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“Urban violence harnessed or unleashed? Arms and armor as everyday objects in the daily life of a medieval and early modern port town. The example of Gdańsk”. Project no. DEC 2019/35/B/HS3/00065 at the University of Wrocław, funded by the National Science Center Poland<sup>1</sup>

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At the present state of the art, there hasn't been a monograph of the entire collection of medieval and early modern arms and armor from Gdańsk. Extant

publications are devoted to a sample of finds from the historical town. At the early stage of research, a few case studies on single artifacts appeared (Nadolski 1955;

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Wiklak 1957). Other papers are focused on objects from specific sites. A good example is a brief text published by Adam Rapiejko (2013) listing arms and armor finds from Tartaczna street in Gdańsk. Not all of the evidence published there seems to be correctly interpreted though and the miniaturized captions are difficult to use. The paper by Piotr Świątkiewicz (2012) represents a detailed work on the typology and chronology of weapons based on well-dated archaeological evidence collected in the area of the early medieval stronghold and its suburbium. The Slavonic settlement in this part of town had developed from the 11<sup>th</sup> century until ca. 1410 (see: Zbierski 1978, 336; Kościński, Paner 2005). Another project narrowed down to a single site is the catalogue of military objects excavated in the area of the building block between the Szafarnia-, Angielska Grobla-, Św. Barbary- and Długie Ogrody- Streets (Litwiński 2013). The main deficiency of the quoted works is the absence of deepened arms and armour and anthropological studies. Notable in the mentioned cases is the lack of references to the literature on military duties of the Gdańsk townsmen (f.e. Baltzer 1893; Gehrke 1895; Hahlweg 1937; compare with: Kwiatkowski 2019, 39). Research on arms and armour finds from the town can be supported with evidence from last-will inventories (compare: Klonder 2000; Kubicki 2010; Możejko 2010) and the Gdańsk Teutonic castle armoury inventories (Możejko 2006; Żabiński 2013). Against the background of the abundant and well-researched publications on the archaeology of Gdańsk (f.e. “Archeologia Gdańska” – series edited by H. Paner, vol. 1-6 (2006-2013); Krzywdziński (ed.) 2016 Pudło et al. (eds.) 2018), the state of the art on arms and armour appears to be sketchy. Information on the investigated subject is scattered around publications not exclusively devoted to arms and armor (Ossowski 2014, 346-356; Kurkowska, Krzywdziński (eds.) 2016). An interesting unpublished MA thesis on medieval and early modern personal, edged weapons found during excavations on the Hay Market in Gdańsk was defended by Mateusz Nowak (2017) at the University of Gdańsk. The author went a step further from the basic artefact analysis and attempted at interpreting the meaning of finds in their historical, archaeological, and cultural context. Archaeological evidence from the Gdańsk Hay Market, an area located outside the town walls, will be referred to, but not included in our project to the full extent, due to the planned separate publication on the subject.

The project, based on evidence from several decades of excavations in the historical town of Gdańsk departs from the traditional scheme of typological arms and armor studies. It is not aimed at creating a mere catalog of artifacts. Our goal is to investigate the relationship between objects and their owners, to place the archaeological record within the context of a multicultural port town, and to reconstruct the biographies of artifacts and biographies of their owners. Such an approach enables us to research how the weapon became a dress

