



ADAM MICKIEWICZ
UNIVERSITY
POZNAŃ



Treasures of Time

Research of the Faculty of Archaeology
of Adam Mickiewicz University in Poznań



Location of the main research areas.
Numbering, compare the table of Contents.



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Miroslaw, Greater Poland Voivodeship, site 37. Part of the burial equipment.
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Treasures of Time: Research of the Faculty of Archaeology of Adam Mickiewicz University in Poznań

Introduction

In 2019, archaeology at the Adam Mickiewicz University in Poznan celebrated its honourable 100th anniversary! The establishment of archaeology at this university was associated with the strong influence of the authority of Prof. Józef Kostrzewski and a succession of eminent scholars, many of whom we today call Masters.

The year 2019 was a real breakthrough. We started the second century of existence within the Alma Mater Posnaniensis with a new structural independence and quality that the academic archaeology of Poznań had not yet known for its one hundred years of existence. This change, the formation of the first Polish Faculty of Archaeology, has opened new chances and possibilities of which we are now taking advantage.

6



Calibrated date
(calBC/calAD)



Prof. Józef Kostrzewski
(1885-1969)

7

Currently, the Faculty of Archaeology of Adam Mickiewicz University is formed by a number of teams, each with their own leaders. In the majority of cases, these teams are united by interdisciplinarity, which integrates within selected projects the experience of many so-called 'auxiliary' sciences of archaeology. This trend is paralleled by the development of specialised laboratories armed with the latest equipment in the Faculty of Archaeology.

This publication presents the current scientific interests creatively developed by such teams at the Faculty of Archaeology of Adam Mickiewicz University. The research of these teams covers vast areas in time and space, summing up at least the last 9,000 years of prehistory. The following articles, arranged in chronological order, allow us to explore the prehistory of various areas.

The adventure begins around 7100 BC, in the Neolithic settlement of Çatalhöyük located in Turkey. Then, we move on to the loess uplands near Krakow, where the first farmers from the south of Europe had just arrived (5500 BC). A little later (4000-3500 BC), and a little farther north, in the area of Greater Poland, some of the first megalithic constructions in this part of the world were built. Around the same time, about 800 km to the southeast, a settlement

of the Trypillia culture remains in the phase of development (3950 BC). The end of the Stone Age in Poland was described in the history of Late Neolithic communities on a hill in the center of Kujawy region (3700-2400 BC). Farther east, in the forest-steppe area of Ukraine, significant cultural and social changes resulted in the formation of the Yamnaya culture (3350-2250 BC), beginning the Bronze Age.

Intense elements of this era can be traced in the area of southern Europe in the Greek Anthemous Valley (3350-1150 BC), in Attica (3000-500 BC) on the plains of the Hungarian Lowlands (2600-1450 BC) and to the Upper Dniester Valley, where numerous burial mounds were formed (2800-1500 BC). A similar chronological range is presented in the articles devoted to a unique site in Bruszczewo, Greater Poland (2300-1350 BC), which not only accumulates valuable metal artefacts, but is also the subject of interest of an interdisciplinary team focused on reconstructing its environmental context.

The next text take us far to the east, to the area of Iraqi Kurdistan, where we can appreciate the importance of Mesopotamian influences in shaping the picture of the Early Bronze Age (2200-2150 BC).

Subsequent texts describe the discoveries of Poznań scientists in Syria (1906-1787 BC) and in Greater Poland (1900-1600 BC). These two distant points describe various aspects of life in contemporary communities in the Middle and Early Bronze Age.

The characteristic archaeological materials of the later centuries of the Bronze Age (1800-1200 BC) reveal an intensification of military conflicts and migration processes (1700-1200 BC). The turn of the eras is illustrated in this volume by texts on the interpretation of representations on ancient Greek and Roman sculpture (400 BC-100 AD), as well as the cultural situation in the Polish lands (400 BC-100 AD).

We are introduced to the new era by an article on the funerary customs of communities from the Polish lowlands describing discoveries at the site of Mirosław (160-175 AD). Moments of the formation of elements of Polish statehood are referred to in texts describing towns at Grzybowo (919-1050 AD) and Poznań in the early Middle Ages (950-1000 AD).

