Summary

In the doctoral dissertation there is a work that is an author's technical, technological and artistic reconstruction of the historic white weapon, recognized as a work of art in the field of artistic craft. The author's work constitutes the basic requirement for recognition of the doctoral dissertation in the specialty of visual arts. The work and the specific methodology of its implementation included in the dissertation, based on the achievements of the contemporary research and traditional methods of its preservation and reconstruction that are already disappearing, have constituted the general objective of the work. Discussion of the issues included in the dissertation on the basis of the Turkish sabre from the period of the turn of the 16th/17th century, a *votum* by Stanisław Żółkiewski to Jasna Góra, lent by the Pauline Fathers from Częstochowa has been an integral and equivalent part of the work.

An excellent example of scientific and practical importance was a scabbard and a handle of the sabre. On this object, constituting a wonderful work of art, the passage of time left its mark. An important element of the sabre – the blade was taken by King Jan III Sobieski, great-grandson of Stanisław Żółkiewski when he was going "to Vienna" in 1683, with the consent of the Pauline Fathers. In the period of almost 400 years, the scabbard and handle have experienced various types of metal damage and encrusting. This work presents the whole research work that the object has been subjected to as well as a detailed discussion of the metal-working technologies and techniques that can be found here.

The notion of metalwork, for the purpose of this work, stands for all techniques and technologies of works in metals and with metals, as it was understood in ancient toreutics A wide spectrum of the problems developed in the work, apart from theoretical aspects, included preparation of the copy of the sabre taking into consideration reconstruction of all components related to the function of this white weapon as well as various and extremely decorative encrusting and incrustation elements, influencing the aesthetic values of the object. The work attempted to show the great possibilities of the modern conservation art concerning the restoration of the historical weapons, particularly in terms of restoring the old technique and technology of metalworking and jewellery.

Practical procedures were supported by previously performed research works, including laboratory analyses. All the analyses necessary to determine the material from which the research subject is made using testing liquid or layout examination were not an option due to the decision of the monument supervisor. The analysis of the chemical composition of the

monument was performed on a spontaneously detached 0.5 cm square piece of hardware with the application of the Nifor XL 3t spectrometer at the company "Sprint Recycling S.C. Paweł Stefański, Piotr Stypka" from Tamów.

These tests enabled to determine that the material from which the scabbard and handle of the sabre were made is a high-grade silver, clad with gold. By comparing the decorative technique of the obtained sample and the element made in my workshop using the Carl Zeiss Stemi 2006 stereomicroscope constituting the property of Zakłady Mechaniczne in Tarnów, the decorative technique based on leading the line with a contouring guide, not an engraving burin, was confirmed. This test was important in identifying the cause of the folds of the scabbard surface. These corrugations always appear while making a linear design of the metal surface with a contouring guide and after its application it is always essential to anneal the material in order to remove the present stress. The use of an engraving burin took place incidentally in the ornamentation of the crossguard.

The examination of the wood from which the scabbard splints were made was performed at the Institute of Experimental Biology of the University of Wrocław by Elżbieta Miśków, PhD. Wood pollen obtained from the inner part of the scabbard using a scalpel was used for the test. Despite the microscopic amount of the sample, it was possible to determine that the wood from which the scabbard splints were made is a plane tree. The Olympus B x 50 microscope was used for the examination. In our case, the material that was applied to make the scabbard splints is mahogany that has the feature of not being deformed under the influence of humidity changes.

The identification of the gemstones decorating the scabbard and the handle was conducted using a macroscopic method with the application of an aplanatic-chromatic magnifying glass and Raman spectrometry.

During the examination it was established that decorative elements that are regarded as agates in the subject literature are in fact milk chalcedony and authenticity of turquoises was confirmed by the Raman spectrometer at the Faculty of Chemistry at the University of Wrocław. The colour of the gemstones and its arrangement, transparency, content and distribution of larger inclusions and defects, the type and quality of the applied cut and its proportions as well as methods of its and the state of preservation were macroscopically determined.

Using the Cameca electron probe model SX-100 electron probe model, constituting the property of the Faculty of Chemistry of the University of Warsaw, it was possible to identify the filling of tall cribs that are the basis for cabochons as calcium carbonate combined with

resin. All these tests were of great importance in the process of reconstruction of the sabre as well as procedures aiming at saving the original from complete destruction in the future.

