

A REVIEW
OF DISSERTATION FOR OBTAINING THE SCIENTIFIC DEGREE
DOCTOR OF SCIENCE

Author: Stela Milcheva Doncheva

Topic: "The production of artistic metal in early medieval Bulgaria (based on the finds data)"

Professional field: 2.2 History and archeology

Applicant: Shumen University Episkop Konstantin Preslavsky

Reviewer: prof. Ivan Jordanov Jordanov, D.Sc., the National Archaeological Institute with Museum at the Bulgarian Academy of Sciences, Shumen office (pensioner)

1. A brief introduction of the candidate

The candidate for the degree of "Doctor of Science", Assoc. Prof. Stella Milcheva Doncheva, PhD was born on May 17, 1972. She has completed two higher education degrees at the University of Shumen "Bishop Konstantin Preslavski" – a master's programme in Bulgarian Language and History in 1996, and a master's program in Theology in 2002. In 2000 she defended her doctoral dissertation before the Higher Attestation Commission on the topic: "Principles and interpretation of the planned and volumetric staging of the cross-domed churches in Veliki Preslav". For two years she worked as a History teacher, and in 2002 after a competition she started working in RHM – Shumen, as a research associate II degree and head of the Department of Medieval Archeology in cooperation with NHAR "Shumen Fortress". In 2006 she was appointed a research associate I degree. Since 2011 she has been an associate professor of Medieval Archeology at the Branch of NAIM at the Bulgarian Academy of Sciences in Shumen, and since 2015 she has been the head of the same structure.

She has researched the first known production centers for artistic metal from the period of the early Bulgarian Middle Ages in the vicinity of the old capital Preslav from 2004 to the present. She has participated in the archeological excavations of the Inner City of Preslav since 2002. She has been the leader of several international projects on the Bulgarian side, together with colleagues from the Atomki Institute for Nuclear Research in Debrecen, whose objective is to study the element analysis of finds (metal and ceramics) from the three production centers for metal plastics - near Novosel, Zlatar and Nadarevo. The more important results are included in the present work.

2. Description of the presented materials

The dissertation is accompanied by a folder with materials, including an abstract, application for opening the procedure, the author's CV, a list of publications on the topic of the dissertation (a total of 30 publications, of which 3 monographs, one co-authored and 27 articles in local and international journals, in which the candidate is a leading author), a reference for the

contributions of the dissertation, a reference for the candidate's scientific activity according to scientometric indicators, a declaration of authorship, a protocol from the preliminary discussion of the dissertation in the primary scientific unit (Department of History and Archeology, Faculty of Humanities at the University of Shumen "Episkop Konstantin Preslavski"). The same materials are presented in electronic form. The submitted documents meet the requirements of Art. 26 - 37 of the Regulations for the development of the academic staff at the University of Shumen "Episkop Konstantin Preslavski".

The author's summary of the dissertation is 111 pages long and follows the structure of the dissertation, reliably and adequately summarizing the essence of each structural unit and summarizing the accomplished scientific results. At the end of the summary there is a self-reference for the contributions of the dissertation; the contributions mentioned in it are real and have actually been achieved by the author.

3. Compliance with the minimum national requirements

The presented reference for the candidate's scientific activity on scientometric indicators is prepared clearly and precisely and shows full coverage of the minimum national requirements defined in art. 2b of the Law for the development of the academic staff in the Republic of Bulgaria, and in art. 1a, par. 1, and the appendix to it (Area 2. Humanities. Table 1) of the Regulations for its application. In addition to a dissertation for doctor of philosophy and a dissertation for doctor of science (indicators 1 and 2), the candidate has an monograph dedicated to the medallions of medieval Bulgaria (indicator 4) and 22 articles and presentations, of which 2 published in referenced (indicator 6) and 20 – in non-referenced journals at home and abroad (indicator 7), or a total of 235 points of the indicators in group D (required 100).

