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SPANISH RELIGIOUS TEXTILES FROM THE 18TH AND 19TH CENTURIES THE GARÍN CASE

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Abstract

Clothes and textiles make up a very relevant part or religious cultural heritage. This paper presents a selection of liturgical textiles from the 18th and 19th centuries. They were created by Garín, a Spanish factory still active today. The designs and weaving techniques employed in them have provided the starting point for a research project, SILKNOW, in operation between 2018 and 2021. It aims to apply cutting-edge computing technologies to textile heritage, including the religious and liturgical, and thus establish new historical and artistic connections.

Keywords: silk, interactive, tools, weaving techniques, decorative motifs

1. Introduction

Digital culture has allowed the creation a wide range of tools that are being applied in the museum and cultural heritage sector. These aids are extremely useful not only for preventive conservation but also to improve cataloguing systems and decision-making processes, when restoring an asset. Because of textiles' fragility and diversity, the application of these technologies adds new possibilities for their preservation. First, the study of the fabric structure and materials greatly benefits from the use of non-invasive techniques, not only for conservators but also for documentation purposes, an unavoidable step in the accurate preservation of the cultural object. Nowadays, moreover, museums are actively working to improve accessibility. Digital technologies support cultural heritage institutions in guaranteeing universal access, the dissemination and transmission of cultural values for everyone.

In this regard, religious textile heritage poses additional challenges. Ordinary collections are quite heterogeneous: one can find fabrics in fashion museums, but also in ethnological or decorative art museums. When it comes to religious textiles, they can also be found in churches, cathedrals, or convents, in many cases lacking the proper display conditions usually found in most museums.

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Indeed, their inaccurate identification and description have often been a source of confusion. For example, the luxury of silk fabrics and splendid embroideries led to reuse rich female clothes as garments for religious images. Such mixed use of fabrics with similar ornaments in different contexts has been a common issue for centuries [1].

The Garín factory, archive and collection provide an excellent example of the application of Information and Communication Technologies (ICT) tools to the study and preservation to textile heritage, focusing in this particular case study on religious silk textiles from the 18th to the 19th centuries. This company was a highly priced supplier of liturgical vestments, thanks to its premium production of silk fabrics. Between 2018 and 2021, its information is being studied within the SILKNOW research project [2], involving the application of artificial intelligence technology to a comprehensive body of documentation. This will improve, in turn, the conservation and dissemination of silk heritage, something that can be easily extended to other textiles.

SILKNOW, coordinated by Universitat de València, groups researchers from the ICT and SSH (Social Sciences and Humanities) fields. The consortium has nine partners from six European countries (Spain, France, Germany, Slovenia, Poland and Italy): three universities, two SMEs, one cultural institute, and three research institutes. It has been funded by the European Union's Horizon 2020 Programme under the grant agreement No 769504, within the call SC6-CULT-COOP-09 'European cultural heritage, access and analysis for a richer interpretation of the past'.

2. Sources and historical framework

The conservation of historical religious textiles faces many challenges. Some of them are not held in museums; in fact, some are still in use as a part of daily liturgy and devotions. Other samples survive within the holdings of the historical companies that produced these rich fabrics. Pieces woven in Spanish silk centres, especially Toledo, Granada and Valencia, and those coming from the rest of Europe, in particular those from Genoa and Lyon, arrived at the ports of Cadiz and Seville in order to be exported to American colonies. The high appreciation of ecclesiastical costumes caused their designs and weaving techniques to be widely transferred to several production centres. At the end of the 18th century and especially in the 19th century, with the Jacquard looms, silk industries spread and prospered, in the large centres just mentioned, but also in San Leucio, Prato, Venice, etc. Their financial viability has long been under serious threats, however, and many of these companies have ceased operations. Parts of their archives still exist, including administrative documents, drawings, models, textiles or point-paper plans. This is the case of the Garín archive, who as a SILKNOW consortium partner has provided 3125 records associated to 6626 images, that are taken here as a case study.

