



Parthian Earrings: Case Study Gold Earrings from the Jubon Site in Gilan (Iran)

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Abstract

Jewelry has been prevalent in human societies since ancient times. By studying these artifacts and analyzing the decorative styles and techniques employed in their creation, researchers can gain insights into the identities of the people who produced them. Archaeological excavations in *the Jubon cemetery* in *Gilan Province* have uncovered numerous Gurkani graves dating from the first millennium BC to the Sassanid period. Some of these graves *contained* gold earrings, now kept in the National Museum of Iran. This research aims to classify *the earrings* found in the Jubon cemetery and compare them with those from the North Caucasus to identify their manufacturing techniques and production workshops. The study employs a descriptive-analytical method with a comparative approach. The findings indicate that the earrings from the Jubon cemetery can be classified into two typological categories: the first type *is* gold earrings without precious stones, and the second is gold earrings adorned with garnet decorations. The identified manufacturing techniques include relief, casting, hammering, inlaying, and wiring, which were prevalent among Greek and Scythian artisans during the Parthian period. The methods used in making *the Jubon earrings* show similarities to earrings from the North Caucasus, but significant differences in the decoration of gold indicate local production.

Keywords: Earring Gold, Jubon, Gurkani, Iran, Caucasus

Citation

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Introduction

Jubon is a village located in central Rudbar, Gilan Province, Iran. It was archaeologically explored by Ali Hakimi from 1964 to 1967. The findings from this exploration were published by the National Museum of Iran in 2016 (Hakemi 2016). Excavations in the *Gurkan tombs* at Jubon uncovered various artifacts, including gold earrings, decorative seal pendants, and gold necklaces embellished with garnets that date back to the Parthian period. During this period, a new decorative style emerged in gold ornament production throughout Central and Western Asia, characterized by the incorporation of precious stones shaped into flat or convex rectangular, teardrop, and circular plates, predominantly in dark red or dark green hues (Quast, 2018). This study aims to sample and analyze earring-making techniques and compare them *with* earring production in the North Caucasus to identify their respective workshops. The questions addressed in this study are as follows:

- 1- How many groups *can* the earrings from the Jubon region *be* classified into based on form and surface details?
- 2- Could comparing these earrings *with* those from the Caucasus regions indicate that they were made in domestic workshops?

Due to the lack of comprehensive information on Parthian earrings, it is crucial to compare these artifacts with those from the Caucasus in terms of manufacturing techniques. Research on Parthian earrings in Iran is limited. Notably, Quast's article, "*Parthian-Early Sasanian Earrings*," analyzes pieces from *Pre-Urartian*, Nineveh, and Georgia, asserting that their manufacturing techniques exhibit Central Asian artistic influences (Quast, 2018). This research examines the typology of Jubon earrings and compares them *with* North Caucasus earrings to identify their production workshops. This investigation employs a descriptive-analytical methodology within a comparative study framework. Initially, seventeen earrings recovered from excavations at the Jubon site, currently housed in the National Museum of Iran, are presented and categorized. Subsequently, these artifacts are compared with similar specimens discovered in several necropolises of the North Caucasus to identify typological similarities and differences.

Geographical location of Jubon in Gilan Province

Gilan Province is located in Iran, *in the western part of the northern Alborz Mountains and on the northern slopes of the Talesh Mountains*. Its favorable climate and environment have facilitated human settlements from prehistoric to Islamic times, making it a significant site for archaeological studies. The village of Jubon is located on the western slope of the *Sefidrud* Valley in the Rudbar region (Figure 1).

