

# NOTAE NUMISMATICAE

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# ZAPISKI NUMIZMATYCZNE



Tom XVI

MUZEUM NARODOWE W KRAKOWIE  
SEKCJA NUMIZMATYCZNA  
KOMISJI ARCHEOLOGICZNEJ PAN  
ODDZIAŁ W KRAKOWIE

Kraków 2021

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# Coin Hoard of Moldovan Copper Coins Found in the Belgorod Fortress on the Dniester River (Ukraine)

**ABSTRACT:** In this article we discuss a coin hoard found in the Belgorod fortress on the Dniester River (Ukraine). It was detected during archaeological investigations led by L.D. Dmitrov in 1946. It was found outside the fortress, on its glacis, as part of excavation site “A”. Until recently the hoard was unknown in the numismatic literature.

At the moment of discovery, the hoard was composed of 34 coins (according to excavation diary kept in the archive of the Institute of Archaeology of the National Academy of Sciences of Ukraine). Today, only 33 coins are kept in the collection of the Institute of Archaeology. All of them are divisional copper coins of the Moldovan prince Alexander I, minted 1425–1430.

Since the hoard can be classified as a small pouch of money of the same type – copper *puls* – it is difficult to set the period when it was lost or hidden. Most probably, this could have occurred either soon after the issue of the coins, at the end of the reign of Alexander I, or later, during the reign of his sons, Ilyash I in 1432–1433, or even Stephen II in 1433–1435.

**KEY WORDS:** Belgorod fortress on the Dniester River, archaeological investigation, medieval numismatics, Alexander I, coin hoard

ABSTRAKT: *Skarb miedzianych monet mołdawskich znalezione na terenie twierdzy Białogród nad Dniestrem (Ukraina)*

W artykule omówiono skarb monet znalezione na terenie twierdzy Białogród nad Dniestrem (Ukraina). Depozyt ten został odkryty na zewnątrz twierdzy na terenie przedstoku, na tzw. stanowisku „A” podczas badań archeologicznych prowadzonych przez L.D. Dmitrowa w 1946 r. Do niedawna skarb nie był znany w literaturze numizmatycznej. W momencie odkrycia zespół ten składał się z 34 monet (według dziennika wykopaliskowego znajdującego się w archiwum Instytutu Archeologii Narodowej Akademii Nauk Ukrainy). Obecnie w zbiorach Instytutu Archeologii przechowywane są tylko 33 monety. Wszystkie zaliczone zostały do miedzianych emisji księcia mołdawskiego Aleksandra I z lat 1425–1430. Ponieważ skarb można uznać za małą sakiewkę z monetami tego samego rodzaju, trudno ustalić okres jego zgubienia lub ukrycia. Zapewne mogło to nastąpić albo wkrótce po emisji monet, czyli pod koniec panowania Aleksandra I, albo później, za panowania jego synów – Iljasza I (1432–1433), a nawet Stefana II (1433–1435).

SŁOWA KLUCZOWE: twierdza Białogród nad Dniestrem, badania archeologiczne, numizmatyka średniowieczna, Aleksander I, skarb monet

Investigations on the multilayer site Tyra – Belgorod – Akkerman in the city Belgorod-Dnestrovskiyi (Ukr. Bilhorod-Dnistrovs’kyi) have been carried out for over a hundred years. The first archaeological excavations, mainly of an exploratory nature, were started by Professor Ernst von Stern in 1900, and continued later, in 1904 and 1912. During this period, twelve test pits were laid throughout the entire area of the fortress, as well as a trench in the glacis area,<sup>1</sup> to the northeast of the main gate<sup>2</sup> (Pl. 1; Pl. 2, Nos. I.1–14). In his reports, von Stern noted significant violations of cultural layers, not only on the glacis, but also throughout the studied area of the fortress. As a result of his archaeological investigations, material from a wide chronological range were discovered.<sup>3</sup> Alas, they were published superficially, without the necessary scientific documentation.

In 1919 and 1927–1930 excavations in the fortress were continued by Romanian archaeologists. They laid nine trenches on the territory of the fortress and beyond its walls (Pl. 1; Pl. 2, Nos. II.15–23). As a result of the work, defensive, residential and utility constructions were found. Archaeological research was also carried out on the glacis, in front of the main gate of the fortress. P. Nicorescu opened two trenches and a test pit in front of the main gate, where in 1900, during the reconstruction of the

<sup>1</sup> A glacis is an artificial bank of earth outside a fortress with an easy slope toward it; a part of the fortress.

<sup>2</sup> FON'-SHTERN 1901: 33.

