

Applied-brocade in the altarpiece of the *Coronation of the Virgin of Erreterria*, Basque Country.

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Abstract

The sculpted altarpiece of the *Coronation of the Virgin of Erreterria* originates from Brussels and was created in 1528. It has recently been attributed to the Borman workshop. It has a balanced and colourful polychromy, dominated by the brilliance of the gilding, the red tone of the lacquers and the blue of the azurite blue. The decorative techniques are profuse and refined. Among these, the continuous and local applied-brocade enriches the ensemble, providing texture and relief. The objective of this study is the characterization of this technique. The systematic examination of the patterns, both from morphological and technological points of view, the reconstruction of its models and the chemical analysis of its constituent layers have enabled the identification of a repertoire that allows comparison. Formal analogies have been established with patterns similar to the style of Master I*T, a frequent collaborator of the Bormans, together with other singular features that give the polychromer of the altarpiece of Erreterria a particular personality.

Keywords: Altarpiece, Brabantine altarpiece, sixteenth century, polychromy, applied-brocade, filler.

Working methods

The study was divided into three parts:

A. Morphological analysis, to determine the physical characteristics of the applied-brocades, namely types, sizes, measurements, reliefs, designs, striations and highlights.

1. The establishment of standard data sheets for the compilation of the information (Figure 1).
2. Location of applied-brocade motifs in the altarpiece.
3. The study of these motifs, with natural light, shallow angle (raking) light, digital and stereoscopic microscopy.
4. Photographs and macro-photographs, with natural, shallow angle (raking) and ultraviolet light. Digital microscope photography, 20x.
5. Exact copy (1:1) of the different patterns to obtain archaeological drawings, faithful to the original which are often incomplete.
6. Comparison and overlapping of different tracings corresponding to each pattern in order to complete the motif, with the result of reconstruction of patterns.

B. Technological analysis, to identify the materials that constitute the different layers (pigments, colorants, binders, adhesives, etc.), their stratigraphy and their function.






1. The study of the different layers with natural light with digital and stereoscopic microscopy.
2. Sampling of polychromy at significant sites to obtain cross-sections for the chemical analyses.
3. Chemical analyses of micro-samples. The techniques applied were Optical Microscopy (OM) with polarised, incident and transmitted light; halogen light and UV light, selective staining and micro-chemical tests; Fourier Transform Infrared Spectroscopy (transmission-FTIR and FTIR-ATR), Gas Chromatography-Mass Spectrometry (GC-MS), Scanning Electronic Microscopy-

Energy Dispersive X-ray Spectroscopy (SEM-EDXS). For the analysis of the dye from red glazes: High Performance Liquid Chromatography diode array detection (HPLC-DAD).

C. Comparative analysis to obtain conclusions about the authorship of the altarpiece polychromy.

1. Compilation of patterns of applied-brocade given in scientific publications.
2. Comparison of the results of morphological and technological analysis of the *Coronation of the Virgin* altarpiece with the compilation of the patterns from other sources.

RETABLO DE LA CORONACIÓN DE LA VIRGEN. ERRETERIA. BROcado APLICADO

LOCALIZACIÓN	FIGURA	LOCALIZACIÓN BROcado	BROcado APLICADO	
Última Cena.	Figura 3.4		Modelo 2	Modelo 3
				

TIPO	MODELO	TEMA	DIM.PLACA (cm)	RELIEVE	RAYADO	PARTES CALADAS	LÍNEAS/cm²	REALCES COLOR	SUPERFICIES DE APLICACIÓN
Aislado	2	Hojas	5 x 5	Contornos Nervios hojas Dibujo Int. Estrias	Vertical	Sí	16-17	No	Brocado aplicado sobre laca roja
Aislado	3	Granada	5,3 x 5	Contornos Dibujos Int. Granada Estrias	Vertical	Sí	16-17	Laca roja	Brocado aplicado sobre laca roja


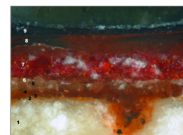

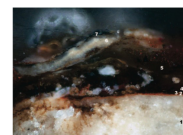
DIBUJO ARQUEOLÓGICO	ESTRATIGRAFÍA		MUESTRAS							
Modelo 2	Modelo 2	Realce color Dorado Estaño Masa de relleno Laca roja Hoja de plata Bol Aparejo	Brocado	Modelo 2	Muestra nº3 (Ref. M.3.3)					
										
