

Chemical composition of non-ferrous artifacts from the Golden Horde settlements of the northern areas of the Lower Volga region

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2018 High Anthropological School University. All Rights Reserved. Earlier published and not published results of analyses of the chemical composition of wares from the non-ferrous metals occurring from the Golden Horde settlements of the central part of the Saratov region dated by the second half of the 13th-14th centuries were generalized in the article. The description of the chemical composition of wares is given for the groups distinguished by their functional purpose. The studied Golden Horde wares were compared by types of alloys with the materials of Novgorod of 13th-14th centuries. The materials of the Hmelevskoe I settlement (town) are the closest to Novgorod by composition of alloys, slightly farther are the materials of rural settlements of Ulus Jochi. Among the Golden Horde wares in general, in comparison with the Novgorod materials, it is much less made of lead-tin bronzes and much more from tin bronzes; it is slightly less brass objects in our materials, it is more wares from multicomponent alloys (copper, tin, zinc and lead) and 'pure' lead, and wares from 'pure' tin are absent at all. In the materials of Pskov of 13th-14th centuries, in comparison with ours, there are much fewer wares from 'pure' copper, and many more objects (even in comparison with the Novgorod materials) from brass and multicomponent alloys, with prevalence of zinc. These data allow the possibility of import of brass to the territory of the Golden Horde, as well as to Old Rus, from Western Europe, perhaps, through the Baltic region.

Keywords

Chemical composition, Golden horde, Non-ferrous metals, Saratov region, Settlements, Volga region

References

- [1] Valiulina, S. I. 2004. In Tatarskaia arkhologiiia (Tatar Archaeology) 12-13 (1-2), 157-191 (in Russian).
- [2] Valiulina, S. I. 2004. In Sitdikov, A. G. (ed.). Drevnost' i srednevekov'e Volgo-Kam'ia. Materialy III Khalikovskikh chtenii (Antiquity and Middle Ages of the Volga-Kama Region. Proceedings of the III Khalikov Readings). Kazan; Bolgar: Institute of History named after Sh. Marjani, Academy of Sciences of the Republic of Tatarstan, 32-36 (in Russian).
- [3] Emanov, A. G. 1995. Sever i lug v istorii kommertsii na materialakh Kafy XIII-XV vv. (North and South in the History of Commerce by 13 -15 Centuries Materials from Caffa). Tyu-men: "Rutra" Publ. (in Russian).
- [4] Eniosova, N.V., Mitoian, R.A., Saracheva, T.G. 2008. In Ryndina, N.V. (ed.). Tsvetnye i dragotsennye metally i ikh splavy na territorii Vostochnoi Evropy v epokhu srednevekov'ia (Non-Ferrous and Precious Metals and their Alloys in Medieval Eastern Europe). Moscow: "Vostochnaia Literatura" Publ., 107-179 (in Russian).

