

REVIEW ARTICLE

The Most Ancient Metal Spearheads in Eastern Europe (on Reconstructing the Indo-European Weaponry Complex)

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Abstract

The article presents the new concept of origins and early development stage of copper-bronze spearheads with bushing of Corded Ware, Yamna and Catacomb cultures of Eastern Europe. Such findings are the markers of Indo-European migrations.

Keywords: Metal Spears, Wax Model, Ceramics and Stone Casting Molds, Bronze, Corded Ware Cultures, Yamna Culture, Catacomb Culture, Early and Middle Bronze Age, Eastern Europe, Indo-European Weaponry Complex.

1. Introduction

In the monograph «Weapons of the tribes of the Northern Pontic zone in the 16th – 10th centuries B.C.» (Baltic-Pontic Studies, vol.1), published in 1993 in Poznan, I assumed that the most ancient metal spearheads with bushing connection in Eastern Europe were the “forged” ones, which were hypothetically attributed to the Catacomb culture (Klochko 1993, 52-53). Later this statement was developed in further studies (Klochko 2001, Klochko 2006), where it was argued that technologies and forms of the initial spears with casted bushing of late Corded Ware and Babyno cultures was formed on the foundation of these spears. Solid facts prove that popular Russian “Seimen” theory regarding the origin of Late Bronze Age metallurgy (including spears and axe-celts with bushing) from the East of Eurasia is nothing more than a Eurasian myth (Klochko 2019). The seimen terra incognita of Russian archaeologists turned out to be not in Siberia but at Right-bank Ukraine. The new hoards and accidental findings of spearheads from Ukraine allow the new typo-chronology of the most

ancient spears of Eastern Europe as well as examine the question of their origin.

The significant extension of the source base and new theoretic concepts based on the new sources allow to review this question on the new level of knowledge. The first metal spearheads found in Ukraine – imports of Uruk type – are the most ancient stalking spears of the Middle East, dated the end of IV – beginning on III millennia BC (Klochko et al. 2020, 112, 121-122). However, they were not adapted by the local culture and had no further development in Eastern Europe. Although this type of weapon could have some impact of the local weaponry evolution but it is a subject of another research.

2. Beginning, First Half – Middle of III Millennia BC – End of III Millennia BC, Novoselytsia Tradition Spear

The development of local tradition of metal spearheads with bushing begins within the activity of Carpathian-Volhynia metallurgy center of “willow leaf” of Corded Ware cultures (Klochko & Klochko

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2013). In the first half – middle of III millennia BC within the Corded Ware ceramics area of Carpathian and Podillia regions the “Novoselytsia phenomena” appears – the mass production of Novoselytsia type axe-adz with bushing casted via wax models begins (previous names: “celts with forged bushing”, “celts with collapsed bushing”) (Klochko et al. 2020, 83-88, 98-101).

The Novoselytsia technological tradition, which rose on the metallurgies of Carpathian and Podillian Trypillia, continued the Trypillia traditions of crafting the flat axe-adzes, daggers with triangular blade and awls, which were casted in multi-time ceramics and stone (?) casting forms. The sickles and scythes would be casted in the similar molds. Within this

technological tradition the new types of tools would be casted – axe-adzes (“celts”) and chisels with “collapsed” bushing (Klochko et al. 2020, Fig. 51). The base complex for this technological tradition is the hoard from Novoselytsia village of Zhmerynka district in Vinnytsia region (Klochko, Kozymenko 2017, Fig. 2.2.1) (Fig. 1: 2).

The new findings show that these very technologies were the basis for the first spearheads “with collapsed bushing”, the bushing of which has the features of the archaic “Novoselytsia” tradition of wax model. The blade form of these spears continues the traditional ones of flint spearheads of Corded Ware, Yamna and Catacomb cultures (Klochko 2001, Fig. 26: 2,3; 30: 8-14; 34: 21; 43: 7-8; 49: 28-29) (Fig. 1: 1).