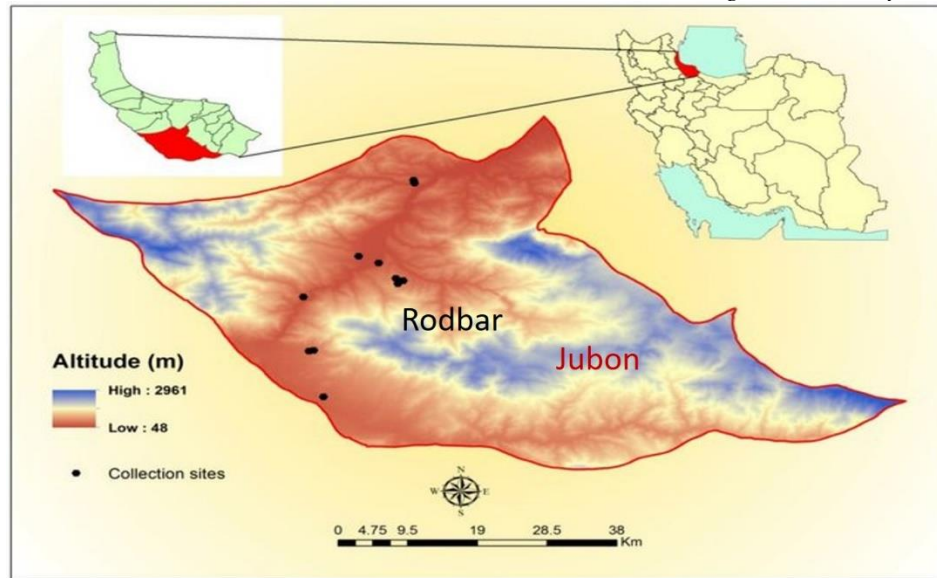


Figure1. A map of Iran showing the geographical location of Jubon in the Rodbar region.

Archaeological excavations conducted by Ali *Hakemi* revealed the tombs of the *Gurkani*, which were built at a depth of 4 meters in a sloping limestone terrain. The architectural design features an entrance with a small horizontal corridor leading to the burial chamber (Figure 2). The entrance faces east, with the bodies placed in an open arch in an east–west direction (Hakemi, 2016, pp. 216-218).



Figure 2. *Gurkani* tomb discovered at Jubon (Hakemi, 2016: 217).

In addition, a horse tomb was discovered in this area (Figure 3). Skeletal remains of horses found in some tombs indicate that the horse's head was buried to the east and behind its owner, while in other cases, the horses were placed in separate graves to the west, possibly indicating acts of sacrifice (Hakemi, 2016; Daragan and Poulin, 2020, 2023). Hakemi reports that in certain tombs, the number of sacrificed horses reached three (Hakemi, 2016). These tombs contained exquisite glass vessels, gold earrings adorned with garnets, simple gold and silver earrings, three gold necklaces with garnet decorations and red glass beads, engraved jeweled rings in gold and silver, and pottery vessels (Figure 4). This article explores the gold earrings found in *Gurkani* tombs.



Figure 3. Horse tomb discovered at Jubon (Hakemi, 2016: 217).

These tombs contained exquisite glass vessels, gold earrings adorned with garnets, simple gold and silver earrings, three gold necklaces with garnet decorations and red glass beads, engraved jeweled rings in gold and silver, and pottery vessels (Figure 4). This article explores *the gold earrings* found in Gurkani tombs.




Figure 4. Pottery and glass vessels discovered in Jubon tombs (Hakemi, 2016: 230).

Typology of Gold Earrings from Jubon

Investigation reveals that the gold earrings from Jubon can be categorized into three primary groups: gold earrings without gemstones *are* further classified into three subgroups. The first type comprises hollow, semi-circular hoop earrings with a crescent-shaped hook at the top, *with* the left side of the hook *being* movable to facilitate wearing. One specimen exhibits a circular protrusion on the side, and these earrings were fabricated using hammering and repoussé techniques

(Table 1). This artifact was produced from sheet gold, which *was* pressed into the required shape by patrices; *the* round wire was created by twisting square wire and rolling it to achieve uniformity, *and was* soldered to the body (Redfern, 2012: 161).

Table 1. Gold earrings (*boat-shaped earrings*) found in *Jubon* tombs, National Museum of Iran.

Row	Image	Construction technique	Specifications	Museum property number
1-		Hammering	Height: 2/2 cm Width: 1/2 cm	۲۶۹۱

The second type comprises circular earrings adorned with semi-circular, raised chain-like motifs on both the interior and exterior surfaces, with the outer side featuring a band that ends in a pomegranate-shaped element. *Seven samples of this kind of earring were recovered*, differing in detail (Table 2).

Table 2. Gold earrings recovered from the *Gurkani tombs* of Jubon, National Museum of Iran.


