings made of spirally twisted wire.

The earliest spiral-shaped ornaments date from the 5th millennium BC. from two graves in Krivoj Rog (present-day central Ukraine). Based on their position in the grave-to the right and left of the skull-it is believed that the rings were used as hair ornaments-attached to braids in the hair². In last third of 4th millennium BC., silver hair spirals emerged in the West Pontic area (**Tab. 1a-c**). Among the earliest examples are rings (**Tab. 1a**) from the Usatovo necropolis found together with flat axes, chisels, *etc.*³.

The find sites of hair ornaments from the late 4th millennium BC. to the 3rd millennium BC. range from the southern Caucasus to the western Carpathian Basin, but their main distribution area is in the northern Pontic steppe region. Sv. Hansen emphasizes the social significance of the small hair rings. One such evidence is the material value of silver used for crafting spiral rings. The distinctive placement of metal in the head area is additionally an important indicator for the significance of the ornaments⁴.

Recently V. Dergachev summarized the information from the Carpathian-Dniester region and Wallachia where 135 burials with temple rings were found (based on research published in 2023). Each of the burials contain one, more often two, and sometimes three or five rings, respectively their number is more than 200, of which 197 are spiral shaped. The rings were usually found near the temple bone, most often in children's graves, but also known from male and female burials⁵. Considering the development of the hair-rings in the Northwest Pontic region, S. Ivanova described the 3rd millennium BC. as "*silver age*"⁶.

The spiral hair ring can be found throughout the Yamnaya area, including in the space attributed to the Afanasievo culture⁷. It is also present in the Kura Araxes cultural environment, made of gold, silver and copper. Very similar in shape, metal spirals of Kura-Araxes culture had two to four coils with rounded cross-section. According to E. Carminati the function of these objects is still unclear: they could have been used as ear- or finger-rings. The author also accept the interpretation of L. Woolley, who suggested that the ornaments from Ur were

² HANSEN 2018, p. 285.

³ DERGACHEV 1991, p. 64–70.

⁴ HANSEN 2018, p. 285

⁵ DERGACHEV 2023, p. 59.

⁶ IVANOVA 2007.

⁷ POLIAKOV 2022, fig. 21.

used as hair ornaments⁸. An interesting example from the later Kura-Araxes period (middle 3rd millennium BC.) are two gold spiral rings from Hasansu⁹. Hair ornaments emerged also in the area of the Novotitorovskaja culture, made of silver or bronze. The rings were found in burial context *in situ* near the temple or the occipital bone, probably decorating the headdress. The number of the rings found in one grave varies from 1 to 6–10, but most often the rings were 2. According to A. N. Gej the hair rings from the area of the Novotitorovskaja culture can be divided into six types and subtypes based on the shape and the diameter of the rings. The author considered the spiral hair rings as the most characteristic ornament¹⁰.

Of a special interest is the appearance of precious metal hair ornaments in the area of the Lower Danube (**Fig. 1d-l**). The last third of the 4th millennium BC. and the first half of the next millennium mark the appearance of earth mound burials in the area. Hair-rings emerged in the area of interest here during the last third of the 4th millennium and became representative objects in the first half of the following millennium. The rings are principal grave good for Yamnaya graves¹¹, which probably was an element expressing Yamnaya identity¹².

The development hair ornaments in the territory of present-day Romania was discussed by various authors such as E. Zaharia¹³, H. Ciugudean¹⁴, A. Popescu¹⁵, A. Frînculeasa¹⁶, B. Preda¹⁷ etc. On the territory of present-day Romania hair ornaments made of silver, gold or copper were found both in pre-Yamnaya and Yamnaya burials. Most of the rings were made of a wire twisted spirally in 1.5 coils, but there are also rings in 2.5 turns (e.g. Soimesti)¹⁸. From the territory of present-day Romania are known also crescent-shaped rings of type Zimnicea (e.g. the flat cemetery Zimnicea)¹⁹, as well as drop-shaped rings known as type Leukas (e.g. Ampoița-Peret, Jurilovka etc.)²⁰.

Referring to the number of tumulus graves researched in Romania (until 2020)-more than 177 tumuli/over 714 graves we see that hair rings are rather isolated discoveries, namely 55 rings in 36 graves, researched in 28 tumuli. This means that they appear in about 5% of the graves (**Fig. 2a-d**). The number of the rings in the tumuli is not proportional to that of the graves. In most of the cases a pair of rings can be found in one grave. But there are also graves with several rings. On one of interesting examples is M.4A from T.IV from Aricestii Rahtivani²¹ where five rings

⁸ CARMINATI 2014, p. 168.

⁹ STÖLLNER 2016, p. 225.

¹⁰ KOHL 2007, p. 266; GEJ 2000, p. 159–161.

¹¹ HEYD 2011.

¹² FRÎNCULEASA *et alii* 2015, p. 71.

¹³ ZAHARIA 1959.

¹⁴ CIUGUDEAN 1996.

¹⁵ POPESCU 2010.

¹⁶ FRÎNCULEASA *et alii* 2020; FRÎNCULEASA, FRÎNCULEASA 2022.

¹⁷ PEDA 2015.

¹⁸ FRÎNCULEASA, FRÎNCULEASA 2022, p. 7.

¹⁹ ALEXANDRESCU 1974.

²⁰ VASILEVA 2017.

²¹ FRÎNCULEASA *et alii* 2014, p. 192, pl. 6/4.

were found. Another example is M.1/T.IV from Blejoi where four rings were discovered²². Despite the fact that there are few anthropological studies, the available information on the sex and age suggests that metal rings from the period preceding Yamnaya appeared in graves of adults both male and female, while in the case of Yamnaya complexes of male adults and sub-adults²³.

Spiral hair ornaments were also discovered in flat graves dating from the first half of the 3rd millennium. Fifteen hair ornaments were found in the necropolis Zimnicea (**Fig. 1h-i**)-spiral hair rings and rings of type Zimnicea²⁴. Hair ring if found also in a flat tomb dug in stone-Năieni.²⁵ Another interesting example from Romania is Văleni-Dâmbovița, related to the post-Yamnaya chronological horizon²⁶. Hair ornament was found also on the territory of the Livezile group at M.1/T.III Ampoița²⁷. It seems that hair rings occurred overwhelmingly in burial context in present-day Romania but there are also rings found in settlements-e.g Celei, where in layer 2c were found two silver spiral rings and gold pendant²⁸ or gold ring found from the Schneckenberg settlement in Brașov²⁹.

B. Preda emphasizes that hair rings are relatively well preserved in tumuli, but given the general lack of inventories, the rings can be considered as prestige objects intended only for a limited number of people³⁰.

Spiral ornaments made of spirally twisted wire appeared in today's Bulgaria already at the beginning of the EBA. The large-scale archaeological excavations of the last decades provided completely new insights into the development of the local societies during the EBA³¹.

The earliest certainly dated silver spiral ornaments in Bulgaria come from flat grave no. 20 of the cemetery Smyadovo (14C dates between 3328–3015/3338–3025 cal BC. and 3336–3028 cal BC., respectively)³². Another flat grave in which silver hair ornaments was found is Dzhulyunitsa, dated in the 3336–3027 cal BC.³³ According to some formal criteria, the grave construction, position of the body, *etc.*, S. Alexandrov relates the silver ornaments from cemeteries Tarnak (**Fig. 1n**), Belitsa and Kalugeritsa situated in North Bulgaria to the same period³⁴.