Later parts of the Middle Ages are described by sacral monuments located also in the area of the contemporary city of Poznań: the Collegiate Church of St Mary Magdalene (1263-1802 AD) and the still extant Church of the Blessed Virgin Mary on Ostrów Tumski, founded around 1431 AD in the immediate vicinity of the previously described early medieval site of the 'origin' of the city of Poznań.

The final texts of the volume do not refer directly to a particular period of prehistory, but present the history of Polish archaeological research on the Iberian Peninsula, the contemporary perception of prehistoric art by the inhabitants of present-day Canada and Siberia, and the development of methodological thought among Poznań archaeologists.

The volume closes with a text describing one of the many perspectives currently faced by the staff of the Faculty of Archaeology of Adam Mickiewicz University in Poznań: the new ArchaeoMicroLab.

We look to the future with great hope that the Staff of the Faculty will provide ideas for many more volumes of Treasures of Time. We trust that this set of articles will present archaeology at the Adam Mickiewicz University in Poznań in its new structure as a Faculty and show its potential. We would thus like to encourage you to get acquainted with our Poznań perspective on archaeological studies, and to reflect on ways of exploring the past.

Andrzej Michałowski

Danuta Żurkiewicz



Location of the main research areas.
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1700-1200 BC



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Aspects of ancient warfare: Multidisciplinary research on war and warriors in Bronze Age Europe

Paulina Suchowska-Ducke

Abstract

The study of warfare among ancient societies – its nature, scale and impacts – has become an increasingly fertile multidisciplinary field of research in archaeology and related disciplines. This is particularly true for the European Bronze Age, an epoch that has produced iconic artefacts, architecture, images, and written sources that speak about war and warriorhood. Modern research has made it sufficiently clear that, far from being the singular acts of heroic individuals, ancient warfare was common, brutal, and well-organized. However, war, as an extreme form of social interaction, has also been a driver for technological and economic development. From Scandinavia to the Mediterranean, the archaeological record has preserved rich traces of the warrior elite that was instrumental in transforming Bronze Age societies. This body of evidence is being studied with increasingly diverse analytical tools, ranging from use-wear analysis of weapons to forensic analysis of human remains and GIS-based spatial analysis. The following is a summary of author's research on the multiple aspects and archaeological sources that surround the topics of war and warriors in Bronze Age Europe.

Keywords: war, Bronze Age Europe, multidisciplinary research

Dulce bellum inexpertis: A scholarly study of war

Violence and aggression are biological and behavioural forms of using force against other individuals. They have accompanied humans since the dawn of history. While aggression is associated with a vast repertoire of behaviours and can take many forms, the defining property of violence is that it causes physical harm to an "opponent". Violence, unlike aggression, is a deliberate action, often occurring between larger groups, and is characterized by intentionality and rationality. Depending on scale and form, it can evolve from individual disputes to organized

conflicts involving groups of people or entire communities. The English word “conflict” is derived from Latin *conflictus*, which literally means “fight” (composed from the Latin prefix *com*, meaning “with” and *fligere*, “to strike”). Over time, the term experienced a significant broadening of its original meaning. The Dictionary of Foreign Words and Phrases defines conflict as “an antagonism, a contradiction of interests or views, a dispute, quarrel or collision”. Conflict can transform into war, a militarily organized and politically motivated activity which, apart from violence, also features forms of negotiation. Thus, war is commonly understood as a kind of conflict between states or societies, in which all available military or non-military means are employed to achieve a goal. As a social process, it has profound consequences on the functioning of the communities and a destructive impact on human life. However, as a form of interaction, war can also drive the development and diffusion of technologies and innovations. Due to such unexpected effects, there are two opposing tendencies to understand the essence and the role of war in society (Otterbein, 1999). According to the first, war is a part of human nature that is necessary for the development of civilization and culture. According to the second, it is a disruption of a community’s life and an expression of degradation of man and society as a whole. In the latter view, the incidental and transitional nature of war is emphasized: It is a limited event that has a clearly defined beginning and an end.