Garín production provides an excellent sample of Spanish silk manufacture from the 18th and 19th centuries. Thus, it allows us to test artificial intelligence tools, by choosing religious textiles decorated with motifs that this Valencian producer incorporated in their designs by imitation of Lyon's models. On the other hand, during the 19th century, silk industries turned to revivals, taking up older motifs that might seem forgotten and readapting them according to the tastes of each period. This makes their dating and attribution somewhat more difficult. Sometimes, textiles found in geographically distant locations have surprisingly similar characteristics. The same fabric design can be found both in secular and ecclesiastical clothes. These confusing situations lead scholars to research whether these designs are original or, on the contrary, are copies from other textiles.

The understanding of the connections between European silk centres, their relationships, commercial trades and model diffusions is a primary objective for SILKNOW. By developing a digital, open access repository, it will contribute to a better knowledge of the European silk heritage, one that was formed not just by a single silk road, but by a network of centres. Furthermore, it will become a great didactic aid for the construction of new narratives and communication strategies for museums. This massive repository consists of records related to silk heritage, provided by European museums, which form the basis for a series of resource discovery tools. For instance, interactive maps that represent the data according to their spatiotemporal dimensions. This tool will help small and medium-sized museums, especially ecclesiastical ones, to show their hidden collections and trace their connections around Europe, as well as their evolution in time. This can help to create new synergies for ecclesiastical collections, cathedrals and parishes that are custodians of this heritage.

3. The Garín collection - history, designs and products

The 18th century should be considered the golden age of European silk, with Lyon as the leading centre for textile production and innovative designs [3]. The Lyonnais model spread especially under the territories where Bourbon ruled, as Spain, Naples and Sicily, which led to the origin of the Royal industries, especially after Anton Raphael Mengs introduced the concept of useful arts. The creation of Royal industries [4-6] was followed by the enhancement of Royal Academies that followed the same model, encouraging the study of flowers and new motifs for fabric designs. Unlike Lyon models, the Spanish show more vivid colours. In Valencia, the *Real Fábrica de la Seda* under the sponsorship of the monarchy of Carlos III followed this system after the creation of the *Escuela de Flores y Ornatos* in the local Academy [7, 8]. There, students learnt to draw and design floral patterns, decorations *all'antica*, as well as compositions made by their teachers: José Romà, Miguel Parra, Vicente Castelló [9, 10], Benito Espinós, and José Zapata who was appointed as director of the Academy. Carlos III set these studies on the same level as other academic teachings. However, the Academy's most important legacy was the teaching system, which was inherited

by silk industries. They began to proliferate in the early 19th century in Valencia and its surroundings, where some of them are still active today, as Garín or Catalá. These companies, together with the introduction of Jacquard looms, deeply transformed the silk industry.

The Garín family have been silk weavers since the 18th century. The creation of their silk factory, as such, dates from 1820, when they made the transition from a guild workshop to a proto-industrial factory, that later housed up to 40 Jacquard looms. Garín is a perfect example of the maintenance of traditions and the incorporation of new models. Even though Garín models are strongly influenced by the *Escuela de Flores de Ornatos*, their main commissions came from religious clients, as evidenced by the 1868 historical catalogue where the company presents its productions. Textiles and fabrics were the leading products, but Garín manufactured all types of liturgical goods, too, such as goldsmithing and devotional sculpture. The 1889 commissions' registry testifies that most clients came from the clergy, convents and lay brotherhoods (Figure 1).

Figure 1. 19th century Garín advertising, attesting the production of church textiles ('ornamentos de yglesia').

Their fabrics show a vast repertoire of textile techniques, designs and motifs: from the simplest to the most complicated. This allowed them to guarantee best prices, since they needed no other partners, in order to finish their fabrics. Some were part of their standard repertoire of designs, but they also took commissions for brand new creations. Ecclesiastical garments made in velvets, damasks, embroideries, brocades, etc. were finished with braids, chevrons and other ornaments. In historical records before 1850, textiles appeared linked to their raw material, without naming or giving much information about the designs, which makes it difficult to know whether these had been woven before or were innovations.