Spiral hair-rings were produced from metal wire with oval cross-section; the wire was twisted in 1.5, 2.5 or 3 coils. In research on the metal spiral hair-rings from North Bulgaria St. Alexandrov distinguished two groups of spiral hair-rings in 1.5 coils-group A1 (diameter more than 1.5 cm, and wire width more than

²² FRÎNCULEASA *et alii* 2019.

²³ FRÎNCULEASA, FRÎNCULEASA 2022.

²⁴ ALEXANDRESCU 1974, pl. 8.

²⁵ VULPE, DRĂMBOCIANU 1981, p. 177, fig. 8/4.

²⁶ MOTZOI-CHICIDEANU, OLTEANU 2000, p. 54.

²⁷ CIUGUDEAN 1996, p. 33, fig. 31/8–9; SCHUSTER *et alii* 2019, p. 277.

²⁸ NICA 1982, p. 24.

²⁹ MOTZOI-CHICIDEANU, OLTEANU 2000, p. 58, no. 38.

³⁰ PREDA 2015, p. 22.

³¹ ALEXANDROV 2009; VASILEVA 2021.

³² CHOHADZHIEV, MIHAYLOVA 2014, p. 21–22, 39–40, fig. 28/a-b; MATHIESON *et alii* 2018; ALEXANDROV 2020, p. 252.

³³ MATHIESON *et alii* 2018, table 6.

³⁴ ALEXANDROV 2020, p. 252.

0.4 cm) and group A2 (diameter less than 1.3 cm and wire less than 0.3 cm) based on their form and dimensions³⁵.

In present-day North-East Bulgaria spiral hair ornaments made of silver are found in barrow graves-at Madara³⁶, Zeglartsi-Orlyak³⁷, Plachidol³⁸. During rescue archaeological excavations near Vetrino in 2020 in a burial of a male 20–25 years old was found a pair of two rings, on each side of the skull. The rings were made of silver wire twisted spirally in 2.5 coils. The C14 date is 2884–2623 BC³⁹. Here should be mentioned also the results from the rescue archaeological excavations in 2020 near Chudomir where 1 gold ring twisted spirally in 1.5 coils was found in grave of an adult. The grave is dated in 3000 BC. At the same barrow was found also 1 gold ring twisted in 1.5 turns. The ornament belongs to an adult individual. The grave is dated in the period 2500–1500 BC (**Fig. 2f**)⁴⁰. In burial context spiral hair ornaments appeared also at North-West Bulgaria, stray find from Mihailovo (**Fig. 3a**)⁴¹, Tarnava (**Fig. 3b**)⁴² and Goran-Slatina barrow necropolis (**Fig. 3c-d**)⁴³.

Spiral hair ornaments made of wire twisted in 1.5 turns appear in Upper Thrace as early as the beginning of the EBA. Ornaments of this type were made of both silver and gold. Their distribution in Thrace is attested east of the rivers Blatnitza and Sazliyka. St. Alexandrov suggests that the appearance of barrows in Thrace can be dated around 3100 BC. and could be connected with the phenomenon Cernavoda III-Usatovo, but the problem is not solved yet. He dates the appearance of tumuli around 3100 BC. in the area of Karnobat in the east and on the Blatnitza River and Sazliyka River in the west⁴⁴.

From EBA context in Thrace so far, the date we have come from burial context: Straldza (**Fig. 1m**)⁴⁵, Zimnitsa⁴⁶, Mogila⁴⁷, Kamen, “*Gabrova barrow*” (**Tab. 3i**)⁴⁸; Kamen, “*Shekerdza*”⁴⁹, Boyanovo „*Lozyanska*” Barrow (**Fig. 1s**)⁵⁰; Boyanovo, „*Golyam kairyak*”⁵¹, Popovo⁵², Troyanovo “*Cherniova*” barrow (**Fig. 1t**)⁵³; Troyanovo “*Kamennata mogila*” (**Fig. 1r; Fig. 3e-h**)⁵⁴, Mednikarovo⁵⁵.

³⁵ ALEXANDROV 2009.

³⁶ PANAYOTOV 1989, p. 69.

³⁷ PANAYOTOV 1989, p. 122.

³⁸ PANAYOTOV 1989, p. 112.

³⁹ ALEXANDROV *et alii* 2021, p. 6, pl. IX/2.

⁴⁰ ALEXANDROV, SLAVCHEV 2020, p. 468–469.

⁴¹ ALEXANDROV 2020, p. 252.

⁴² NIKOLOV 1976, p. 45–46.

⁴³ KITOV *et alii* 1991.

⁴⁴ ALEXANDROV 2015.

⁴⁵ ALEXANDROV, ILIEV 2016, p. 154–155.

⁴⁶ ALEXANDROV, ILIEV 2010, p. 113; VALCHEV, BLAZHESKA 2019, fig. 2.12.

⁴⁷ ILIEV, BAKARDZHIEV 2006, p. 104, fig. 12.

⁴⁸ DIMITROVA 2014, p. 71.

⁴⁹ DIMITROVA 2014, p. 79.

⁵⁰ AGRE 2015, p. 22, fig. 32, 35, 39.

⁵¹ BAKARDZHIEV *et alii* 2011, p. 117.

⁵² ALEXANDROV 2020, p. 253.

⁵³ ALEXANDROV 2009, p. 11.

⁵⁴ BUYUKLIEV 1964, p. 63–65.

⁵⁵ PANAYOTOV, ALEXANDROV 1995, p. 94, fig. 10.

Spiral hair-ring made of wire twisted in 2.5 coils are found at Kangalova barrow⁵⁶ and Pet mogili (**Fig. 1q**)⁵⁷. A stray find from the region of Malomirovo are 2 gold rings twisted into 3 turns⁵⁸.

During the EBA spiral hair-rings appeared in association with other types of hair ornaments-type Zimnicea and type Leukas. Of special interest is the case of Toncheva barrow near Venets where gold spiral hair-rings in 1.5 coils and 2.5 coils were found together with a gold ring of type Leukas (**Fig. 3j-k**)⁵⁹. Here should also be mentioned one of the most recent finds coming from barrow 4 in Silihlyar locality near Primorsko where silver spiral hair-rings were found attached to gold rings of type Leukas (**Fig. 2g**). The burial belongs to a young woman. The ornaments were found close to the skull⁶⁰ and were probably embedded in the hair style of the young woman.

The popularity of metal hair-rings in EBA Thrace naturally resulted in the appearance of a new local type-rings type Dubene (**Fig. 3m-o**). The rings comprise one full loop followed by backward folds–1, 2, 3, 6 or 9 folds. Of special importance is also the appearance of gold rings of 1.5 coils⁶¹ which were also fashioned at Dubene, indicating that the local masters produced the already popular type in EBA Thrace and created a new type. Nowhere at the Balkans such a large number of exquisite gold pieces of jewelry come to light. The sensational discovery at Dubene revealed all features of local development of the EBA Thracian jewelry production, which could be observed in the technique of serial production, variety, and occurrence of new types. The appearance of a new local type should not come as a surprise. The gold hair ornaments from Dubene should be considered as a status symbol of outstanding individuals, placing Thrace among the 3rd millennium BC. jewelry centres.

Hair ornaments are widespread throughout the Black Sea basin and probably reflect a fashion that has persisted for a long time. In the steppe, they appear in the second half of the 4th millennium in a small number of tombs attributed to the Yamnaya communities. According to A. Frînculeasa and M. Frînculeasa the discovery of this type of ornament in wide areas and in different cultural contexts makes it possible to study chronological relationships, contacts and interactions between the peoples of the northern Pontic steppe and those of the Lower Danube and the Balkans, and beyond with those of Central Europe and Anatolia. This dynamic can also be traced through the presence of other categories/types of pieces such as daggers, axes, flat axes, ornaments, but also raw materials, technologies and knowledge, etc. The history of silver metallurgy can serve as a model for the evolutionary interpretation of human societies, as the interaction with this unique material spurred people to explore and acquire new skills⁶².