accessory and an emblem of self-identity. Another question is whether the customization of an object was limited to the social upper classes or extended to the less wealthy. These problems refer to the range of arms permitted to be carried by citizens according to legal regulations (Marek 2014, 11). In Gdańsk, the privilege stemmed out of the Lübeck and Kulm municipal laws, which required those who applied for civic rights to acquire arms and armor to keep them at home, in case of war (Kaczor 2017, 129). On the other hand, citizens of Central European towns were banned from bringing weapons into guild meetings or taverns, to avoid dangerous brawls (Marek 2008, 15-16). Sometimes there were individuals excluded from the group of weapon bearers, such as those not entitled to enjoy privileges as citizens by descent in a chartered town (Ulmann 1961, 2). In Gdańsk, the regulations were probably not so strict and newcomers after the acquisition of municipal rights were obliged to possess arms and armor. There were instances in which the carrying of weapons was either banned or the blade length limited. In the latter case, not uncommon were announcements on the restrictions accompanied by weapon templates that met the blade standard to be respected, placed at the town gates (see Zijlstra-Zweens 1987, 396; Pyupe 2014, 86). All those who failed to obey those rules had to suffer confiscation or damage to their weapons (Norman 1980, 24). It would be interesting to examine to what extent the inhabitants of Gdańsk were influenced by the law in their choice of arms. Another problem is how those prohibited to carry certain types of weapons attempted at overriding the regulations, f. e. by commissioning objects, which might have resembled tools at first sight but had a cloaked quality of a lethal weapon at the same time. We are convinced that in the late medieval period a sword ceased to be the exclusive attribute of a knight in a symbolic sense. In Europe, attempts at limiting the right of bearing swords to the knightly class since the 12<sup>th</sup> century had been notoriously unsuccessful (Marek 2008, 15). It is confirmed that even low-born people were girded with swords during a ceremony of the accolade (Bumke 1992, 340-341). Such changes within medieval society were connected to the rapid increase in economic growth. Prosperous medieval towns played an important role in the process. Gdańsk, in particular, is a good example of an environment where the increase in wealth led to the emancipation of an elite class of tradesmen, who emulated the knightly class in their lifestyle, including the use of arms and armor (see Chodyński 1994). Therefore it seems not unreasonable to imagine such patricians, emulating or maybe even exceeding contemporary knights in their lavish appearance. We believe that the emulation process of the elite lifestyle descended even further down the social ladder (see *ibid.*, 26-27).

The question to address is whether the symbolic language of materials used to produce arms and armour, the decoration of the object, or the mere fact of bearing weapons accentuated one's social status. Regarding the

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this institution: Ewa Trawicka and Beata Ceynowa for their kind assistance at every stage of our ongoing work. The presented text is based on the description of the project attached to the application form sent to the National Science Center Poland, revised, re-arranged and updated significantly in accordance to the present state of our research.

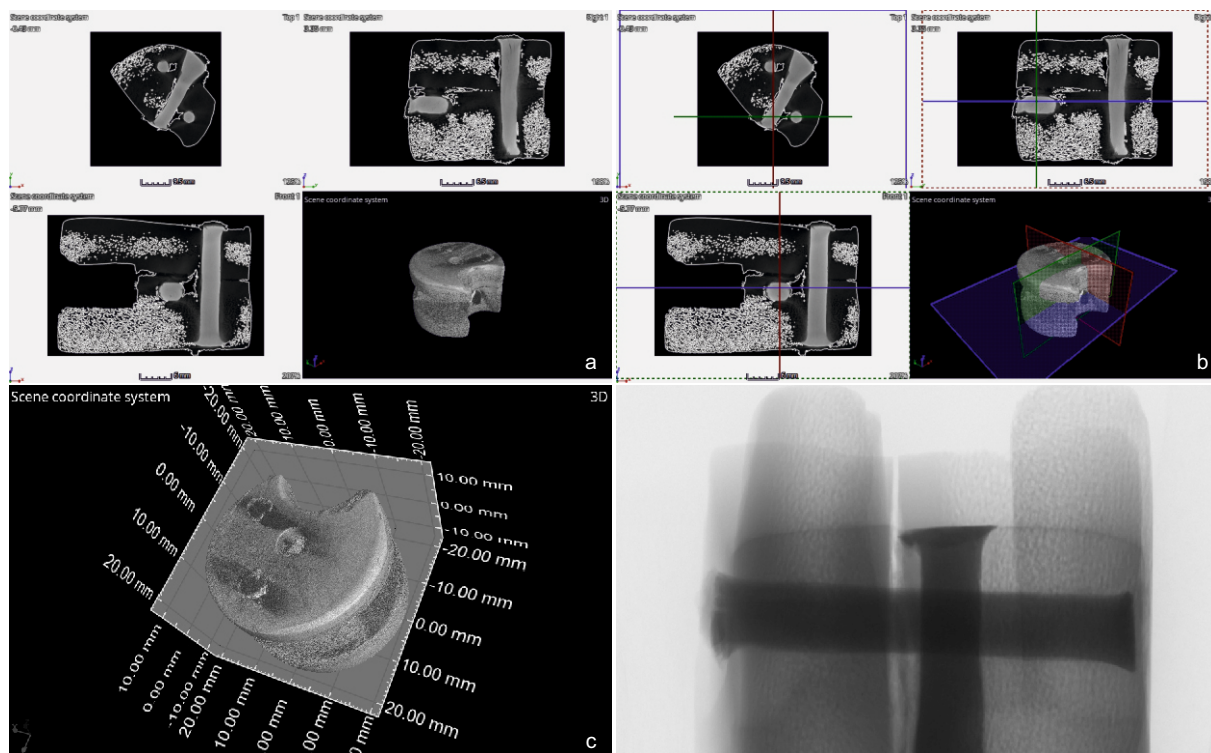
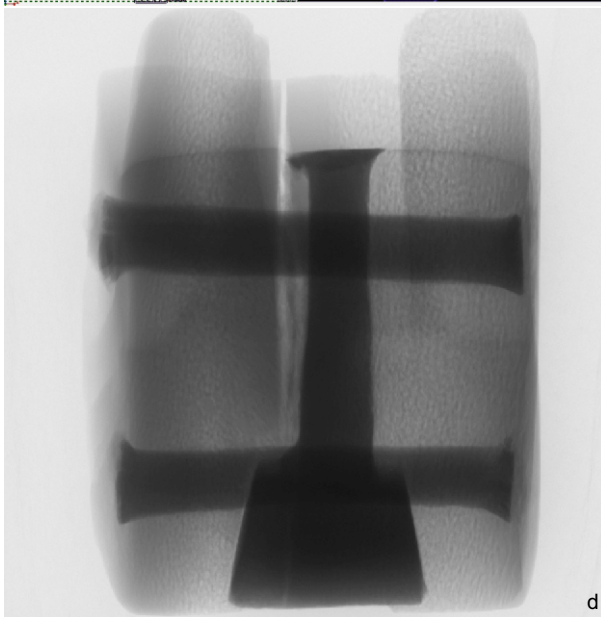


