

Mykhailo Orlyk

Jewelry made from ancient bronze coins in the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe in the 6th-1st centuries BC

Key words: non-monetary uses of coins, non-economic functions of coins, coins as amulets, pendant, Greek coin-set jewellery, elements of clothing decoration.

Cuvinte cheie: utilizări non-monetare ale monedelor, funcții non-economice ale monedelor, monede ca amulete, pandantiv, bijuterii grecești realizate din monede, elemente de decor ale îmbrăcămintei.

Mykhailo Orlyk

Jewelry made from ancient bronze coins in the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe in the 6th-1st centuries BC

The article is devoted to the study of the practice of using ancient bronze coins as ornaments in the material culture of the population of the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe in the 6th-1st centuries BC. The methodological framework is based on a combination of general scientific, historical, and numismatic methods, with a predominance of the descriptive approach, which made it possible to systematize the known finds and trace the process of their “demonetization” – the transformation from a means of payment into an element of adornment.

The study analyzes 52 coins, information about which was collected from museum collections, scholarly publications, electronic catalogues, and private communications from local historians and collectors. It has been established that the problem of using ancient coins as ornaments remains insufficiently studied in historiography, despite the presence of occasional references in the works of modern researchers.

A classification of “demonetized” coins is proposed based on the method of manufacture (jewelry изделия and primitively modified coins with perforations) and functional purpose (pendants, amulets, elements of clothing). Particular attention is paid to common types of bronze coins, their chronology, the geography of finds, and the specifics of their everyday use. The study expands the understanding of the non-economic functions of coins and their role in the symbolic and daily culture of ancient populations.

The results of the study suggest that the process of “demonetization” of ancient bronze coins of the 6th-1st centuries BC in the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe was widespread and fulfilled various functions within material culture. The spatial distribution of the finds, which effectively covers most of the territory of modern Ukraine, indicates the significant spread of the practice of using coins as ornaments.

Mykhailo Orlyk

Bijuterii realizate din monede antice de bronz din regiunea nordică a Mării Negre, din stepa ucraineană și din zona de pădure-stepă în perioada cuprinsă între secolele VI și I a.Chr

Articolul este dedicat cercetării practicii utilizării monedelor antice din bronz ca podoabe în cultura materială a populației din regiunea nord-pontică, stepa și silvostepa ucraineană în secolele VI-I a.Chr. Baza metodologică o constituie un ansamblu de metode generale științifice, istorice și numismatice, cu predominanța abordării descriptive, care a permis sistematizarea pieselor cunoscute și urmărirea procesului de „demonetizare” — transformarea acestora din mijloc de plată în elemente de podoabă.

În lucrare sunt analizate 52 de monede, informațiile despre acestea fiind colectate din colecții muzeale, publicații științifice, cataloage electronice și comunicări private ale istoricilor locali și colecționarilor. S-a constatat că problema utilizării monedelor antice ca podoabe rămâne insuficient studiată în istoriografie, în pofida existenței unor mențiuni izolate în lucrările cercetătorilor contemporani.

Este propusă o clasificare a monedelor „demonetizate” după modul de prelucrare (bijuterii realizate în mod meșteșugăresc și monede modificate primitiv, cu perforații) și după destinația funcțională (pandantive, amulete, elemente de decor ale îmbrăcămintei). O atenție deosebită este acordată tipurilor frecvente de monede din bronz, cronologiei acestora, geografiei descoperirilor și particularităților utilizării lor în viața cotidiană. Studiul extinde înțelegerea funcțiilor non-economice ale monedelor și a rolului lor în cultura simbolică și cotidiană a populațiilor antice.

Rezultatele cercetării oferă temei pentru a afirma că procesul de „demonetizare” a monedelor antice din bronz din secolele VI-I a.Chr. în zonele regiunii nord-pontice, stepei și silvostepii ucrainene a fost larg răspândit și a îndeplinit diverse funcții în cadrul culturii materiale. Extinderea spațială a descoperirilor, care acoperă practic majoritatea teritoriului Ucrainei moderne, indică o răspândire semnificativă a practicii utilizării monedelor ca podoabe.

