



**A *Kampfschwert* from the 15th century –
a reinterpretation of the so called 'Teutonic estoc'
from the Princes Czartoryski Collection
in Cracow, Poland**

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Abstract – The paper aims at reinterpreting the so called 'Teutonic estoc' (inventory number: MNK XIV-49) from the Czartoryski Princes Collection, Cracow, Poland. Due to the weapon's unusual construction it has been necessary to draw up precise documentation – written, drawn and photographic. It has been supplemented with research in historical sources and scholarly literature on the subject.

The results obtained indicate that the researched weapon is not a typical estoc. It seems that it is a specialized anti-armour sword (*Kampfschwert* in German) designed for fighting against a heavy armoured opponent in judicial combat.

If this conclusion were correct, the 'Teutonic estoc' from Cracow would be the only known artefact of this kind to have survived from the Middle Ages. In order to falsify this hypothesis the artefact's authenticity has been examined. An analysis of Royal Inventory records spanning from the year 1475 to 1792 and younger remarks about the researched weapon in press, private letters and scholarly literature has been conducted and briefly reported hereby. Its results seem to indicate that it is not a hoax.

I. ACKNOWLEDGMENTS

I would like to express my deep gratitude to my tutors in the subject of both archaeology and common sense – M.A. Martyna Milewska and prof. Jerzy Kruppé from the University of Warsaw – without the help and encouragement of whom I would have never dared to give this paper a try. I am also indebted to M.A. Krzysztof Czyżewski, the director of the Department of Militaria and the staff of the Craftsmanship Conservation Atelier of the Wawel Royal Castle in Cracow, who were always welcoming and helpful to the utmost. I am also grateful to all those who assisted my work and are directly quoted in the text. Finally, a separate 'thank you' has to go to my fiancé, Olga, for her patience and support throughout my long and at times not-so-exciting labour.

II. INTRODUCTION

It is commonly agreed among scholars researching the history of pre-modern forms of European fighting arts that demand for professional fighting tutors was generated mainly by two factors: the need for military training of young aristocrats and burgers and the prevalence of armed duels as a mode of trial at court (Hils, 1985, p. 213; Anglo, 2000, pp. 7 – 8; Bodemer, 2008, p. 58; Faustmann, 2012, p. 100). The latter

circumstance produced a need for tutors not only well rounded in combat arts but in legal regulations and peculiarities of judicial combat as well. Some of the surviving 'fightbooks' (*Fechtbücher* in German), originating from Germany and Italy, contain parts dealing specifically with this specialised form of fighting (Hils, 1985; Anglo, 2000; Porzio, Mele, 2002; Clements et al., 2008; Bodemer, 2008). As might have been expected, restrictive rules propelled ingenious adaptations, equally in combat technique and equipment, creating a unique form of confrontation. The armour-suited swordfighting and unarmed combat techniques have already been described in detail by other researchers (e.g. Porzio, Mele, 2002; Clements et al., 2008; Tobler, 2010). Moreover, the 'fightbooks' cited by the afore-mentioned researchers show and sometimes even describe weapons specialised for the purpose of participating in a trial by combat (fig. 1 & 2).

It may seem so far that the late medieval version of the custom of judicial combat is sufficiently documented by the sources and can be easily presented as an important phenomenon within culture of the time. However, such statement encounters one major setback. Despite being asserted by numerous written and iconographic sources, the late medieval and early modern trial by combat still lacks evidence for the precise form it took. Some general remarks can of course be made, such as the fact that persons of high birth usually fought in armour and that there was some time for training assigned. Nevertheless, there is no sound proof for a hypothesis that combatants actually used the techniques and weapons presented in the 'fightbooks'¹. Obviously, it is possible to argue that any surviving medieval sword, warhammer or suit of armour may have been used in such circumstances but this does not solve the problem. Furthermore, the lack of surviving specialised weapons, so prevalent in the 'fightbooks' discussing fighting in armour, may be an argument to the contrary. A historian may argue that the techniques described by their authors were known only by a handful of initiates able to understand their cryptic instructions (Hils, 1985; Anglo, 2000; Rector, 2000). And, as such, should not be considered as a significant part of the culture of the era. Similarly, the unusual weapons known only from the 'fightbooks' may easily be considered mere fantasy or interesting, yet never realised projects, much alike Da Vinci's flying machines.

Despite these problems, since their modern discovery, the 'fightbooks' have been prominent sources for studies in historical weaponry. Without them it would be very hard to precisely interpret artefacts like the so called *fechtschwerter* or the *dussacke* (Schneider, Stüber, 1980, pp. 118 – 121; Norling, 2012, 2013). As mentioned, some weapons were devised for specialised purposes, like safe training or fighting against armoured opponent, and only thanks to the 'fightbooks' is it possible to be sure that they are properly understood by modern scholars. Nevertheless, there is a number of

¹ To be precise: it is difficult to prove that average civilians or rank-and-file man-at-arms of the Middle Ages were familiar with these skills, however these must have been possessed at least by an elite of warriors, like *Doppelsöldner* (Żabiński, 2010, p. 497).

arms shown in the 'fightbooks' that still lack analogies among surviving artefacts. Filling this gap is crucial for raising the credibility of the manuals as historical sources, since it diminishes the margin of what may be considered *licentia poetica*. Moreover, it can provide some additional practical data for practitioners of Historical European Martial Arts (HEMA).

The present paper attempts at realising the above-mentioned postulate. It describes, analyses and interprets an unusual weapon dated to the 14th or the 15th century. It is currently held by the Armoury of the Wawel Royal Castle in Cracow (Poland) and has been generally known as a 'Teutonic estoc'. Its specific form, anti-armour function and authenticity has been researched and are presented in detail.

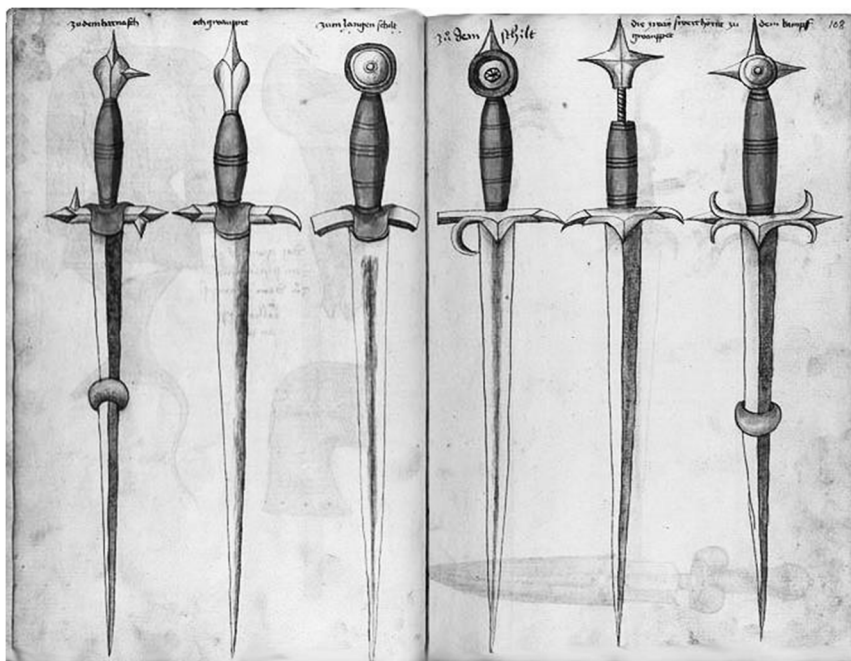


Fig. 1: Swords specialised for combat in a full plate armour (Kampfschwerter in German) from the 'fightbook' of master Hans Talhoffer (1459, folio 107v, 108r).