Hair ornaments are found west of the Black Sea to the Hungarian Plain. Between 2.900 and 2.007 BC., burials furnished with precious metal jewellery (most

⁵⁶ ALEXANDROV, KIROV 2017, p. 127.

⁵⁷ KANCHEVA-RUSEVA 1994, p. 92, oбp.5.

⁵⁸ AGRE 2018, p. 475, nos. 144–145.

⁵⁹ GEORGIEVA *et alii* 2008, p. 232.

⁶⁰ BALABANOV, PANTOV 2019, p. 108, fig. 3.

⁶¹ HRISTOV 2005, p. 129.

⁶² FRÎNCULEASA, FRÎNCULEASA 2022, p. 255–256.

of all hair rings) and copper and precious metal weapons (daggers and shaft-hole axes) emerged in Eastern Hungary. An example is grave 7–7a from Sárretudvari-Őrhalom kurgan where an amphora-shaped vessel and a pair of hair rings made of silver and electrum were found in a grave of a mature man (**Tab. 1o**). The presence of tumulus burial, containing high value prestige objects and unique foreign weapons was interpreted as “*signal of the arrival of a new ruling elite of Southeast and Central Europe in the first quarter of the 3rd millennium BC*”.⁶³

Hair ornaments appeared further in the middle Danube and the Adriatic area⁶⁴, mentioning here the six silver loop rings discovered in M.3/T.10 from Shtoj (Albania).⁶⁵ Made of gold, slightly different typologically, we recall the discoveries from the Adriatic area, such as those from Velika Gruda, Mala Gruda, Gruda Boljevića (Montenegro)⁶⁶. Further south, we mention those from the Ionian Sea through the Leukas discoveries and even the Aegean Sea, through the Manika type⁶⁷.

Loop rings are widespread throughout the Black Sea basin and probably reflect a fashion that has persisted for a long time. In the steppe, they appear in the second half of the 4th millennium in a small number of tombs attributed to the Yamnaya communities. The discovery of this type of ornament in wide areas and in different cultural contexts makes it possible to study chronological relationships, contacts and interactions between the peoples of the northern Pontic steppe and those of the Lower Danube and the Balkans, and beyond with those of Central Europe and Anatolia. This dynamic can also be traced through the presence of other categories/types of pieces such as daggers, axes, flat axes, ornaments, but also raw materials, technologies and knowledge, etc. The history of silver metallurgy can serve as a model for the evolutionary interpretation of human societies, as the interaction with this unique material spurred people to explore and acquire new skills.

The distribution of metal hair-rings in 1.5 coils during 3rd millennium BC. reached also Northeast Aegean. At EBA I context gold spiral hair-ring was found at Besik Tepe⁶⁸. Spiral hair-rings made of gold wire are known from Treasure F, Troy-two pairs⁶⁹. One silver hair-ring is found within a wall from Troy III during the excavations of M. Korfmann⁷⁰. One hair-ring in 1.5 coils made of bronze also comes from Troy, found during the excavations of H. Schliemann, but there is no information about the context (**Fig. 3q**)⁷¹.

The fashion of metal hair-rings is well illustrated in the EBA cemeteries in Anatolia. Gold, silver, lead or bronze hair-rings worn on a lock of hair were found at the EBA II cemeteries of Demirçihöyük-Seriket (**Fig. 1v**)⁷² and Küçükhöyük⁷³. The local population in West Inland Anatolia often combined the hair-rings with

⁶³ DANI, NEPPER 2006, fig. 4–5; DANI, KULSCÁR 2021, p. 336–337.

⁶⁴ RUTKAY 2002.

⁶⁵ GOVEDARICA 2016, p. 22.

⁶⁶ PRIMAS 1995; BAKOVIĆ 2011.

⁶⁷ VASILEVA 2017; VASILEVA 2021.

⁶⁸ SAZCI, KORFMANN 2000, abb. 3.

⁶⁹ SCHLIEMANN 1880, p. 555; SAZCI 2007, F-S11, F-S13.

⁷⁰ KORFMANN 1998, p. 25, fig. 20.

⁷¹ SCHMIDT 1902, no. 6431; ANTONOVA *et alii* 1996, no. 252.

⁷² SEEHER 1991, p. 63–64.

⁷³ GÜRKAN, SEEHER 1991, p. 90.

metal diadems. M. Mellink has noted that the practice of using metal rings as hair ornaments can be seen also at the cemetery Karataş-Semayük, where similar bronze rings were found in situ on skulls⁷⁴. This practice also documents at the EBA cemetery Resuloğlu where pairs of silver hair-rings were found around skull⁷⁵. Of particular interest is the occurrence of hair ornaments in the rich burial complexes such as Alaca Höyük, Arslantepe and Ur.

At Alaca Höyük hair-rings were found near the heads of the skeletons and it has been assumed that strands of hairs were threaded through the ornaments. Especially interesting is a pair of gold hair-rings made of solid wire with deeply incised decoration on the surface (**Fig. 3s**)⁷⁶.

Spiral hair-rings are known from the royal cist tomb of Arslantepe in Eastern Anatolia, dated at the beginning of 3rd millennium BC. The hair-rings were found together with other jewelry in a hoard situated close to the body, probably originally worn on the body. Evidence that spiral ornaments adorned the hairstyle come from two adolescents discovered above the cist slabs. Each of them wore a pair of copper-silver spiral hair-ring and diadem⁷⁷.

Gold spiral hair-rings were found around the head of the famous queen Puabi from the royal tombs at Ur.⁷⁸ The head was the prime locus of displaying jewelry in Ur. Puabi wore a golden headdress. Her head was wrapped with a long gold diadem, adorned with gold leaves, flowers, rings and plates. At the top of the decoration was a high crest of gold with three rosettes. On the ears, Puabi wore gold crescent-shaped earrings. Above the earrings, the queen wore gold spiral hair-rings that had been twisted around a lock of hair. Similar spiral hair-rings were found on the shoulders as if they had held a lock of hair that hung down the breast (**Fig. 3u, t**). Hair-rings were found also at the other burials from the cemetery of Ur⁷⁹. A. R. Gansell has recognized four types of jewelry sets, worn by the local society. Silver hair-rings were among the fourth jewelry set together with pins and string of beads. The main accent in the hairstyle were the hair-rings. A. R. Gansell has noted that this jewelry set was worn by both sexes. Gold hair-rings were found at other jewelry sets, but the main accent was a wreath- or choker-based ornament⁸⁰.

The right to own and wear precious metal ornaments

The spiral hair was made of deliberately chosen materials-silver and gold-which are attractive and visible. This raises the question of what exactly hair rings “said” about their wearers, their function and symbolism. A possible determination of whether the rings were functional or social ornaments is a tricky question indeed, since we have only the archaeological context of the finds to gain insight into the use of the ornaments. During the EBA, in most cases, spiral metal hair rings were found around the skull. Very often, excavators noted that rings were found around

⁷⁴ MELLINK, ANGEL 1970, p. 245.

⁷⁵ YILDIRIM 2006, p. 11.

⁷⁶ MAXWELL-HYSLOP 1971, p. 45, fig. 31 b.

⁷⁷ FRANGIPANE *et alii* 2001, p. 108–109.

⁷⁸ PITTMAN 1998.