Fig. 1. Crossbow nut, Gdańsk, 3/5 Jagłana St., trench No. 125; layer 13042. According to the preliminary dating of the ceramic context: late medieval/early modern period. Archaeological Museum in Gdańsk, Inv. No. 255/020/046, field inventory No.2280, catalog No 26176. Construction details on CT scans: a – 3D view with cross sections; b – view with sectioning planes; c – 3D view with scale box; d – RTG photo accompanying the scanning process. Scanning by P. Wilk; elaborated by L. Marek.

Ryc. 1. Orzech kuszy, Gdańsk, ul. Jagłana 3/5, wykop 125, warstwa 13042. Znalezisko datowane wstępnie na podstawie kontekstu ceramicznego na późne średniowiecze/ okres nowożytny. Muzeum Archeologiczne w Gdańsku, nr inw. 255/020/046, nr ks. pol. nr 2280, nr kat. 26176. Szczegóły konstrukcji na podstawie skanów z komputerowego tomografu przemysłowego: a – widok trójwymiarowy oraz przekroje; b – widok trójwymiarowy z płaszczyznami przekrojów; c – widok z trójwymiarową skalą; d – zdjęcie rentgenowskie wykonane podczas tomografii. Skan P. Wilk; oprac. L. Marek.

abundance of archaeological evidence, the frequent use of personal weapons among all representatives of the old Gdańsk society seems remarkable. Based on the careful archaeological analysis, we need to assert, what was the main reason behind discarding such a quantity of personal weapons in the investigated period. Was it only the result of damage/wear, of an unintentional loss, of a violent situation, of a production process, or confiscation by the authorities? On the other hand, the profusion of finds may originate in the fact that in the streets of Gdańsk such objects, were treated as dress accessories among all representatives of the urban community. At the same time, being armed might have been a necessity in an insecure and violent environment of a port town. We might suspect that violence in the streets of a medieval town, in general, must have been a more common occurrence as compared to our times.

The privilege of being armed resulted from the municipal law – the obligatory participation in the civil



guard (“Bürgerwache”). The extent of the military duties of the citizens depended strongly on their wealth and possession of a house within the walls of the town. A document of the Gdańsk council, the so-called “Willkür” from the end of the 15<sup>th</sup> century specifies that every man whose wife wears a certain type of head ornament (*des weib bundt treedt*) is obliged to keep in his house a good armor for man, a handgun or a crossbow (*zu haben in synem house eyn gutte manne harnasch eyne lotbuchse oder eyn armbrost*) (Baltzer 1893, 6-7). This source shows clearly that sumptuary laws in medieval Gdańsk must have been ordained by the town’s council. The question is whether such rules were strictly respected by the Gdańsk townsmen or rather overridden.