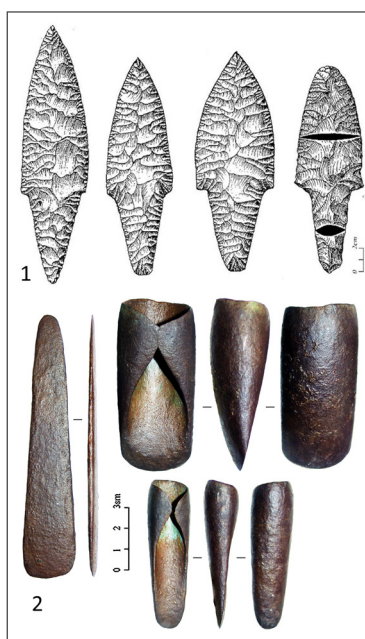


Figure 1. 1. Flint spears of Early Bronze Age in Eastern Europe (by Klochko 2001); 2. The Novoselytsia hoard (by Klochko, Kozymenko 2017).

The most archaic, bearing traces of molding the wax model, seem to be the spears from Chernihiv region (found: 05.06.2020) (Fig. 2: 1); Konotop of Sumy region (found: 19.09.2020) (Fig. 2: 2); Kyiv region (Klochko 2001, Fig. 26: 4) (Fig. 2: 3); Nasypne village of Feodosia district of Crimea (Klochko, Kozymenko 2017, Fig. 2.5.14, an. 1817) (Fig. 2: 4); Storozhovka village of Tatishchev district of Saratov region in Russia (Klochko 2001, Fig. 35: 3) (Fig. 2: 5); Balanovo graveyard of Balanovo culture on Middle Volga in Russia (Epoha bronzы... 1987, Fig. 41: 9) (Fig. 2: 6); from Kazanska stanitsia on Lower Don (Klochko 2001, Fig. 35: 1; Klochko 2006, Fig. 32: 1) (Fig. 2: 7); Terebovlia of Ternopil region (found: 21.12.2021) (Fig. 2: 8); Poltava (found: 11.02.2022) (Fig. 2: 9); Traktyrny khutor in Kuban (Klochko 2001, Fig. 35: 2; Klochko 2006, Fig. 32: 2) (Fig. 2:

10); Poltava region (found: 01.04.2019) (Fig. 2: 11); Vinnytsia region (found: 13.05.2020) (Fig. 2: 12) and Khmelnytskyi region (found: 12.06.2021) (Fig. 2: 13). The spearhead from Khmelnytskyi region has two holes on the bushing for adjustment, one looks slotted, which can be achieved only on the wax model (Fig. 2: 12). The original spearhead comes from Kherson region (found: 08.02.2021) (Fig. 2: 14), its bushing has a “cave” on one side, imitating the bushing form of the axe-adzes (“celts”) with “collapsed” bushing. The form of the edge nears the leaf shape. The classic leaf-shaped edge appears on the spear with wide not closed bushing from Zvenyhorodka of Cherkasy region (found: 28.05.2022), the bushing has square hole (obviously cut on the wax model) for adjusting the pole (Fig. 2: 15).