⁷⁹ PITTMAN 1998, p. 108.

⁸⁰ GANSELL 2006, p. 10.

the temple/skull, suggesting that the ornaments were most likely used as hair ornaments. In my opinion, the way the rings were worn was important for interpreting their social and cultural significance. It is likely that body parts were adorned with jewelry intended to convey messages about social, ethnic, or religious identity. The head is the most visible part of the human body. The peculiar spiral ornaments and prominent placement on the head were probably indicative of prominent personalities.

The function of the small rings as hair ornaments is often confirmed by their archaeological context—most pieces were found on both sides of the skull, probably in connection with a particular hairstyle (**Fig. 3p**). There are many hypothetical reconstructions of hairstyles decorated with spiral hair rings: 1) strands of hair were threaded through the spiral hair rings; 2) spiral hair rings were twisted around a lock of hair; 3) the ornaments were used to decorate various braided hairstyles; 4) the ornaments were sewn onto headbands or head scarves, etc.

The appearance of new jewelry could be the result of various factors – population movements, traders, principles, craftsmen, recipients manifested in the course of acquisition, possession, exhibition and so on. There is no doubt that foreign goods possessed the highest possible degree of visibility at the time of their appearance in a new place. Most likely, things that were useful or attractive were repurposed and integrated according to local preferences. There is no doubt that spiral hair rings were very popular in the 3rd millennium BC. Their prevalence in EBA societies in the Balkans, the Aegean, Anatolia and around the world allows us to consider them as a widespread type of ornament that has its own journey and development history.

BIBLIOGRAPHY

AGRE 2015 – D. Agre, *Archaeological Investigation of the “Lozianska Mogila” Barrow Located near the Village of Boyanovo, Municipality of Elkhovo, in South-Eastern Bulgaria*, *Praehistorische Zeitschrift* 90/1–2 (2015), p. 141–171.

AGRE 2018 – D. Agre, *Catalogue. Cat. № 144 Hair-ring, Cat. № 145 Hair-ring, MEA Elhovo*, in: S. Alexandrov, Y. Dimitrova, H. Popov, B. Horejs, K. Chukalev (eds.), *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*, Sofia, 2018, p. 475.

ALEXANDRESCU 1974 – A. D. Alexandrescu, *La nécropole du Bronze ancien de Zimnicea (départ. de Teleorman)*, *Dacia N.S.* 18 (1974), p. 79–94.

ALEXANDROV 2009 – St. Alexandrov, *Ukrashenia za kosa ot zlato i srebro prez bronzovata epoha v Severna Bulgaria*, *Arheologia* 1–2 (2009), p. 7–18.

ALEXANDROV 2015 – St. Alexandrov, *Mogilni grobove ot rannata bronzova epoha v Trakija (55 godini po-kasno)*, *Arheologia* 1–2 (2015), p. 33–48.

ALEXANDROV 2017 – St. Alexandrov, *Ukrashenia ot blagoroden metal ot rannata bronzova epoha vav fonda na Natsionalniya archeologicheski institute s muzei-Sofia*, in: H. Popov, J. Tzvetkova (eds.), *ΚΡΑΤΙΣΤΟΣ. Volume in Honour of Professor Peter Delev (ΚΡΑΤΙΣΤΟΣ. Сборник в чест на професор Петър Делев)*, Sofia, 2017, p. 215–227.

ALEXANDROV 2018a – St. Alexandrov, *Catalogue. Cat. № 146. Stray find from Mihailovo*, in: S. Alexandrov, Y. Dimitrova, H. Popov, B. Horejs, K. Chukalev (eds.), *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*, Sofia, 2018, p. 475.

ALEXANDROV 2018b – St. Alexandrov, *Catalogue. Cat. № 41–42. Tumular grave near*

village of Turnava, Vratsa region, in: S. Alexandrov, Y. Dimitrova, H. Popov, B. Horejs, K. Chukalev (eds.), *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*, Sofia, 2018, p. 461.

ALEXANDROV 2018c – St. Alexandrov, *Catalogue. Cat. № 34–37. Tumular Graves in “Kamenna tumulus” bear village of Troyanovo, Radnevo region. Grave № 1 and 2*, in: S. Alexandrov, Y. Dimitrova, H. Popov, B. Horejs, K. Chukalev (eds.), *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*, Sofia, 2018, p. 460.

ALEXANDROV 2018d – St. Alexandrov, *Catalogue. Cat. № 38–39. Tumular Grave in “Toncheva tumulus” near village of Venets, Karnobat region*, in: S. Alexandrov, Y. Dimitrova, H. Popov, B. Horejs, K. Chukalev (eds.), *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*, Sofia, 2018, p. 475.

ALEXANDROV 2019 – St. Alexandrov, *Early Bronze Age Barrow Graves in North-West Bulgaria*, in: V. Flipović, V., A. Bulatović, A., Kapuran (eds.), *Papers in Honour of Rastko Vasić 80th Birthday*, Praga, 2019, p. 75–94.

ALEXANDROV 2020 – St. Alexandrov, *Gold and Silver Ornaments in Early and Middle Bronze Age Bulgaria*, in: J. Maran, R. Băjenaru, S-C. Ailincăi, A-D. Popescu, S. Hansen (eds.), *Objects, Ideas and travelers. Contacts between the Balkans, the Aegean and Western Anatolia during the Bronze and Early Iron Age. Volume to the memory of Alexandru Vulpe: Proceedings of the Conference in Tulcea, 10–13 November 2017*, Universitätsforschungen zur prähistorischen Archäologie, Band 350, Bonn, 2020, p. 251–263.

ALEXANDROV 2021 – St. Alexandrov, *Forth / third millennium BC barrow graves in North-East Bulgaria (120 years of investigations)*, in: V. Heyd, G. Kulcsar, B. Preda – Balanica (eds.), *YAMNAYA INTERACTIONS. Proceedings of the International Workshop held in Helsinki, 25–26 April 2019*, Budapest, 2021, p. 271–314.

ALEXANDROV 2021 – St. Alexandrov, *New Data about the Bronze Age Plachidol Barrow Necropolises (Northeast Bulgaria)*, in: L. Dergacheva (ed.), *AERE PERENNIUS MORE LASTING THAN BRONZE, Essays in honour of Valentin Dergachev on the occasion of his 80th birthday*, Chişinău, 2021, p. 453–468.

ALEXANDROV, ILIEV 2010 – St. Alexandrov, I. Iliev, *Spasitelni arheologicheski prouchvanija na obekt 14-A po AM „Trakija“, LOT 4, s. Zimnica, obshtina Straldzha*, in: *Arheologicheski prouchvania i razkopki prez 2009 g.*, 2010, p. 113–114.

ALEXANDROV, ILIEV 2016 – St. Alexandrov, I. Iliev, *Spasitelni arheologicheski prouchvania na nadgrobna mogila (obekt no.6 po traseto na tranziten gazoprovod za Turtsia), zemlishte na gr. Straldzha, obshtina Straldzha*, in: *Arheologicheski otkritia i razkopki prez 2015 g.*, 2016, p. 154–156.

ALEXANDROV, KIROV 2017 – St. Alexandrov, I. Kirov, *Spasitelni arheologicheski prouchvania na nadgrobna „Kangalova“ mogila ot Rannata Bronzova Epoha, zemlishte na s. Troyanovo, obshtina Radnevo*, in: *Arheologicheski otkritia i razkopki prez 2016 g.*, 2017, p. 126–128.