Fig. 2: The chart 27v from the 'fightbook' of master Filippo di Vadi (the 3rd quarter of the 15th century).

Upper part: armoured opponents fight with special, 'anti-armour' swords.

Lower part: a description and an image of such weapon.

Source: Porzio, Mele, 2002, p. 138.

III. METHOD OF DOCUMENTATION

1. Review of previous researches

In Poland the first method for documenting and publishing medieval and Renaissance swords was created by A. Nadolski (1954). He defined basic dimensioning and proposed that weapons be presented with points directed downwards. Similar solutions were independently developed and popularised among European scholars by E. Oakeshott (1964). He also created a comprehensive sword typology based on blade form and function rather than a shape of a hilt (1960; 1964; 1991; 2001). Unfortunately, no standard of documentation process has been introduced so far, as scholars generally consider it sufficient to classify researched swords as one of Oakeshott's types and

provide additional data to a limited and largely inconsistent degree. For instance, it is a courtesy of a particular author to provide dimensioning beyond overall length and blade length. Publishing weights of antique weapons is even more exceptional (Clements et al., 2004; Shore, 2004; Żabiński, 2010, p. 120 – 124). This state of matters hinders comparative studies of medieval swords, especially when it comes to determining whether a particular weapon is typical or somewhat unusual as far as its physical properties are concerned.

Because of these problems I have decided to propose an outline of a comprehensive method of documenting medieval swords (without scabbards). It is based on the work of a Polish scholar, J. Sękowski (2008), who has devised a procedure for describing and dimensioning sabres, rapiers and other post-medieval weaponry. The author suggested a method in which the main emphasis is laid upon precision and clarity of description and measurement. It has been meant to allow for direct comparability of results published by various researchers. The procedure presumes taking twenty measurements from a blade, a hilt and a scabbard, that provide information vital for proper dating and interpretation of a weapon. However, in order to precisely document the discussed ‘Teutonic estoc’ I have had to apply slight modifications to the method, as described below.

2. Documenting procedure

The following procedure has been modelled on the guidelines of J. Sękowski (2008, pp. 44 – 46) supplemented by instructions of A. Nadolski (1954, pp. 146 – 158, 283). I have added two measurements of thickness and width of the blade and nine on the hilt to document its unusual crossguard, the pommel and the grip. Obviously, since there is no scabbard attached to this weapon, I have omitted all the due measurements. Summing it up, I have measured twenty-three dimensions including weight.

All the length measurements amounting up to 15 cm have been executed with a slide calliper (instrument’s accuracy = 0,02 mm, rounded up to 0,5 mm), while those above have been taken with a metal tape measure (accuracy = 1 mm), always in a straight line. The weapon has been weighed with a TRAVELON luggage scales (accuracy = 10 g).

The following chart shows all the dimensions: C = the overall length; G1 = the blade’s length; G2 = the blade’s width above the crossguard; G3 = the blade’s thickness above the crossguard; G4 = the blade’s width in midsection; G5 = the blade’s thickness in midsection; G6 = the blade’s width in the point’s midsection; G7 = the blade’s thickness in the point’s midsection; R1 = the overall length of the hilt; R2 = the height of the pommel; R3 = the width of the pommel; R4 = the thickness of the pommel; R5 = the grip width in midsection; R6 = the grip thickness in midsection; R7 = the length of the crossguard; R8 i R10 = the width of the quillons; R9 i R11 = the thickness of the quillons; R12 = the length of the grip; R13 = the height of the crossguard at the bottom.

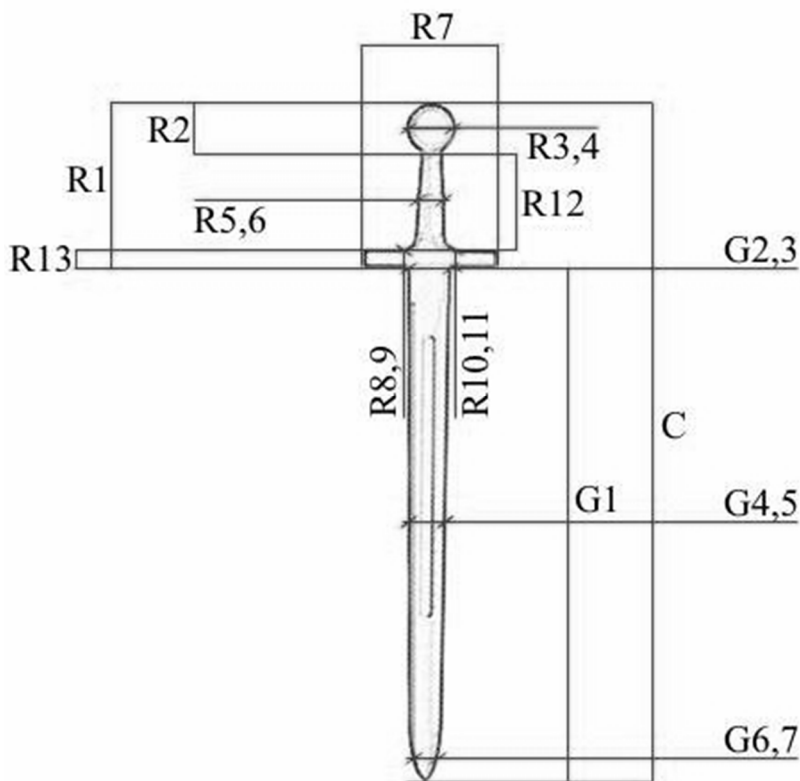


Fig. 3: Diagram for a dimensioning procedure of a sword or a sword-bilted weapon.

Modelled on: Sękowski, 2008, p. 426, fig. 23.

As a part of the documentation process I have made drawings and photographs of the artefact and its particular parts. The drawing of the entire weapon has been produced in the scale of 1:3 and the rest, that is the hilt (one view), the crossguard (three views) and the pommel (six views) in 1:1 scale.

Moreover, I have photographed the artefact in general view and, separately, the hilt and the pommel. For that I have used a Canon 350D digital camera with a standard set of lenses as well as lamps and a grey background. Additionally, I have made macro photographs of the sword makers' signs on the blade and also cavities located on the pommel.

All the drawings and photographs have been made in the Craftsmanship Conservation Atelier of the Wawel Royal Castle. For the sake of this paper they have been digitally processed, so that they could be fit into the text. The drawings have been scanned and redrawn in Corel PHOTO-PAINT 11 without complying to the original scale. However, in each case a calibrated centimetre scale has been inserted next to the figure.