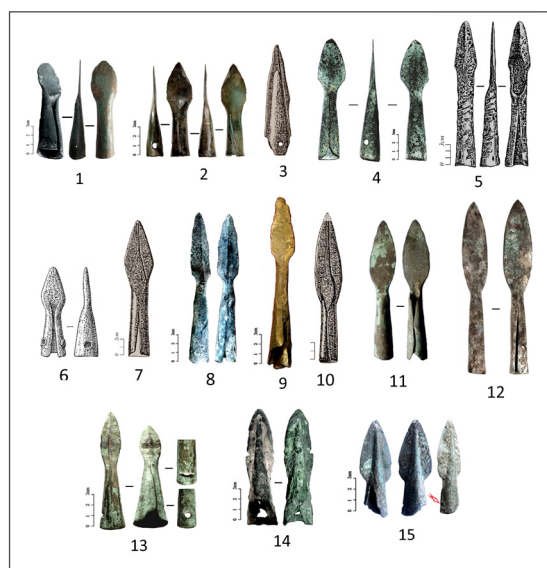


Figure 2. The spears of the “Novoselytsia” tradition: 1. Chernihiv region; 2. Konotop; 3. Kyiv region (by Klochko 2001); 4. Nasypne (by Klochko, Kozymenko 2017); 5. Storozhovka (by Klochko 2001); 6. Balanovo gravefield (by Epoha bronzы...); 7. Kazanska (by Klochko 2001); 8. Terebovlia, Ternopil region; 9. Poltava; 10. Traktyrny (by Klochko 2001); 11. Poltava region; 12. Vinnytsia region; 13. Khmelnytskyi region; 14. Kherson region; 15. Zvenyhorodka.

The large amount of such spears was found to the east from the main “Novoselytsia” area, where they mark the frontal edge of the initial migration wave of this agricultural tradition to the east. It is the Indo-European migration to the Don, Volga, Caucasus, Asia Minor, Levant (for example, from the burials Kültepe and Byblos (Müller-Karpe 1974, Taff. 258: B5-7; 297: 28-29) and Greece (for example, Mycenae (Leshtakov 2015, Tabl. 19:6-8) (Fig. 3). The markers

of the first stage of migration (middle – end of III millennium BC), aside from the Novoselytsia type axe-adzes are the Kozarac-Stublo type axes of the Corded Ware cultures and Kolontaiv-Corbaska type axes of the Catacomb culture (Klochko et al. 2020, 42-51; Klochko 2020; Klochko 2021; Klochko 2022) (Fig. 3). In Greek and Levant territories such archaic model of spears was in use up until the “See Peoples” era.

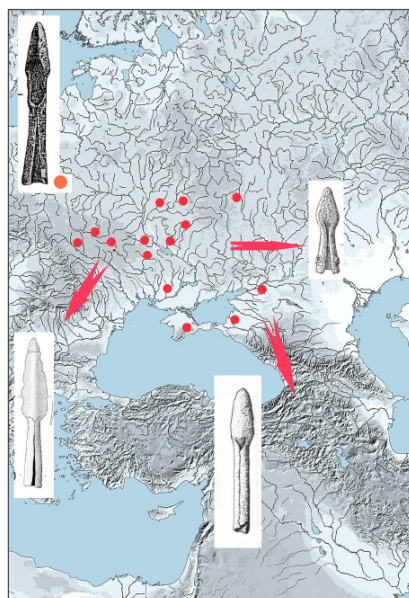


Figure 3. Map of the “Novoselytsia” tradition.

3. End of III Millennium BC – Beginning of II Millennium BC (“pre Borodino” AKA “pre Seima” cultural and chronological horizon), Middle Dnipro Tradition of Spears

The technological progress went on at this time

in Eastern Europe. The next stage of this weapon’s regional evolution (the Middle Dnipro tradition) is marked by the new hoard from Kyiv region (found:

At the same time, simultaneously with crafting spears with the “collapsed” bushing, the experiments with

16.06.2022). It included large “Early Zrubna” type scythe, “Middle Dnipro” type axe-adz and a spear with leaf-shaped edge, diamond rib and a bushing with smoothed crack (Klochko et al. 2020, 94-98) (Fig. 4: 8).

The “Middle Dnipro” group includes the spear from the burial 53 of Strel'ytsia gravefield (Rudnia Shlehina, Stelytsia tract, Belarus (Artemenko 1967, Fig. 27: 2) (Fig. 4: 1). This spear was casted in a wax model, has smoothed crack. M. Kryvalcevich attributed this burial to the early group of burials of Middle Dnipro culture of Corded Ware ceramics in the region, dating 2000 – 1900/1800 BC based on C14 (Kryvalcevich 2006, 26). The spear from Volosovo-Danilovo gravefield of Fatianovo culture on Upper Volga in Russia belongs to the same time period. (Epoha bronzy... 1987, Rys. 35: 23) (Fig. 4: 2). The spear from Cherkasy region (found: 25.10.2021) has smoothed crack on the side of quite long bushing, oval “ear” stuck to the wax model and well-modeled sharp-leaf blade. There is a line of ornamented triangulars, carved on the rib (Fig. 4: 3).