Conflicts and wars during different stages of history were characterized by variations in frequency, scale, intensity and form. “Every age has its own kind of war, its own limiting conditions, and its own peculiar preconceptions” as was aptly summarized by Carl von Clausewitz (1832, p. 423). Therefore, various aspects of war, and also the essence of peace, provide a complex research topic. In Europe, the earliest systematic thoughts on these issues are those by ancient Greek and Roman authors. But it was only after the Second World War that polemology, the scholarly study of war (from the Greek *polemos*, meaning war), developed into an academic field of research (Więcek & Lasota, 2011). In the following decades, a multidisciplinary approach to the analysis of war, its meanings, and its manifestations was undertaken by the social sciences and humanities (e.g. philosophy, sociology, political science, history and military theory, anthropology and ethnology).

The study of war and its different aspects entered the field of archaeology relatively late, and from the beginning it was hampered by the discipline’s specific material sources (Vencl, 1984). Initially, the idea prevailed that past societies were predominantly peaceful. In addition, the dominant archaeological concept of war in prehistoric societies was that of a primitive, not well-organized, less serious, and less destructive phenomenon than in later (modern and industrial) times. Ancient warfare was regarded as heroic and ritualized, or simply attributed to social presentation or rivalry. The image of warriors was also idealized and embedded in the values and rituals of heroic warfare, in bravery and honour (Kristiansen, 1999). Brutality and killing were not part of this image.

A significant change that encouraged a more realistic study of violence and war in archaeology, started with the publication of *War before civilization. The myth of the peaceful savage* by Keeley in 1996. Since then, the idea has gained traction that war should be regarded as a widespread form of social interaction that needs to be studied in its social context and within an



Figure 1.1. Battle scene from Scandinavian rock art
(Photo: Erlend Bjørtvedt).

adequate theoretical framework. Warriorhood, on the other hand, is now perceived as a complex social institution and social identity that is grounded in many different human aspects, including brutality and aggression (Vandkilde, 2006). Violence, suffering, and death are important aspects of warfare and warriorhood that complete the picture of prehistoric societies. The archaeological record indicates that collective violence has been practised since the appearance of human-kind. The earliest evidence of a massacre comes from the 13,000 year old cemetery in Jebel Sahaba, located near the northern border of Sudan (Wendorf, 1968). Conflicts and warfare appear to have been pervasive during the Neolithic as a consequence of sedentism. At that time, the first fortifications also emerged. While the Neolithic witnessed the initial formation of a distinctive social identity, the *warrior* (Vandkilde, 2006a), the Bronze Age was characterized by widespread and organized war, the introduction of weaponry designed for combat, and the birth of a professional and well-trained warrior aristocracy (Kristiansen & Larsson, 2007).



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Figure 1.2. Pylos Combat Agate Seal
(after: Stocker & Davis 2017).

Warfare and warriors in Bronze Age Europe: A multidisciplinary research

The Bronze Age was a formative epoch in European history and is characterized by socio-political developments that led to intensified connectivity and the emergence of long-distance communication networks that spread across the continent (see Suchowska-Ducke, Reiter & Vandkilde, 2015 for more references). These processes were rooted in the uneven distribution of copper and tin, the essential components of bronze, which quickly entered all spheres of human life, from weapons and ornaments to working tools and religious items. The resulting demand for raw metals soon transformed Europe into a strongly connected economic zone. Within this connected world existed widespread conflicts and wars, a form of social interaction that had a clearly destructive effect on human life. However, more than ever before, warfare was also responsible for the wide distribution of innovations and knowledge, for instance weapons technology, suggesting that a good share of economic potential was represented by profitable warfare. The emergence of a new professional warrior aristocracy that enjoyed much prestige was an important factor in the transformative changes that affected the material and social fabrics of Bronze Age Europe (Kristiansen & Larsson, 2007).

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Figure 1.3. Mycenaean Warrior Vase
(Photo: Sharon Mollerus).