The photographs have been edited only in order to be properly framed and presented. No changes in colour hues or structure have been applied.

IV. DESCRIPTION OF THE ARTEFACT

The discussed artefact is a long sword-hilted melee weapon (fig. 6 & 7), a deposit of the Princes Czartoryski Collection currently held in the Armoury of the Wawel Royal Castle in Cracow (inventory number: MNK XIV-49). It is dated to approximately the 14th or the 15th century (Mysłiński, 2007, pp. 68, 413, il. 6; Czyżewski, 2010). It has a completely preserved thick steel blade of a rectangular, nearly square cross-section, that tapers into a slightly rounded point. None of the edges nor the point show signs of sharpening.

The hilt has simple thick steel quillons, tapering into rounded points and also being nearly square in cross-section (fig. 4 & 5).

The tang is thick and square in cross-section (fig. 5), flattened in the plane of the quillons. There is enough space on the grip for about one and a half of an average male hand. A provisional wooden lining has been put on the tang. It is a little wider in the middle (fig. 6). However, it covers only one side of it and is probably much younger than the artefact. Only a silver badge with an inscription “Teutonic from the Royal Treasury” attached in the mid 19th century (Czyżewski, 2010) binds it with the tang.

The pommel is big and massive, formed as an irregular tetrakaidekahedron with four concave sides (fig. 8 - 10).

1. Blade

The blade is made of steel and well-preserved (fig. 7). The edges of the blade and the point are slightly rounded

The blade is marginally bent in the plane perpendicular to the plane of the quillons. The bent is visible at about three quarters of the blade’s length, closer to the point and does not exceed 1 mm in length from the long axis of the blade. I was not able to determine neither when nor in what circumstances this deformation occurred.

On all four surfaces of the blade there are sword makers’ marks in the form of a five-pointed star and a crescent, each 5 to 6 mm in diameter (fig. 6 & 12). Two signs on the opposite sides of the blade are situated 45 mm from the bottom edge of the crossguard, while the other two are 53 mm from it (fig. 12).

2. Hilt

The pommel is big and massive (fig. 5,8 & 9). On twelve of its surfaces there are circular cavities, from 2 to 4 mm in diameter and up to 2 mm deep (fig. 8 & 9). Additionally, three sword makers’ marks, analogous to those on the blade, have been engraved on it, only one of which has been completely preserved (fig. 11). The complete mark has a circular form and its diameter is 4 mm long. Diameters of the remaining marks are shorter, approximating 3 mm. The tang is thick and robust, suiting the size of the

pommel and the blade (fig. 5). But one unusual detail draws attention. The tip of the tang does not protrude above the top of the pommel even to a slightest degree and it shows no signs of hammering (fig. 5 & 10). Moreover, a dark distinct stain encircles it, perhaps witnessing a missing rivet (fig. 10)².

The crossguard is robust (fig. 4 & 5). Its tips end with rounded points and, similar to the blade, are nearly square in cross-section. There are some tiny scratches and chips or dents on both sides of it, but in general there are no traces of use or wear visible to the naked eye.

The hilt is well-preserved. All the elements are made of steel, however, since no chemical analysis has been conducted, its quality remains unknown.

3. Weight

The overall weight of the artefact equals 4050 g. The weight of the pommel has been estimated by multiplying the volume of a parallel geometrical solid by the specific density of steel³. Therefore, since the volume equals approximately 140.1 cm³ and density of steel varies from 7.5 to 7.9 g/cm³, the weight of the pommel amounts to something between 1050 g and 1107 g.

4. Dimensioning

General: (C) = 1586 mm. The centre of gravity is located 230 mm from the bottom edge of the crossguard. No centre of percussion could have been determined, since the blade is very rigid.

The blade: (G1) = 1346 mm. (G2) = 29,5 mm. (G3) = 25,5 mm. (G4) = 19 mm. (G5) = 17 mm. (G6) = 9 mm. (G7) = 7,5 mm.

The hilt: (R1) = 231 mm. (R2) = 63 mm. (R12) = 155 mm. (R13) = 13 mm. (R3) = 84 mm. (R4) = 85 mm. (R5) = 20 mm. (R6) = 13 mm. (R7) = 208 mm (the quillons are of equal length). (R8) = 19 mm. (R9) = 19 mm. (R10) = 18 mm. (R11) = 19 mm.

² For this remark I am grateful to Mr. Jan Chodkiewicz, a swordsman, a swordsmith and a historian from Fechtschule Gdańsk and the Polish Federation of Historical European Martial Arts (FEDER).

³ I am greatly indebted to M.Sc. Jan Kostecki from the Craftsmanship Conservation Atelier of the Wawel Royal Castle in Cracow for making these calculations.

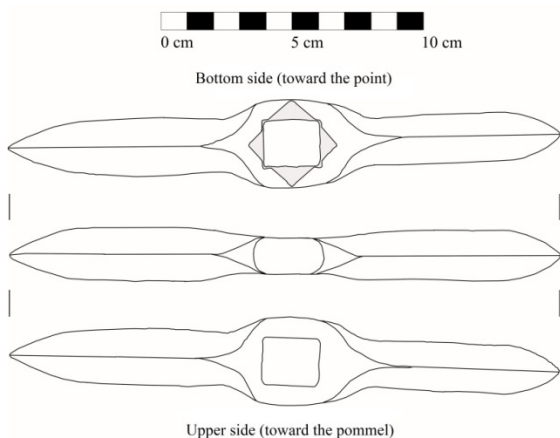


Fig. 4: Views of the crossguard of the so called 'Tentonic estoc' from the Princes Czartoryski Collection. On the bottom side a gray shading marks a rectangular cavity corresponding with the shape of the blade. Originally, the quadrangular hole in the middle is filled with the tang, not included in the image.

By M. Talaga.

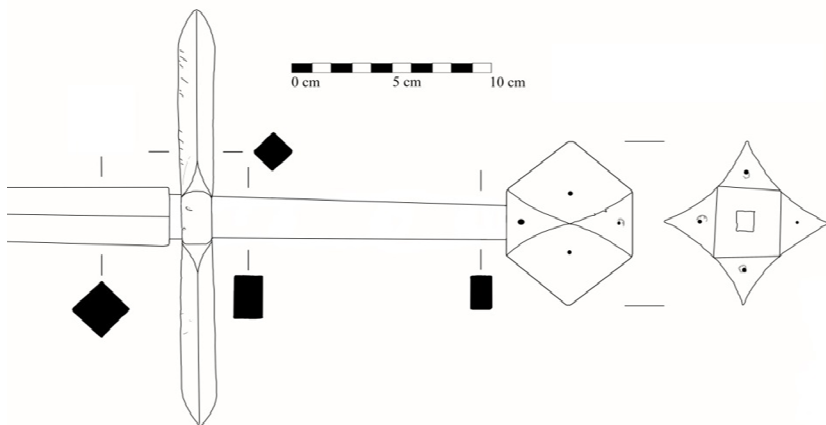
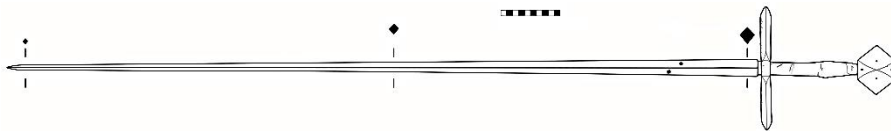


Fig. 5: The hilt of the so called 'Tentonic estoc' from the Princes Czartoryski collection. On the pommel, the grey shading indicates sword makers' marks and the black shows circular cavities.