Modelo 3	Modelo 3	Realce color Dorado Estaño Masa de relleno Laca roja Hoja de plata Bol Aparejo	Brocado	Modelo 3	Muestra nº15 (Ref. M.3.3)					
										

Figure 1. Standard data sheets for the information compilation. © Albayalde

The altarpiece of the *Coronation of the Virgin*

The carved sculpted altarpiece of the *Coronation of the Virgin* of Erreterria, also known as the *Altar de las Ánimas*, originates from Brussels. As can be seen, written in the open book resting on the lap of the Virgin in the Pentecost relief, the polychromy was made in 1528. Its rectangular landscape format (169 cm × 296 cm) currently contains three major scenes, adorned at the top with gothic architectural decoration and along its base by a decorative panel of tracery (Figure 2).

The iconography is singular. The *Coronation-Assumption of the Virgin* is in the centre, represented by a kneeling Maria being crowned by the Holy Trinity symbolised by three human figures, namely God the Father, the Son and the Holy Spirit. To the right, the *Last Supper*, with the apostles grouped around a large table in perspective is depicted, and to the left *Pentecost*, with the moment of the descent of the Holy Spirit upon the Virgin. On either side of the central scene there is a vertical spacer panel, each of which contains smaller reliefs. Regrettably some of these

disappeared and others are incomplete. One scene represents the *Burial of Thomas Becket* and the others perhaps episodes from the life of Saint Gregory, and also maybe Saint Martin.

The altarpiece is housed in the *Church of the Assumption*, in Errenteria. It is a sixteenth-century building, although an earliest reference to a church on this site dates from 1384 [Vázquez Escudero and Muro Arriet 1993].



Figure 2. The altarpiece of the Coronation of the Virgin of Errenteria, overview. © Albayalde

Origin and attribution

Documentation on the origin or the authors of the altarpiece has not been found. The first written reference dates from 1750 [Odriozola and Arrizabalaga 2006]. In 1805 the historian Gamon hypothesised that the piece was brought to Errenteria from London by María de Lezo, a native of the town, and lady-in-waiting to Catherine of Aragon, the wife of Henry VIII [Gamon 1930, 312]. Weise establishes a link between the piece and other imported altarpieces of Flemish origin [Weise et al. 1927, 90]. This claim was later supported Arrazola, and more recently by Muñiz Petralanda [Arrazola Echeverría 1988, 18-20] [Muñiz Petralanda 2001, 133].

At present it is not clear whether the altarpiece was a commission, or whether it was purchased in the flourishing markets of the Netherlands or even Castile. The location of the town of Errenteria, at the end of the canal from the port of Pasaia on the bay of the Biscay coast, provided considerable mercantile and fisheries activity in the fifteenth and sixteenth centuries [Irijoa Cortés, and Martín Sánchez 2012].

The recent restoration verified that the altarpiece is not marked, as would have been required by the regulations of the guilds to guarantee quality and provenance [1]. However, dimensions based on the Brussels's foot, the results of the dendrochronological measurements and the general analysis, together with the fact that it belonged to the circle of Brussels, agrees with the date that appears in the book of the Virgin [Barrio Olano and Berasain Salvarredi 2013]. Perier-D'Ieteren places the altarpiece of Errenteria among those made between 1510 and 1528 by the Borman workshop, a prestigious family dynasty that specialised in the manufacture of altarpieces [Perier-D'Ieteren 2013]. D'Ieteren also recognises the intervention of two different hands in the sculpture, with clear similarities to pieces attributed to Jan III and Passier Borman. She also establishes different origins between these scenes and other groups of sculptures, such as the *Burial of Thomas Becket*, which clearly originated in Antwerp.

General features of the polychromy

The altarpiece shows a balanced and colourful polychromy, dominated by the brilliance of the burnished gold, the bright red lacquers and the azurite blue as its main tones. This chromatic harmony is supported by the lesser extents of the whites of the faces, veils and cloths, which accentuate the contrast. The incarnations are delicate, subtle, sober and idealised, with individual peculiarities.