- [5] Zaitseva, I. E. 2010. In Makarov, N.A., Koval, V. Yu. (eds.). *Rus' i Vostok v IX-XVI vekakh: Novye arkheologicheskie issledovaniia* (Rus' and Orient in 9 - 16 Centuries: New Archaeological Studies). Moscow: "Nauka" Publ., 116-138 (in Russian).
- [6] Konovalov, A.A. 1969. In *Sovetskaia Arkheologiya* (Soviet Archaeology) (3), 205-216 (in Russian).
- [7] Konovalov, A.A. 1974. *Tsvetnye metally (med'i ee splavy) v izdeli-iakh Novgoroda X-XV vv.* (Non-Ferrous Metals (Copper and its Alloys) in Artefacts of Novgorod, 10-15 Centuries). PhD Diss. Moscow (in Russian).
- [8] Konovalov, A.A. 2008. In Ryndina, N.V. (ed.). *Tsvetnye i dragotsennye metally i ikh splavy na territorii Vostochnoi Evropy v epokhu srednevekov'ia* (Non-Ferrous and Precious Metals and their Alloys in Medieval Eastern Europe). Moscow: "Vostochnaia Literatura" Publ., 7-106 (in Russian).
- [9] Konkova, L. V. 1989. *Bronzolitinoe proizvodstvo na iuge Dal'nego Vostoka SSSR (rubezh II-I tys. do n. e. - XIII vek n. e.)* (Bronze-casting Production in the Southern Part of Far East of the USSR: Turn of II-I Millennia BC - 13 Century AD). Leningrad: "Nauka" Publ. (in Russian).
- [10] Koroleva, E. V. 1997. In Sedov, V. V. (ed.). *Slavianskii srednevek-ovyi gorod* (The Slavic Medieval Town) 2. Moscow: "Fond arkheologii" Publ., 169-179 (in Russian).
- [11] Koroleva, E.V. 2000. In Kirpichnikov, A.N. (ed.). *Slaviane, finno-ugry, skandinav, volzhskie bulgary* (The Slavs, Finno-Ugrians, Scandinavians, Volga Bulgars). Saint Petersburg: "Vesti" Publ., 126-134 (in Russian).
- [12] Lenkov, V.D. 1974. *Metallurgiya i metalloobrabotka u chzhurch-zhenei v XII veke* (po materialam issledovaniia Shaigin-skogo gorodishcha) (Metallurgy and Metalworking by Jurchens in 12 Century: by Investigations Data from the Shaiginskoe Fortified Site). Novosibirsk: "Nauka" Publ. (in Russian).
- [13] Lubo-Lesnichenko, E.I. 1975. *Privoznye zerkala Minusinskoj kot-loviny* (k voprosu o vneshnikh svyaziakh drevnego nasele-niia Iuzhnoi Sibiri) (Imported Mirrors in the Minusinsk Depression: on the Problem of External Relations of Ancient Residents of Southern Siberia). Series: *Kul'tura narodov Vostoka* (Culture of Oriental Peoples). Moscow: "Nauka" Publ. ("Glavnaia redaktsiia vostochnoi literatury" Publ.) (in Russian).
- [14] Nedashkovsky, L. F. 2000. *Zolotoordynskii gorod Ukek i ego okrug* (The Golden Horde City of Ukek and its Region). Moscow: "Vostochnaia Literatura" Publ. Russian Academy of Sciences (in Russian).
- [15] Nedashkovsky, L. F. 2001. In Zav'ialov, V. I. (ed.). *Drevnie remeslen-niki Priural'ia* (Ancient Craftsmen of the Cis-Ural Region). Izhevsk: Ural Branch of the Russian Academy of Sciences, Udmurtian Language, Literature and History Institute, 349-364 (in Russian).
- [16] Nedashkovsky, L. F. 2002. In Khakimov, R. S. (ed.). *Problemy drevnei i srednevekovoi istorii Srednego Povolzh'ia: materialy II Khalikovskikh chtenii* (Issues of the Ancient and Medieval History of the Middle Volga Region: Proceedings of the II Khalikov Readings). Kazan: Institute of History named after Sh. Marjani, Academy of Sciences of the Republic of Tatarstan, 191-198 (in Russian).
- [17] Nedashkovsky, L. F. 2002. In *Nizhnevolzhskii arkheologicheskii vest-nik* (Lower Volga Archaeological Bulletin) 5, 335-347 (in Russian).
- [18] Nedashkovsky, L.F. 2003. In Sedov, V.V. (ed.). *Arkheologiya i is-toriia Pskova i Pskovskoi zemli 2001-2002* (Archaeology and History of Pskov and the Pskov Land 2001-2002). Pskov, 245-252 (in Russian).
- [19] Nedashkovsky, L.F. 2010. *Zolotoordynskie goroda Nizhnego Povolzh'ia i ikh okrug* (The Golden Horde Cities of the Lower Volga Region and their Regions). Moscow: "Vostochnaia Literatura" Publ. Russian Academy of Sciences (in Russian).
- [20] Nedashkovsky, L.F. 2010. In Tomilov, N.A. (ed.-in-chief). *Inte-gratsiia arkheologicheskikh i etnograficheskikh issledovaniia* (Integration of Archaeological and Ethnographic Studies) 1. Kazan: Institute of History named after Sh. Marjani, Academy of Sciences of the Republic of Tatarstan, 147-151 (in Russian).
- [21] Nedashkovsky, L. F. 2013. In Tishkin, A.A. (ed.). *Sovremennye resh-eniia aktual'nykh problem evrazijskoi arkheologii* (Modern Solutions to Current Problems of Eurasian Archaeology). Barnaul: Altai State University, 77-81 (in Russian).
- [22] Nedashkovsky, L. F. 2016. In *Stratum plus. Archaeology and Cultural Anthropology* (6), 151-162 (in Russian).
- [23] Nedashkovsky, L. F., Rakushin, A. I. 1998. In *Tatarskaia arkheologiya* (Tatar Archaeology) 3 (2), 87-108 (in Russian).
- [24] Nedashkovsky, L. F., Rakushin, A. I. 1998. In *Tatarskaia arkheologiya* (Tatar Archaeology) 2 (1), 32-51 (in Russian).
- [25] Poliakova, G. F. 1983. *Izdeliia iz tsvetnykh i dragotsennykh met-allov iz Bolgar* (tipologicheskii i istoriko-kul'turnyi analiz) (Items from Non-Ferrous and Precious Metals from Bolgar City: Typological and Historical-Cultural Analysis). PhD Diss. Moscow (in Russian).
- [26] Poliakova, G.F. 1996. In Fyodorov-Davydov, G.A. (ed.). *Gorod Bol-gar. Remeslo metallurgov, kuznetsov, liteishchikov* (Town of Bolgar. Craft of Metallurgists, Smiths, Founders). Kazan: Language, Literature and History Institute, Academy of Sciences of Tatarstan: "Tatpoligraf" Publ., 154-268 (in Russian).
- [27] Tishkin, A.A. 2006. In Murasheva, V.V. (ed.). *Gorod i step'v kon-taktnoi evroaziatskoi zone* (The Town and the Steppe in the Contact Eurasian Zone). Moscow: "Numizmaticheskaya literatura" Publ., 191-193 (in Russian).
- [28] Tishkin, A.A., Seregin, N. N. 2011. *Metallicheskie zerkala kak is-tochnik po drevnei i srednevekovoi istorii Altaia* (po materialam Muzeia arkheologii i etnografii Altaia Altaiskogo gosudarstvennogo universiteta) (Metallic Mirrors as a Source on the Ancient and Medieval History of the Altai: by Materials from the Museum for the History and Ethnography of the Altai, Altai State University). Barnaul: "Azbuka" Publ. (in Russian).
- [29] Khlebnikova, T.A. 1996. In Fyodorov-Davydov, G.A. (ed.). *Gorod Bolgar. Remeslo metallurgov, kuznetsov, liteishchikov* (Town of Bolgar. Craft of Metallurgists, Smiths, Founders). Kazan: Language, Literature and History Institute, Academy of Sciences of Tatarstan: "Tatpoligraf" Publ., 269-292 (in Russian).