I have neglected a wooden lining and a silver badge fastening it, as they were most likely added in the 19th century.

By M. Talaga.



*Fig. 6: The blade and the hilt of the so called 'Teutonic estoc'
from the Princes Czartoryski collection.
Sword makers' marks are visible on the blade slightly below the crossguard (black dots).
The provisional lining has been shown on the grip,
but without the silver badge.*

By M. Talaga.



*Fig. 7: The blade and the hilt of the so called 'Teutonic estoc'
from the Princes Czartoryski collection.
The silver badge added in the 19th century is just below the crossguard.
The wooden lining is on the side of the tang not visible in the photograph.*

By M. Talaga.

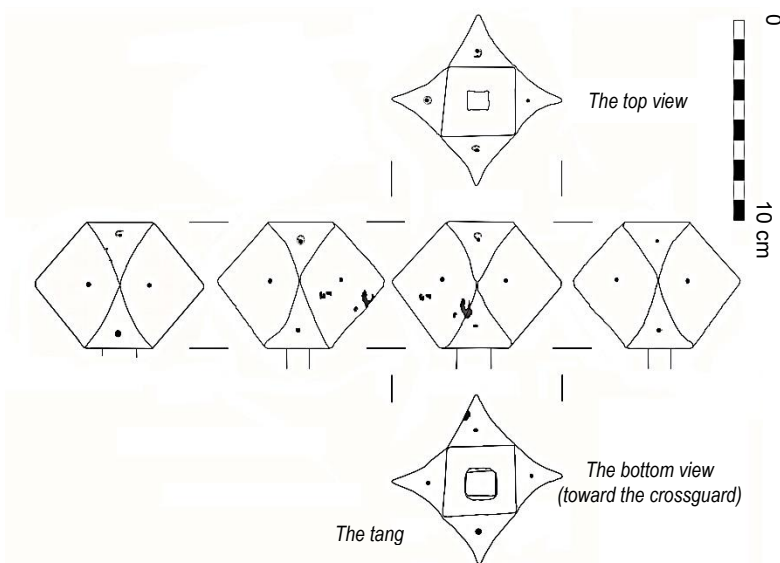
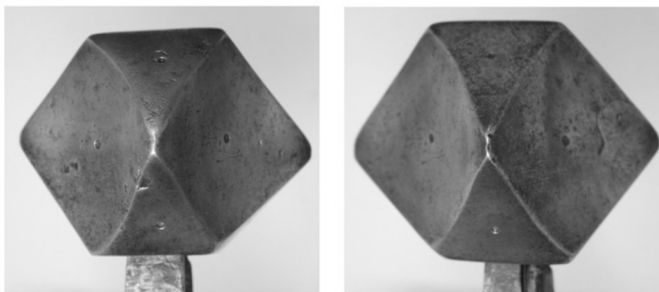
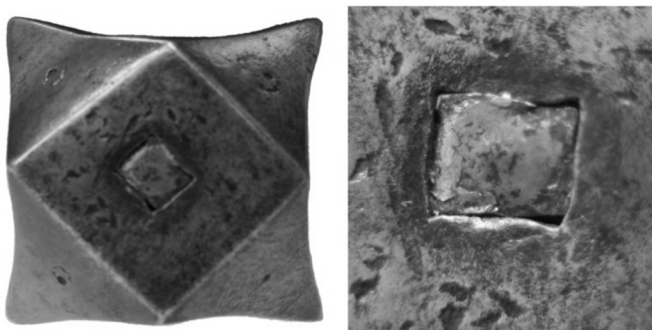


Fig. 8: Views of the pommel of the so called 'Teutonic estoc' from the Princes Czartoryski collection. The black dots mark circular cavities, the dark grey shading with black contour indicates distinct nicks or flans and the grey shows sword makers' marks. By M. Talaga.



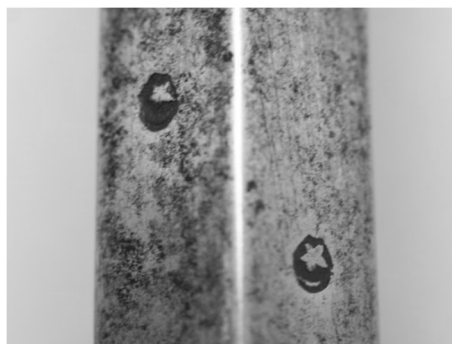
*Fig. 9: Two views of the pommel.
On the left at the top a sword maker's mark can be seen.
By M. Talaga.*



*Fig. 10: The top of the pommel (left)
and a close-up of the ending of the tang (right).
By M. Talaga.*



*Fig. 11: A sword maker's mark on the
pommel overlapped by a circular cavity.
by M. Talaga.*



*Fig. 12: Arrangement of sword makers'
marks on the blade.
By M. Talaga.*

V. ORIGIN AND HISTORY OF THE ARTEFACT

The discussed estoc has not been a subject of a dedicated research yet, but it has been mentioned in many Polish works. The most notable are numerous papers by Z. Żygulski (jun.) (1957, p. 58; 1960, pp. 392 – 394, il. 11 – 12; 1971, pp. 140 – 142; 1975, p. 141; 1982, pp. 61 – 62, il. 104; 1984, p. 98; 1998, p. 26, fig. 36; 2001, p. 24, fig. 33), published in the course of researching the princes' Czartoryski collections in Puławy, Poland. The older scholars writing on estocs in medieval Poland mentioned the artefact but briefly (Brückner, 1939, p. 914), whereas the younger mainly repeated the information provided by him (Głosek, Nadolski, 1970, pp. 15 – 16, reference nr 4; Myśliński, 2007, pp. 68, 413, fig. 6; Bogacki, 2009, pp. 209 – 211; Walczak, 2009, p. 155; Czyzewski, 2010).

According to Z. Żygulski (jun.) (1971, p. 140), starting from 1963 up till now, the estoc has been stored in the Wawel Royal Castle in Cracow, as a deposit from the Princes Czartoryski Museum, along with the best part of artefacts from the so called 'Puławy collection'. Since its history is inseparably connected with this collection, in order to learn it, we have to become briefly acquainted with the past of the Czartoryski Museum.