ALEXANDROV, SLAVCHEV 2020 – St. Alexandrov, S. Slavchev, *Site A1/3 near Vetrino, Varna Region. Section A1*, in: H. Popov, K. Chukalev, Y. Dimitrova, N. Kecheva, M. Damyanov, N. Ivanova, G. Grozdanova (eds.), *Stream through time. Rescue archaeological investigations along the expansion of the gas transmission infrastructure of Bulgartransgaz EAD*, National Archaeological Museum Catalogues, Supplementum 1, Sofia, 2020, p. 439–443.

ALEXANDROV, SLAVCHEV, TONKOVA 2021 – St. Alexandrov, S. Slavchev, E. Tonkova, *Rescue excavations of bronze age barrows in Vetrino region, Northeast Bulgaria*, MCA S.N. 17 (2021), p. 5–48.

ANTONOVA, TOLSTIKOV, TREISTER 1996 – I. Antonova, V. Tolstikov, M. Treister, *The Gold of Troy: searching for Homer’s fabled city*, London, 1996.

BAKOVIĆ 2011 – M. Baković, *The Princely Tumulus Gruda Boljevića Podgorica, Montenegro*, in: E. Borgna, S. M. Celka (eds.), *Ancestral Landscapes. Burial Mounds in the Copper and Bronze the Early Bronze Age Central and Eastern Europe-Balkans-Adriatic-Aegean, 4th–2nd millennium B.C.*, Travaux de la Maison de l’Orient et de la Méditerranée 58 (2011), Lyon, p. 275–381.

BALABANOV, PANTEV 2019 – P. Balabanov, D. Pantev, *Nadgrobna mogila Silihlyar 4*, in: *Arheologicheski otkritia i razporki prez 2018 g.*, 2019, p. 106–109.

BAKARDZHIEV, ILIEV, RUSEV 2011 – St. Bakardzhiev, I. Iliev, Y. Rusev, *Spasitelni arheologicheski prouchvania na mogilen nekropol v m. „Baylar Kayryak”*, s. Boyanovo, oblast Yambolsko, in: *Arheologicheski otkritia i razporki prez 2010 g.*, 2011, p. 117.

BUYUKLIEV 1964 – H. Buyukliev, *Dve rannotrakiyski mogilni pogrebenia ot Starozagorsko*, *Arheologija* 4 (1964), p. 61–65.

CARMINATI 2014 – E. Carminati, *Jewellery manufacture in the Kura-Araxes and Bedeni cultures of the southern Caucasus: analogies and distinctions for the reconstruction of a cultural changeover*, in: A. Golani, Z. Wygnańska (eds.), *Polish Archaeology in the Mediterranean 23/2, Special Studies: Beyond ornamentation. Jewelry as an Aspect of Material Culture in the Ancient Near East*, Warsaw, 2014, p. 161–181.

CHOHADZIEV, MIHAILOVA 2014 – St. Chohadzhiev, N. Mihailova, *Smyadovo. Prehistoric Cemetery 2005–2008*, Sofia, 2014.

CIUGUDEAN 1996 – H. Ciugudean, *Epoca timpurie a bronzului în centrul și sud-vestul Transilvaniei*, *Bibliotheca Thracologica* XIII, București, 1996.

DANI, NEPPER 2006 – J. Dani, I. M. Nepper, *Sárrétudvari-Órhalom Tumulus grave from the Beginning of the Early Bronze Age in Eastern Hungary*, *Communicationes Archaeologicae Hungariae* (2006), p. 29–48.

DANI, KULSCÁR 2021 – J. Dani, G. Kulcsár, *Yamnaya interactions in the Carpathian Basin*, in: V. Heyd, G. Kulcsár, B. Preda-Bălănică (eds.), *Yamnaya Interactions. Proceedings of the International Workshop held in Helsinki, 25–26th April 2019*, Budapest, 2021, p. 329–359.

DERGACEV 1991 – V. Dergacev, *Bestattungskomplexe der späten Tripolje-Kultur*, Mainz, 1991.

DERGACHEV 2023 – V. Dergachev, *Budzhak “Culture” through the prism of the cartographic method*, in: B. Preda-Bălănică, M. Ahola (eds.), *Steppe transmissions. The Yamnaya Impact on Prehistoric Europe*, no. 4, *Archaeolingua*, Budapest, 2023, p. 45–95.

DIMITROVA 2014 – D. Dimitrova, *Grobove ot bronzovata epoha pri Kamen, Slivensko*, *Arheologija* 1–2 (2014), p. 69–82.

DIMITROVA 2018 – D. Dimitrova, *Catalogue № 11. Tumular Grave in “Gabrova tumulus” near village of Kamen, Sliven region*, in: S. Alexandrov, Y. Dimitrova, H. Popov, B. Horejs, K. Chukalev (eds), *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*, Sofia, 2018, p. 475.

EOGAN 1997 – G. Eogan, *‘Hair-rings’ and European Late Bronze Age Society*, *Antiquity* 71/272 (1997), p. 308–320.

FRANGIPANE *et alii* 2001 – M. Frangipane, G. M. Nocera, A. Hauptmann, P. Morbidelli, A. Palmieri, I. Sadori, M. Schultz, T. Schmidt-Schultz, *New Symbols a New Power in a “Royal” Tomb from 3 000 BC Arslantepe, Malatya (Turkey)*, *Paléorient* 27/2 (2001), p. 105–139.

FRÎNCULEASA *et alii* 2013 – A. Frînculeasa, B. Preda, O. Negrea, A. Soficaru, *Bronze Age tumular graves recently investigated in Northern Wallachia*, *Dacia N.S.* 58 (2013), p. 23–64.

FRÎNCULEASA *et alii* 2014 – A. Frînculeasa, B. Preda, T. Nica, A. Soficaru, *Un nou tumul preistoric cercetat la Ariceștii Rahtivani (jud. Prahova)*, *Studii de Preistorie* 11 (2014), p. 189–227.

FRÎNCULEASA, PREDA, HEYD 2015 – A. Frînculeasa, B. Preda, V. Heyd, *Pit-Graves, Yamnaya and Kurgans at the Lower Danube: Disentangling 4th and 3rd Millennium BC Burial Customs, Equipment and Chronology*, *Präehistorische Zeitschrift* 90 (2015), p. 45–113.

FRÎNCULEASA *et alii* 2019 – A. Frînculeasa, B. Preda-Bălănică, A. Simalcsik, O. Negrea, B. Constantinescu, D. Cristea-Stan, *Morminte lamnaia într-unt tumul redescoperit și salvat în localitatea Blejoi (Jud. Prahova)*, *Buletinul Muzeului Județean Teleorman* 11 (2019), p. 35–78.

FRÎNCULEASA *et alii* 2019 – A. Frînculeasa, D. Garvăn, M. Mărgărit, A. Bălășescu, I. Lazăr, M. N. Frînculeasa, A. D. Soficaru, M. Molnar, M. Georgescu, *Between worlds and elites at the beginning of the Early Bronze age in the Lower Danube Basin: a pluridisciplinary approach to*

personal ornaments, *Archaeological and Anthropological Sciences* 12/9 213 (2019), <http://doi.org/10.1007/s12520-020-01177-0>.

FRÎNCULEASA 2021 – A. Frînculeasa, *Burial mounds in the Lower Danube region-From the international to the local and the other way round*, in: V. Heyd, G. Kulcsar, B. Preda-Bălănică (eds.), *Yamna Interactions. Proceedings of the International Workshop*, held in Helsinki, 25–26 April 2019, volume 2 (2021), p. 173–205.