<sup>3</sup> *Ibidem*: 1–33; FON'-SHTERN 1906: 183–190; IDEM 1913: 1–12.

road to the port, part of the ancient city was destroyed (Pl. 1; Pl. 2, Nos. II.15–17). In his reports, the Romanian scholar noted that a part of the medieval layer at least 1.2 meters thick had been removed and destroyed.<sup>4</sup>

In 1940–1941, V.A. Shakhnazarov, curator of the Akkerman Museum, continued research on the glacis area (Pl. 1; Pl. 2, No. III.24). Unfortunately, the overwhelming majority of the documentation was lost, the results left unpublished, except a brief report with the excavation plan made in 1940.<sup>5</sup> According to this report, the investigations were concentrated on the glacis, to the northeast of the main gate, at the cliff. An area of 300 square meters was explored here, reaching depths of up to six meters. Based on the materials found during the excavations, V.A. Shakhnazarov identified from four to five stratigraphic layers/horizons, dated from the 4<sup>th</sup> century BC to 18<sup>th</sup> century. The lower part of the layer of the medieval period was the third stratigraphic horizon, dated to the 10<sup>th</sup>–11<sup>th</sup> centuries. This layer included clay walls and “Byzantine” glazed pottery. The fourth layer was dated to the 14<sup>th</sup>–15<sup>th</sup> centuries. The remains of a round stone tower with a diameter of 6.3 meters, which, according to the author, played protective functions during the construction of the fortress, were attributed to the same horizon.

Finally, to the fifth and final horizon, which corresponded to the time of Turkish rule in Akkerman, V.A. Shakhnazarov assigned the fortress itself and the remains of a stone staircase, descending along the slope to the estuary; as well as several burials on glacis. In opinion A.A. Kravchenko, V.A. Shakhnazarov rightly attributed the burials found on the glacis to a cemetery from the Turkish period,<sup>6</sup> especially because of the 18<sup>th</sup> century Turkish coins found in the graves.

In 1945, systematic archaeological excavations on the territory of the site were started by L.D. Dmitrov, chief of the Belgorod-Dnestrovsk archaeological expedition (Pl. 1).<sup>7</sup> The fortress was investigated comprehensively for the first time, with the Ancient Greek horizon of Tyra, the medieval Moldovan horizon of Cetatea Albă and Turkish horizon of Akkerman, as well as the Turkish cemetery identified by V.A. Shakhnazarov all being considered.<sup>8</sup>

The main and largest excavation site, known as “A” was laid by L.D. Dmitrov in the southeastern part of the glacis, near the estuary coast in 1945 (Pl. 1; Pl. 2, No. IV). Earthworks were carried out on an area of 300 square meters, but the next year the study area was increased to 1400 square meters. As a result, a wide range of housing, economic and industrial structure remains belonging to the three main

<sup>4</sup> NICORESCU 1924: 383.

<sup>5</sup> KLEJMAN 1984: 66–74.

<sup>6</sup> KRAVCHENKO 1986: 8.

<sup>7</sup> DMITROV 1955: 111.

<sup>8</sup> IDEM 1946/8: 2.

periods of the city's existence (Pl. 3) were identified. Also, an impressive number of various objects were found: pottery fragments, items made from metal, bone, glass and so on, as well as numerous osteological remains.

According to L.D. Dmitrov, the cultural layer of glaciis was formed as a result of the use of a massive earth outburst with a thickness of 4 to 4.50 m, which arose during the construction of the fortress ditch.<sup>9</sup> Therefore, the glaciis contained materials from different chronological periods and, in fact, represented redeposited horizons. The structures found in some places of the excavation site "A" were covered by the residential and industrial structures of a later period of the 13<sup>th</sup>–15<sup>th</sup> centuries. For example, in the northeastern part of the site "A", a medieval cemetery of the 13<sup>th</sup>–15<sup>th</sup> centuries covered ancient building remains from the Tyra horizon.

Among the artefacts found in this time, a significant number are numismatic items. So, in 1945–1946 over a hundred coins were detected in the various parts of the glaciis. In 1946, a small hoard of Moldovan divisional coins was found. It was uncovered during the cut of two squares, between the square 11 (1945) and 21 (1946), at a depth of 4.70 m, in the grey-clay debris layer, at a distance of 1.2 meters north of kiln no. 12 (1945) (Pls. 4–5). The hoard was composed of 34 coins lying together on a stone.<sup>10</sup> The evidence of the existence of the hoard was unexploited until recently.

\* \* \*

Several years ago we had the opportunity to work in the archaeological collection of the Institute of Archaeology of the National Academy of Sciences of Ukraine. Among the materials originating from archaeological excavations of the fortress,<sup>11</sup> we found a small bag with coins which was marked as a coin hoard. A careful analysis of the collections and the archival data brought us to conclusion that this bag is actually a coin hoard found by L.D. Dmitrov in 1946. To date, this hoard consists of only 33 items, one of the coins was lost/destroyed during restoration. The inventory number of the complex is KP-I-81/41 (see the Catalogue and Pls. 6–7).

Most of the coins are in a bad state of preservation due to traces of corrosion on their surface (Catalogue, Nos. 1, 5–8, 10–12, 14–33). The corrosion is clearly visible on both sides of the coins, which led to the deterioration of the metal and some small holes (Catalogue, Nos. 11, 27, 29, 31–33). Such traces have been detected on numerous numismatic artefacts found in the fortress and its surrounding area,

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<sup>9</sup> *Ibidem*: 3.