The museum, located in the Pijarska street in Cracow, was founded on the basis of an antique collection gathered since the 1780s by an aristocratic Czartoryski family, mainly on the initiative of the Duchess Izabela (†1835). Alongside with the decline of Polish independency at the end of the 18th century and the birth of the ideology of the Romanticism somewhat later, Polish society developed a need for a National Museum, dedicated to preservation of the national heritage (Żygulski, 2001, pp. 11 – 12). In the first half of the 19th century this role was fulfilled by the Duchess Izabela's collection, placed in Puławy (Żygulski, 2001, p. 12). Exhibitions were organised in two buildings: the 'Temple of Memory' (*Świątynia Pamięci* in Polish)⁴ and the 'Gothic House' (*Dom Gotycki* in Polish)⁵. Simultaneously, Duchess Izabela's co-operators carried out an extensive search for valuable relics throughout the country, most notably in the Wawel Royal Castle in nearby Cracow (Żygulski, 1998, pp. 25 – 28).

At the time, the Royal Treasury was taken care of by Tadeusz Czacki (In 1791 he was authorised by the Committee of Treasure and a special resolution of the Sejm (Polish parliament) to evaluate the state of the royal castle. Between 18th and 21st of April 1792, accompanied by castle officials and many respected citizens of Cracow, he meticulously inspected the treasury. All the items registered this way were then returned and sealed (Żygulski, 1998, pp. 25 – 28; 2001, pp. 22 – 23).

Three years later, in 1795 the Prussians captured Cracow and looted the Wawel treasury. This resulted in an irrevocable loss of the Polish regalia and many other precious relics (Żygulski, 2001, pp. 22 – 23). However, since the looting was done in a hurry, most of

⁴ Alternatively known as the 'Temple of Sybil', it was opened to visitors in 1801 (Żygulski, 2001, pp. 17 – 37).

⁵ Opened in 1809 (Żygulski, 2001, pp. 37 – 87).

non-decorated items were left intact. Thanks to that, many medieval arms survived, among other things (Myśliński, 2007, pp. 66 – 68).

A few years later, when the Austrians entered the city, T. Czacki managed to obtain consent for transferring many relics from Cracow to his estate in Poryck, Ukraine⁶ and afterwards, not without some losses, to Czartoryski family's residence in Puławy (Żygulski, 1962, p. 43; Żygulski, 2001, p. 23). As a result, it is possible to trace these artefacts in catalogues of the 'Temple of Memory'. Furthermore, many of them still exist and belong to the Princes Czartoryski Collection (Żygulski, 1960, pp. 381 – 383; 2001, p. 23; Myśliński, 2007, p. 66.). The discussed estoc, signed as 'medieval' or 'Teutonic', has been among the relics luckily preserved from Wawel, all of which are marked with a silver badge with an inscription saying 'from the Royal Treasury' (Myśliński, 2007, pp. 18, 20, 66 – 68).

Dispersed abroad and throughout Poland, the Puławy collection has survived many historic turbulences, including the November Uprising against Russia in 1830 and 1831 and the Revolutions of 1848. Finally, in 1876, thanks to an incredible organisational effort of its custodians and many anonymous contributors, it has been reassembled and moved to Cracow, where it remains today (Rostworowski, 2001, pp. 142 – 164; Zamojski, 2001, pp. 90 – 101).

Another, earlier chapter in the history of the 'Teutonic estoc' was the time that it spent in the Wawel treasury before the tragic events of the 1790s. Unfortunately, due to the limited volume of this paper, I can address this problem only briefly.

All the information about contents of the treasury come from inventories drawn-up by court officials and Sejm inspectors (Myśliński, 2007). Before 1607, there are neither estocs nor even swords mentioned in them (tab. 1), apart from 'Szczerbiec' (Polish coronation sword) and the Grunwald Swords (*'Duo Gladij a Magistro Cruc?; gladii prutenici?'*; they were two swords given by the Grandmaster of the Teutonic Order to the Polish king Władysław Jagiello prior to the Battle of Grunwald). After that, numerous different estocs and 'half-estocs' (*półkoncerze* in Polish) were registered (Kopera, 1904, pp. 163 – 164, 183, 198 – 199; Rożek, 1987, p. 95; Myśliński, 2007, pp. 20, 27, 63, 191, 221, 260, 332, 341, 351, 354, 374). However, these records do not unequivocally indicate for how long the estoc remained in the treasury before it was taken by T. Czacki. Therefore, although it is quite sure that the estoc belonged to the royal collection prior to 1790s, so far it has been impossible to prove its earlier provenance with a written account.

⁶ Initially, T. Czacki planned to set there up a museum of his own, but he soon resigned in order to avoid hampering the more promising efforts of the Duchess (Żygulski, 2001, p. 23).

Inventory's dating	1475	1510	1532 / 1555	1569	1607	1609 / 1611	1632	1659	1673 / 1676	1686	1690	1730	1737	1739	1792
Number of estocs					1	1	1	1		3	3	2			6

Table 1. Number of arms classified as 'estoc' in the Wawel Royal Treasury's inventories from between the 15th and the 18th century.

Source: Mysliński, 2007, p. 126.

1. Later modifications to the form of the artefact

The scholarly publications and the documentation of the 'Teutonic estoc' from the Princes Czartoryski Collection provide but one trustworthy remark about its modifications carried out after it had been deposited in the Royal Treasury. It concerns the fore-mentioned silver badge, attached in the 19th century and captioned 'Teutonic from the Royal Treasury', that fastens the wooden lining with the tang of the blade. However, despite the lack of written evidence, we cannot consider the artefact to have not been modified since its deposition in Wawel.

The reasons to that are manifold. Firstly, the lining currently present on the tang appears to be rough-and-ready and probably only provisional. Photographs published in 1960 seem to confirm that (Żygulski, 1960, pp. 388 – 389, 393, photo. 11 & 12), since they show the estoc without any lining. The author does not mention it in the text either, therefore it should be assumed that it was not there.

Moreover, some doubts has been raised by 'the Battle of Grunwald' (1878), a painting by a Polish artist, Jan Matejko (Żygulski, 1957, p. 58). The painter, at the time regarded as an expert in antique arms, used many of the relics gathered in Wawel and Puławy as models. In consequence, the discussed estoc from Cracow has been represented twice on the afore-mentioned painting. In the first instance, it is held by the blade by Christopher, the bishop of Lübeck (fig. 13). It appears again in the hand of felled Konrad von Liechtenstein, the Great Komtur (*Grosskomtur* in German) of the Teutonic Order (in this case only the characteristic pommel is visible) (Żygulski, 1982, pp. 61 – 62). The first image (fig. 13) shows linings on the grip unlike the one currently present and a leather covering between the quillons and the blade. Similar coverings, known as *rainguards*, can be found on many representations of swords in medieval and early-Renaissance artwork as well as on some preserved specimens (Oakeshott, 1991, pp. 139, 141, 142, 170, 191, 219). Predominantly, they are believed to protect a blade from moisture, while it rested in a scabbard. However, some researchers of Historical European Martial Arts, most notably R. Warzecha, have proposed that they were rather (or also) primitive implements meant for protecting hands in combat, that were later to

evolve into side-rings, knuckle bows and cup hilts⁷. Regardless of the actual function of the element, the fact that it has been shown on the J. Matejko's painting, alongside with the linings of the grip, makes one wonder whether they were present on the original or have been 'reconstructed' by the artist. Studies in his works indicate that he sometimes used to perform such 'completions' (Żygulski, 1957, p. 61; 1982, pp. 60 – 70).