FRÎNCULEASA, FRÎNCULEASA 2022 – A. Frînculeasa, M. Frînculeasa, *Podoabe în contexte funerare – despre inele de buclă din argint descoperite în morminte tumulare preistorice cercetate în nordul Munteniei*, in: O. Cîrstina, E. C. Nițu (eds.), *O viață dedicată Paleoliticului. Studii în onorarea Marin Cârciumaru*. Târgoviște, 2022, p. 247–272.

GANSELL 2006 – A. R. Gansell, *Identity and Adornment in the Third Millennium BC Mesopotamian “royal cemetery” at Ur*, *Cambridge Archaeological Journal* 17/1 (2006), p. 1–19.

GEORGIEVA, NIKOV, MOMCHILOV 2008 – R. Georgieva, K. Nikov, M. Momchilov, *Tonchova mogila kray s. Venets, Karnobatsko*, in: *Arheologicheski otkritia i razkopki prez 2007 g.*, 2008, p. 231.

GOVEDARICA 2016 – B. Govedarica, *The stratigraphy of Tumulus 6 in Shtoj and the appearance of the violin idols in burial complexes of the south Adriatic region*, *Godišnjak/Jahrbuch* 45/5–34 (2016) DOI: 10.5644/Godisnjak. CBI.ANUBiH-45.70.

GÜRKAN, SEEHER 1991 – G. Gürkan, J. Seeher, *Die Frühbronzezeitliche Nekropole von Küçükhüyük bei Bozüyük*, *İstanbul Mitteilungen* 41 (1991), p. 39–96.

HANSEN 2018 – S. Hansen, *Elements for an Iconography of Bronze Age in Europe*, *Anatolian Metals* 8 (2018), p. 281–293.

HEYD 2011 – V. Heyd, *Yamnaya groups and tumuli west of the Black Sea*, in: E. Borgna, S. Müller Celka (Hrsg.), *Ancestral Landscapes. Burial Mounds in the Copper and Bronze. The Early Bronze Age Central and Eastern Europe-Balkans-Adriatic-Aegean, 4th-2nd Millennium B.C.*, *Travaux de la Maison de l’Orient et de la Méditerranée* 58 (2011), Lyon, p. 536–555.

HRISTOV 2005 – M. Hristov, *Mogilen nekropol ot rannata bronzova epoha kray Dabene (predvaritelno saobshtenie)*, *Arheologija* 1–4 (2005), p. 127–136.

HRISTOV 2017 – M. Hristov, *Sakrovishtata ot Dabene*. *Sofiya: Natsionalen Istoricheski Muzej*, Sofia, 2017.

ILIEV, BAKARDZHIEV 2006 – I. Iliev, S. Bakardzhiev, *Arheologicheski prouchvania na mogilen nekropol ot rannata bronzova epoha kray s. Mogila, oblast Yambol*, *Izvestia na muzeite ot Yugoiztochna Bulgaria* 22 (2006), p. 89–107.

IVANOVA 2007 – S. V. Ivanova, *„Serebrjanyj vek” Severo-Zapadnogo Prichernomor’ja*, *Матеріали та дослідження з археології України* 7 (2007), p. 85–91.

IVANOVA 2013 – S. V. Ivanova, *Yamnaya (Budzhakskaya) kul’tura Severo-Zapadnogo Prichernomor’ya. Drevniye kul’tury Severo-Zapadnogo Prichernomor’ya. Odessa: SMIL (Ямная (Буджакская) культура Северо-Западного Причерноморья. Древние культуры Северо-Западного Причерноморья. Одесса)*, 2013, p. 211–254.

KANCHEVA-RUSEVA 1994 – T. Kancheva-Ruseva, *Yamni pogrebenia v mogila № 2 ot mogilen nekropol v zemlishteto na s. Pet mogili, Novozagorsko, Maritsa-Iztok*, *Arheologicheski prouchvania* 2 (1994), p. 91–94.

KITOV, PANAYOTOV, PAVLOV 1991 – G. Kitov, I. Panayotov, P. Pavlov, *Mogilni nekropoli v Loveshkia kray. Ranna bronzova epoha. (Nekropolat Goran-Slatina)*, *Razkopki i prouchvania* 23, Sofia, 1991.

KOHL 2007 – P. H. Kohl, *The Making of Bronze Age Eurasia*, Cambridge, 2007.

KORFMANN 1988 – M. Korfmann, Beşik-Tepe. *Vorbericht über die Ergebnisse der Grabungen von 1985 und 1986*, *Archäologische Anzeiger* (1988), p. 391–398.

MATHIESON, ALPASLAN-ROODENBERG, REICH 2018 – I. Mathieson, S. Alpaslan-Roodenberg, D. Reich, *The genomic history of Southeastern Europe*, *Nature* 555/8 (2018), p. 197–210.

MAXWELL-HYSLOP 1971 – K. R. Maxwell-Hyslop, *Western Asiatic Jewellery*, London, 1971.

MELLINK, ANGEL 1970 – M. J. Mellink, L. Angel, *Excavations at Karataş-Semayük and Elmali, Lycia*, 1969, *American Journal of Archaeology* 74/3 (1970), p. 245–259.

MICU *et alii* 2014 – C. Micu, S. Ailincăi, F. Mihail, M. Constantinescu, *Rahman, com. Casimcea, jud. Tulcea*, în: *Cronica Cercetărilor Arheologice, Campania 2013, A XLVIII-a Sesiune Națională de Rapoarte Arheologice, Oradea, București*, 2014, p. 187–188.

MOTZOI-CHICIDEANU, OLTEANU 2000 – I. Motzoi-Chicideanu, G. Olteanu, *A Slab-Cist Grave discovered at Văleni-Dâmbovița*, *SCIIVA* 51/1–2 (2000), p. 3–70.

NICA 1982 – M. Nica, *Locuirea preistorică de la Sucidava-Celei din perioada de trecere de la neolitic la epoca bronzului, Oltenia*. *Studii și Comunicări* 4 (1982) p. 5–37.

NIKOLOV 1976 – B. Nikolov, *Mogilni pogrebenia ot rannabronzova epoha kray Tarnava i Knezha*, *Arheologija* 3 (1976), p. 38–51.

ÖZGÜÇ, TEMIZER 1993 – T. Özgüç, R. Temizer, *The Eskiyyapar treasure*, in: *Aspects of Art and Iconography: Anatolia and Its Neighbours. Studies in Honor of N. Özgüç*, Ankara, 1993, p. 613–628.

PANAYOTOV 1989 – I. Panayotov, *Yamnata kultura v balgarskite zemi, Razkopki i prouchvania* 21, Sofia, 1989.

PANAYOTOV, ALEXANDROV 1995 – I. Panayotov, S. Alexandrov, *Rannobronzoviyat nekropol pri Mednikarevo i Iskritsa, Maritsa-Iztok*. *Arheologicheski prouchvania* 3 (1995), p. 87–113.

PATOKOVA 1979 – F. Patokova, *Usatovskoe poselenie I mogilniki, Kiev: Naukova дума (Усатовское поселение и могильники)*, 1979.

PITTMAN 1998 – H. Pittman, *Jewelry*, in: R. Zettler, L. Horne (eds.), *Treasures from the royal tombs of Ur*, Philadelphia, 1988, p. 87–122.

POLIAKOV 2022 – A. Poliakov, *Chronology and Cultural Genesis of the Paleometal epoch sites in Minusinsk basin, Sankt Petersburg*, 2022.