During the study of the literature devoted to the discussed sabre, no information that shortages of large amounts of turquoises were related to obtaining them for medicinal purposes by the Jasna Góra pharmacy, which was the case with other stones, was found. Perhaps further research of the Jasna Góra archives will help to determine this. In my case, I did not have access to them. The information that there is a blade of the Kara Mustafa's sabre captured near Vienna at the Wawel Royal Castle was useful. It is made in the pattern welding technique, which encouraged me to repeat this technique while making the blade of the discussed sabre.

The subject of the doctoral dissertation was to discuss 'selected technologies and metal-plastic techniques in the restoration of works of art from metals' based on Stanisław Żółkiewski's sabre from the Jasna Góra collections. It was assumed that the research was used to conduct maintenance of the above-mentioned sabre to save it from total destruction. Concurrently, I was supposed to make a blade to complete the whole exhibition. For this purpose, the research, conducted to a limited extent, such as: wood identification test, examination of the chemical composition of the metal from which the scabbard and handle were made, and identification of gemstones adorning the object allowed to broaden knowledge in the field of antique white weapons and the general history of art. And in specific cases, refute false knowledge in this matter. For this purpose, microscopic tests were applied to identify the decorative technique in the form of a geometric layout of the lines. They do not come from engraving techniques, yet, from a contouring guide. Furthermore, the macroscopic examinations of the surface of the scabbard displaying metal loss associated with repoussage technique and not engraving, which caused stress appearing in the corrugations of the left side of the scabbard, were carried out. These corrugations do not occur on the right side of the scabbard since soldering of the stone frames caused spontaneous annealing of the sheet metal, which in turn resulted in the removal of stress.

A similar situation is observed with the description of gemstones called agate in the current subject literature. Agate has a ribbon/belt or concentric structure, marked by variability of the colour of the individual zones, visible to the naked eye, which gives an image of multicoloured and variously shaped circles and rings. Formation of these zones is explained by the process of repeated separation of silica from solutions with varying chemical composition or cyclic precipitation of gel pigment. The elements appearing in the discussed sabre do not have these features. In fact, it belongs to the group of chalcedony, however, it is

not agate. Chalcedony is a semi-crystalline to a very fine-crystalline porous variety of quartz with fibrous structure, in the radial cross-section, displaying oily gloss on the fracture. Its physical parameters have values slightly lower than quartz. This stone was already known in the ancient times. The most beautiful specimens came from Egypt and Arabia. Gemstones that were supposed to protect a man from nervous breakdown and melancholy as talismans were made of it. Our stone is a milk chalcedony bearing its name from the colour.

Scabbard linings and handle were made of high-grade silver using the repoussage technique, with the exception of small fragments of the crossguard, richly ornamented with floral motifs encrusted with turquoise and nephrite inlaid with gold and placed small turquoises bound in gold. Encrusting is complemented by milk chalcedony inlaid with gold thread and decorated with gold-framed turquoises. An important element of the laboratory tests was to determine the substance filling high cribs of luminaires.

The achieved effect of the faithful reconstruction meets - in this dissertation - all technical and technological requirements that are required from reconstruction. It faithfully conveys techniques applied in the original, supported by laboratory tests, with an indication of the reasons for the self-destruction of the object. Specification of these elements will allow any art restorers to take the right approach to conservation procedures in order to save the monument from destruction. The referred sabre, attributed to Stanisław Żółkiewski requires a full range of the conservation measures in question despite the doubts concerning authenticity of the sabre attributed to Stanisław Żółkiewski and passed on to Jan III Sobieski before the Vienna battle. On the painting, a hussar sabre with a different handle and scabbard decoration is presented. The assumption that the creator of the painting at the time of painting simply did not have access to the original souvenir hidden in the treasury's cabinets does not stand scrutiny. This seems impossible in the situation when many of the figures and motifs depicted in the painting correspond to the knowledge of this event. Apart from the monarch, the provincial of the Polish Paulines, Father Tobiasz Czechowicz, the royal sons Jacob, Alexander and Konstanty as well as the Great Crown Hetman Stanisław Jan Jabłonkowski. Perfect similarities. Only this sabre?

Apart from the authenticity of the sabre and the scabbard, faithful reconstruction of the object within the scope of dissertation, undoubtedly constitutes the serious scientific and executive contribution concerning the technology and techniques of metalwork in the restoration of the art of monumental metal objects.