Introduction

The use of ancient coins beyond their primary economic function is one of the most striking manifestations of the transformation of material culture objects in ancient societies. The Ukrainian archaeologist M. Braichevskii emphasized that the use of coins as ornaments is typical of societies with an already established and relatively developed system of commodity-money relations. In his view, for a coin to function as an ornament, it must first be integrated into economic life as a полноценный means of circulation. In other words, “for a coin in a given society to be used as an ornament, it must first exist there in its direct, monetary function, as a means of commodity circulation” [Braichevskii 1959, 31]. Particularly relevant is the study of the spread of ornaments made from bronze coins in the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe, as this region in the 6th-1st centuries BC was a zone of active contacts between the ancient world and local barbarian communities. The use of bronze coins as ornaments by the local barbarian population constitutes further significant evidence of the understanding of the value of coinage among representatives of the barbarian world and confirms the validity of theses concerning the deep penetration of ancient culture, especially in frontier regions. The use of bronze coins as amulets or as elements of clothing decoration made this process more accessible to broad segments of the population, both in the Scythian period and in later chronological periods.

Exposition of the main research material

An analysis of modern studies on the use of coins of the 6th-1st centuries BC as ornaments suggests that, with minor exceptions, this issue remains almost unexplored. At the same time, to date, virtually the only specialized study is the article by the distinguished Italian scholar G. Gorini, published in 2017 in the proceedings of an international conference held in June 2009 on the island of Ios. This work directly addresses the problem of the use of ancient Greek coins as ornaments [Gorini 2017]. The researcher emphasizes that the Greeks treated their coins with great respect, especially in the Archaic period, and notes that despite the scarcity of metals, even under such conditions there were occasional instances of

their use beyond their economic function [Gorini 2017, 27].

References to finds of ancient Greek coins that underwent the process of “demonetization” are contained in the works of S. Skoryy and J. Khokhorovski [Skoryi, Khokhorovski 2018], A. Kakhidze, I. Iashvili, and M. Vickers [Kakhidze *et al.* 2001, 283], M. Orlyk and V. Orlyk [Orlyk, Orlyk 2026]. Certain information on ancient Greek demonetized coins is also found in the publications of V. Orlyk [Orlyk 2022; Orlyk, Mekh, 2022; Orlyk, 2023; Orlyk, 2024] and D. Miroshnichenko [Miroshnichenko 2022].

As can be observed, the scholarly attention of researchers in ancient numismatics and archaeology of the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe in the 6th-1st centuries BC is mostly focused on individual hoards, finds, and archaeological complexes where coins are recorded. Among other things, these works occasionally contain references to coins that have undergone a stage of transformation into ornaments. However, historiography lacks a comprehensive study of ornaments made from ancient bronze coins, which determines the relevance of the problem addressed in this article.

Ornaments made from copper (bronze) coins of the 6th-1st centuries BC constitute the most numerous group in terms of the number of finds within the entire corpus of known “demonetized” coins. Such coins were the most widespread and the most accessible to various strata of the population of the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe in the 6th-1st centuries BC. All known finds, like the vast majority of silver coins of that period, underwent a primitive method of demonetization by piercing (drilling) one or two holes in them. The analysis of these “demonetized” coins is carried out according to the chronology of their emissions.

During the preparation of this article, 52 bronze coins of the 6th-1st centuries BC were examined, discovered in the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe, which, as a result of “demonetization,” were transformed into ornaments or amulets. Information about these finds originates from various sources: museum collections, private collections, scholarly publications, the catalogue-ar-

chive “Coins of Bospor,” and metal detectorists’ forums. The processing of the material available to the author regarding ornaments made from ancient bronze coins of the 6th-1st centuries BC from the specified regions made it possible to classify them according to their functional purpose, in particular, into pendants or amulets (with one hole) and elements of clothing decoration (with two or more holes). Let us consider the known ornaments made from ancient bronze coins of the 6th-1st centuries BC found in the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe, taking into account the nature of the find: archaeological or accidental.