The list of citations includes 12 publications, of which 2 in referenced editions (indicator 12) and 10 – in non-referenced (indicator 13), or a total of 140 points in group D (required 100).

4. Analytical characteristic of the dissertation

Stella Doncheva's dissertation is dedicated to the production of artistic metal in early medieval Bulgaria and is based on 15 years of research into the centers for metal plastics in the vicinity of Preslav. The numerous and varied finds, on which the entire work is based, are the evidence of the long and large-scale activity in the metal workshops. In particular, these are the details for belt ornaments, which make up almost 90 percent of the total production and whose number exceeds 3000. *The aim* of the study is also to present the set belt as a single and strictly organized composition composed of individual and morphologically, technologically and stylistically related details (buckles, tips, appliques) - elements of the decorated leather strap. The large number of items is a good basis in this regard.

The chronological scope of the topic is the first half and the middle of the 10th century, the time of the most massive and organized production of artistic metal in early medieval Bulgaria. The territorial scope of the study includes the regions of the production centers: Novosel - two complexes of 80 and 60 decares - a total of 140 decares; Zlatar - one complex - 40 decares; Nadarevo - two complexes of 70 and 60 decares - a total of 130 decares.

Information sources are the finds from the production centers, similar objects found in synchronous archeological sites in Bulgaria and abroad, source data on metallurgical production during the Middle Ages and the technology of artistic metal; source data on the composition and element composition of metal products in antiquity and the Middle Ages; physical and chemical properties of metals and alloys; technical and functional characteristics of the jewelry tools.

The interdisciplinary nature of the research includes methodology from different disciplines - archeology, history, chemistry, physics, metallurgy, microscopic and trasological observations. One of the main methods in the research is the typological one, which suggests the complex summary of the numerous and diverse production from the production centers on the basis of the stylistic analysis and the quantitative principle. The correlation between the production development, the tool set used for producing the objects and the objects themselves is accepted as a theoretical basis.

The textual part of the dissertation is structurally divided into Introduction, Two parts with a total of seven chapters, Conclusion, References, List of abbreviations, three Appendices, including illustrative material in the text; the tables and graphs from the typological and element analysis of the finds. Total - 548 pages of text and 365 pages of appendices.

The introduction presents the topicality of the theme, the goals and tasks, the chronological and territorial scope, the sources of information and the methodology of analysis.

The subject of the research is a rich collection of belt sets over 3,000, acquired from archeological excavations. I emphasize this figure, because until recently, the excavation of several belt ends was considered an event.

Part I. Production of production centers in the region of Preslav consists of three chapters. Chapter 1. *Metal plastic products. Belt sets* is essential. It presents the findings (buckles, belt ends, appliques) on which all research is constructed further in the work. The variety of types, particular metals and alloys, raw materials and blanks, technology and practice – the entire long and complex way of the product is successfully illustrated by the production of belt details. That is why belt sets are studied in view of their use and location. The beginning is set by the buckles, followed by the belt ends and finally the appliques. Taking into account the degree of transfer of one or another feature, the objects are arranged in one or several typological lines, at the beginning of which the particular feature has a functional or decorative meaning. In view of this, all objects are grouped into a type that includes several or more types.

The types of appliques are studied separately depending on whether they occur in all the three production centers, in two of them or in one only. The location of the parts and their quantity determines the respective place of production and distribution of each type. All 198 types of appliques can be divided into three main groups: types that occur only in one production center (115 types); types that occur in two production centers (a total of 52 types); and types that occur simultaneously in all three production centers (31 types in total). The composition of all types includes a total of 1936 appliques, among which the finds from the production center near Zlatar are the biggest number - 1282 pieces, followed by the one near Novosel - 388 finds and Nadarevo - 266 finds.