On the other hand, actual presence of a rainguard on the original cannot be ruled out. Admittedly, none of the surviving estocs that I am aware of have such an element, but some lavishly decorated specimens have similar ones made of metal instead of leather.

Lastly, both fore-mentioned images of the estoc from Cracow differ from the original, as it is preserved today, in more minute detail. Firstly, neither of them show the circular cavities now present on the surfaces of the pommel (fig. 9). In their stead there are things resembling small knobs (fig. 13). Secondly, the tang seems to protrude slightly above the top of the pommel, which is not the case in the preserved original. Perhaps it is because of a rivet that has left the dark stain on the topmost surface of the pommel (fig. 10)⁸. Thirdly, the grip on the painting appears to be considerably longer. Does it mean that after 1878 the rivet was removed, the tang shortened and the rainguard discarded? Were the circular cavities made at the time? What was in their place before? Sadly, it is out of the scope of this paper to discuss these questions, all the more since there are no relevant written accounts.



*Fig. 13: Detail from 'the Battle of Grunwald' by J. Matejko (1878),
held by the National Museum in Warsaw.
The weapon was modelled on the so called 'Teutonic estoc'
from the Princes Czartoryski Collection in Cracom.
Source: Ligier, 2010.*

⁷ Unfortunately, no work on the subject has been published so far. More data can be found on the MyArmoury forum at:

<http://www.myarmoury.com/talk/viewtopic.php?t=6000&postdays=0&postorder=asc&start=20>
[Accessed 21.02.2013]

⁸ I am indebted to Mr. Jan Chodkiewicz for this remark.

VI. ANALOGIES

1. Comparison with existing sword typologies and attempt at morphological dating

There is no separate typology of estocs. Therefore I had to compare the blade and the hilt with types proposed for swords, according to E. Oakeshott (1960; 1991).

Similar blades were classified, if at all, as the XVII, XVIIIb, XVIIIc and XVIIId types. All of them have stiff, quadrangular blades, but the XVIIId type is characterized also by a short, one-handed grip, thus resembling the Cracow estoc. However, the XVIIIc blades are believed to be rather flattened and suitable for cutting, which does not fit the discussed case.

The hilt is utterly unusual. The only distant parallel that can be pointed out is the type S pommel. Due to exceptionality of its elements, the Cracow weapon cannot be reliably dated on the basis of its morphology (the scope spans from the 13th to the 16th century).

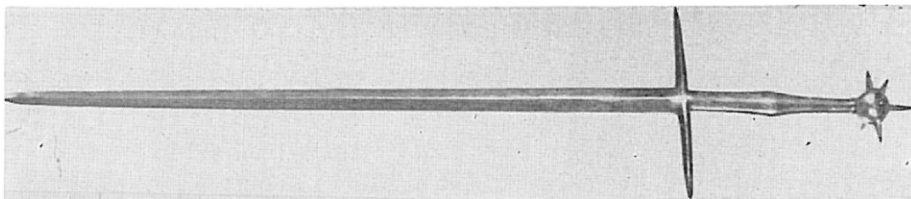
2. Analogous artefacts

I have not found any antique weapon closely similar in form to the Cracow estoc. An attempt at finding specimens of more distant resemblance also proved difficult and succeeded only partially. I have discovered merely two such weapons.

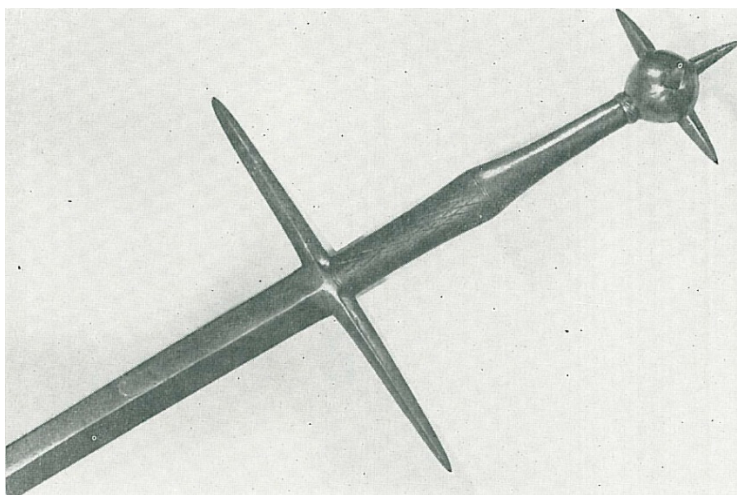
The first is held by the Lithuanian National Museum in Vilnius (registered as a ‘two-handed sword’, inventory number IM-839)⁹. Unfortunately, the only available photographs of it come from a catalogue of the Museum’s collection published in 1979 (Mažeikienė, pp. 116 – 117, il. 141 & 142). They show a weapon resembling an estoc with a blade rectangular in cross-section, a two-handed grip, sharp-ended tips of the quillon and a round, spiked pommel (fig. 14 & 15). Its written description is consistent with these observations (Mažeikienė, 1979, p. 20). The artefact’s known dimensions are: the overall length of the weapon (C) equalling 135 cm and the length of the blade (G1) equalling 99 cm. It is dated to between the 14th and the 16th century and provides the closest analogy to the Cracow estoc that I know. Unluckily, the staff of the Museum in Vilnius consider it a 19th century forgery, which has not been mentioned in the fore-mentioned catalogue. However, it appears that there are currently no decisive evidence for the notion¹⁰. Furthermore, the weapon is very similar to swords displayed in the compendium of Paulus Hector Mair (fig. 16).

⁹ I am indebted to Mr. Bartłomiej Walczak for showing me this weapon.

¹⁰ I would like to thank Mr. Tadas Šėma, the director of the History Department of the National Museum in Vilnius, who was kind enough to correspond with me and explain that the weapon is considered a forgery, because its shape has no analogies and manufacturing technique is not authentic (however, I have not been made familiar with details of the latter problem).



*Fig. 14: Estoc ('two-handed sword')
from Vilnius. Source: Mažeikienė, p. 116, il. 141.*



*Fig. 15: Close-up of the hilt of the estoc from Vilnius.
Its noteworthy, that the quillon seem to be an integral part of the blade.
Source: Mažeikienė, p. 117, il. 142.*

The second analogy is provided by a combination weapon held by the Royal Armouries in Great Britain, inventory number XIV.10. It combines an estoc with a hand cannon (fig. 16). It is dated to ca. 1520 and thought to have once belonged to the notorious king, Henry VIII. It has a blade of an estoc and a robust, pointed quillon, whereas instead of a grip and a pommel it has a gun barrel, that is attached to the tang ended with a screw. The weapon has not been published so far. Its photographs alongside with a short description, unfortunately without any dimensioning, are available on the Internet, on the Royal Armouries website (DI 2010-1443, n.d.).