<sup>10</sup> FURMANSKAJA 1946/8: 11.

<sup>11</sup> Our deepest gratitude goes to Irina Vitrik, Keeper of the numismatic collection of the Institute of Archaeology of the National Academy of Sciences of Ukraine, for permission to check the collection of the coins found by the archaeological investigation in the Belgorod fortress.

it indicates specific soil of the region.<sup>12</sup> The degree of preservation of the coins is rather bad, the images are poorly distinguishable, and only a few items have a clear, well-preserved relief on both sides (Catalogue, Nos. 7, 15–16, 18, 25, 30, 32).

All items can be identified as divisional copper coins minted by Alexander I (1399/1400–1432), known as the Good. They all are of the same type: on the obverse there is an ox's head with heraldic elements, on the reverse a shield per pale with three strips and seven fleur-de-lis. A distinctive element of this type is the letter "A" to the right of the shield and the absence of any other signs above or to the left of the shield.

According to Iliescu's typology,<sup>13</sup> also adopted by the author of the Numismatic Catalogue of Moldovan coins, such items belong to the 5<sup>th</sup> issue series.<sup>14</sup> They were minted between 1425 and 1430. All coins of this type are divisional, without legend, a fact which leads researchers to usually classify them as *half groats*. In our opinion, this is not entirely correct and so we propose a short historical background to Alexander's monetary system which has been previously discussed by scholars.

In the 15<sup>th</sup> century, the Moldovan monetary system reached its greatest diversity under Alexander's rule. After a monetary reform, most probably carried out in a few steps, the *groat* – counting unit of the Moldovan monometallic system was completed by its fractions – a larger one – *one and a half groat*, also called *double groat*, and a smaller one – *half groat*. Epigraphic coins, *groat* and *one and a half groat* were minted from silver, but divisional coins were also made from silver and copper. The last group of coins, all of them minted from silver and copper, was placed in the category of the anepigraphic divisional *half groats*.<sup>15</sup> In one of his last works, O. Iliescu even specified metrological standard for each denomination. In his opinion, coins of *one and a half groat* had an average weight of 1.35 grams; *groats* – 0.90 grams; *half groats* – 0.45 grams.<sup>16</sup>

However, if we take a closer look at Alexander's coins, we find a clear typology, with each coin type with its distinctive features being minted in several denominations. For example, we have type I (with two fleur-de-lis in the shield) which are *half groats*, *one and a half groats*; to type III (with a rosette above the shield) – *groats*, *one and a half groats*; and type IV (with ox's head above the shield) – *one and a half groats*, *groats*<sup>17</sup> and so on.

<sup>12</sup> See, for example, DERGACIOVA 2009: 144–152.

<sup>13</sup> ILIESCU 1970: 28; IDEM 2000: 82.

<sup>14</sup> BUZDUGAN, LUCHIAN and OPRESCU 1977: 62, no. 418.

<sup>15</sup> ILIESCU 1970: 26–28; BUZDUGAN, LUCHIAN and OPRESCU 1977: 58–65; ILIESCU 1997: 84–85; BYRNJA and RUSSEV 1999: 185–188 and so on.

<sup>16</sup> ILIESCU 2000: 79–83.

<sup>17</sup> BUZDUGAN, LUCHIAN and OPRESCU 1977: 59–62.

Only the divisional specimens considered here, marked with the letter “A” can be attributed to a separate type. Crucial in this regard is the metal they were minted from. It indicates the origins of the monetary system they came from and shows the exceptional role played on Moldovan monetary market by this value.

As we know, copper coins were minted by the Golden Horde throughout its history. They had a conventional exchange rate to silver coins and were called *pul* or *pulo*. In the late 14<sup>th</sup> and early 15<sup>th</sup> century, this denomination was introduced in Red Ruthenia,<sup>18</sup> as well as in the monetary system of Kaffa<sup>19</sup> and the Principalities of Moscow, Tver, Pskov and Novgorod.<sup>20</sup> And, as the monetary system shows, it was also adopted by the Principality of Moldova, being issued by Alexander I.

This can be also indicated by another important feature – the weight of the coins. In our case, it was calculated for all 33 coins from our catalogue, including those with broken edges and traces of corrosion. The metrological data shows that the average weight of the coins is about 0.66 grams, and fluctuates between 1.07 and 0.36 grams. If we consider data from another coin hoard, such as the one from Dudulești village in the Republic of Moldova, the average weight of 235 items was 0.65 grams, ranging between 1.52 and 0.34 grams.<sup>21</sup>

On the one hand, this average weight is several times higher than the average weight of divisional silver coins of the other types (the average weight is about one fourth of a gram according to the author’s calculations). On the other, it is close to the average weight of the Golden Horde *puls*. Their weight was directly related to the weight of dirham coins, suffered massive depreciation and as a result, reduction of the weight in late 14<sup>th</sup> – early 15<sup>th</sup> centuries. In early 15<sup>th</sup> century, one dirham with the weight of 1.56 grams could have been exchanged for 32 Tatar *puls*.<sup>22</sup>

Most likely, the Moldovan coins, like those of the Golden Horde, were issued on a conventional basis and had a certain exchange rate to silver issues. Although this rate varied, we have a good example of supply in the monetary system with the coins of small denomination.