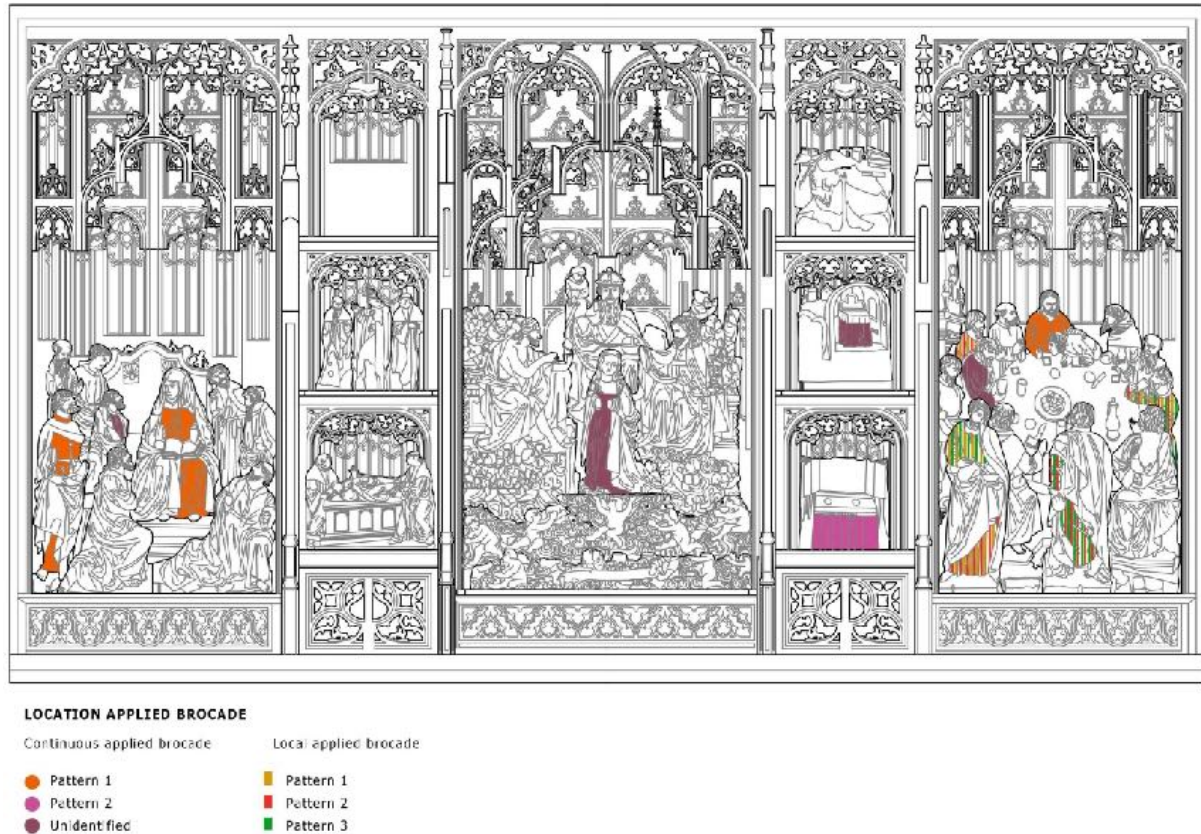


Figure 3. Location of the continuous and local applied-brocades. © Albayalde

The polychrome decorative techniques contribute effects of texture and colour. *Sgraffito* is the most used technique, being present across the three major reliefs of the altarpiece. It creates geometric, floral or written text motifs of different degrees of complexity. Continuous and local applied-brocade sheets cover the clothes and the altar tables. The punchwork provides nuances to the brilliance of the polished gold. Line gilding decorates the tunic of a single character and metal sheets of silver, gold or tin cover the architectural elements, mantles, stained glass, metallic elements and other objects.

The applied-brocade in the altarpiece of Errenteria

The most laborious, complex and rich polychromy technique used in this altarpiece is applied-brocade. It reproduces, with great faithfulness and in series, the appearance of the brocades of the liturgical ornaments and of the garments of cloth embroidered with gold thread of the era [2]. In the altarpiece of Errenteria, the use of this technique is abundant, with both continuous and local applied-brocade sheets. Its distribution in the scenes is uneven. The *Last Supper*, being more elaborate in general, is the most decorated and is the only relief that shows local brocade. In the *Coronation*, however, only one character, the Virgin, wears a tunic of applied-brocade (Figure 3).

Morphological analysis

In the traditional practice, the selected design is engraved in a rigid mould, marking out the contours and carrying out the striation of certain areas. A sheet of tin foil is then pressed onto it to facilitate the modelling. A liquid mixture consisting of different materials is then applied. The result, when taken out of the mould, was a sheet with the design in relief.