The earliest “demonetized” coins, the finds of which have been recorded in southern Ukraine, are cast copper coins in the form of dolphins (fig. 1,1-4). The emission of these proto-coins took place at the end of the 6th to the beginning of the 4th century BC, while their “demonetization” likely occurred in the 5th-4th centuries BC. One such “demonetized” dolphin coin was sold at a Violyty auction in December 2026 (fig. 1,4) [Violyty a]. We have recorded cases of “demonetization” not only of small cast “dolphin” coins, but also of cast coins of larger denominations, in particular, the so-called Olbian “as” (fig. 1,5) of the type Gorgoneion facing/eagle on dolphin, the emission of which took place in the second half of the 5th century BC. This demonetized coin was sold at one of the European auctions [Acsearch], and, unfortunately, it is impossible to determine the exact place, time, and circumstances of its discovery.

There are known finds of demonetized cast coins of smaller denominations issued around 400-380 BC, with the obverse depicting the head of Gorgon facing with protruding tongue, and the reverse showing an eagle on a dolphin to the left (fig. 1,6-7). The first of these coins has two holes, as well as a straight cut of the coin flan; it is possible that the size of the coin was adjusted for use as an element of clothing or equipment. The coin was found in the Chornyi Lis (Black Forest), Kirovohrad region, before 2021. The second coin of this type (fig. 1,6) was illegally exported and sold abroad in 2009. The third coin (fig. 1,7) was found “in November 2020 on the outskirts of the village of Novodmytrivka, on the bank of the Solonets River” of the former Bilozerskyi district of Khereson region [Miroshnychenko 2022, 50].

Finds of two copper coins of Salamis, Island off Attica, ca. 400-330 BC, which also underwent the process of demonetization, have been recorded in the Ochakiv district of Mykolaiv region (fig. 1,8) and in Kharkiv region. On the obverse of the coin: head of nymph Salamis right, in stephane in tightly coiled and waved hair, and on the reverse: <ΣΑ>-ΛΑ, Boeotian shield with blazon of sword of Ajax (fig. 1,9).

A demonetized coin of Chersonesus, emission of 385-380 BC, was found in 2015 near the village of Ruzhychevo, Oleksandrivka settlement community, Kropyvnytskyi district, Kirovohrad region [Orlyk 2021]. On the obverse of the coin is depicted the head of the Maiden in a kekryphalos to the right, and on the reverse a lion’s head facing, below a club to the left, beneath XEP (fig. 1,12). Three specimens of a “demonetized” coin of Chersonesus, emission of 350-330 BC, were identified by the author on the Ukrainian Internet resource Violyty Forum (fig. 1,13-15). On the obverse of these coins is depicted quadriga to the right, a maiden with a torch stands in the chariot, and on the reverse: the letters XEP. A naked warrior kneeling with a shield and spear to the left, wearing a helmet.

At a Violyty auction in 2026, a coin of Istros, 440-320 BC (fig. 1,10), most likely found in Odesa region, was offered for sale [Violyty b]. The coin has one hole between the spokes of the wheel, which allowed its owner to use it as a pendant. It should also be noted that coins of this type were not only produced in Istros; in particular, V. B. Pivorovych noted that coin imitations with the same legend were cast on the island of Berezan [Pivorovich 2009, 122]. Another pendant made from a bronze coin of Istros of the 4th-2nd centuries BC (fig. 1,11) of a different type was found in 2021 in the village of Mykhailivka, Haisyn district, Vinnytsia region [Orlyk 2022, 17]. On the obverse of the coin is the head of Apollo to the right, and on the reverse an eagle to the left on a dolphin.

In the Cherkasy district of Cherkasy region, a “demonetized” copper coin of Alexander III, Macedonian mint, 336-323 BC, was found. On the obverse of the coin is depicted head of Herakles right, wearing lionskin headdress, and on the reverse: ΑΛΕΞΑΝΔΡΟΥ between bow in bowcase above and club with handle on left below. ME monogram below (fig. 1,16). Another “demonetized” copper



Fig. 1. Demonetized ancient Greek bronze coins.

coin of Alexander the Great (fig. 1,17) known to the author was found in Odesa region.

An Olbian copper coin of the 4th century BC, on the obverse of which is the head of Tyche wear-

ing a mural crown, and on the reverse an archer kneeling to the left (fig. 1,18), was found near the village of Komarivtsi, Bar urban community, Zhmerynka district, Vinnytsia region [Orlyk 2022].