The spears from Hatne village of Kyiv-Sviatoshino district of Kyiv region (Klochko, Kozymenko 2017, 284, Fig. 10) and Okhtyrka of Sumy region (found: 23.12.2023) have heavily forged bottom of the bushing with forged “ears” (it could be the most ancient spears with the “ears” on the bushing) (Fig. 4: 4, 5). Spears from Sumy region (found: 30.05.2008) and Poltava (found: 12.02.2024) have the long bushing with smoothed crack (Fig. 4: 6, 7). The production of the spears with the “collapsed” bushing casted after a wax model lasted in Ukraine (within the Kryvyi Rih metallurgy center, for instance) for quite some time, simultaneously with casting spears with the whole bushing in ceramics and stone multi-time casting forms. One of the latest of such findings is the small spear-dart from the “Tsybuleve” Loboikivka bronze hoard of the Late Bronze Age (middle of II millennium BC) found near Tsybuleve village near Znamianka of Kropyvnytskyi region (Klochko, Kozymenko 2017, Fig. 4.1.1.2: 7). This group also includes the spear from Sintashta (Bersenev, Epimakhov and Zdanovich 2011, Figure 2: 5) (Fig. 7).



Figure 4. The spears of “Middle Dnipro” tradition: 1. Strel'ytsia, burial 53 (Artemenko 1967); 2. Volosovo-Danilovo gravefield (by Epoha bronzy...); 3. Cherkasy region; 4. Hatne; 5. Okhtyrka; 6. Sumy region; 7. Poltava; 8. The new Kyiv hoard.

the whole “obtuse” bushing from the wax model take place. One of the most ancient of such items is the spear from Vinnytsia region (Evhen Dobrovanov collection) with the long narrow blade, triangular ornament on the rib and short bushing (Fig. 5: 7). As old seem to be the findings from Middle-Upper Dnipro region (found: 26.03.2017) (Fig. 5: 1) and

Sumy region (found: 31.05.2020) (Fig. 5: 2). Quite original forms and triangular adjustment holes on the sides of the bushing indicate the wax model. The spear from Sumy region also has additional “earhole” on the lower edge of the blade. The spear from Terebovlia of Ternopil region resembles the “classic” ones much more (found: 28.05.2022). It is ornamented

with stucked triangulars (possibly imitating the platen ornament) on the rib and large oval hole on the side of the bushing (Fig. 5: 3). So does the spear from Cherkasy region (found: 03.05.2020) which has a hole quite high on the side of the bushing (Fig. 5: 4) and the spear of Middle Dnipro culture of Corded Ware ceramics from the burial 1 of kurgan 11 Hodosovychi of Moshka tract in Belarus (Artemenko 1967, Fig. 47:

32) — the wax model origin of the latter is indicated, for instance, asymmetrical holes on the bushing (Fig. 5: 5). M. Kryvalcevich attributes this burial, as well as one from the Strelitsia to the early group of Middle Dnipro culture of regional Corded Ware, which dates 2000 – 1900/1800 BC based on the C14 (Kryvalcevich 2006, 26). This group also includes the dart head from Khmelnytskyi region (found: 21.11.2022) (Fig. 5: 6).