Garín 19th century designs can be grouped into three different styles: those with a symmetrical and central bouquet framed by a vegetable border; those arranged in the same way but with asymmetrical branches; and those that are woven from left to right. Some of these designs, initially dedicated to religious garments, were subsequently used for traditional Valencian clothing and upholstery.

The brocades *Carpio*, *Francia* and *Rica* were the most in demand. These fabrics are woven in Jacquard looms, following the first models inspired by French designs, and correspond to 19th century stylistic schemes. These designs had central bouquets, with barely no movement in them, joined on their base and inscribed in a garland of floral and vegetable motifs which is arranged as a rhombus. The *Francia* and *Rica* include in their designs beads that accompany the plant motifs. The *Rica* design can be dated in the mid-nineteenth century or earlier. Of the three point-paper plans for this design, the only dated one corresponds to 1910 [11]. However, the aspect suggests that it is the most recent of them. In addition, one of the other two drawings, the *Rica Seber*, was drawn on a graph paper printed by José Coromina, Plazuela dels Peixos casa nº 10. He was a professor of engraving at the Llotja School of Barcelona, between 1814 and 1820, which helps to date the drawing early in the 19th century [12]. In addition, documentation prior to 1850 shows annotations referring to the 'Espolín la Rica'. This design has a symmetrical and very static central bouquet knotted with a loop that holds the stems and is inscribed in a lanceted vegetable border.

Regarding fabrics with asymmetric branches, we can find fewer well-preserved examples. These branches are closer to a less idealized taste and therefore to the *Escuela de Flores y Ornatos*. It is the case of some designs like the *San Ildefonso* or the *Purificación*. Both show bare branches, with no ornament other than the flowers in movement. Oftentimes, motifs and compositions were used just as inspiration, rather than taken as direct models. For this reason, it is quite frequent to find similar models in apparently faraway scenarios, both in time and space, which probably used as an inspiration the same models.

The third group corresponds to point and return designs that are woven from left to right. This is the case of the *Herradura* or *San Juan*, designs which can be dated in the second half of the 19th century but are inspired by similar ones of the previous century. They are much simpler, showing less chromatic variety and less realistic drawings; however, they are more delicate and dynamic.

In some cases, textiles were exclusively commissioned to clothe devotional images, or as garments for important personalities. Many of these designs present religious iconography such as spikes, grapefruits, Virgin Mary's anagram and even an Agnus Dei. Two point-paper plans contain the *Nuncio* design, one dated in 1904, and the other sometime before. This design was commissioned by the Apostolic Nuncio to Madrid, Monsignor Antonio Rinaldi, Archbishop of Heraclea. The *Nuncio* must have been created for the 'Te Deum' ceremony at the crowning of King Alfonso XIII in May 1902, since it is not registered in 19th-century documents, such as the commission books. Regarding the *Capilla*, it was reportedly made for a cope of the Pope Pius IX, between 1846 and 1878. A new

fabric was designed with garlands of flowers, vases and decoration that mimic trimmings. It is brocade with a background made on silver *lamé*, of such extreme technical complexity that Garín decided not to produce it again.

As made clear by the previous examples, cataloguing the Garín collection has allowed us to understand the challenges faced by textile heritage institutions. Although European textiles developed within a largely common frame, it can be quite hard to distinguish the origin and technique of some fabrics without applying technical analysis that, in some cases, leads to the destruction of a part of the textile. Moreover, many textiles are incomplete and spread across Europe, and if one also considers that not all the museums have a catalogue, or even an inventory, it becomes almost impossible to trace their origins. This problem gets even worse in small parishes or diocesan museums that sometimes lack the resources to preserve properly these artworks. Hence, this vast cultural heritage is not easily accessed, the related information is fragmented and disconnected, and in many cases, identification and cataloguing are pending.