In various regions of Ukraine, 12 specimens of “demonetized” copper tetrachalkoi of Panticapaeum, 320-310 BC, have been identified. On the obverse of these coins is depicted the head of a bearded satyr to the right, and on the reverse a protome of a griffin, below a sturgeon, with ΠΑΝ on the sides. One coin was found in Kirovohrad region, in Kropyvnytskyi district, near the village of Pidlisne, Oleksandrivka settlement community in 2020 (fig. 1,20). The second (fig. 1,19) was found nearby in 2021 in the village of Plishky of the same territorial community. The third was found in 2021 near the village of Zalomy, Dmytrivka rural community, Kropyvnytskyi district, Kirovohrad region; however, there are certain doubts regarding the reliability of the findspot, although the coin itself is authentic and was found in Ukraine (fig. 1,21). The fourth coin was found in the village of Ivkivtsi, Medvedivka rural community, Cherkasy district, Cherkasy region (fig. 1,22). Notably, this coin has two holes and therefore could have been used as an element of clothing decoration.

Four more coins of this type that underwent the process of “demonetization” are recorded in the database of the “Coins of Bospor” catalogue-archive [Coin passport: 111-3002-182; Coin passport: 111-3002-714; Coin passport: 111-3002-801; Coin passport: 111-3002-808], but unfortunately their findspots are unknown (fig. 1,23-26). Another four coins were published on the Ukrainian Internet resource Violity [Violity Forum] (fig. 1,27; 2,1-3) by metal-detector enthusiasts, and these coins are certainly of Ukrainian provenance. It should be noted that this type of coin is the most common in the process of “demonetization,” significantly exceeding all other known types of “demonetized” copper coins of the late 4th century BC. However, overall, in finds from the territory of the Ukrainian Forest-Steppe, these Panticapaeum coins constitute only a small percentage [Orlyk, Mech 2022; Orlyk 2021; Orlyk 2022; Orlyk 2023; Orlyk 2024]. It should also be noted that in the Scythian milieu, gold ornaments (plaques) with griffins were quite widespread, often imitating the gold staters of Panticapaeum [Orlyk, Orlyk 2026]. However, copper coins were significantly cheaper and more accessible for transformation into ornaments or amulets. In our opinion, this explains the high proportion of coins of this type

within the entire corpus of bronze coins we have studied that were transformed into ornaments or amulets.

It should be noted that the author is aware of only two copper coins of Panticapaeum of the same period of minting as the 12 specimens mentioned above, but of a larger denomination – an obol – with traces of “demonetization” (fig. 2,4-5). The first coin originates from the Ukrainian part of the Northern Azov region (Ancient Coins of the Northern Black Sea Region). The second most likely originates from Mykolaiv region.

In Cherkasy region, near the village of Monastyryshche, a pendant made from a bronze coin minted in Miletos, 313-290 BC, was also found. On the obverse: Laureate head of Apollo right. On the reverse: lion standing right, head turned back; star above, and the name of the magistrate (fig. 2,6).

A copper tetrachalkos of Panticapaeum, emission of 294-284 BC, of the type: the head of the beardless Satyr in a wreath to the left/ΠΑΝ, the head of a lion to the left, with a sturgeon below, was a fairly common coin, yet it was practically not subjected to the process of “demonetization.” The author has recorded only one example of such a transformation from a circulation coin into an element of ornamentation. The coin has two holes and was most likely used as an applique (fig. 2,7). The coin was found 10 km from the city of Bohodukhiv, Kharkiv region.

The most widespread ancient Greek coin in the North-Western Black Sea region, the Ukrainian Steppe, and the Forest-Steppe is the so-called “Borysthenes” – an Olbian copper coin depicting on the obverse head of Borysthenes, river deity, left, and on the reverse the inscription ΟΑΒΙΟ to right; in the centre, gorytos; to left, ceremonial axe; behind, differential mark. However, despite the prevalence of this type of Olbian coin in virtually all regions of the Ukrainian Steppe and Forest-Steppe, the author has identified only three examples of their “demonetization” (fig. 2,8-10), which may indicate that the population of the Scythian period valued such coins. The first of these coins was found on the outskirts of the village of Berizky-Bershadski, Haisyn district, Vinnytsia region. The second coin was found in Kyiv region (the author is not certain about the precise localization of the find). The third coin (fig. 2,10)



Fig. 2. Demonetized ancient Greek bronze coins.

was found in Kirovohrad region in May 2021, near the village of Osytniazhka, Kropyvnytskyi district, Kirovohrad region. Currently, this coin is kept in the cabinet of numismatics and the history of monetary circulation at the Department of History, Archaeology, Information and Archival Studies of the Central Ukrainian National Technical University.