Figure 2.1. Battlefield of Tollense, after LAKD MV, LA, Sabine Suhr.

The motivations of Bronze Age societies to engage in warfare ranged from obtaining power and prestige and gaining access to commodities, resources, and territory, to taking vengeance for wrong doing and capturing wives and slaves (Osgood, Monks & Toms, 2000). Evidence of warfare and the existence of professional warriors on the European continent comes from various sources, such as iconography (frescoes, reliefs, figurines, and representations on jewellery, pottery, and rock art; Figures 1: 1, 2, 3), signs of battle injuries (*traumata*) on human bones (Figure 2: 1, 2), and efficient weaponry (Figure 3) known from archaeological excavations. In addition, written documents provide testimonies of conflicts and weaponry used in the Mediterranean Bronze Age. While these remain the primary sources of knowledge on warfare and warriors in the Bronze Age, recent multidisciplinary



Figure 2.2. Traumatic injury on human bone, after LAKD MV, LA, Sabine Suhr.



Figure 3. Late Bronze Age swords
(Photo: Juraj Lipták).

nary approaches introduced new methods to archaeological research that allow even more in-depth investigations into the topic. Among them are use-wear, metallurgical analyses, and neutron and X-ray examinations of different types of weapons to determine their properties and efficiency in combat (e.g. Kristiansen, 2002; Bunnefeld, 2016; Mödlinger et al., 2020; Figures 4). Geographical information systems (GIS) allow systematic spatial analysis of the dissemination of weapons (Suchowska-Ducke, 2015; Figure 5). Using advanced analytical methods, such as diffusion and network models, GIS can provide a more realistic and explicit geographical picture of warriors' mobility and its far-reaching impact on societies (Kristiansen & Suchowska-Ducke, 2015). Studies on the psychology and physiology of the human body indicate what sort of character traits professional warriors must have had (Grossman, 1996), and experimental archaeology shows what the fighting techniques could have looked like (Molloy, 2010; Hermann et al., 2020). DNA and isotope analysis of bones coming from the sites of prehistoric massacres and battlefields enable insights into the genetic signature of people involved in such conflicts and their places of origin (Price et al., 2017).



Figure 4. Use-wear analysis of swords
(after: Hermann et al., 2020).