Thus, as we have long argued,<sup>23</sup> coins of this type are not *half groats* in the traditional sense of this term, but copper issues created in Moldovan heraldic traditions, based on the Tatar monetary system.

Returning to the main discussion, we should note that discussed hoard is actually the second one of such a type to have been found in the fortress. The first

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<sup>18</sup> KRYZHANIVSKIJ 2005: 417–418.

<sup>19</sup> LUNARDI 1980: 109–111, nos. C58–C60.

<sup>20</sup> SPASSKIJ 1970: 95–96.

<sup>21</sup> DERGACIOVA 2013–2014: 155.

<sup>22</sup> MUHAMADIEV 1983: 108.

<sup>23</sup> DERGACIOVA 2013–2014: 154–157.

was detected in 1974 complex no. 250, in the northwestern bastion, close to the main gate of the fortress.<sup>24</sup> Although also featuring one silver coin of Stephen II, issued in the first years of his reign (1433–1435), it also includes 26 divisional copper coins minted by Alexander I.<sup>25</sup>

Taking into account the fact, that the attribution of one coin from discussed hoard remains in doubt (most probably its was the same divisional copper coin of the same type), and the degree of preservation of the coins in both deposits are seems to be the same, we can point out a few conclusions:

1. Both complexes are not the hoards in the traditional sense of the word, but rather a small pouch with a certain number of coins of the same type, issued in a relatively short period of time, lost or hidden as a result of certain unexpected circumstances.

2. The presence of the items of the same type minted in the last years of Alexander's reign, in case of both hoards, with infiltration of Stephen's silver coins, in case of the 1974 hoard, shows that the divisional copper coins could have continued to be in use even after the death of the issuer.

This means that even after 1432, Alexander's copper coins were accepted by the local population as payment. We have "pure" complexes, composed exclusively of Alexander's copper coins, as well as mixed ones, formed of copper coins of Alexander and the later issues of his successors. The first group of depots includes some hoards found in Romania, namely Suceava/1954,<sup>26</sup> Iași/1958,<sup>27</sup> Iași/1979,<sup>28</sup> and Tarasova/ante 2009,<sup>29</sup> Dudulești/2014<sup>30</sup> from Republic of Moldova, and so on. To the second group of hoards can be attributed some of them, found in Romania, namely Roman/1975,<sup>31</sup> Rădăuți/1935,<sup>32</sup> Suceava/1969,<sup>33</sup> and so on.

Regarding the time of the hiding/loss of our pouch, we tend to believe it could have happened in the last years of the reign Alexander I, as well as later, in the first reign of his son Ilyash I (1432–1433), or even in the first reign of his other son – Stephen II (1433–1435).

<sup>24</sup> NUDEL'MAN 1981: 184.

<sup>25</sup> DERGACHEVA 2007: 87–93 with same changes in the structure of the coin hoard, mentioned by A.A. Nudel'man; EADEM 2008: 409–414.

<sup>26</sup> MITREA et AL 1955: 760.

<sup>27</sup> NEAMȚU 1964: 496–503.

<sup>28</sup> CNM-II: 57, no. 10.

<sup>29</sup> NICOLAE 2009: 220, note 12.

<sup>30</sup> DERGACIOVA 2013–2014: 158–162, Catalogue I; 164–168, Pls. II–VII (coin hoard 1).

<sup>31</sup> HORDILĂ 1994: 401–422.

<sup>32</sup> PÂRVAN 2001: 357–361, 371–374.

<sup>33</sup> FOIT 1973: 21; IDEM 1981: 71, Table no. 1b.

## CATALOGUE

## Principality of Moldova

## Alexander I (1399/1400–1432)

## Pulo

*Obv.*: ox's head, a five-pointed star between the horns, rosette dextra, a crescent senestra; pearl circle

*Rev.* shield per pale: I free strips, II seven fleur-de-lis set in two columns 4/3, letter "A" to the right side of the shield; pearl circle

ILIESCU 1970: 28 (series V, 1430); BUZDUGAN, LUCHIAN and OPRESCU, 1977: 62, no. 418 (type V); ILIESCU 2000: 82 (phase III, emission IX, 1425–1430).