Row	image	Construction technique	Specifications	Museum property number
1-		Casting	Height: 3 cm Width: 1/9 Weight:	3879
2-		Casting	Height: 2/2 Width: 1/4 Weight: 3.2 g	3855

3-		Casting	Height:3cm Width:2 Weight:4.32	3885
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The **third** type of **gold earring** comprises hollow, semi-circular earrings with unique decorative features; one example showcases raised vertical ridges and no circular embellishments (Table 2, sample 2). Another example features raised circular motifs on the semi-circular body, accompanied by wire-like decorations on the right side. The lower section of both earrings is embellished with three fixed pomegranates-shaped ornaments (Table 2, sample 3). The crescent-shaped hook at the top has one fixed end, while the other **end is** movable for easy insertion into the ear. In addition to the earrings, three rings were found, two resembling the second and third earring types. The first ring is a complete circle with a surface adorned with small circular wire motifs and **featuring** a small pomegranate-like ornament at the bottom. A crescent-shaped hook sits at the top, with one side fixed and the other movable. The second ring is a semi-circular hoop adorned with horizontal wire decorations and a pomegranate-like ornament at its center. It also features a crescent-shaped hook at the top. These rings were crafted using the casting technique. The third ring is a plain hoop embellished with three bead-like circular decorations resembling grapes at the bottom (Table 3). While traces of gold are evident, the core material appears to be a metal **such as** copper.


Table 3. Single gold rings from the *Gurkani tombs* of Jubon, National Museum of Iran.

Row	image	construction technique	Specifications	Museum property number
1-		Casting	Height:3/2 Width:2 Weight:5.78g	3878
2-		Casting	Height:2.1 Width:1.9 Weight:1.1	3875

3-		Cast and Hammering	Height:2.2 Width:1.6 Weight:2.4	3881
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The third type of earring includes *three parts*: a hoop for *inserting into* the ear, a chain, and an oval-shaped bead hanging from the chain. These earrings are primarily made of copper, coated with a thin layer of gold, which has either worn away or is partially visible (Table 4). These gold ornaments were crafted using the gilding technique, popular during the Parthian period (Quast, 2018: 124). *Eight samples of this type were obtained.*

Table 4. One gold earring recovered from Jubon, National Museum of Iran.




Row	image	construction technique	Specifications	Museum property number
1-		Coated	Height:5 Width:1	3804

Gold Earrings with Garnet Gemstone Decorations

Three types of gold earrings featuring garnet gemstones were discovered in Jubon. The first type consists of circular earrings that *feature* two oval garnet gemstones on the front and three fixed pomegranates-shaped ornaments at the bottom (Table 5, sample 1). The second type features circular earrings embellished with three small garnet stones along the body and edges, and also includes three decorative fixed pomegranates at the bottom (Table 5, sample 2). The third type of earring has three components: a semi-circular top piece decorated with gemstones, a rectangular middle section riveted to the top that features *teardrop-shaped* frames once likely adorned with gemstones, and a bottom piece featuring three pomegranates (Table 5, sample 3).

Table 5. Gold earrings with garnet gemstone decorations from the *Gurkani tombs* of Jubon, National Museum of Iran.

Row	Image	Construction Technique	Specifications	Museum property number

1-		single-setting technique Casting	Height:3/3 Width:2.2 Weight:8.3g	3856
2-		single-setting technique Casting	Height:3.3 Width:2.2 Weight:12g	3887
3-		Casting Hammering Cloisonné Framework	Height:3/1 Width:1 Weight:3.40	3884.

These earrings were expertly crafted using the single-setting technique and inlay work on gold. The first and second types employ this method, where gemstones are set within a metal frame and securely attached to the gold base by riveting. Typically, the garnet stones have a flat surface, although some may exhibit a slight convexity. For gold inlay work, a flat gold sheet is prepared with geometric frames that are then filled with gemstones. This technique was used to create the third type of earrings (Quast, 2018: 124-125).