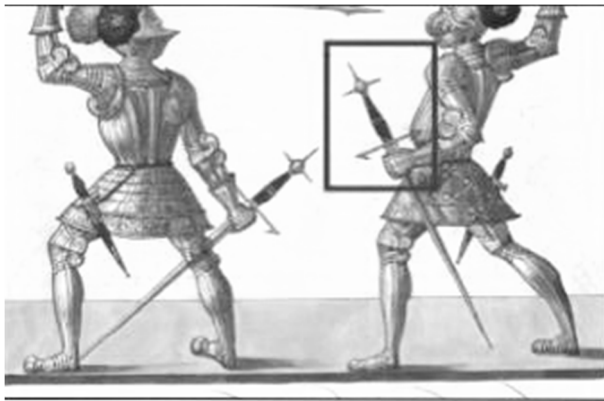


Fig. 16: Swords with spiked pommels
(marked by a rectangle) designed for armoured combat.
Source: Mair, 1550, folio 231r.

3. Analogies in ‘fightbooks’

Swords or estocs resembling the ‘Teutonic estoc’ from the Princes Czartoryski Collection appear in many ‘fightbooks’, spanning from the beginning of the 15th to the mid-16th century. Some manuals authored by medieval Italian masters, Fiore dei Liberi and Filippo di Vadi and an anonymous German treatise, the so called Codex Wallerstein, comprise images or descriptions of swords designed for armoured combat (*spada in arme* in Italian). They are furnished with massive, spiked pommels and quillons as well as blades sharpened only around the tip (Porzio, Mele, 2002, p. 13). A German fight-master, Hans Talhoffer, included pictures of similar swords ‘for armoured combat’ (*Kampfschwerter* in German) in his manual, but without any detailed description (fig. 1). In addition, the works of master Paulus Kal (1458-1467, folios 9r – 14v; 1470, folios 19v – 36v) and the fore-mentioned representations from the monumental treatise commissioned by Paulus Hector Mair can be considered a more distant parallel (fig. 16).

VII. SUMMARY

The scope of this paper does not allow for an extensive interpretation of the discussed artefact. I will, however, try to briefly sum up the information presented hitherto and signal some problems that still await solving.

Up to date, arms closely resembling the ‘Teutonic estoc’ from Cracow were known solely from the German and Italian late-medieval and early Modern ‘fightbooks’, that described judicial combat in full armour (*Kampffechten* in German; *combatter in Sbarra* in Italian). While searching for formal analogies for it I noticed a similar artefact from Vilnius that may be an 19th century forgery. This discovery made me doubt the authenticity of the Cracow specimen. However, an analysis of the Museum’s inventories, that have kept an unbroken record of its collection since 1792, and the documents of inspections of the Royal Treasury drawn-up since the 15th century

indicate that the weapon is not younger than the 18th century. Therefore, its current dating to the 14th or the 15th century may be correct.

If we assumed that the estoc discussed was a specialised weapon for armoured combat, we should expect that it had features giving advantage in such confrontation. The blunt blade, the unusual, mace-like pommel, the sharp-ended quillon, considerable weight and one-handed grip all appear to be well-suited for the technique of halfswording (*Halbschwert, mit dem Kurtzen Schwert* or *Gevappnete Hand* in German; *Mezza spada* in Italian).

It therefore seems that the regretful statement of L. Porzio and G. Mele (2002, p. 13), that ‘no surviving example of such a weapon seems to exist’, is no longer valid. The estoc from Cracow still needs further examination and provokes more questions. A chemical analysis and X-ray photographs could provide data on its manufacturing technique and, potentially, solve the problem of the original length of the grip. Perhaps they could also help to make the dating more precise. A thorough query within the Royal Treasury’s inventories could also prove useful for determining its history prior to 1792. Moreover, some of preserved typical estocs might have been rehilted at some point, therefore there is a chance that some of them were originally *Kampfschwerter*¹¹. And the last, but not the least – in this paper I have entirely neglected an important issue, already raised by some previous researchers, that is its relation to the Battle of Grunwald (e.g. Brückner, 1939, p. 914; Żygulski, 1960, pp. 392 – 394; 2001, p. 24, fig. 33; Głosek, Nadolski, 1970, p. 15 – 16; Bogacki, 2009, p. 209). Some scholars speculate that it might be one of the swords sent by the Grandmaster of the Teutonic Order to the Polish king prior to the battle, considered by contemporaries a great *indivium Dei* between the nations. Despite the fact that long time has passed, the question has not yet been decided.

VIII. REFERENCE LIST

- Anglo, S., 2000. *The Martial Arts of Renaissance Europe*. New Haven – London: Yale University Press.
- Bodemer, H., 2008. *Das Fechtbuch. Untersuchungen zur Entwicklungsgeschichte der bildkünstlerischen Darstellung der Fechtkunst in den Fechtbüchern des mediterranen und westeuropäischen Raumes vom Mittelalter bis Ende des 18. Jahrhunderts*. Ph.D. Universität Stuttgart.
Available at: <http://elib.uni-stuttgart.de/opus/volltexte/2008/3604/pdf/Fechtbuch.pdf>
[Accessed 1.06.2012]
- Bogacki, M., 2009. *Broń wojsk polskich w okresie średniowiecza*. Zakrzewo: Replika.
- Brückner, A., 1939. *Encyklopedia staropolska*, vol. 1. Warszawa: TEM.
- Clements, J. et al., 2004. *The Weighty Issue of Two-Handed Greatswords*. [online] The Association for Renaissance Martial Arts Website. Available at: <http://www.thearma.org/essays/2HGS.html>
[Accessed 1.02.2013].
- Clements, J. et al., 2008. *Masters of Medieval and Renaissance Martial Arts. Rediscovering the Western Combat Heritage*. Boulder: Paladin Press.

¹¹ I wish to thank Ph.D. Ken Mondschein from the Higgins Armoury Museum for sharing this observation.

[DI 2010-1443], n.d. [image online].

Available at: <http://collections.royalarmouries.org/index.php?a=wordsearch&s=item&key=WYTozOntpOjA7czo1OjJlc3RvYyI7aT0xO2k6MDtpOjI7YjowO30=&pg=3> [Accessed 11.02.2013].

Faustmann, D., 2012. Eines für Alle? Liechtenauersche Fechtbücher vom 14. bis zum 16. Jahrhundert. *Das Mittelalter*, 17(1), pp. 100-112.

Glosek, M., Nadolski, A., 1970. Miecze średniowieczne z ziem polskich. *Acta Archaeologica Lodziensia*. 19.

Hils, H.-P., 1985. Meister Johann Liechtenauers Kunst des langen Schwerts. *Europäische Hochschulschriften. Reihe III Geschichte und ihre Hilfswissenschaften*. 257, pp. 1 – 355.

Ingelmark, B. E., 1939. The Skeletons. In: B. Thordeman, P. Nörlund, B. E. Ingelmark, B. R. Price, ed. 1939. *Armour from the Battle of Wisby 1361*. 1. Uppsala: Kungl. vitterhets historie ock antikvitetsakademien, pp. 149 – 209.