1. AE, 1.07 g, 14 × 13 mm, 10h; off-centre strike obverse, traces of corrosion
2. AE, 0.95 g, 13.5 × 15 mm, 9h; off-centre strike obverse
3. AE, 0.94 g, 15 mm, 10h; off-centre strike reverse
4. AE, 0.87 g, 15 mm, 11h; double-strike obverse
5. AE, 0.83 g, 15.8 × 14 mm, 1h; off-centre strike obverse and reverse, traces of corrosion
6. AE, 0.83 g, 14 × 12 mm, 10h; traces of corrosion
7. AE, 0.78 g, 15 mm, 1h; off-centre strike obverse and reverse, traces of corrosion
8. AE, 0.78 g, 17 mm, 8h; off-centre strike obverse and reverse, traces of corrosion
9. AE, 0.78 g, 14 × 13 mm, 7h; off-centre strike reverse
10. AE, 0.75 g, 14.8 mm, 7h; off-centre strike obverse, traces of corrosion
11. AE, 0.74 g, 17 mm, 5h; off-centre strike obverse and reverse, traces of corrosion, hole
12. AE, 0.73 g, 15.5 mm, 6h; traces of corrosion
13. AE, 0.73 g, 15 mm, 4h; fragment
14. AE, 0.72 g, 15 mm, 4h; off-centre strike obverse and reverse, traces of corrosion
15. AE, 0.70 g, 14.5 mm, 6h
16. AE, 0.67 g, 15.5 mm, 11h; traces of corrosion
17. AE, 0.66 g, 15 × 14 mm, 1h; traces of corrosion
18. AE, 0.65 g, 15 mm, 1h; off-centre strike obverse and reverse, traces of corrosion, broken edge
19. AE, 0.65 g, 15 × 14 mm, 3h; traces of corrosion
20. AE, 0.63 g, 14.5 × 12 mm, 10h; off-centre strike reverse, traces of corrosion
21. AE, 0.61 g, 14.5 mm, 3h; traces of corrosion
22. AE, 0.58 g, 14 mm, 1h; traces of corrosion, broken edge
23. AE, 0.57 g, 14.5 mm, 10h; traces of corrosion, broken edge
24. AE, 0.56 g, 14 × 15 mm, 3h; traces of corrosion
25. AE, 0.52 g, 16 mm, 10h; off-centre strike obverse and reverse, traces of corrosion
26. AE, 0.51 g, 14.5 mm, 11h; traces of corrosion
27. AE, 0.48 g, 15 mm, 5h; off-centre strike obverse, traces of corrosion, hole
28. AE, 0.47 g, 14.5 mm, 5h; traces of corrosion
29. AE, 0.47 g, 14 mm, 2h; off-centre strike obverse and reverse, traces of corrosion, hole
30. AE, 0.45 g, 16 × 14.5 mm, 4h; off-centre strike obverse and reverse, traces of corrosion
31. AE, 0.39 g, 15 × 13 mm, 5h; traces of corrosion, hole
32. AE, 0.38 g, 13.8 mm, 5h; off-centre strike obverse and reverse, traces of corrosion, hole
33. AE, 0.36 g, 15.5 × 12.5 mm, 1h; off-centre strike obverse and reverse, traces of corrosion, hole

## ABBREVIATIONS

- ActaMC = *Acta Moldaviae Septentrionalis*, Botoshani.  
 AIM = *Arheologicheskie issledovanija v Moldavii*, Kishinev.  
 AM = *Arheologia Moldovei*, Iassi-Bucharest.  
 CN = *Cercetări Numismatice*, Bucharest.  
 CNM-II = V. BUTNARIU (ed.). *Monnaies et parures du musee d'histoire de Iași*, Corpus Nummorum Moldaviae II, Iassi, 1998.  
 EDR = *Ephemeris Dacoromana. Annuario della scuola Romana di Roma*, Roma.  
 MA = *Memoria Antiquitatis*, Piatra-Neamtz.  
 NAIANANU = *Nauchnyj arhiv Instituta Arheologii Nacional'noj Akademii Nauk Ukrainy*, Kyiv.  
 Oltenia = *Oltenia. Studii și comunicări. Arheologie-Istorie*, Craiova.  
 RI = *Revista Istorică*, Bucharest.  
 SCIV = *Studii și Cercetări de Istorie Veche (și Arheologie)*, Bucharest.  
 SMI = *Studii și Materiale de Istorie*, Suceava.  
 Stratum plus = *Stratum plus*, Sankt-Petersburg, Chishinau, Odesa, Bucharest.  
 Suceava = *Suceava. Anuarul Muzeului Bucovinei*, Suceava.  
 Tyragetia = *Tyragetia. Arheologie. Istorie Antică*, Chishinau.  
 ZOOID = *Zapiski Odesskogo obshchestva istorii i drevnostej*, Odessa.