In order to solve these problems, the SILKNOW project aims to protect, disseminate and raise awareness on this fragile but important heritage. Indeed, the combination of ICT and Humanities can be part of the solution. In order to make all this data interoperable, the project has created an ontology based on CIDOC-CRM, which provides a formal structure of classes and properties to describe the underlying semantic of cultural heritage documentation. It defines a limited set of objects that describe complex realities, by adding sub-classes and sub-properties.

Moreover, this data is linked to one of the main results of the project: a specialized silk thesaurus. It takes into account local, national and historical variations of terms. It has been first prepared in Spanish, and it is currently being translated into English, French and Italian, aiming at producing a multilingual, symmetrical thesaurus. In this regard, it will allow conservators, researchers and other users to standardize descriptive terminology, for the systematic and coherent cataloguing of museum collections, in order to avoid the lack of common criteria when dealing with these kinds of records. Regarding religious silk heritage, the thesaurus will provide accurate terminology related to iconographic subjects, specific colours and materials.

Currently, the thesaurus incorporates the main weaving techniques that were used to produce these fabrics: among them, damasks, velvets, brocades and plain twills. (A beta version of the SILKNOW thesaurus is currently accessible at http://skosmos.silknow.org/en/. Definitions of textiles quoted in the text belong to this tool.) From Garín data we can select examples of 'Brocade' such as the *Carpio* and *Francia*. In the thesaurus, 'Brocade' is defined as "a figured fabric which is manufactured using a small brocading shuttle that creates the effect of over-woven flowers, such as those of gold or silk brocade. These fabrics are woven on a Jacquard loom." This definition was primarily written in Spanish ('Espolín') and then translated into English, French ('Trame broché') and Italian ('Spolino').

Another example is 'Damask', defined as a "woven figured textile with one warp and one weft in which the pattern is formed by a contrast of binding systems and appears on the face and the back in reverse positions". Finally, and going beyond textiles, 'Embroidery' is also included, referring to "works characterized by a pattern or design executed in stitches using thread or fine wire. The designs are typically executed on textiles, but leather, paper, or another media may also be used; the designs may be intended to be framed or to decorate apparel, bed linens, furniture coverings, pillows, altar cloths, ceremonial hangings, or other items." These examples correspond to Figures 2 and 3.

Figure 2. Brocaded dalmatic from the 19th century. It represents a *Domasset* design inspired by French designs from the 18th century. It also comprises a damask with a palm design. Centro de Conservación del Patrimonio de Valparaíso, Chile.

Figure 3. Brocaded dalmatic from the 19th century, with a *Rica* design. Centro de Conservación del Patrimonio de Valparaíso, Chile.

These are just a few examples of the hundreds of terms included in the thesaurus. Specialists are carrying it out, including historians, art historians, weavers and textile engineers, backed by the consult of a large amount of specialized literature. When it is finished, it will be a major contribution to standardization of textile heritage description in general, and for silk in particular.

Returning to the SILKNOW ontology, it also aims at interoperability of data from different collections. This provides a structure for automated image recognition, facilitating to discover the similarities among several textiles spread across Europe, as can be observed in the following figures (4-7).

Figure 4. Dalmatic from the 18th century, Centro de Documentación y Museo Textil (CDMT), Terrassa, Spain.

Figure 5. *Francia* design, Garín, 19th century.

Figure 4 corresponds to a dalmatic from the 18th century, which has strong similarities to the *Francia* design from Garín (Figure 5). Both present quite similar floral decorations: their disposition is triangular, they have symmetrical designs of delicate shapes and both are topped with flower garlands. In these images, we can appreciate not only the relation among Valencian and French designs, but also highlight similitudes with floral models that were used in the *Escuela de Flores y Ornatos* where the Lyon influence is also clear. One of the most significant examples is the *Modelo para tejido. Ramo y cenefa*, from 1796 by Jose Burgos, inspired by the pictorial style of Phillippe de Lasalle's models (Figure 6). SILKNOW allows establishing these relations among designs and techniques.