Attention is also given to the group of silverware. There are representatives of this group in all types of belt ornaments and their variety depends on the number of items in each group. The belt sets made of precious metal are made to individual order and for a select circle of

people, mostly solvent enough to afford it. At that time, as will be discussed, the belt was desecrated and had long since lost its original significance in the rank of social hierarchy. It is only an indicator of the prosperity and financial capabilities of its guarantor.

The ornamentation and style of the details are also devoted attention. The plant decoration is predominant among the belt sets, and the individual approach in the reproduction of the forms is manifested mainly in their combination.

Chapter 2. Element analysis of raw materials and products examines the data on the composition of medieval metals, and is a new source, revealing a little-known country and providing the opportunity to track the degree of technology development in the particular society at a certain stage. The chemical composition of the products, on the one hand reflects the characteristics of the specific raw material base, which has its own peculiarities (microelement composition) and on the other - the degree of technology development in a given society at a certain stage of development.

The study of the structure of the various materials, the traces of deformations on them, as well as the reconstruction of the production methods allow to a significant extent to build up a broader historical picture. The main source for copper production during the different historical epochs has been proven to be the Burgas-Strandzha ore region, where the metallurgy of copper existed without interruption from the earliest antiquity to the late Middle Ages. The large-scale exploitations, which are one of the largest not only for the region and the country, but also on the Balkans, satisfied not only the production centers for artistic metal from the 10th century in the vicinity of Preslav, but also other regions of the country and probably regions outside it. The comparative presentation of the results of the element analyzes of raw materials and products from the metalworking complexes on the one hand and samples from the ore sources in the Burgas-Strandzha region on the other, contributes to the establishment of the organized movement of raw materials and metals at that time.

In the epoch of sufficiently developed trade relations, raw materials from various ore sources fell into the hands of the masters, and were mixed in arbitrary proportions. The use of complex ligatures largely leads to a change in the initial batch in copper impurities. The analysis of the products shows that they were cast from metals of different origin. Alloys, popular on a certain territory, including the territory of production centers were used for a long time, and elements (tin, zinc, lead, etc.) were periodically added to them, which improved the casting qualities of the alloys and the mechanical properties of the products.

Chapter 3 Reconstructions of belt sets highlights aspects such as: the role of the belt as a symbol of social affiliation, belt sets from the territory of Bulgaria, belt sets outside the territory of Bulgaria (Romania, Moldova, Southeast Europe, and Eurasia). This allows expressing the stylistic unity characteristic of the epoch and the diversity in its manifestation. The individual stages of this process underlie the typology and stylistic analysis.

As a non-specialist, I was especially impressed by the proposed reconstructions. The reconstructive method or graphic visualization is applied. On the basis of examples preserved in a safe archaeological environment from the territory of the country and especially outside it, in cultures parallel to the early Bulgarian culture, an attempt has been made to make graphic reconstructions of complete sets of belt sets with the location of individual details on them. The abundance of finds discovered in many years of systematic archaeological research in the centers for artistic metal in the vicinity of Preslav is a good basis for such an initiative. Their variety and

quantity imply countless variants and combinations within one belt set. The proposed graphic reconstructions are only a small part of the possible compositions, which makes the system open for new and new solutions. The single copies are made to order and are unique and limited in quantity. The found pairs of appliques from the two variants - narrow and wide, which form the full belt set, serve as a model for the implementation of such individual solutions. At the same time there was mass production of belt sets, to some of which hundreds of finds attest. This defines at least two categories of belt sets produced in the workshops in the vicinity of Preslav - elite and mass. In the course of the present study, attention has been paid to both categories, and the graphic vision complements the observations made.

The second part of the work Technology and practice of jewelry production in the Middle Ages traces and explains the basis of applied production issues of artistic metal through four chapters.

The first of them Metallurgy and Mining examines the extraction of minerals and ores in a wide geographical area, metallurgy-related mythology and beliefs, with special attention to metallurgical mining in antiquity and the Middle Ages; as well as the ore deposits - the metallurgy of copper in the notable Burgas-Strandzha region, the metallurgy of lead and silver and the metallurgy of other metals (tin, gold). Numerous facts show that the extraction and processing of metals was not done by everyone, but by experts in this activity, people who passed on their knowledge to a narrow circle of the community.