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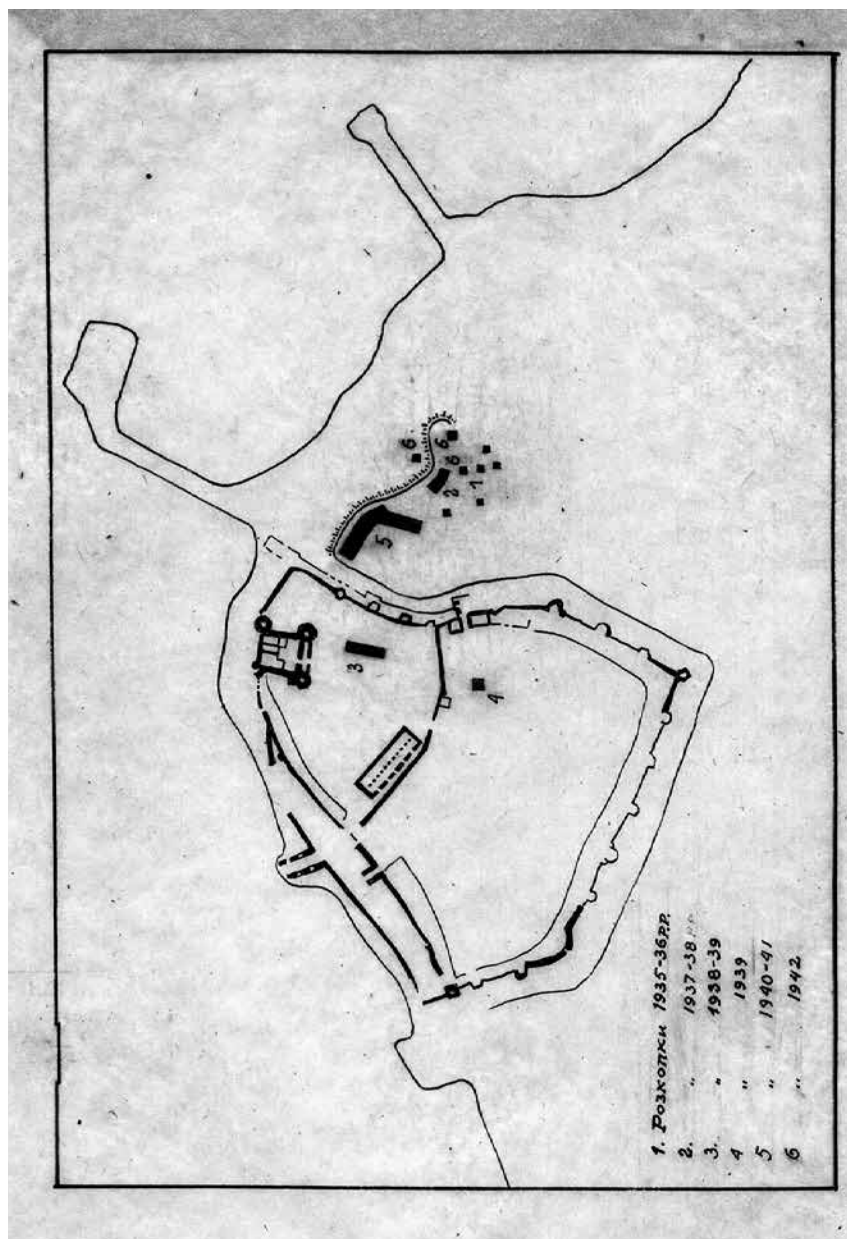
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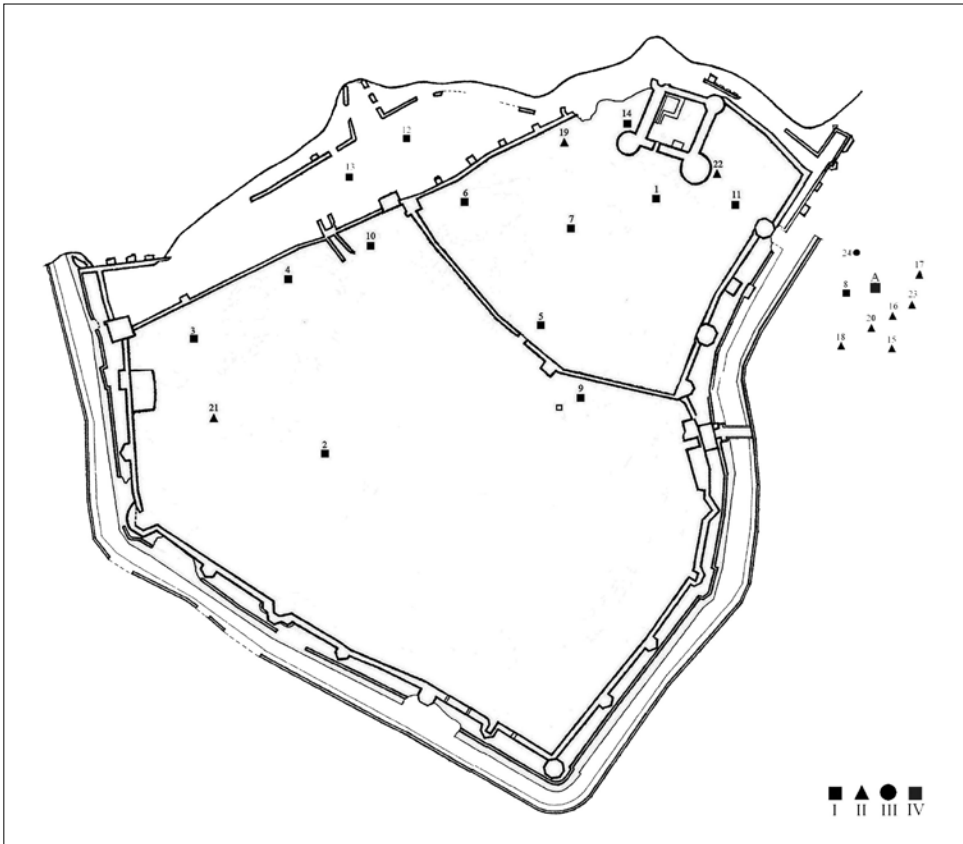
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- PLATE 1            The original scheme of the Belgorod fortress on the Dniester River found in L.D. Dmitrov's documentation
- PLATE 2            The main scheme of the Belgorod fortress on the Dniester River; trenches and test pits opened on the territory of fortress and glacis during the investigations (drawing by I. Stankiewicz)
- PLATE 3            Fig. A. The Belgorod fortress on the Dniester River; general view of excavation site "A" from the northwest (photo by L.D. Dmitrov)  
Fig. B. The Belgorod fortress on the Dniester River; remains of the building constructions of the 14<sup>th</sup>-15<sup>th</sup> centuries in the southern part of the excavation site "A" (photo by L.D. Dmitrov)
- PLATE 4            The Belgorod fortress on the Dniester River ; excavation site "A", general view. The place where the coin hoard was found is marked with an arrow
- PLATE 5            The Belgorod fortress on the Dniester River; stratigraphy of the west and north sides of the quare 21 (drawing by L.D. Dmitrov)
- PLATES 6-7        Figs. 1-33. Divisional copper coins of Alexander I from the hoard found in excavation site "A". The numbers of the photographs correspond to the numbers of the coins as per "Catalogue (\*)" (photos by L. Dergaciova)