The civil guard to properly fulfill its military duties had to periodically practice with crossbows and later on also with firearms. In Gdańsk, very much like in other medieval cities there was a shooter’s guild. The existence of the so-called shooting garden, namely the shooting range, located in the vicinity of the Wide Gate (Brama Szeroka) in Gdańsk is confirmed by the written sources from the second decade of the 15<sup>th</sup> century (Gehrke 1895, 8). The share of ranged weapons in the content of private house arsenals of the citizens of Gdańsk, their quality, and the intensity of use-wear

are problems to address in the course of the planned archaeological and archeometric investigations.

Considering the entire collection of the investigated objects kept at the local Archaeological Museum it would be tempting to find out whether the distribution of finds conforms to the social topography of Gdańsk. Another relevant question is whether the quality and quantity of arms and armour differed in time and mirrored the turning points in the history of the town. Our objective would be also to cross-check our research results with conclusions already drawn from the analysis of other archaeological evidence. Ceramics, f. e., were recognized as markers of ethnic diversity at the time of foreign colonist's settlement in Gdańsk in the 12<sup>th</sup> – early 14<sup>th</sup> centuries (Pluskowski 2013, 219, 223).

The undertaken investigations concern the archaeological record from a long period in the turbulent history of Gdańsk, ranging between the 13<sup>th</sup> up to the mid- 17<sup>th</sup> century the time when the Bürgerwache duty obliged townsmen to the possession of arms and armour. The bulk of evidence suggests that most of the analyzed objects, either originate from house armories or should be regarded as relics of local production or long or short-distance trade.<sup>2</sup> As such, they form invaluable evidence which is closely related to the everyday life of the inhabitants of Gdańsk. It is of interest to note that according to the investigations undertaken already by Zofia Maciakowska, the possession of arms and armour among newcomers who recently acquired citizenship was widespread including the most modest representatives of the Gdańsk community. This is observed especially in the 17<sup>th</sup>-century private house-armoury inventories. Arms and armour are treated here as a medium that gives a glimpse into certain aspects of the townsmen's mundane activities, reflects sometimes even their ethnic diversity, and therefore provides the planned study with an anthropological quality.

To recognize differences in the social topography of the historical Gdańsk, we cannot limit ourselves to investigate a single district. The essential part of our project is focused on specialist investigations aimed to determine the quality of the objects and the technology involved in their production process. Currently performed are metallographic-, wood-, leather- and bone /antler-analyses of the archaeological evidence. Hard data would be used in this case to draw proper conclusions on the level of craftsmanship within the spectrum of the examined objects to reveal which should be regarded as luxury goods and which represent the standard of mass production. Their value lies in the possibility to determine the quality of the object but also can give a glimpse into the mentality and intentions of the person who produced it. Examinations by Alan Williams, f.e., have revealed how armorers used scrap-iron to take shortcuts in the production process, guarded their secrets, or even cheated on the quality of their final products (compare Williams, de Reuck 2002; Williams 2003). Regarding the best-preserved objects of high historical- and exhibition value, only noninvasive specialist investigations are planned. Such artifacts are subject to

chemical analysis of their surface using the method of ED-XRF Spectrometry. For this purpose, we are using the equipment already utilized at the Institute of Archeology, University of Wrocław – the XRF Spectro Midex Spectrometer. The mentioned method enables us to evaluate the quality of raw material used in the production process and to find traces of the original surface decoration of the objects, f. e. gilding, silvering, and tinning. The additional technological analysis concerns the artifact's micro-hardness measuring with the use of the portable micro-hardness tester. For this procedure, already applied on a large scale by specialists in the field (see Williams 2003) a surface AFFRI Metaltester MKII was purchased and used according to the project funding plan.