Comparative Studies

Archaeological excavations in the North Caucasus have **recovered** gold earrings at five separate sites: Samtavro-Iberia Cemetery, Digora, Stavropol, Dion, and Prokhledni. These earrings are classified into two typological groups: the first group consists of gold earrings without gemstones, decorated with pendants made of spherical beads arranged in clusters that resemble grape bunches, attached to a ring. These earrings date back to the 2nd to 3rd centuries CE. The second group consists of earrings adorned with garnet. These earrings feature a wire rod at the top for insertion into the ear, which connects to a **teardrop-shaped** frame. Inside the frame is a piece of dark red stone. The earrings measure 32 mm in length and weigh 1.89 grams, dating to the 2nd to 3rd centuries CE (Figure 5) (Jalabadze et al., 2019: 46-107).



Figure 5. Typology of the earrings from the first collections of the *Museum Caucasicum* (Jalabadze et al., 2019: 358).

Earrings similar to those found in Samtavro have been discovered at the Zgodri Cemetery, dating to the 2nd and 3rd centuries CE (Braund et al., 2009: 52). Shavlakadze, analyzing the quantitative distribution of gold samples, argues that the quality of the jewelry discovered in Samtavro indicates the presence of a goldsmith *workshop in Iberia*, suggesting that these earrings were made *using* local raw materials (Shavlakadze, 2023: 361). Furthermore, at a cemetery in Karakalpak (Uzbekistan), a pair of gold earrings *with* hemispherical pendants with garnet gemstones, dating to the 3rd century CE, were discovered (Figure 6) (Quast, 2018: 126). In comparison *with* the earrings from Jubon, there are observable similarities in the use of *teardrop-shaped* garnet gemstones.

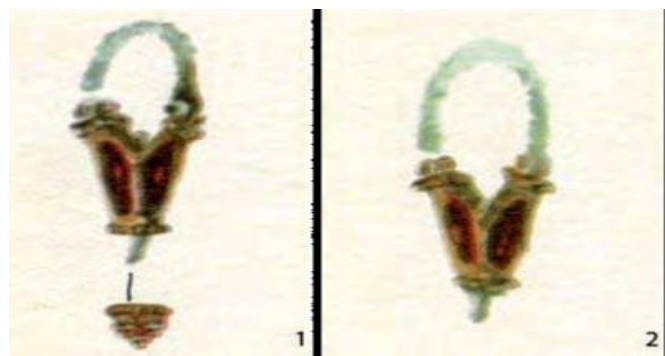


Figure 6. Gold earrings with garnet gemstones discovered *in* Uzbekistan (Quast, 2018: 126).

Comparative studies indicate that single rings, pendant earrings, and *teardrop-shaped* decorated earrings from Jubon share similar manufacturing techniques with earrings from Samtavro-Iberia; however, they differ in typology (Figure 7).

Gold earrings of
Jubon at north Iran



Gold earrings of
Samtavro-Iberia
Cemetery in the
North Caucasus



Figure 7. Comparative table of earrings found in the Samtavro-Iberia Cemetery in the Northern Caucasus (Shavlakadze, 2023: 358) with earrings from Jubon.

Discussion

Three criteria can be used to identify a jewelry workshop: 1) jewelry-making techniques; 2) cultural or ethnic patterns reflected in the jewelry designs and 3) geographical distribution of the mines of the gemstones used (Golani, 2010: 254-255). Comparative studies reveal that techniques such as hammering, embossing, and casting were utilized in the creation of earrings. For earrings adorned with gemstones, single-setting and plate inlay techniques (*cloisonné framework*) were employed (Quast, 2018: 126). A distinctive feature of these jewelry pieces is the use of pendants made from simple and spiral wires. To create simple wire, narrow strips of hammered gold sheet were used, forming wires with a thickness of 1 to 2 mm. To produce twisted wires, the narrow gold strip was placed between two flat surfaces and then twisted, resulting in evenly thick spiral wires (Rudolph, 1995: 7; Williams and Ogden, 1994: 23; Ogden, 1982: 51). These techniques were widely used during the Parthian period. Since these earrings were discovered in the tomb of the *Gurkani*, they are likely attributed to the Scythians, suggesting cultural interactions between Scythian tribes and other regions during the 2nd and 3rd centuries CE (Gavritukhin et al., 2020: 91-110). Tassel pendants made of spiral or plain wire and ending in pomegranate shapes are characteristic of Seleucid earrings, which were also used by Parthian jewelers (Marshall, 1999: 2681-2). Ackermann also considers the use of pomegranate motifs in the art of this period to be an adaptation from the Sarmatians (*a tribe of Scythians*) (Ackermann, 2008: 597-599). Numerous studies on local jewelry production in the Classical and Hellenistic periods in the Black Sea regions have been conducted (Higgins, 1961; Hoffman and Davidson, 1965; Williams and Ogden, 1994; Treister, 2004). These researchers, focusing on metalworking, hypothesize that these jewelry pieces were made in local workshops. Minzhulin argues that the Scythians primarily used embossing and hammering techniques in their jewelry-making (Minzhulin, 1998: 155). However, Shramko, in a study on Scythian local goldsmithing based on finds such as gold ingots, tin, and casting molds from the Bilsk hillfort,