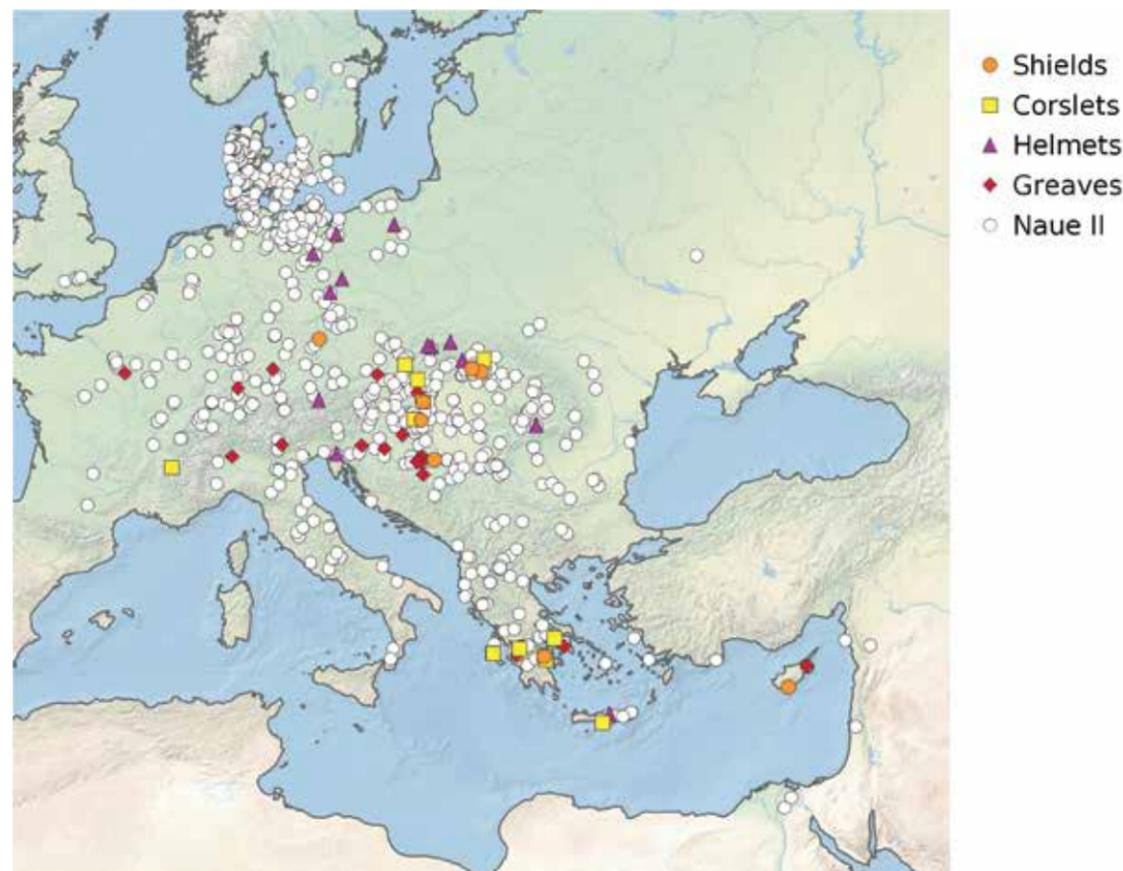


Figure 5. Dissemination of weaponry in Late Bronze Europe (after: Suchowska-Ducke 2020).

The author's own research on warfare and warriorhood in the European Bronze Age has focused on three main aspects: (a) the phenomenon of warriors' mobility and the role they played in the dissemination of new technologies and innovations, (b) the development of weaponry and its circulation, and (c) the influence of warfare on social change and transformations in the Late Bronze Age (Suchowska-Ducke, 2015, 2018, 2020; Suchowska-Ducke & Skrzyniecki, 2019). Comprehensive insights into past human mobility are key to understanding the diversity of European cultures. In archaeology, human mobility is evidenced by the distribution of similar material features, artefacts, or forms of organization over a larger geographic space. In the case of war, the evidence consists primarily of weapons, particularly the swords that were highly standardized and efficient items assigned to professional warriors. This type of offensive weaponry has been extensively analysed by many scientists. In addition to swords and other weapons, drinking vessels and toiletry tools (like razors and tweezers) were also important material attributes of a Bronze Age warrior's identity, as were some exceptional items, such as parts of armour (greaves, corslets, shields or helmets), combs, mirrors, and wooden camp stools (Deger-Jalkotzy, 2006; Kristiansen & Larsson, 2007). Interestingly, such "warrior packages" occur in the archaeological record from Scandinavia to the Mediterranean. This ample data formed the core of the author's studies of various aspects of war in Late Bronze Age Europe.

Answering the key questions of how far-reaching individual mobility of the Bronze Age warriors really was, and to what extent warfare was responsible for social change and transformation, requires supporting evidence from multidisciplinary sources. The aforementioned recent and comprehensive studies of previously known and newly acquired archaeological evidence have shed some light on aspects of war and conflict, as well as their role in past people's lives. Scientific analysis shows that weapons were designed to be robust and effective in fighting. Signs of use-wear, repairing and re-sharpening indicate that they were used in real combat. Also, forensic re-examination of human bones provide a good variety of data, demonstrating that more people than previously considered were engaged in collective violence or became its victims. According to Keeley (1996, p. 28) 90-95% of all known societies throughout history engaged in at least occasional warfare and many fought constantly. Since the rise of Bronze Age societies, military activity became widespread across much of the European continent.