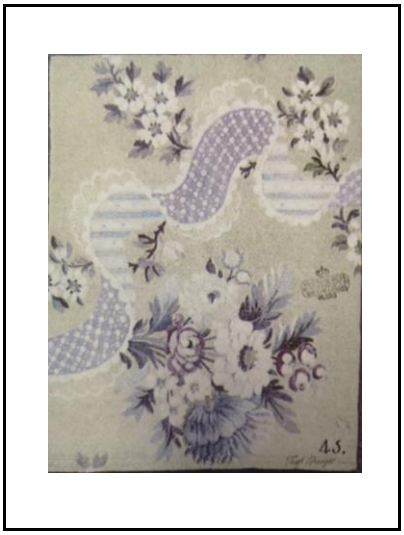

Figure 6. José Burgos, *Modelo para tejido. Ramo y cenefa*, 1796. Escuela de flores y Ornatos de la Academia de San Carlos de Valencia (Museo de Bellas Artes de Valencia, n. inv. 10117).

Figure 7. Francisco Salzillo, *Dolorosa*, 1755. Museo Salzillo, Murcia.

On the other hand, the application of machine learning technologies is useful not only for matching decorative models, through automated visual recognition, but also for determining information related to style and other semantic variables, thus closing the semantic gap in this field. In this regard, concepts like 'date', 'region' or 'commission' can be related to others such as 'motif', 'designer', 'style' and many silk manufacturing terms. The implementation of deep learning techniques in order to extract automatically meaning enables automatic enrichment of poorly tagged data. SILKNOW makes automatic these processes, enabling users to find content similar to a given text, a given photograph of a textile, a given picture of a sketch/design, etc.

Finally, results to user's queries will be shown through enhanced visualization technologies, paying attention to the spatiotemporal relationships in silk heritage data. This will help to discover the many connections that silk textiles can provide to European history.

Silk is a type of heritage that undoubtedly stands out because of its luxury: not just silk itself, but also silver and gold metals, precious stones or coral, among others. Nevertheless, at the same time, it represents history and art, as it offers a symbolic dimension where its material dimension must be considered together with the religious and the socio-cultural conceptions of each period. SILKNOW will offer outstanding tools, helping to preserve and promote this living heritage, that one can still find not only in the liturgical vestments but also in the costumes used to dress devotional images, such as Salzillo's *Dolorosa*.

4. Conclusions

Information and Communication Technologies are transforming cultural heritage in two different ways [13]. First, they have enabled techniques that are helping heritage practitioners to improve the conservation of cultural goods. Secondly, citizens approach their heritage with new tools such as virtual reality, augmented reality, big data, interaction and co-creation. These are just some means that bring the general public closer to history, helping them to understand it better, to interact and live with it: they will generate new conceptions on heritage, make it more accessible and guarantee its conservation.

On the other hand, textiles embody unique qualities: an immense amount of technical and historical information, which sometimes poses added difficulty in their appreciation. At the same time, silk religious fabrics are in danger, because of their physical fragility, but also because of their heterogeneity: dispersed in different kinds of institutions, reused and mixed without proper study and documentation… We are taking into account this heterogeneity, a very common problem among European heritage institutions, which becomes more evident when dealing with religious textiles. Data visualization in a spatio-temporal map simplifies access to massive amounts of digital data [14]. As shown above, SILKNOW tools will improve the understanding of European heritage and its rich diversity, by applying next-generation ICT research to the needs of various users (museums, education, tourism, creative industries, media…) and preserving an

intangible legacy (historical weaving techniques) for younger generations. Thus, it will establish and trace cultural connections around Europe, and will contribute to a better knowledge of our silk heritage and its links with current society, as the Living Heritage that it is.

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