claims that the Scythians were also familiar with casting techniques (Shramko, 2016). Gaydukevich has also found tools for gold melting from the Panticapaeum site, indicating the presence of gold production workshops in the Pontic Northern region during the Classical period (Gaydukevich, 1949: 118; Illins'kan, 1973: 15). Additionally, Lifanti, in examining Scythian jewelry from the Pontic Northern region, suggests that these pieces were produced in local workshops (Lifanti, 2023). Kasper Mayer argues that the use of rough styles, decorative frames on the front of earrings, and techniques such as hammering and engraving indicate local production (Mayer, 2013: 124). Redfern asserts that Scythian jewelry, based on the available data, demonstrates *that they used* fewer technological advancements; however, a range of findings suggests that local production and jewelry-making traditions were prevalent among both the Scythians and the Greeks in the Northern Black Sea region, *including* the use of rough styles and decorative frames on the front (Redfern, 2012). A survey of gold earrings obtained from Jubon shows *that they were made* in a local workshop. The jewelry *features* dark red garnet. Garnet is a common mineral found in Central Asia, particularly in Tajikistan, Afghanistan, Kazakhstan, and India. Garnet has been used as a gemstone in ancient societies for centuries and comes in various colors, including dark red and dark green. Some researchers suggest that the Greek style of the earrings, along with the use of dark red garnet, indicates *that* these jewelry pieces were likely produced in Greek workshops in the Pontic region of the Northern Caucasus (Quast, 2018: 126). Gemology was used to identify the origin of the *Jubon* garnet. Gemological studies and microscopy showed that the structure of the stones in Jubon jewelry consists of a combination of magnesium, aluminum, and silica, which belong to pyrope and are chromium-free (Codina, 2000). Calligaro has determined the origin of garnet based on the ratio of pyrope to almandine. He attributes the source of pyropes containing aluminum, manganese, and silica to Indian sources, which are devoid of chromium, and the chromium-rich pyropes to Bohemia (Calligaro, 2002, 2007, 2009, 2011, 2013, 2019). Research conducted on garnet in Iran shows that it is mostly found in skarn, schist, pegmatite, granite, and hornfels, and is of the grossular, spessartine, almandine, and andradite varieties (Saki and Kiani, 2016: 20). Thus, garnets *in* gold earrings *from* Jubon do not belong *to* Iran and *may have been imported* by nomads. Since gold earrings were found *in the Gurkani tombs*, *it is possible that* nomadic Scythians were involved in their movement. Therefore, it can be concluded that the discovery of these jewelry pieces reflects the connection between the Scythians of this region and other regions. Gemstones *and* gold earrings were likely brought by the nomadic Scythians from the eastern Caspian regions to the south and west of the Caspian Sea. On the other hand, the typology of the Jubon earrings suggests that, although their manufacturing techniques are closer to those of Central Asia and the Northern Caucasus, their style and typology differ. This indicates that they were likely produced in local workshops, despite the absence of tools or materials related to the workshop at the site. Geological studies suggest that garnets were likely imported from Southeast Asia to Iran, where they were used in local workshops to craft earrings with garnet embellishments. Quast also believes that if we assume that the garnets of European regions are of Indian origin, we can state that these goods were probably also sold in Iran during long-distance trade (Quast and Schussler, 2000: 21).