In the course of our research, four “demonetized” copper obols of Kerkinitis, emission of 300-290 BC, were recorded, with the obverse depicting Scythian with an axe, sitting on a rock to the left, and the reverse horse to the left (fig. 2,11-14). One of the coins (fig. 2,13) has two holes and was most likely used as an element of clothing deco-

ration, in the form of an applique (plaque). Unfortunately, there is no information regarding the location or circumstances of the finds of all four of these coins. However, it should be noted that finds of this type of coin have been recorded not only in the Autonomous Republic of Crimea and the southern regions of Ukraine, but also in Central Ukraine (Orlyk, Orlyk 2020).

In the Myrhorod district of Poltava region, in 2020, a “demonetized” copper dichalkos of Chersonesus, emission of 300-290 BC, was found, on the obverse of which is depicted maiden spearing a stag to left; bow held in left hand, and on the reverse: butting bull on club to left; below, legend <>; bow and quiver in exergue (fig. 2,15).

A coin of Lysimachus, minted in an unknown center of Thrace, was found in the Ochakiv district of Mykolaiv region. On the obverse of the coin: laureate head of Apollo right, and on the reverse: above horseman right, forepart of lion right, below (fig. 2,16).

Near the city of Kerch, Autonomous Republic of Crimea, in 2010, within the chora of Panticapaeum [Violity Forum], a “demonetized” copper coin of the emission 350-250 BC, Greek island Zakynthos, Elis, Peloponnesos, was discovered. Obverse: Laureate head of Apollo right. Reverse: ZA beneath forepart of Pegasus right (fig. 2,17).

An Olbian copper coin of the last quarter of the 3rd century BC with a hole (fig. 2,18) was found in the territory of the former Bilozerskyi district of Kherson region, in particular, “on the right bank of the Inhulets River in the area of Hlyboka Balka (Sadowo dachas)” [Miroshnychenko 2022, 53]. On the obverse of this coin is depicted the head of a bearded deity (Zeus?/Borysthenes?) to the right, with a countermark of a bunch of grapes, and on the reverse the inscription OABIO to right; in the centre, gorytos; to left, ceremonial axe; behind, differential mark. A lower denomination Olbian coin of the late 3rd century BC was found (near) the village of Tsybuleve, Dmytrivka rural community, Kropyvnytskyi district, Kirovohrad region [Orlyk 2021]. The coin has two holes – one preserved, while traces of the second are visible upon detailed examination of the coin, particularly on the reverse at 5 o'clock (fig. 2,19). This coin was most likely used as an element of clothing decoration. On the obverse of the coin is depicted the head of Helios facing, and on the reverse two joined protomes of horses.

In the town of Zalyshchyky, Ternopil region, in 2021, a copper coin of the 3rd century BC minted in Thessaly, Proerna (Πρόερνα), was found, on the obverse of which is depicted the head of a nymph, slightly turned to the right, and on the reverse a standing figure of Demeter holding an ear of grain in her right hand and a long torch in her left. The coin has a hole and may have been used as a pendant or amulet. Unfortunately, no photograph of this coin has been preserved, only its detailed description (weight 2.49 g, diameter 13 mm).

A particularly interesting find is a coin of Pergamon of the second half of the 2nd century BC found near the village of Nova Sloboda, Kono-

top district, Sumy region (fig. 2,20). This coin corresponds to the metrological characteristics of medium-denomination coins of the Pontic state in the time of Mithridates VI Eupator and most likely entered the Seim River basin in the 1st century BC together with a mass of Pontic coins.