The epoch's most famous battlefield in Northern Europe provides direct evidence that warfare was indeed well-organized and conducted by professional warriors. It was on the banks of the Tollense River where an army of possibly 2000 men engaged in battle, some of them coming from faraway places (Jantzen et al., 2011; Price et al., 2017). Thus, this battle site also brings into focus the question of how these warriors were able to travel across long distances efficiently. From an analytical perspective, GIS-based methods for reconstructing the physical networks that allowed far-reaching travels in the Bronze Age are key to understanding how expansive and costly the movement of people and objects really was, and what routes they would have taken. Therefore, a novel mathematical approach to archaeological network reconstruction using GIS was developed and implemented as a freely available open source tool (called v.net.models: Ducke & Suchowska, 2021). It combines basic archaeological data, simple connectivity models, and high-resolution terrain data to produce realistic reconstructions of network links. In this way, modern and multidisciplinary research tools shed light on a fascinating Bronze Age phenomenon of organised warfare and warriors' long-distance travels.

With an ever-growing body of archaeological evidence, increasingly powerful analytical tools and a scholarly tradition that stretches back many decades, the topic of connectivity and mobility in the European Bronze Age is currently undergoing a renewed increase in research activity. War and warfare, as particularly intense forms of social interaction, are among the most spectacular manifestations of this historical processes.

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References

Bunnefeld, J.-H. (2016). Crafting Swords. The emergence and production of full-hilted swords in the Early Nordic Bronze Age. *Prähistorische Zeitschrift*, 91, 379-430.

Clausewitz, C. von. (1832). *Vom Kriege*. Berlin: Ferdinand Dümmler.

Deger-Jalkotzy, S. (2006). Late Mycenaean Warrior Tombs. In S. Deger-Jalkotzy, & I. S. Lemos (Eds.), *Ancient Greece: From the Mycenaean Palaces to the Age of Homer* (pp. 151-179). Edinburgh: Leventis Studies.

Ducke, B., & Suchowska, P. (2021). Exploratory network reconstruction with sparse archaeological data and XTENT. *Journal of Archaeological Method and Theory*.

Grossman, D. (1996). *On Killing. The Psychological Cost of Learning to Kill in War and Society*. New York: Back Bay Books.

Hermann, R., Dolfini, A., Crellin, R. J., Wang, Q., & Uckelmann, M. (2020). Bronze Age Swordsmanship: New Insights from Experiments and Wear Analysis. *Journal of Archaeological Method and Theory*, 27, 1040-1083.

Jantzen, D., Brinker, U., Orschiedt, J., Heinemeier, J., Piek, J., Hauenstein, K., Krüger, J., Lidke, G., Lübke, H., Lampe, R., Lorenz, S., Schult, M., & Terberger, T. (2011). A Bronze Age Battlefield? Weapons and Trauma in the Tollense Valley North-eastern Germany. *Antiquity*, 85, 417-433.

Keeley, L. H. (1996). *War before civilization. The myth of the peaceful savage*. Oxford: University Press.

Kopaliński, W. (2021). *Słownik wyrazów obcych i zwrotów obcojęzycznych*. Warszawa: Rytm Oficyna Wydawnicza.

Kristiansen, K. (1999). The emergence of warrior aristocracies in the later European prehistory and their long-term history. In J. Carman, & A. Harding (Eds.), *Ancient Warfare. Archaeological Perspective* (pp. 175-189). Stroud: Sutton Publishing.

Kristiansen, K. (2002). The tale of the sword – swords and sword fighters in Bronze Age Europe. *Oxford Journal of Archaeology*, 21, 319-332.

Kristiansen, K., & Larsson, T. (2007). Contacts and travels during the 2nd millennium BC. Warriors on the move. In I. Galanaki, H. Tomas, Y. Galanakis, & R. Laffineur (Eds.), *Between the Aegean and Baltic Seas. Prehistory across borders* (pp. 25-33). Liege: Peeters.

Kristiansen, K., & Suchowska-Ducke, P. (2015). Connected History. The Dynamic of Late Bronze Age Interaction and Trade 1500-1100 BC. *Proceedings of the Prehistoric Society*, 81, 361-392.

Molloy, B. (2010). Swords and swordsmanship in the Aegean Bronze Age. *American Journal of Archaeology*, 114, 403-28.