Conclusion

Based on the studies conducted, the golden earrings found at the Jubon site can be divided into two main groups, each with further subcategories. The first group consists of golden earrings made without gemstones, crafted using techniques such as hammering, embossing, casting, and gilding. The second group includes earrings *featuring* garnet gemstones, *crafted* using techniques such as cloisonné, wirework, and single-setting, all of which were common during the Parthian period. Comparative studies of the Jubon earrings from *Gilan Province* and those found in the Northern Caucasus show that the use of garnet gemstones was well known during the Parthian and Sassanid periods. Comparative studies reveal that the earrings from the studied sites are similar in terms of

construction techniques but differ in style and typology, suggesting that they may have been produced in local workshops. What is important is the transfer of raw materials from Central Asia and Southeast Asia to the southern Caspian and the surrounding Black Sea regions, indicating an extensive trade network between these areas. *Given* the presence of nomadic Scythian tribes in these regions, *it can be argued* that these tribes, through their nomadic cultural ties, established broad economic connections among the communities of the East, West, and South of the Caspian Sea. Through this network, they facilitated the exchange of raw materials, goods, ideas, and technologies among these regions.

Data Availability

The data underlying the results presented in this paper are not publicly available at this time but may be obtained from the corresponding **author** upon reasonable request.

Conflict of Interest

The results obtained in this research do not conflict with any individual or organization.

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Authors' Participation

All authors contributed equally to the data analysis and **approved** the final version of the article.

Bibliographical References

Ackerman, P., (2008), *The Art of Silversmiths and Goldsmiths in the Parthian Period*, translated by Parviz Marzban, Tehran, Elmi Farhangi Publications. [In Persian]

Braund, D., Javakhishvili, K., Nemsadze, G. (2009). *The treasures of Zghuderi. Elite burials of Caucasian Iberia in the Roman Period C. AD 200-250*. Tbilisi.

Codina, C., (2000)., *Handbook of Jewellery Techniques*. London.

Calligaro T., Colinart S., Poirot J.-P. and Sudres C., (2002). Combined external-beam PIXE and μ -Raman characterization of garnets used in Merovingian jewelry. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, **189**(1–4), 320–327, [http://dx.doi.org/10.1016/s0168-583x\(01\)01078-3](http://dx.doi.org/10.1016/s0168-583x(01)01078-3).

Calligaro, T., Périn, P., Vallet, F. & Poirot, J.-P. (2007). Contribution à l'étude des grenats mérovingiens (Basilique de Saint- Denis et autres collections du musée d'Archéologie nationale, diverses collections publiques et objets de fouilles récentes). *Antiquités Nationales*, 38: 111–44.

Calligaro T., Périn P. and Sudres C., (2009). À propos du 'trésor de grenats de Carthage', attribué à l'époque vandale. *Antiquités Nationales*, **40**, 155–165.

Calligaro, T. (2011). *Rapport d'étude. Centre for Research and Restoration of the Museums of France (C2RMF)*.

Calligaro, T. & Périn, P. (2013). Route des grenats 3, Inde, Tamil Nadu, août 2013: note sur l'origine géologique des grenats utilisés par les orfèvres du haut Moyen Âge occidental. *Bulletin de liaison del'Association française d'Archéologie mérovingienne*, 37: 125–35.

Calligaro, T. & Périn, P. (2019). Le commerce des grenats à l'époque mérovingienne. *Archéopages Hors Série*, 5: 109–20.

Daragan, M. N., and S. V. Polin.(2020). Сопровождающие захоронения коней во входных ямах катакомб и подбоев степной Скифии второй половины V–IV вв. до н.э. *Археология Евразийских степей* 6: 42–86. <https://doi.org/10.24852/2587-6112.2020>

Daragan, M, Polin, S. (2023).” Axes the Funerary Cermonies of the Northern Pontic Scythians”, *Art*, 12 (3), 124.<https://doi.org/10.3390/arts12030124>

Ellen D. Reeder, ED., (1999). *Scythian Gold: Treasures from Ancient Ukraine*, New York, N.Y.: Harry N. Abrams.

Hakami, Ali (2016), *Archaeological Excavations of Rudbar Gilan* (1343-1347 Solar Hijri), edited by Shahin Arya Manesh, Research Institute of Cultural Heritage and Tourism. [In Persian]

Higgins.,R., (1961), *Greek and Roman Jewellery*. London

Hoffman, H., P. Davidson, P., (1965) *Greek Gold Jewelry from the Age of Alexander*. Mainz 1965.