POPESCU 2010 – A. D. Popescu, *Silver artefacts of the third and second millennia BC at the Lower and Middle Danube*, in: R. Băjenaru, G. Bodi, C. Opreanu, V. V. Zirra (eds.), *Recent Studies on Past and Present I. Human Heritage and Community: Archaeology in the Carpathians and Lower Danube Area from Prehistory to the Early Medieval Age*, *Transylvanian Review* 19, Supplement 5/1 (2010), p. 163–182.

PREDA 2015 – B. Preda, *Considerations regarding barrow burials and metal depositions during the Early Bronze Age in the Carpathian-Danube area*, *Hiperborea Journal* II/2 (2015), p. 5–51.

PREDA-BĂLĂNICĂ, FRÎNCULEASA, HEYD 2020 – B. Preda-Bălănică, A. Frînculeasa, V. Heyd, *The Yamnaya Impact North of the Lower Danube. A Tale of Newcomers and Locals*, *Bulletin de la Société préhistorique française* 117/1 (2020), p. 85–101.

PRIMAS 1995 – M. Primas, *Gold and silver during 3rd Millenium Cal. B.C.*, in: R. Morteani, J. P. Northover (eds.), *Prehistoric Gold in Europe. Mines, Metallurgy and Manufacture*, Dordrecht: NATO Advanced Science Institute Series 280 (1995), p. 77–93.

RUTTKAY 2002 – E. Ruttkay, *Das Endneolithische Hügelgrab von Neusiedl Am See, Burgenland*, *Régiségei* 36 (2002), Budapest, p. 145–172.

SAZCI, KORFMANN 2000 – G. Sazci, M. Korfmann, *Metallfunde des 3. Jahrtausends v. u. aus Troia-Eine Studie in Verbindung mit den Ergebnissen der neuen Ausgrabungen*, *Der Anschnitt, Beiheft* 13 (2000), p. 93–99.

SAZCI 2007 – G. Sazci, *The Treasures of Troia*, Istanbul, 2007.

SCHLIEMANN 1880 – H. Schliemann, *Ilios. The City and the Country of the Trojans*, London, 1880.

SCHMIDT 1902 – H. Schmidt, *Schliemann's Sammlung: Trajanischen Altertumen*, Berlin, 1902.

SCHUSTER *et alii* 2019 – C. Schuster, N. C. Rîșcuța, A. T. Marc, R. Pavel, M. Bleoancă,

F. Ciuvaleu, A. Comșa, *Dealul Mare, comuna Vălișoara, județul Hunedoara, în: Cronica Cercetărilor Arheologice din România, Campania 2018, A LIII-a Sesiune Națională de Rapoarte Arheologice, București, 2019, p. 276–278.*

SCHUSTER, TUTULESCU 2014 – C. Schuster, I. Tutulescu, *Few Remarks about the Funerary customs of the Early Bronze Age in Southern Roumania*, *Drobeta* 24 (2014), p. 43–56.

SEEHER 1991 – J. Seeher, *Die Nekropole von Demirchihüyük-Sariket, Grabungs Kampagne 1990*, *Istanbul Mitteilungen* 41 (1991), p. 97–124.

STÖLLNER 2016 – T. Stöllner, *The Beginnings of Social Inequality: Consumer and Producer Perspectives from Transcaucasia in the 4th and the 3rd Millennia BC*, in: M. Bartelheim, B. Horejs, R. Krauß (Hrsg.), *Von Baden bis Troia. Ressourcennutzung, Metallurgie und Wissenstransfer. Eine Jubiläumsschrift für Ernst Pernicka*, Rahden: *Oriental and European Archaeology Volume 3*, VML Verlag Marie Leidorf GmbH, 2016, p. 209–234.

YILDIRIM 2006 – T. Yildirim, *An Early Bronze Age Cemetery at Resuloğlu, near Uğurludağ, Çorum. A preliminary report of the archeological work carried out between years 2003–2005*, *Anatolia Antiqua* 14 (2006), p. 1–14.

VALCHEV, BLAZHESKA 2019 – T. Valchev, Z. Blazheska, *Silver and gold pendants from Early Bronze Age from Lower and Middle course of Tundzha river, Bulgaria*, *Anodos. Studies of the Ancient World* 14/2014 (2019), p. 235–243.

VALENTINOVA 2018 – M. Valentinova, *Catalogue. Cat. № 43–45. Finds from the Goran-Slatina tumular necropolis. Hair-rings*, in: S. Alexandrov, Y. Dimitrova, H. Popov, B. Horejs, K. Chukalev (eds.), *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age: 461.*, Sofia, 2018.

VASILEVA 2017 – Z. Vasileva, *The Early Bronze Age rings of type Leukas-new considerations regarding their origin, distribution and function*, *Archaeologia Bulgarica* 20/1 (2017), p. 1–13.

VASILEVA 2021 – Z. Vasileva, *Worn to Impress. Development and Significance of the Metal Spiral Hair Ornaments in Early Bronze Age-Upper Thrace*, in: K. Leshtakov, M. Andonova (eds.), *Galabovo in Southeast Europe and Beyond. Cultural Interactions during the 3rd–2nd Millennium BC. Proceedings of the International Conference 24–27 October 2018 in the Town of Galabovo*, Sofia, 2021, p. 218–237.

VULPE, DRĂMBOCIANU 1981 – Al. Vulpe, V. Drâmbocianu, *Cercetări arheologice în raza comunei Năeni (Buzău)*, *SCIIVA* 32/2 (1981), p. 171–193.

ZAHARIA 1959 – E. Zaharia, *Die Lockenringe von Sărata-Monteoru und ihre typologischen und chronologischen Beziehungen*, *Dacia N.S.* 3 (1959), p. 103–134.