- [30] Atil E., Chase, W.T., Jett, P. 1985. Islamic metalwork in the Freer Gallery of Art. Washington, D.C.: Freer Gallery of Art, Smithsonian Institution.
- [31] Fyodorov-Davydov, G.A. 1984. The Culture of the Golden Horde Cities. Translated from the Russian by H. Bartlett Wells. BAR IS 198. Oxford: BAR.
- [32] Nedashkovskii, L.F. 2009. Economy of the Golden Horde population. *Anthropology & Archaeology of Eurasia* 48 (2), 35-50.
- [33] Nedashkovsky, L. F. 2004. Ukek: The Golden Horde city and its periphery. BAR IS 1222. Oxford: Archaeopress.
- [34] Nedashkovsky, L.F. 2012. Golden Horde Antiquities: The development of research ideas. *Acta Archaeologica* 83 (1), 225-255.
- [35] Nedashkovsky, L. F. 2014. Agriculture, Cattle Breeding and Trade in the Golden Horde Based on Data from Written Sources. In *Russian Studies. From the early Middle Ages to the present day*. Terra Sebus: Acta Musei Sabesiensis. Special Issue. Sebeş, 291-303.
- [36] Nedashkovsky, L. F. 2015. Trade in the Golden Horde Volga Region. *Journal of Sustainable Development* 8 (7), 199-206.