The second, more invasive method applied to selected finds from the collection includes: sampling, precise micro-hardness testing (with the use of Zwick Roell ZKV 10 hardness tester), inner microstructure analysis, microscopic structural observations, i.e. everything which allows us to draw proper conclusions on the production technology and the influence of the conservation process on the analyzed evidence. The archeometric analysis of 33 objects done so far by our team member Beata Miazga has yielded very interesting results on the technology of mail and brigandine elements found in Gdańsk, as well as case hardened fragments of plate armour. Some conclusions regarding armour technology including the common medieval practice of tinning brigandine scales were presented by B. Miazga with contributions by the author at the “EAA 2021 Widening Horizons” international conference held in Kiel 6-11 September 2021. Many of the examined edged weapons were metallurgically analysed by B. Miazga. Based on her investigations she has confirmed sophisticated heat treatment of certain objects and their high quality obtained during the manufacturing process.

CT scans in the number of 20 performed so far, revealed several important construction details of the examined objects. This contributes greatly to our knowledge on the level of craftsman's skill involved in their manufacturing process. The method is well known from studies devoted to non-invasive investigations of excavated arms and armour (see Vogel et al. 2014). Harmless to fragile and severely damaged exhibits, it enables us to virtually dismantle an object, and produce an image of its inner construction elements and traces of wear. F. e. images of inner metal rivets and pegs of a crossbow nut (Fig. 1:a-d) or a tang inside a wooden dagger hilt (Fig. 2:a-c) can be obtained and precisely measured this way.

Based on hard scientific evidence, our project at the same time remains an anthropological study in which the investigated objects are treated as a mirror of life in old Gdańsk. As such, regarding the present state of the art, we believe that it is ground-breaking, innovative, and is a great step forward in the knowledge on the archaeology of the medieval and early modern port town in general. The research team consists of experienced scholars who published extensively in the fields of

<sup>2</sup> F.e. a type of late medieval dagger very specific for the territory of Latvia has been identified among other dagger finds from Gdańsk.

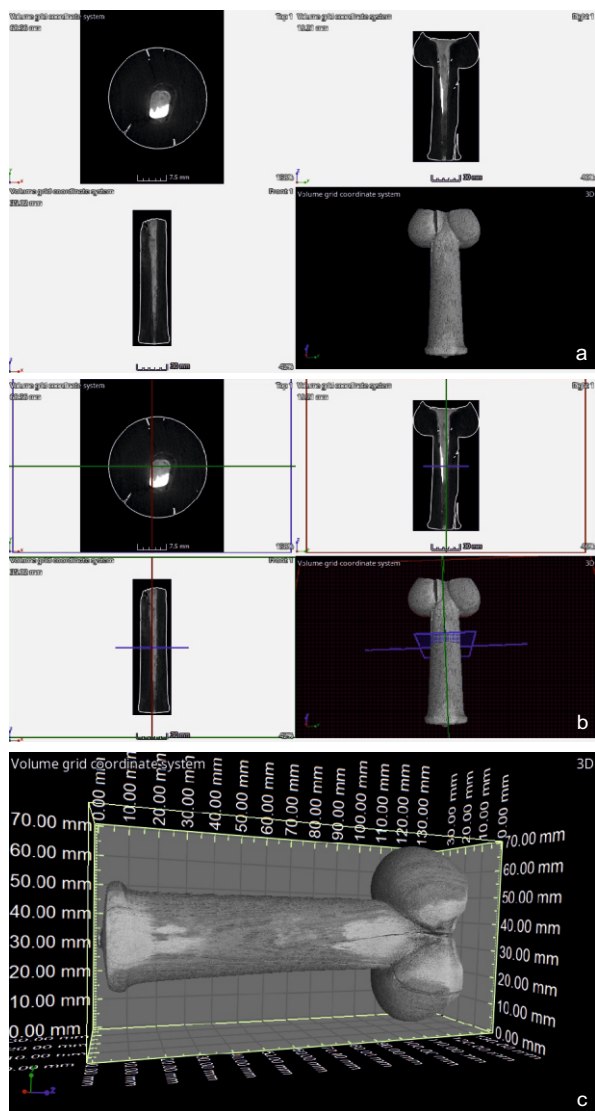


Fig. 2. Ballock knife hilt, Gdańsk, 91 Szeroka St., trench No. 91/SZEROKA, layer 3969. According to the preliminary dating of the ceramic context: early modern period. Regarding its form could be late medieval. Archaeological Museum in Gdańsk, Inv. No. 255/99/04, field inventory No. 3165, catalog No. 6096. Construction details on CT scans: a – 3D view with cross sections; b – view with sectioning planes; c – 3D view with scale box. Scanning by P. Wilk; elaborated by L. Marek.