Attention should be drawn to a find discovered in Chernivtsi region near the village of Vyshkivtsi, namely a pendant made from a coin of Mesembria ad Aegaeum, Thrace, AE20, 2nd-1st century AD. Head of Dionysos right, wreathed with ivy/MEΣAM-BPIANΩN, bunch of grapes, ΔΩ above (fig. 2,21).

Among the recorded demonetized coins, a pendant made from a coin of 168-80 BC discovered in Khmelnytskyi region from Thasos, Insula Thraciae, is noteworthy. On the obverse of the coin: Head of Herakles facing right, wearing lion's skin headdress (fig. 2,22). Unfortunately, the photograph of the reverse has not been preserved, but it is known that reverse: Lettering: ΘΑΣΙΩΝ, strung bow within which an amphora above club and a monogram below. A coin reworked into a pendant from Thasos, 168-80 BC, was also found in Ternopil region; on the obverse was Head of Herakles facing right, wearing lion's skin headdress, and on the reverse Strung bow within which an amphora above club and a monogram below (fig. 2,23).

In the exposition of the Chyhyryn Archaeological Museum, under inventory number KV-10694/3 H-4883, there is a pendant made from a copper obol minted in 63-47 BC in Chersonesus. Obverse: a portrait of a man in a laurel wreath (to the right). Reverse: a depiction of a woman in a long garment, holding a bow in her right hand, the left hand bent at the elbow and raised upward; inscription “X” (right), “TNP” (left) (fig. 2,24).

Also in Cherkasy region, specifically in the city of Smila, on the bank of the Tiasmyn River in 2023, a rather rare coin of Panticapaeum, issued around 5 BC, was found. Obv.: head of Zeus in a wreath to the right; Rev.: eagle on a thunderbolt, head to the left, monogram BAE to the right, <ς> to the left (fig. 2,25). This coin also underwent the process of “demonetization”.

Conclusions

The conducted study demonstrates that the practice of “demonetization” of ancient bronze coins of the 6th-1st centuries BC in the territory

of the Northern Black Sea region, the Ukrainian Steppe, and the Forest-Steppe was a widespread and multifunctional phenomenon of material culture. The geography of the finds covers almost the entire territory of modern Ukraine, confirming the распространение of the practice of using coins as ornaments. We are convinced that ancient bronze coins of the studied period were widely used not only as a means of payment, but

also as ornaments, pendants, or amulets, which testifies to their multifunctionality within the material culture of the population. The analysis of 52 recorded examples of “demonetized” coins makes it possible to establish that the primary method of “demonetization” was the mechanical alteration of coins by piercing or drilling holes, indicating the predominantly local, non-specialized production of such ornaments.