Illins'ka, V. A. (1973), (Иллінська, В. А.) Бронзові наконечники стріл так званого жаботинського і новочеркаського типів. *Археологія* (Київ), 12, pp. 13-26.

Golani, A, (2010)., Jewelry as a Cultural Marker in the Archaeological Record the Cast of Basket Earring Pendants, Proceedings of the 6th International Congress on the Archaeology of the Ancient Near East, May, 5th , 10th 2008, Sapienza- Universita di Roma, Harrassowitz Verlag. Wiesbaden.

Gavrltukhin, I.O., Svrlidov, A. N., Yazlkov.,S.V., (2020)., The Roman Period Cemrtry Frontovoye3 in Southwestern Crimea., *РОССИЙСКАЯ АРХЕОЛОГИЯ*., Vol 2.,pp91-110 [Rushen]

Gaydukevich, V. (1949)., Боспорское Царство. Москва-Ленинград: Издательство Академии наук СССР. [Google Scholar]

Jalabadze, M., Javakhishvili, K., Davlianidze, TS., Kublashvili, M., Kobalia, N., Sakhvadze, A. (2019) kartuli okromch'edlobis nimushebi samtavros samarovnidan. sakartvelos erovnuli muzeumis k'olektsiebi (int'erdistisip'linuri k'vleva). [Samples of Georgian goldsmithery from Samtavro cemetery. Collections of Georgian National Museum (interdisciplinary study), Tbilisi: sakartvelos k'ult'uruli memk'vidreobis datsvis erovnuli saagent'o.

Lifantii, O., (2023)., Looking at the Evidence of Local Jewelry Production in Scythia, *Arts*, 12(4), 151, <https://doi.org/10.3390/arts12040151>

Marshall, F.H., (1999), Catalogue of the Jewellery Greek, Etruscan and Roman in the Department of Antiquities, British Museum, London.

Meyer, C, (2013), *Greco-Scythian Art and the Birth of Eurasia: From Classical Antiquity to Russian Modernity*, Oxford: Oxford University Press.

Minzhulin, O.(1998). Реставрація творів з металу. Київ: Спалах.

Ogden, J. (1982)., *Jewellery of the Ancient World*. London.

Quast, D, (2018)., Parthian and Early Sasanian Earring, *Le Archaeologie di Marilli Alessandria*, 121-128.

Quast, D., & Schüssler, U. 2000. Mineralogische Untersuchungen zur Herkunft der Granate merowingerzeitlicher Cloisonnéarbeiten. *Germania: Anzeiger der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts*, 78(1), 75-96.

Redfern, D.V., (2012) , *A Study of Scythian Gold Jewellery Manufacturing Technology and its Comparison to Greek Techniques from the 7th to 5th Centuries BC.*, Publisher: British Archaeological Reports, London.

Saki, S., Kiani, M (2016), *A Look at the Gemology of Garnets and their Origin in Iran and The World the third National Conference of Gemology and crystallography and mineralogy of Iran* Shahid Beheshti University Tehran.[In Persian]

Shavlakadze, Ch, (2023) , Gold Earnings from the first Collections of the Museum Caucasicum, History, *Archaeology, Ethnology*, 355- 365.

Shramko, B. (2016). Об Изготовлении Золотых Украшений Ремесленниками Скифии. In Більське Городище в Наукових Працях Б. А. Шрамка: Збірник Наукових Праць, Присвячений Річчю Від Дня Народження Вченого. Edited by Ігор Корост. Kotelva—Kharkiv: V. N. Karazin Kharkiv National University, HCR «Bilsk», Maydan, pp. 57–59. Available online: <https://books.google.ch/books?id=-NODQAAQBAJ&lpg=PA1&hl=ru&pg=PA1#v=onepage&q&f=false> (accessed on 7 June 2023).

Rudolph, W. (1995)., *A Golden Legacy: Ancient Jewellery from the Burton Y. Berry Collection at Indiana University*. Bloomington.

Treister ., M.,(2004)., M. Treister, Cloisonne- and Champlevedecoration in the Gold Work of the Late Hellenistic-Early Imperial periods, *Acta Archaeologica* 75, 2, 2004, 189-219.

Williams, D., Ogden,J., (1994)., *Greek Gold. Jewelry of the classical world*. New York.