Ryc. 2. Rękojeść pugiłał nerkowatego, Gdańsk, ul. Szeroka 91, wykop 91/SZEROKA, warstwa 3969. Znaleźisko datowane wstępnie na podstawie kontekstu ceramicznego na okres nowożytny, ale z uwagi na formę zabytku może być późnośredniowieczne. Muzeum Archeologiczne w Gdańsku, nr inw. 255/99/04, nr ks. pol. 3165, nr kat. 6096. Szczegóły konstrukcji na podstawie skanów z komputerowego tomografu przemysłowego a – widok trójwymiarowy oraz przekroje; b – widok trójwymiarowy z płaszczyznami przekrojów; c – widok z trójwymiarową skalą; d – zdjęcie rentgenowskie wykonane podczas tomografii. Skan P. Wilk; oprac. L. Marek.

archaeometry and arms and armour (Marek 2014; 2017; 2018; Downen 2017a, 2017b, 2019; Miazga 2017; 2018; Downen et al. 2019).

<sup>3</sup> The initial number of entries in the catalog of arms and armor was reduced from 520 to 386 after conservation and verification of objects initially classified as arms and armor. The database probably will be expanded, when published material from Gdańsk will be included here for comparative studies.



Fig. 3. Medieval ballock knife worn by a villain in the scene of „The Martyrdom of St. Agatha”, St. Dorothy’s Altar, ca. 1435. St. Mary’s Church in Gdańsk. Photo by L. Marek.

Ryc. 3. Średniowieczny pugiłał nerkowaty u boku złoczyńcy w scenie „Męczeństwa św. Agaty”, Ołtarz św. Doroty, ok. 1435 r. Bazylika Mariacka w Gdańsku. Fot. L. Marek.

So far, we have researched and catalogued the entire collection of evidence excavated in the historical part of Gdańsk. Currently, it comprises 386<sup>3</sup> objects of which 120 have been selected for archeometric analysis. In the first three years of the project, we are planning to perform multi-layer specialist investigations including metallographic, X-ray, CT, wood-, leather- bone/antler – examinations). The results of the mentioned specialist examinations enable us to draw proper conclusions on whether specific objects should be treated as luxury goods imported to Gdańsk from abroad or locally manufactured products. The arms and armour, archeometric and historical studies on the artefacts are so far, the most advanced. We have already consulted archaeological and historical literature on the subject and collected pictorial evidence (Fig. 3) for the use of arms and armor in the medieval and early modern Pomerania, Prussia, and Kuyavia. The final stage of the project would be the joint publication of research results in a monograph written in English.

The methodology applied here could be generally described as characteristic for cultural anthropology using a broad spectrum of sources. We are planning to perform a multilayer analysis of contexts. The first level of investigation involves the traditional archaeological methodology and specialist archeometric studies. At the next stage, we need to support ourselves with a broad spectrum of evidence drawn from philosophy, literature, religion, law, history, art history, behavioral and sociological studies. The carrying of weapons by civilians within the boundaries of a medieval town must have been a far more complex matter than

nowadays. Apart from its more obvious associations, strongly related to symbolism, behavioral economics, ostentation, self-identity within the local community, and emulation of the higher social classes. Hence, weapons cannot be exclusively treated here as implements of violence. Even conflict situations should be regarded as cultural phenomena. According to research results published by historians, there was no such thing as unlimited and excessive violence in the middle ages, and the modern period. It always must have been governed and harnessed by ethical, religious, and legal norms.

### Bibliography

#### Unpublished manuscripts:

Nowak M. 2017. *Broń biała sieczna z badań archeologicznych na Targu Siennym w Gdańsku*. Gdańsk (Unpublished manuscript of a MA thesis defended at the University of Gdańsk).