Bibliography

- Braichevs’kii 1959:** M. Braichevs’kii, Rims’ka moneta na teritorii Ukraini. *Ukrains’kii istorichnii zhurnal* 5, 1959, 150-151 // М. Брайчевський, Римська монета на території України. *Український історичний журнал* 5, 1959, 150-151.
- Gorini 2017:** G. Gorini, Coins as ornaments and jewels in ancient Greece. In: (K. Liampi, C. Papaevangelou-Genakos, D. Plantzos eds.) *Coinage/Jewellery. Uses – Interactions – Symbolisms from antiquity to the present*. International Conference Proceedings, Ios, 26-28 June 2009, (Athens 2017), 27-35.
- Kakhidze et al. 2001:** A. Kakhidze, I. Iashvili, M. Vikers, Sribni moneti priberezhnikh mist Chornogo moria z nekropolia Pichvnari V st. do n.e. *The Numismatic Chronicle* 161, 2001, 282-287 // А. Кахидзе, І. Яшвілі, М. Вікерс, Срібні монети прибережних міст Чорного моря з некрополя Пічвнірі V ст. до н.е. *The Numismatic Chronicle* 161, 2001, 282-287.
- Miroshnichenko 2022:** D. Miroshnichenko, Znakhidki davn’ogrets’kikh monet u Bilozers’komu raioni Khersons’koi oblasti. *Ukrains’kii numizmatichnii shchorichnik/The Ukrainian Numismatic Annual* 6, 2022, 46-70 // Д. Мірошніченко, Знахідки давньогрецьких монет у Білозерському районі Херсонської області. *Український нумізматичний щорічник/The Ukrainian Numismatic Annual* 6, 2022, 46-70.
- Orlyk 2022:** V. Orlyk, Antichni moneti VI-I st. do R.Kh. na Podilli. *Ukrains’kii numizmatichnii shchorichnik/The Ukrainian Numismatic Annual* 6, 2022, 5-45 // В. Орлик, Античні монети VI-I ст. до Р.Х. на Поділлі. *Український нумізматичний щорічник/The Ukrainian Numismatic Annual* 6, 2022, 5-45.
- Orlyk 2023:** V. Orlyk, A grouping of chance coin finds from the time of Mithridates VI Eupator on the territory of the Dnipro Right-Bank Forest-Steppe (in the villages of Moshny, Budysche, and Lozivok of Cherkasy district, Cherkasy province). *Acta Archaeologica Lodziensia* 69, 2023, 61-70.
- Orlyk 2024:** V. Orlyk, Antichni moneti VI-I st. do R.Kh. z teritorii baseina richki Ros’. *Ukrains’kii numizmatichnii shchorichnik/The Ukrainian Numismatic Annual* 8, 2024, 5-36 // В. Орлик, Античні монети VI-I ст. до Р.Х. з території басейну річки Рось. *Український нумізматичний щорічник/The Ukrainian Numismatic Annual* 8, 2024, 5-36.
- Orlyk, Mekh 2022:** V. Orlyk, N. Mekh, The Hoard of Copper Coins of the Pontic State of Mithridates VI Eupator from Romny District of Sumy Region. *East European Historical Bulletin* 25, 2022, 8-20
- Orlyk, Orlyk 2026:** M. Orlyk, V. Orlyk, Jewelry made from gold coins in the material culture of the population of the Northern Black Sea region, the Ukrainian steppe, and the forest-steppe (4th century BC – early 3rd century AD). *East European Historical Bulletin* 38, 2026, 8-22.
- Orlyk, Pavlenko 2023:** S. Orlyk, V. Pavlenko, Money Issue in the Life of the Population of Kyiv Province (1797-1917). *East European Historical Bulletin* 27, 2023, 39-52
- Pivorovich 2009:** V. Pivorovich, Moneti i skarbi pivdnia Ukraini. (Kherson 2009) // В. Піворович, Монети і скарби півдня України. (Херсон 2009).
- Skoryi, Khokhorovski 2018:** S. Skoryi, Ia. Khokhorovski, Bol’shoi Ryzhanovskii kurgan. (Kyiv 2018) // С. Скорий, Я. Хохоровски, Большой Рыжановский курган. (Київ 2018).

Acsearch: Coin, [acsearch.info](https://www.acsearch.info/search.html?id=711279), ID 711279, <https://www.acsearch.info/search.html?id=711279>

Coin passport 111-3002-182: Coin passport: 111-3002-182. Coins of Bospor catalogue-archive, <https://bosporan-kingdom.com/111-3002/182.html>

Coin passport 111-3002-801: Coin passport: 111-3002-801. Coins of Bospor catalogue-archive, <https://bosporan-kingdom.com/111-3002/801.html>

Coin passport 111-3002-808: Coin passport: 111-3002-808. Coins of Bospor catalogue-archive, <https://bosporan-kingdom.com/111-3002/808.html>

Violity a: Olvia: dolphin (uncleaned). Violity, <https://violity.com/ua/122198942-olviya-delfin-ne-chicshennyj-121>

Violity b: Istria: wheel V-III century BC. Violity, <https://violity.com/ua/122365483-striya-koleso-v-iii-stolittya-do-n-e>

Violity Forum: Ancient Coins of the Northern Black Sea Region. Violity Forum, <https://forum.violity.com/view-topic.php?t=23065&postdays=0&postorder=asc&start=0>

Mykhailo Orlyk, Phd (Economy), associate professor of the department of social and behavioral sciences at Kher-son State Agrarian and Economic University, Prospekt Universytetsky 5/2, Kropyvnytskyi, Ukraine, postal code 25006 Ukraine, e-mail: orlik.mihail@gmail.com, ORCID: 0000-0003-3394-1731.