The used ore deposits and hence mining appear to be an important matter which is difficult to resolve without comparative analyzes of samples of metal objects and the presumed raw material sources. Several dozen areas of ancient mining from all historical periods are located on the territory of the Strandzha Mountain. Numerous toponymical data of settlements and localities testify to the intensive mining activity in the Strandzha.

The main source of copper raw material in the workshops for artistic metal is the Burgas-Strandzha region, which is indicated by the comparative analysis of the element composition of the metal finds and ore samples from these deposits. The large-scale exploitations, which are some of the largest not only for the region but also for the whole country, provided with metal not only the production centers from the first half of the 10th century, but also the other regions of the country.

The second chapter Metals and Alloys is dedicated to: their construction; the processes of crystallization of metals and alloys; their properties. Special attention is given mainly to the casting properties of metals and alloys, as well as to basic metals and alloys in artistic metal. A particular emphasis is placed on technological properties, such as thinness, liquation, shrinkage, etc., which are especially important for the choice of a method and a certain mode in the processing of jewelry. The masters, who worked in the complexes for artistic metal in the vicinity of Preslav, were familiar with all these properties, although they were not scientifically explained in the time. The specific characteristics are a starting point for the determination and analysis of the chemical composition of metals and alloys, the study of production technology, processing methods and others. All these and other issues are given special attention here and in the following chapters.

The main components that make up the morphological structure of the products, made in the production centers for artistic metal in the vicinity of the capital Preslav are no exception to the established practice. In addition to their main characteristics, the principles of interaction with other metals and chemicals, which are relevant to the study of the element composition of the finds from the various complexes, are considered.

The third chapter Tools and devices presents the whole collection of metalworking tools. Emphasis in this wide range is placed on tools related to foundry, part of which is the ceramics production. For Stella Doncheva, the set of tools reflects the whole diversity in the technological process of cold and hot processing of metals and their alloys, and the good equipment of the workshops testifies to the broad scope of various technological operations. It is important to conclude that the tools of the tenth century were not technically inferior to many of the tools used in the Late Middle Ages, the Renaissance and even modern times.

Specialized tools, designed for specific operations and rarely used in everyday life, are an indicator of the level of craftsmanship practiced in production complexes. On the one hand, they are a product of labor activity, and on the other hand, they are the tools for this activity. The results allow us to talk about technological capabilities, as well as the society as a whole. The purpose of some of the tools found in the research is determined by their long-term use. If there are any changes, they are insignificant and are manifested mainly in the use of some modern tools and materials to facilitate and accelerate the work process, rather than in its change. The collection of metalworking tools is divided into different functional groups, considered in relation with the technology of jewelry production and the specific techniques associated with it. The complex presentation outlines the picture of the whole process, in which the place of each group of tools is strictly established.

Chapter Four Technology and Practice studies a number of practices in detail: foundry, blacksmithing, stamping, metal coatings, as well as artistic decoration and drawing. The manifestation of all technological schemes allows Stella Doncheva to speak about the high mastery of Bulgarian jewelers. They perfectly distinguished the properties of the processed alloys, grouping the different methods into a coherent system of interconnected and repetitive actions. In addition to foundry, all other methods related to the achievement of an original and final look of the finished product have been applied in practice.

The exquisite ornamentation on the lead models and bronze products shows the high professionalism and mastery, expressed through the means of artistic modeling and engraving. An important part in the overall picture of production are the skills for laying and applying metal coatings on cast products. The use of the known and established in ancient times recipes for amalgams based on gold, silver and tin are evidence of continuity in mastering this practice. Many ancient and medieval recipes are presented in the work, which illustrate the observations made. The coatings of precious metals on the bronze castings are a result of the mass nature of production, the ambition to reduce the production cost and last but not least the achievement of aesthetical look of the finished products. The most important condition for the development of the whole activity is the availability of good specialists, strictly profiled in their field, successfully satisfying the needs and aesthetic taste of a wide range of users.