#### Sholarship:

- Baltzer M. 1893. *Zur Geschichte des Danziger Kriegswesens im 14. und 15. Jahrhundert. Ein Beitrag zur Säcularfeier der Vereinigung Danzigs mit der preussischen Monarchie*. Programm des Königlichen Gymnasium zu Danzig 28. Danzig, 1–33.
- Bumke J. 1992. *Höfische Kultur. Literatur und Gesellschaft im hohen Mittelalter*. Vol. 1–2. München.
- Chodyński A. R. 1994. *Zbroje kolcze z gdańskiego Dworu Artusa. Z tradycji turniejowych w Polsce*. Malbork.
- Downen K. 2017a. *Seventeenth-Century Buff Coats and Other Military Equipment*. In: Q. Mould (ed.). *Leather in Warfare: Attack, Defence and the Unexpected*. *Archaeological Leather Group/ Royal Armouries*. Leeds, 116–129.
- Downen K. 2017b. *The Introduction and Development of Plate Armour in Medieval Western Europe c. 1250-1350*. “Fasciculi Archaeologiae Historiae” 30, 19–28.
- Downen K. 2019. *Arms and Armour of the English Civil Wars*. Leeds.
- Downen K., Marek L., Słowiński S., Uciechowska-Gawron A., Myśkow E. 2019. *Two Twelfth-Century Kite Shields from Szczecin, Poland*. “Arms & Armour” 16/2, 121–148.
- Gehrke P. 1895. *Danzigs Schützenbrüderschaften in alter und neuer Zeit. Festschrift herausgegeben von der Friedrich Wilhelm Schützenbrüderschaft zur hundertjährigen Gedenkfeier ihrer Fahnenverleihung*. Danzig.
- Hahlweg W. 1937. *Das Kriegswesen der Stadt Danzig. Die Grundzüge der Danziger Wehrverfassung 1454-1793*. Schriften der Kriegsgeschichtlichen Abteilung im Historischen Seminar der Friedrich-Wilhelms-Universität Berlin, Seminar-Reihe 19. Berlin.
- Kaczor D. 2017. *City constitution, municipal laws, and public order in sixteenth-century Gdańsk*. In: B. Możejko (ed.), *New Studies in Medieval and Renaissance Gdańsk, Poland, and Prussia*. London, 127–141.
- Klonder A. 2000. *Wszystka spuścizna w Bogu spoczywającego. Majątek ruchomy zwykłych mieszkańców Elbląga i Gdańska w XVII w.* Warszawa.
- Kościński B., Paner H. 2005. *Nowe wyniki datowania grodu gdańskiego – stanowisko 1 (wyk. I-V)*. In: H. Paner, M. Fudziński (eds.). *XIV Sesja Pomorzoznawcza, 2: Od wczesnego średniowiecza do czasów nowożytnych*. Gdańsk, 9–47.
- Krzywdziński R. (ed.). 2016. *Dantiscum I*. Gdańsk.
- Kubicki R. 2010. *Kultura materialna w testamentach elbląskich z XV – początku XVI w.* „Kwartalnik Historii Kultury Materialnej” 58/2, 197–210.
- Kurkowska K., Krzywdziński R. (eds.). 2016. *Targ Sienny w Gdańsku*. Gdańsk.
- Kwiatkowski K. 2019. *Die Teilnahme der preußischen Städte an der militärischen Aktivität der Landesherrschaft um die Wende vom 14. zum 15. Jahrhundert. Finanzielle Aspekte am Beispiel der Altstadt Elbing*. In: O. Pelc (ed.). *Hansische Studien XXIII. Hansestädte im Konflikt. Krisenmanagement und bewaffnete Auseinandersetzung vom 13. bis zum 17. Jahrhundert*. Wismar, 29–53.
- Litwiński A. 2013. *Militaria z wykopalisk przeprowadzonych w południowo-zachodniej części kwartału ulic: Szafarnia, Angielska Grobla, Św. Barbary i Długie Ogrody w Gdańsku w latach 2008 i 2009*. In: H. Paner (ed.). „Archeologia Gdańska” 5. Gdańsk, 337–353.
- Marek L. 2008. *Broń biała na Śląsku. XIV–XVI w.*, *Wratislavia Antiqua* 10. Wrocław.
- Marek L. 2014. *Europejski styl. Militaria z Elbląga i okolic*. *Studia Archeologiczne* 47. Wrocław.
- Marek L. 2017. *Średniowieczne uzbrojenie Europy łacińskiej jako Ars Emblematica*. *Wratislavia Antiqua* 22. Wrocław.
- Marek L. 2018. *Militaria*. In: J. Piekalski, K. Wachowski (eds.). *Rytm rozwoju miasta na kulturowym pograniczu. Studium strefy Nowy Targ we Wrocławiu*. *Wratislavia Antiqua* 23. Wrocław, 563–664.