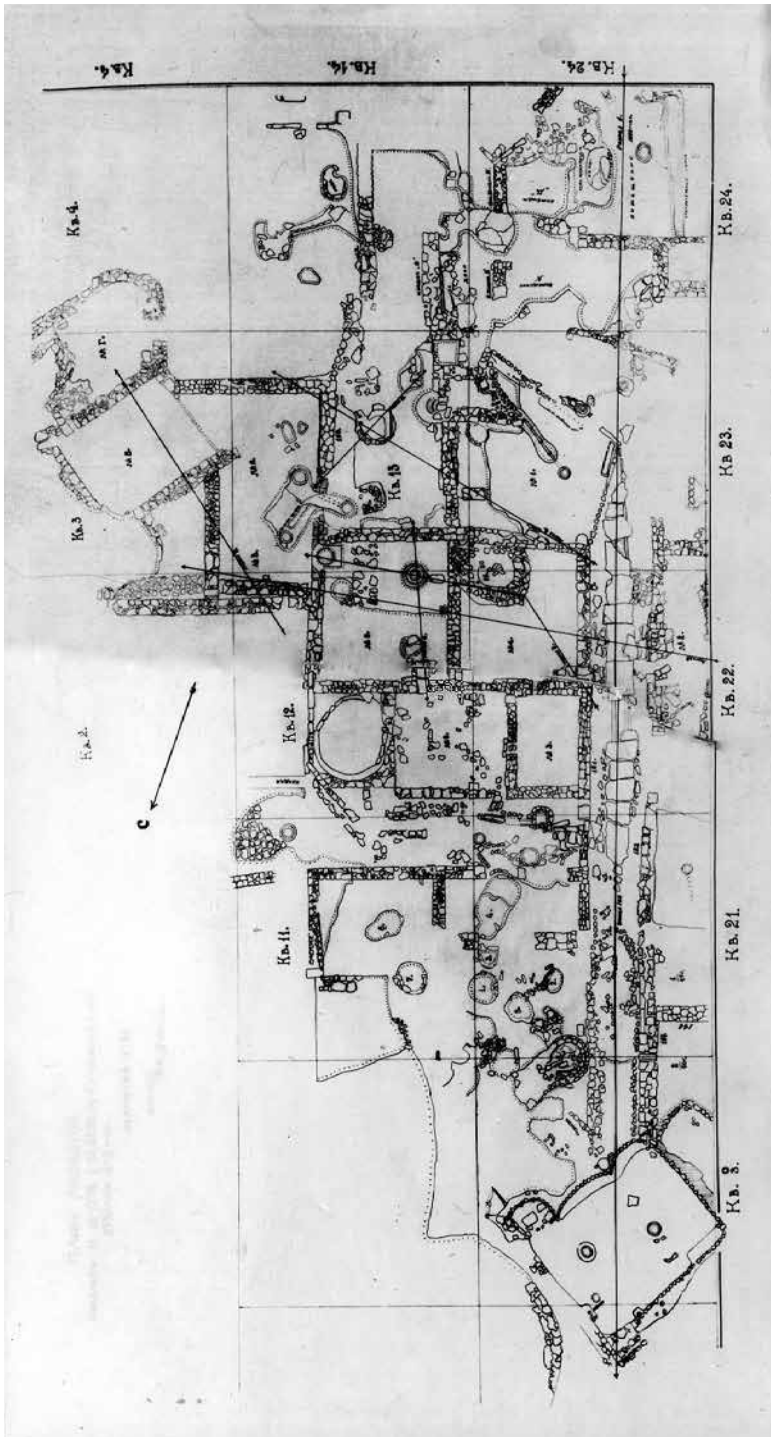
The main scheme of the Belgorod fortress on the Dniester River; trenches and test pits opened on the territory of fortress and glacis during the following investigations: I – 1900 (nos. 1–8), 1904 (nos. 9–11), 1912 (nos. 12–14); II – 1919, 1927–1930 (nos. 15–23); III – 1941 (no. 24); IV. 1945–1946 (“A”)