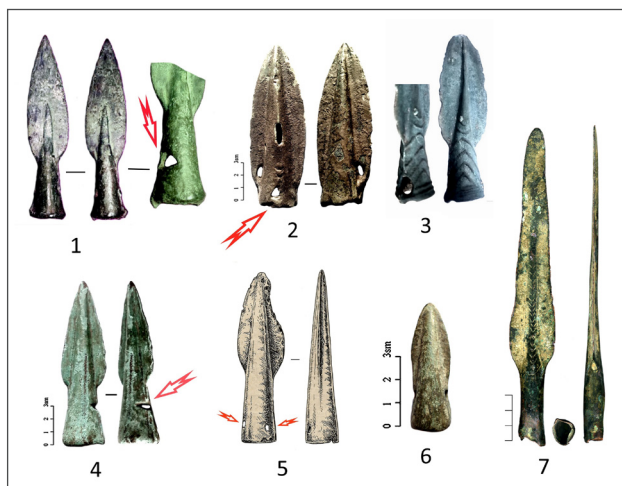


Figure 5. The spears with “obtuse” bushing: 1. Middle Upper Dnipro region; 2. Sumy region; 3. Terebovlia; 4. Cherkasy region; 5. Hodosovychi (by Artemenko, 1967). 6. Khmelnytskyi region; 7. Vinnytsia region.

“Hodosovychi” type spears are quite small, with wide leaf-shaped edge and “obtuse” bushing, found in Kyiv region (found: 02.04.2018) (Fig. 6: 1), in Volhynia region (found: 02.04.2018) (Fig. 6: 2), Khmelnytskyi region (found: 22.04.2017) (Fig. 6: 3), Poltava region (found: 27.04.2017 and 16.05.2017) (Fig. 6: 4, 5), near Kyiv (found: 18.09.2018) (Fig. 7: 6), in Kropyvnytskyi region (found: 21.10.2018) (Fig. 6: 7), Chernihiv region (found: 20.05.2019) (Fig. 6: 8), Kyiv region (found: 13.01.2020) (Fig. 6: 9), Sumy region (found: 16.01.2020) (Fig. 6: 10), Odesa region (found: 25.12.2020) (Fig. 6: 11), Cherkasy region (Klochko, Kozymenko 2017, Fig. 3.1.17) (Fig. 6: 12); Kyiv region (Klochko, Kozymenko 2017, Fig. 3.1.18)

(Fig. 6: 13); near Dnipro city (found: 13.01.2022) (Fig. 6: 14) and Sumy region (found: 15.07.2018) (Fig. 6: 14). These spears I initially falsely attributed to the Babin type of Unetytsia culture (Klochko et al. 2020, 107-112), however this research shows that Hodosovychi type spears belong to the earlier time and belong to the late stage of Corded Ware culture in Central Ukraine and nearest territories. Some of them could have been casted in the multi-time ceramics and stone forms, which can be difficult to deduce via the photos. Unetytsia type spears are obviously the further development of this tradition and technology (Fig. 7).



Figure 6. The Hodosovychi type spears: 1. Kyiv region; 2. Volhynia, 3. Khmelnytskyi region; 4,5. Poltava region; 6. Kyiv; 7. Kropyvnytskyi region; 8. Chernihiv region; 9. Kyiv region; 10. Sumy region; 11. Odesa region; 12. Cherkasy region (Klochko, Kozymenko 2017); 13. Kyiv region (Klochko, Kozymenko 2017); 14. Dnipro city; 15. Sumy region.

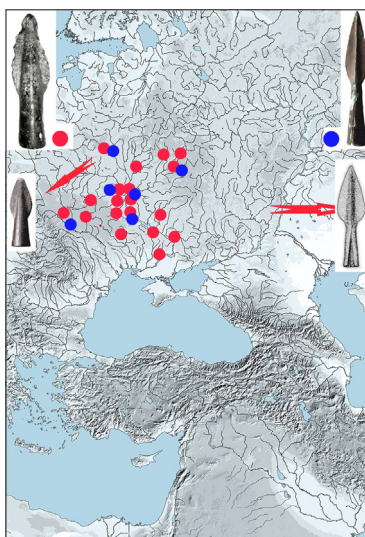


Figure 7. Map of the “Middle Dnipro” tradition.