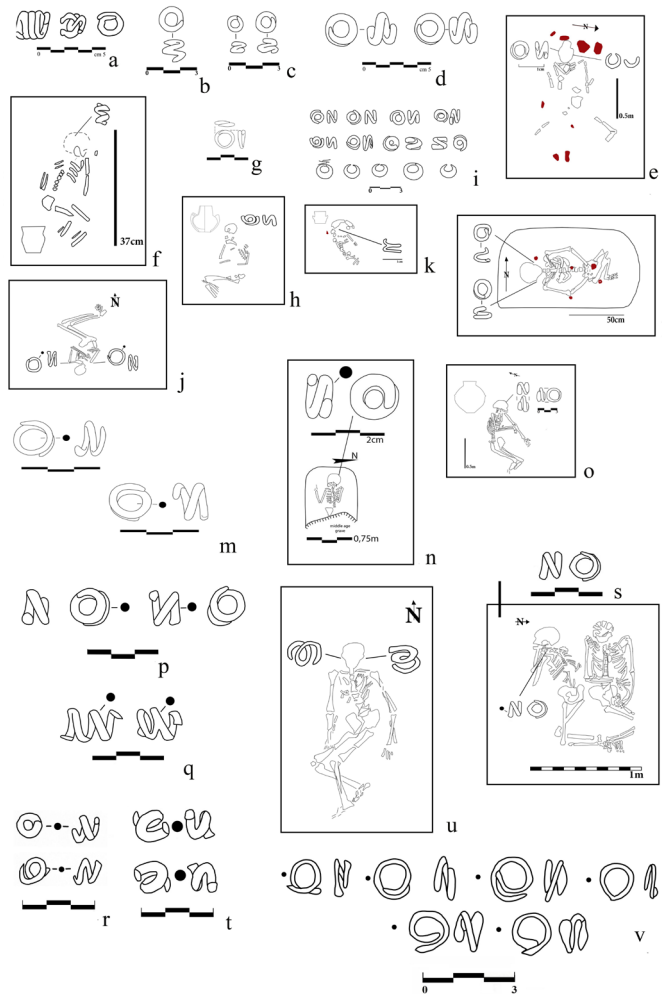


Fig. 1. Spiral hair ornaments from the West Pontic region, Romania, North Bulgaria and Hungary: a. Usatovo I–13, grave No. 4 (after PATOKOVA 1979, p. 109); b. Katarzhino (after IVANOVA 2013, fig. 4/3); c. Baranovo (after IVANOVA 2013, fig. 5/2); d. Celei (after NICA 1982); e. Aricești I, grave No. 1 (after FRÎNCULEASA *et alii* 2015, pl. 2/1); f. Ploiești-Triaj II, grave No. 20 (after FRÎNCULEASA *et alii* 2013, pl. 16/6); g. Văleni-Dâmbovița slab-cist grave (after MOTZOI-CHICIDEANU, OLTEANU 2000, fig. 6/2); h. Zimnicea, grave No. 4 (after ALEXANDRESCU 1974, pl. 2/T4, pl. 6/5, pl. 8/6); i. The rings from Zimnicea (ALEXANDRESCU 1974, pl. 8); j. Turnava, barrow No. 3, grave No. 1 (after PANAYOTOV 1989, fig. 52); k. Ploiești-Triaj II, grave No. 15 (after FRÎNCULEASA *et alii* 2013, pl. 16/2); l. Plenița, barrow No. 2, grave No. 1 (after SCHUSTER, TUȚULESCU 2014, pl. II, 5); m. Straldzha, barrow No. 1, grave No. 1 (after ALEXANDROV 2017, fig. IV/1–2); n. Turnak, Ninovska barrow (after ALEXANDROV 2019, pl. V/2, 3); o. Sárrétudvari-Órhalom, grave No. 4 (after DANI, NEPPER 2006, fig. 4) (redrawn by the author); p. Mogila (by the author); q. Pet mogili (after KANCHEVA-RUSEVA 1994, p. 92, fig. 5); r. Troyanovo, Kamenna barrow (by the author) (redrawn by the author); s. Lozianskata barrow grave No. 14 (after AGRE 2015, fig. 31–32); t. Troyanovo, Chernoyova barrow (by the author); u. Troyanovo, Kamenna barrow, grave 1 (after PANAYOTOV 1989, fig. 30, 31); v. Demirchihöyük-Seriket graves Nos. 196, 125, 84 (after SEEHER 1991).



Fig. 2. Spiral hair ornaments from Romania and Bulgaria: a. Spiral rings from Blejoi TIV/M1 (after FRÎNCULEASA *et alii* 2019, pl. VII); b. Spiral rings from Blejoi TIV/M1 (after FRÎNCULEASA *et alii* 2019, pl. VII); c. Spiral rings from Blejoi TIII/M1 (after FRÎNCULEASA *et alii* 2019, pl. X); d. Yamnaya graves in the Prahova area (after FRÎNCULEASA 2021, fig. 11); e. Vetrino, barrow No. 34 (after ALEXANDROV 2021, fig. 17/1–3); f. Chudomir, feature No. 17 (after ALEXANDROV 2021, fig. 12/2–4); g. Silihlyar, barrow No. 4, gold and silver hair ornaments (after BALABANOV, PANTOV 2019, fig. 3).

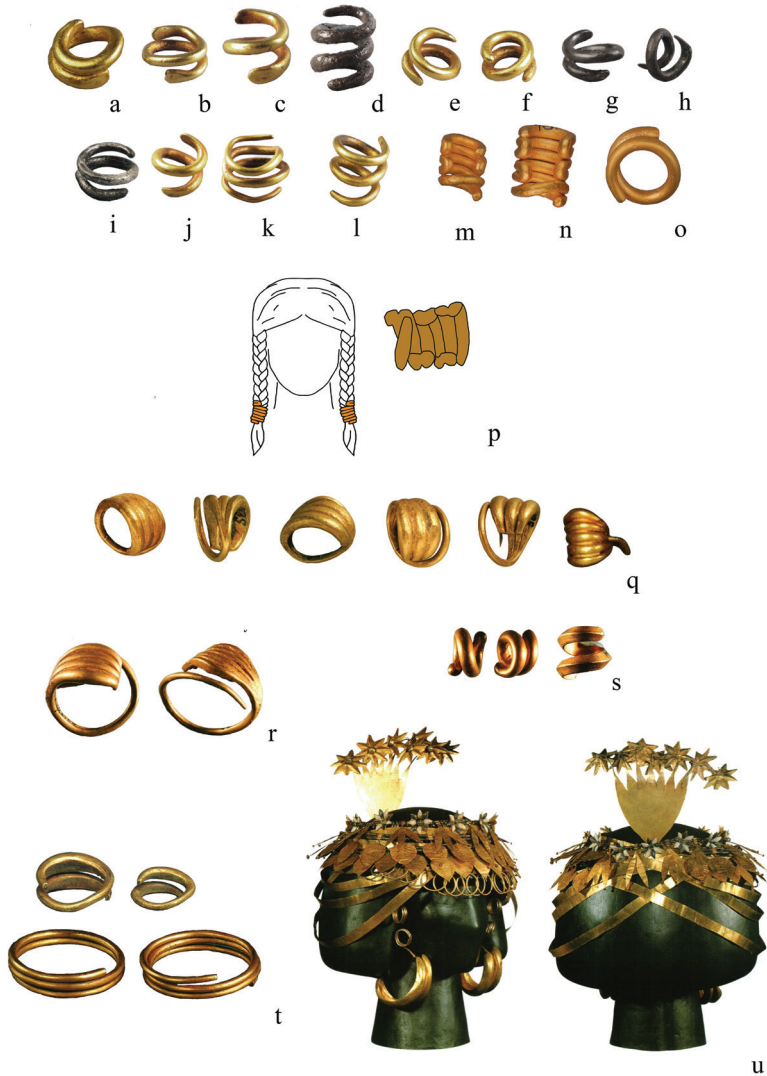


Fig. 3. Metal spiral hair ornaments from present day Bulgaria, Aegean, Anatolia and the world beyond: a. Mihailovo, stray find (after ALEXANDROV 2018a, Cat. No. 146); b. Tarnava tumulus 3, grave No. 1 (after ALEXANDROV 2018b, Cat. No. 42); c-d. Goran-Slatina barrow No. 2, grave No. 4 and barrow No. 3, grave No. 8 (after VALENTINOVA 2018, Cat. Nos. 44–45); e-h. Troyanovo, Kamenna barrow, gold hair-rings from grave 1 and silver hair-rings from grave 2 (after ALEXANDROV 2018c, Cat. Nos. 34–37); i. Gabrova barrow (after DIMITROVA 2018, Cat. No. 11); j-k. Toncheva barrow (after ALEXANDROVA 2018d, Cat. No. 38–39); l. Malomirovo, stray find (after AGRE 2018, Cat. No. 145); m-o. Dubene (after HRISTOV 2017, Cat. Nos. 16, 18); p. possible reconstructions of hairstyles decorated with spiral hair ornaments (drawings by the author); q. gold hair ornaments from the Treasure a Troy (after ANTONOVA *et alii* 1996, p. 17–21); r. gold hair ornaments from Eskiypar treasure (after ÖZGÜÇ, TEMIZER 1993, pl. 107, 1–2); s. gold hair ornaments from Alaca Hoyük (after Anadolu Medeniyetleri Müzesi 1988); t. gold hair ornaments of Queen Puabi, Ur (after PITTMAN 1998, p. 108); u. reconstruction of the jewellery set of Queen Puabi (after PITTMAN 1998).