Kal, P., 1458-1467. [untitled]. [manuscript] MS 1825. Biblioteca Universitaria di Bologna. Bologna.

Kal, P., 1470. [untitled]. [manuscript] Cgm 1507. Bayerische Staatsbibliothek. Munich. Facsimile available: <http://daten.digital-sammlungen.de/bsb00001840/images/> [Accessed 23.02.2013]

Kopera, F., 1904. *Dzieje skarbcza koronnego, czyli insygniów i klejnotów koronnych Polski*, Kraków: Spółka Wydawnicza Polska.

Ligier, P., 2010. *Bitwa pod Grunwaldem*. [photograph]. In: K. Murawska-Muthesius, ed. 2010. *Jana Matejki bitwa pod Grunwaldem. Nowe spojrzenia*. Warszawa: Muzeum Narodowe w Warszawie, a centre-spread between the pages 40 and 41.

Mair, P. H., 1542. *Opus Amplissimum de Arte Athletica*. [manuscript] Cod.icon.393, vol. 2. Munich. Bayerische Staatsbibliothek. Facsimile available at: http://daten.digital-sammlungen.de/~db/bsb00007894/image_1 [Accessed 30.01.2013].

Mažeikienė, O., 1979. *XIV – XIX a. Ginklai. Katalogas*. Vilnius: LTSR Istorijos-etnografijos muziejaus leidinys.

Mysliński, M., 2007. *Klejnoty Rzeczypospolitej. Zawartość skarbcza koronnego na Wawelu w świetle jego inwentarzy z lat 1475 – 1792*, Warszawa: Polska Akademia Nauk.

Nadolski, A., 1954. *Studia nad uzbrojeniem polskim w X, XI i XII wieku*, Łódź-Wrocław: Zakłady im. Ossolińskich.

Norling, R., 2013. *The WhatChaMaCallIt-Schwert*. [online] HROARR.COM. Available at: <http://www.hroarr.com/the-feder-whatchamacallit/> [Accessed 1.02.2013].

Norling, R., 2012. *The Dussack – a weapon of war*. [online] HROARR.COM. Available at: <http://www.hroarr.com/the-dussack/> [Accessed 1.02.2013].

Oakeshott, E., 1960. *Archaeology of Weapons*, New York: Frederick A. Praeger, Pub.

Oakeshott, E., 1964. *The Sword in the Age of Chivalry*, London: Lutterworth Press.

Oakeshott, E., 1991. *Records of Medieval Sword*, Woodbridge: The Boydell Press.

Oakeshott, E., 2001. *Sword in Hand*, London: Arms & Armor Inc.

Porzio, L., Mele, G., 2002. *De Arte Gladiatoria Dimicandi. 15th Century Swordsmanship of Master Filippo Vadi*. Union City: Chivalry Bookshelf.

- Rector, M., 2000. *Medieval Combat*. London: Greenhill Books.
- Rostworowski, M., 2001. Part III: Kraków. In: Z. Żygulski (jun.), ed. 2001. *The Princes Czartoryski Museum. A History of the Collection*. Cracow: The National Museum in Cracow, pp. 141 – 237.
- Rożek, M., 1987. *Polskie koronacje i korony*. Kraków: Krajowa Agencja Wydawnicza.
- Schneider, H., Stüber, K., 1980. *Waffen im Schweizerischen Landesmuseum. Griffwaffen I*. Zürich: Orell Füssli Verlag.
- Sękowski, J., 2008. *Konservacja broni białej z elementami bronioznawstwa*. Warszawa: Semper.
- Shore, A., 2004. The Two-Handed Great Sword - Making lite of the issue of weight, *Journal of Western Martial Arts*. [online] available at:
http://jwma.ejmas.com/articles/2004/jwmaart_shore_1004.htm [Accessed 1.02.2013].
- Talhoffer, H., 1459. *Alte Altmatur und Ringkunst*. [manuscript]. MS Thott.290.2°. Det Kongelige Bibliotek Copenhagen. Copenhagen. Facsimile available at:
http://www.kb.dk/da/nb/materialer/haandskrifter/HA/e-mss/thalhofer/thott-2_290.html [Accessed 30.01.2013].
- Tobler, Ch. H., 2010. *In Saint George's Name. An Anthology of Medieval German Fighting Arts*. Wheaton: Freelance Academy Press.
- Walczak, B., 2009. Traktaty średniowieczne i renesansowe jako źródła wiedzy o zastosowaniu uzbrojenia wieków XIII – XVII. In: K. Badowska, W. Wasiaś, P. Łuczak, ed. 2009. *Broń i wojna w dziejach człowieka*. Łódź: Instytut Archeologii Uniwersytetu Łódzkiego, pp. 153 – 165.
- Waller, J., 2000. Combat techniques. In: V. Fiorato, A. Boylston, Ch. Knüsel, ed. 2000. *Blood Red Roses. The archaeology o a mass grave from the Battle of Towton AD 1461*. Oxford: Oxbow Books, pp. 148 – 154.
- Zamoyski, A., 2001. Part II: Paris. In: Z. Żygulski (jun.), ed. 2001. *The Princes Czartoryski Museum. A History of the Collection*. Cracow: The National Museum in Cracow, pp. 89 – 139.
- Żabiński, G., 2010. *The Longsword Teachings of Master Liechtenauer*. Toruń: Adam Marszałek.
- Żygulski, Z. (jun.), 1957. Uzbrojenie w „Holdzie pruskim” Matejki. In: *Rozprawy i sprawozdania Muzeum Narodowego w Krakowie*, 3 (for 1953), pp. 21 – 64.
- Żygulski, Z. (jun.), 1960. Pamiątki wawelskie w zbiorach puławskich. In: J. Szablowski, ed. 1960. *Studia do Dziejów Wawelu*. 2. Kraków: Państwowe Zbiory Sztuki, pp. 377 – 413.
- Żygulski, Z. (jun.), 1975. *Broń w dawnej Polsce. Na tle uzbrojenia Europy i Bliskiego Wschodu*. Warszawa: Państwowe Wydawnictwo Naukowe.
- Żygulski, Z. (jun.), 1982. Jan Matejko jako znawca broni. In: *Studia do dziejów dawnego uzbrojenia i ubioru wojskowego*. 8, pp. 51 – 75.
- Żygulski, Z. (jun.), 1984. *Stara broń w zbiorach polskich*. Warszawa: Krajowa Agencja Wydawnicza.
- Żygulski, Z. (jun.), 1998. Część I: Puławy. In: Z. Żygulski (jun.), ed. 2001. *Muzeum Czartoryskich. Historia i zbiory*. Kraków: Muzeum Narodowe w Krakowie, pp. 11 – 93.
- Żygulski, Z. (jun.), 2001. Part I: Puławy. In: Z. Żygulski (jun.), ed. 2001. *The Princes Czartoryski Museum. A History of the Collections*. Cracow: The National Museum in Cracow, pp. 10 – 87.