The spears with “obtuse” bushing and **narrow sharp-leaf edge** existed simultaneously with them. Such items were found: near Mykolaiv (found: 22.10.2015) (Fig. 8: 1), near Sumy (found: 23.04.2019) (Fig. 8: 2), in Zhytomyr region (found: 14.04.2020) (Fig. 8: 3), Ternopil region (found: 21.09.2020) (Fig. 8: 4), near Lviv (found: 09.02.2020) (Fig. 8: 5), Kropyvnytskyi region (found: 05.08.2018) (Fig. 8: 6), Lviv region (found: 24.07.2013 and 05.01.2021) (Fig. 8: 7,10), Sumy region (found: 12.11.2019 and 17.02.2020) (Fig. 8: 8,9), in Pereiaslav of Boryspil district of Kyiv region (Klochko 2001, Fig. 57: 2; Klochko 2006, Fig. 54: 2) (Fig. 8: 11), Kyiv region (found: 06.09.2016 and 19.04.2016) (Fig. 8: 12,14), Vinnytsia region (found: 07.10.2018 and 14.12.2016) (Fig. 8: 13,16), near Zolotonosha of Cherkasy region (found: 22.04.2016) (Fig. 8: 15), Sumy region (found: 27.10.2018) (Fig.

8: 17), Cherkasy region (found: 29.01.2019) (Fig. 8: 18), in Podillia (found: 15.02.2019) (Fig. 8: 19), near Kyiv (found: 21.03.2019) (Fig. 8: 20), Poltava region (found: 01.04.2019) (Fig. 8: 21), Cherkasy region (found: 02.01.2020) (Fig. 8: 22), Sumy region (found: 17.02.2020) (Fig. 8: 23), Ternopil region (found: 23.06.2020) (Fig. 8: 24), near Volodymyr-Volynskyi (found: 12.01.2021) (Fig. 8: 25), Poltava region (found: 12.01.2021) (Fig. 8: 26), near Pishchane village of Zolotonosha district of Cherkasy region (Klochko, Kozymenko 2017, Fig. 3.1.19) (Fig. 8: 27) and Poltava region (found: 02.09.2019) (Fig. 8: 28). Later this variant of sharp-leaf spears became the foundation for the “Dremailivka” and “Krasnyi Maiak” types of Noua and Sabatynivka cultures of the Late Bronze Age (Klochko 1993; 2001).

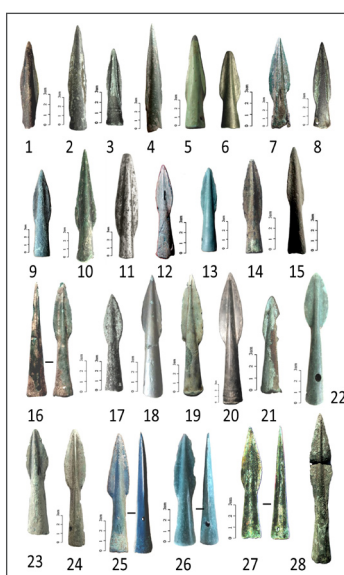


Figure 8. The spears with narrow edge: 1. Mykolaiv; 2. Sumy; 3. Zhytomyr region; 4. Ternopil region; 5. Lviv; 6. Kropyvnytskyi region; 7, 10. Lviv region; 8,9. Sumy region; 11. Pereiaslav; 12,14. Kyiv region; 13,16. Vinnytsia region; 15. Zolotonosha; 17. Sumy region; 18. Cherkasy region; 19. Podillia; 20. Kyiv; 21. Poltava region; 22. Cherkasy region; 23. Sumy region; 24. Ternopil region; 25. Volodymyr-Volynskyi; 26. Poltava region; 27. Pishchane (Klochko, Kozymenko 2017); 28. Poltava region.

The spears with “ears” of the bushing belong to the same “pre Borodino” (“pre Seima”) horizon: from Sumy region (found: 22.12.2018; 21.04.2021; 26.06.2019 (165 mm long); 18.03.2018) (Fig. 9, 1-4); Chernihiv region (found: 17.07.2018; 11.05.2020; 01.03.2020; 03.09.2019) (Fig. 9, 5-8); Kharkiv region (found: 05.04.2017; 28.04.2020) (Fig. 9, 9-10); Hadiach of Poltava region (found: 29.02.2020) (Fig.