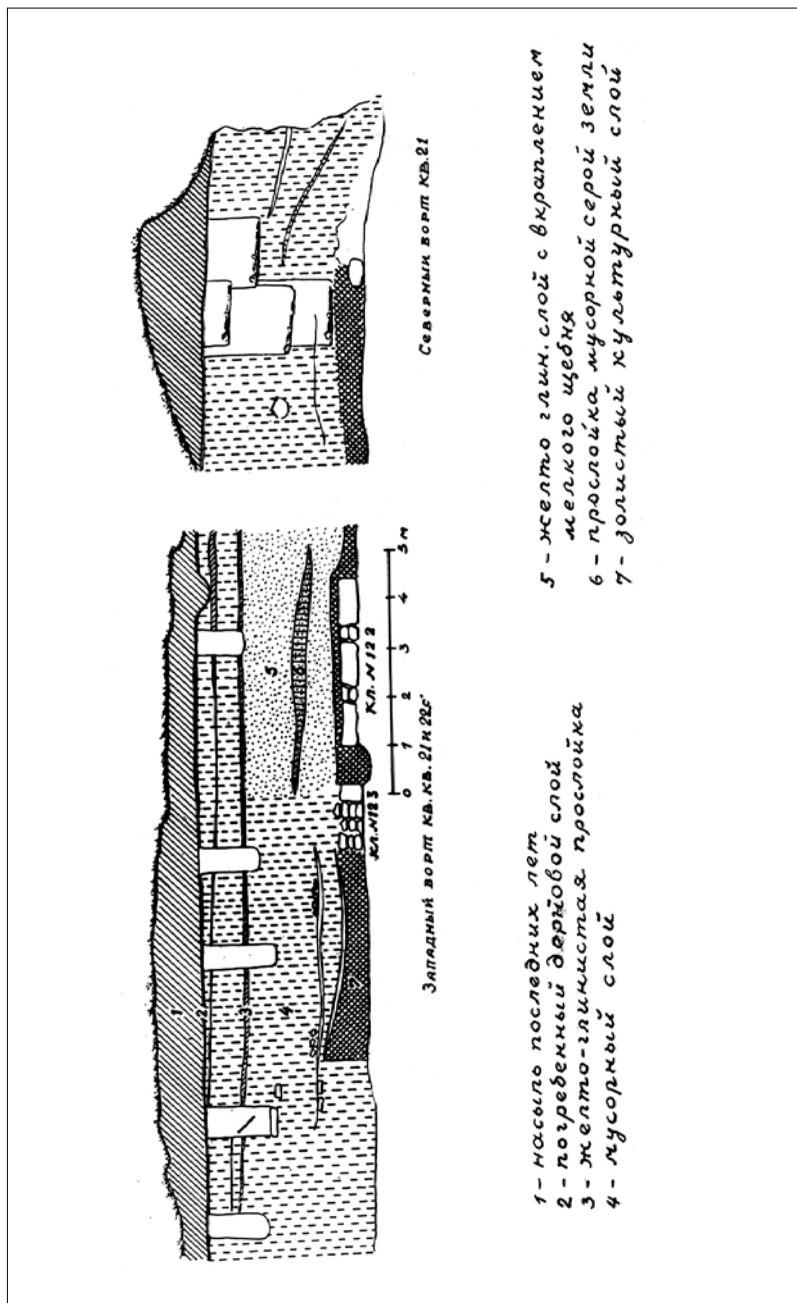


A



B





The Belgorod fortress on the Dniester River; stratigraphy of the west and north sides of the square 21  
 Stratigraphic layers: 1) embankment of recent years; 2) buried layer of sod; 3) yellow-clayey interlayer; 4) garbage layer; 5) yellow-clay layer interspersed with fine gravel; 6) layer of garbage grey earth; 7) ashy cultural layer



1



2



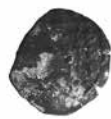
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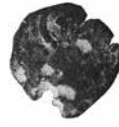
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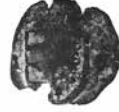
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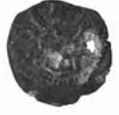
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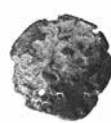
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