- Miazga B. 2017. *Zabytek archeologiczny jako źródło informacji o przeszłości*. Wrocław.
- Miazga B. 2018. *Średniowieczna produkcja broni i elementów uzbrojenia w świetle metalograficznych badań wybranych zabytków*. In: J. Piekalski, K. Wachowski (eds.). *Rytm rozwoju miasta na kulturowym pograniczu. Studium strefy Nowy Targ we Wrocławiu*. Wratislavia Antiqua 23. Wrocław, 664–711.
- Możejko B. 2006. *Zamek krzyżacki w Gdańsku w świetle inwentarzy z lat 1384-1446*. In: B. Śliwiński (ed.). *Krzyżacy szpitalnicy kondotierzy*. Malbork, 115–200.
- Możejko B. 2010. *Rozrachunek z życiem doczesnym. Gdańskie testamenty mieszczzańskie z XV i początku XVI wieku*. Gdańsk.
- Nadolski A. 1955. *Pochwa miecza znaleziona w osadzie miejskiej z XI wieku w Gdańsku*. „Wiadomości Archeologiczne” 22/2, 186–192.
- Norman A. V. B. 1980. *The Rapier and Small-Sword 1460-1820*. North Stratford.
- Ossowski W. 2014. *Equipment and personal belongings from the Copper Ship*. In: W. Ossowski (ed.). *The Copper Ship. A medieval ship and its cargo*. Gdańsk, 339–386.
- Pluskowski A. 2013. *The Archaeology of the Prussian Crusade Holy War and Colonisation*. London.
- Pudło A., Ossowski W., Trawicka E. (eds.). 2018. *Jatki mięsne w Gdańsku od XIV do XX wieku*. Gdańsk.
- Pyupe J. P. 2014. *The Amsterdam Ballock Daggers*. In: D. LaRocca (ed.). *The Armourer's Art. Essays in Honor of Stuart Pyhrr*, Woonsocket, 81–88.
- Rapiejko A. 2013. *Średniowieczne i nowożytny elementy uzbrojenia z badań przy ul. Tartacznej w Gdańsku*. In: E. Fudzińska (ed.). *XVIII Sesja Pomorzoznawcza 2. Od późnego średniowiecza do czasów nowożytnych*. Malbork, 115–122.
- Świątkiewicz P. 2012. *Średniowieczne militaria z gdańskiego zespołu grodowego (stanowiska 1, 2 i 4)*. In: W. Świętosławski (ed.). *Ze studiów nad wczesnośredniowiecznym Pomorzem*, Łódź, 5–74.
- Ullmann K. 1961. *Dolchmesser; Dolche und Kurzwehren des 15. und 16. Jahrhunderts im Kernraum der Hanse*. „Waffen und Kostümkunde” 3, 1–13 and 114–125.
- Vogel I., Onel Y., Goebels J. 2014. *Untersuchungen an den Schuss- und Blankwaffenfunden aus dem Stralsunder Laufgraben von 1628*. „Forschungen zur Archäologie im Land Brandenburg” 15, 239–245.
- Wiklak H. 1957. *Wczesnośredniowieczna proca z Gdańska*. „Wiadomości Archeologiczne” 29/3, 267–268.
- Williams A. 2003. *The Knight and the Blast Furnace*. Leiden. Boston.
- Williams A., de Reuck A. 2002. *The Royal Armoury at Greenwich 1515-1649. A History of its Technology*. Dorchester.
- Zbierski A. 1978. *Gdańsk w okresie panowania królów polskich i książąt pomorskich – od IX w. do XIII w.* In: E. Cieślak (ed.). *Historia Gdańska I, do roku 1454*. Gdańsk, 71–436.
- Zijlstra-Zweens H. M. 1987. *The Sword of De Voorst: A Baselard?* “Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek” 37, 391–402.
- Żabiński G. 2013. *Das Grosse Ämterbuch des Deutschen Ordens – Remarks on its Value for Arms and Armour Research*. In: L. Marek (ed.). *Wratislavia Antiqua* 18, 199–212.