9, 11); Poltava region (found: 16.03.2021; 03.03.2015; 05.03.2019 (135 mm long)) (Fig. 9, 12-14); Cherkasy (found: 10.11.2019) (Fig. 9, 15); Kropyvnytskyi region (found: 01.08.2018; 31.01.2019; 17.07.2018) (Fig. 9, 16-18); Odesa region (found: 02.11.2016) (Fig. 9, 19); Khmelnytskyi region (found: 28.09.2021) (Fig. 9, 20) and Lviv region (found: 29.03.2020; 24.12.2015) (Fig. 9, 21-22).

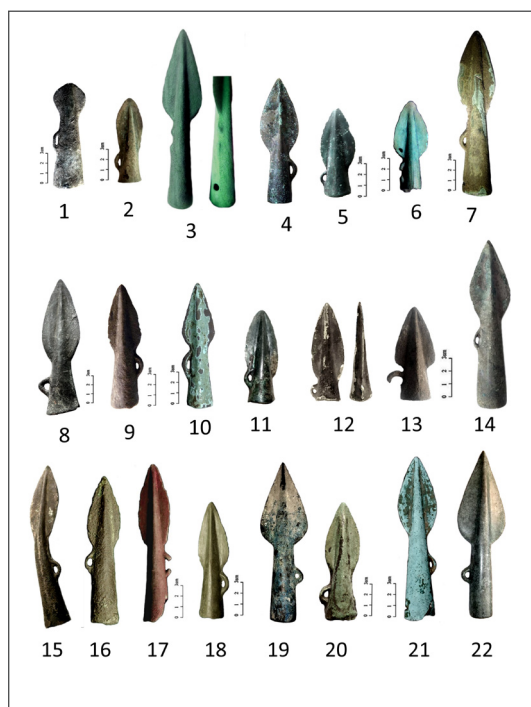


Figure 9. The spears with ear: 1-4. Sumy region; 5-8. Chernihiv region; 9-10. Kharkiv region; 11. Hadiach; 12-14. Poltava region; 15. Cherkasy; 16-18. Kropyvnytskyi region; 19. Odesa region; 20. Khmelnytskyi region; 21-22. Lviv region.

The visual examination shows that simultaneously with wax casting, the crafting in the multi-time ceramics and stone casting forms (of Hodosovychi type spears as well as with narrow edge) begins early. The usage of such forms for crafting Kozarac-Stublo type axes within the activity of Carpathian-Volhynia metallurgy center of “willow leaf” of Corded Ware culture (Klochko & Klochko 2013), begins from the middle of III millennia BC (Klochko et al. 2020, 42-51; Klochko 2020). Unfortunately, currently there are no C14 dates for that period.

For the currently present materials only Hodosovychi type spears possess absolute dates – 2000 – 1900/1800 BC. In 1700 – 1600 BC the Borodino (Seima) Dremailivka and Krasnyi Maiak types of spears form based on them (Klochko 2001; Klochko 2006).

4. Conclusion

The presented materials allow to conclude that the beginning of European copper-bronze spearheads with bushing is related to the activity of Carpathian-Volhynia metallurgy center of “willow leaf” of

Corded Ware cultures of Ukraine. This stage of development for this new type of weapon lasted from the first half – middle of III millennia BC to the beginning of II millennia BC. In 1700 – 1600 BC the Borodino (Seima) Dremailivka and Krasnyi Maiak types of spears form based on them (Klochko 2001; Klochko 2006). The spearheads of “Novoselytsia” and “Middle Dnipro” traditions are the markers for the Indo-European migrations to the Europe, Greece, North-Eastern Europe, Don, Volga, Ural, Western Siberia, Caucasus, Asia Minor and Levant.

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