All this allows summarizing interesting conclusions in the final part of the proposed dissertation – the conclusion. Among them, for example, is the perception in science that all belt sets found on the territory of our country are the result of the Hungarian expansion against the First Bulgarian Kingdom or are a direct cultural influence, not the fruit of their own cultural tradition, as Stella Doncheva believes. In addition, a new element in the decoration of the belt set in Bulgarian society occurred after the adoption of Christianity, but it is a combination of Byzantine floral ornamentation and the proto-Bulgarian tradition. And the traditions in the jewelry practice are maintained by the local production, as often Byzantine products are used as models, in which Eastern influences are intertwined.

The implementation of the set goals and objectives justifies the efforts and proves the importance of the developed topic for the production of artistic metal in the Early Bulgarian Middle Ages according to the finds of the first centers for metal known and studied in the territory of Bulgaria. Based directly on the results of systematic archaeological excavations, the

work proves not only the existence of a large-scale organized production of artistic metal in the vicinity of Preslav, but also presents the type diversity of this activity. The rich pictorial program that the finds have is a reflection of the creative potential and artistic sense of its designers.

The list of cited literature includes over 700 titles in Bulgarian and foreign editions. Among them there are quite a lot of sources, as well as many new editions. *A list of abbreviations* is also attached.

5. Relevance and scientific contributions

The scientific contributions of the dissertation are significant. Their presentation in the applicant's self-report does not arouse objections. We have a precedent, however, as the author did not realize or missed a significant scientific contribution concerning the coin finds. The coins found during the excavations are a material proof of the two-century-long discussion - whether the rulers of the First Bulgarian Kingdom minted coins. The analyzes, presented by Doncheva are an objective argument for a positive answer to the question.

In its integrity, Stella Doncheva's research meets the requirements of Art. 12, par. 4 of the Law for the development of the academic staff in the Republic of Bulgaria according to which "the dissertation must contain theoretical summaries and solutions of major scientific or scientifically applied problems that correspond to modern achievements, and represent a significant and original contribution to science." In support of this statement it can be added that in our country so far no major doctorates (respectively professorial habilitations) have been defended on the problems related to the production of artistic metal during the early Bulgarian Middle Ages (9th-11th centuries).

6. Critical remarks

I assume that this dissertation will be published. The large text suggests omissions and technical errors. Therefore, any critical note will be useful. In this regard, I have prepared, albeit a small list. Above I already drew attention to the underestimation of numismatic material.

I also recommend reducing some of the chapters and their merging, for example Chapter 2 of Part II, entitled *Metals and Alloys*, could be merged with Chapter 2 of Part I *Elemental Analysis of Raw Materials and Products*.

7. Conclusion

The dissertation of Assoc. Prof. Stella Doncheva, PhD., presented to me for review in the procedure for obtaining the scientific degree "Doctor of Science", is the first comprehensive and thorough modern study of the production of artistic metal in the 10th century in Bulgaria. The work is based on the results of archeological excavations of the three famous production centers for artistic metal in the vicinity of the capital Preslav. The text part of the dissertation is convincingly developed and contains specific research on various aspects of the organization of the entire production activity. Based on the stated above, I convincingly vote for and propose to the Honored Scientific Jury to award Assoc. Prof. Stella Milcheva Doncheva, PhD the scientific

degree "Doctor of Science" in the field of higher education 2. Humanities, professional field: 2.2.
History and archeology, scientific area Medieval archeology.

Shumen

10.08.2020 г.

A handwritten signature in black ink, appearing to read 'Ivan Jordanov', written in a cursive style.

Prof. Ivan Jordanov