Mödlinger, M., Godfrey, E., Postma, H., Schillebeeckx, P., & W. Kockelmann. (2020). Neutron analysis of eight Bronze Age swords from Austria: The question of "stabbing" or "cut-and-thrust" weapons. *Journal of Archaeological Science: Reports*, 33. DOI: 10.1016/J.JASREP.2020.102521.

Osgood, R., Monks, S., & Toms, J. (2000). *Bronze Age Warfare*. Stroud: Sutton Publishing.

Otterbein, K. F. (1999). A history of research on warfare in anthropology. *American Anthropologist*, 101, 794-805.

Price, T. D., Frei, R., Brinker, U., Lidke, G., Terberger, T., Frei, K. M., & Jantzen, D. (2017). Multi-isotope proveniencing of human remains from a Bronze Age battlefield in the Tollense Valley in northeast Germany. *Journal of Archaeological and Anthropological Science*, 11, 33-49.

Stocker, S. R., & Davis, J. L. (2017). The Combat Agate from the Grave of the Griffin Warrior at Pylos. *Hesperia*, 86, 583-605.

Suchowska-Ducke, P. (2015). Dissemination of Naue II swords – a case study on long-distance mobility. In P. Suchowska-Ducke, S. S. Reiter, & H. Vandkilde (Eds.), *Foreign Identities. The Mobility of Culture in Bronze Age Europe* (pp. 257-265). Oxford: British Archaeological Report.

Suchowska-Ducke, P. (2018). New technologies and transformation in the European Bronze Age: the case of Naue II swords. *Bulgarsko e-Spisanie za Arkheologiya-Bulgarian e-Journal of Archaeology*, 8, 145-162.

Suchowska-Ducke, P. (2020). Warfare and Warriors of the European Late Bronze Age. In J. Maran, R. Băjenaru, S.-C. Ailincăi, A.-D. Popescu, & S. Hansen (Eds.), *Objects, Ideas and Traveler. Contacts between the Balkans, the Aegean and Western Anatolia during the Bronze and Early Iron Age* (pp. 545-558). Bonn: Dr. Rudolf Habelt.

Suchowska-Ducke, P., Reiter, S. S., & Vandkilde, H. (Eds.). (2015). *Forging Identities. The Mobility of Culture in Bronze Age Europe*. Oxford: British Archaeological Reports.

Suchowska-Ducke, P., & Skrzyniecki, R. (2019). Opowieści o chwale i mieczu. Kilka uwag o wojnie i wojownikach w epoce brązu. In M. Szmyt, P. Chachlikowski, J. Czebreszuk, M. Ignaczak, & P. Makarowicz (Eds.), *Vir Bimaris. Od kujawskiego maceznika do stepów nadczarnomorskich. Studia z dziejów między-morza bałtycko-pontyjskiego ofiarowane Profesorowi Aleksandrowi Koško* (pp. 813-827). Poznań: Instytut Archeologii Uniwersytetu im. Adama Mickiewicza.

Vandkilde, H. (2006). Archaeology and War: Presentation of Warriors and Peasants on Archaeological Interpretations. In T. Otto, H. Thrane, & H. Vandkilde (Eds.), *Warfare and Society. Archaeological and Social Anthropological Perspectives* (pp. 57-73). Aarhus: University Press.

Vandkilde, H. (2006a). Warriors and Warrior Institutions in Copper Age Europe. In T. Otto, H. Thrane, & H. Vandkilde (Eds.), *Warfare and Society. Archaeological and Social Anthropological Perspectives* (pp. 393-422). Aarhus: University Press.

Vencl, S. (1984). War and Warfare in Archaeology. *Journal of Anthropological Archaeology*, 3, 116-132.

Wendorf, F. (1968). Site 117: a Nubian Final Palaeolithic graveyard near Jebel Sahaba. In F. Wendorf (Ed.), *The Prehistory of Nubia* (pp. 954-995). Dallas: Southern Methodist University Press.

Więcek, W., & Lasota, J. (2011). *Problemy wojny i pokoju w ujęciu historycznym*. Warszawa: Wydawnictwo Akademii Obrony Narodowej.

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