Figure 4. Continuous applied-brocade: fragments of plates and location on the sculpture in different directions.
Left. Sculpture 1.1 Apostle, Pentecost; **Middle.** Sculpture 3.3.1 Apostle, Last Supper; **Right.** Sculpture 3.3.4, Last Supper. © Albayalde

By contrast, in the continuous applied-brocade of Errenteria, the engraved plate has no design drawn on it and is simply a uniform relief made up of parallel striations. The drawing is made later in-situ, using a thin paintbrush, uniformly striated and gilded, once applied to the sculpture [3]. This is a similar technique to the one used on occasions for applied-brocades braid, which are absent in this altarpiece, being replaced by *sgraffito*. The plates are cut into several fragments and are placed on the sculpture in different directions (horizontal, vertical, oblique), which is an unusual way of application. As a result of this constant cutting, the actual size of the plates is difficult to establish (Figure 4).

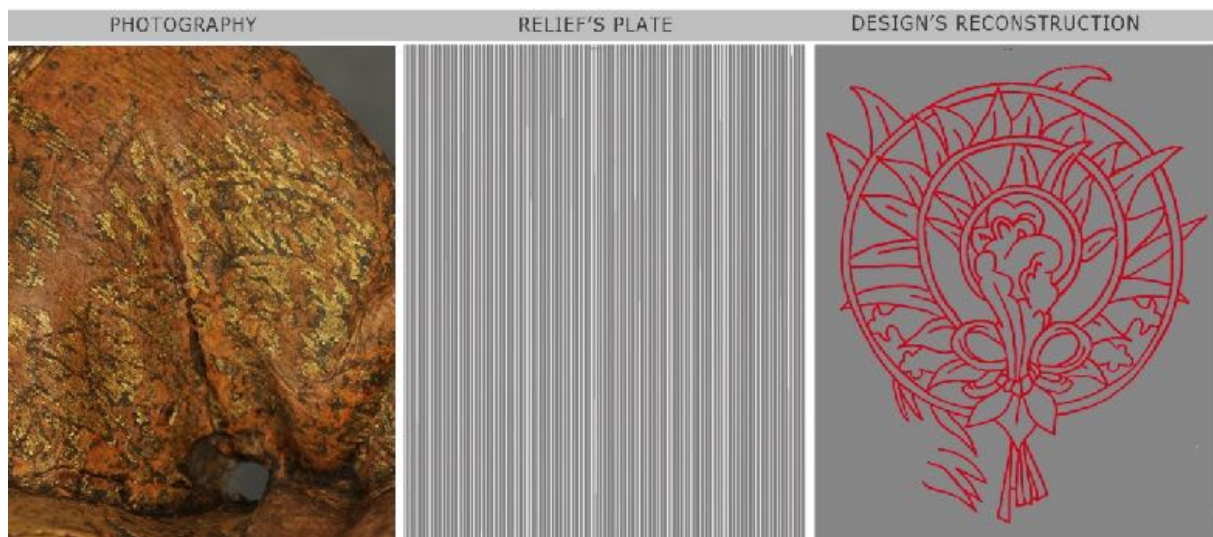


Figure 5. Continuous applied-brocade, Model n° 1. Left. In-situ; Middle. Relief Plate; Right. Reconstruction of design.
 © Albayalde

The patterns of continuous applied-brocade in Errenteria are difficult to identify, as they are in a very poor state of conservation. Indeed, the observed design is, in reality, the tin left exposed by the loss of colour and the gilding. Despite this, it is possible to recognise two different patterns.

The first represents a small bunch of pointed leaves and small flowers, surrounded by a circular or oval structure (Figure 5). They are applied on the garments and have a maximum size of 6-7.5 cm, with 16-17 lines per cm. The second pattern, which decorates the altar tables of the small reliefs, is almost indistinguishable and its interpretation is questionable. The plate is bigger than the one in the previous pattern (8.9 cm × 11 cm) and the lines traced in relief are thicker (12-13 lines per cm). In both cases, on the gilding, the design was made in azurite blue and most frequently in the two red variants, mat and glaze. Several sculptures present continuous applied-brocades that have not been identified (Table 1). Judging by the number of lines per cm, they may belong to the first pattern.

Table 1. Continuous applied-brocades.

Location	Model	Measurements	Relief	Striations	Striations / cm ²	Highlighting
Pentecost Apostle 1.1, Tunic	1	H = 6 cm	Parallel Striations	Vertical	16 - 18	Red Glaze
Pentecost Apostle 1.3, Tunic	?	H = 7.5 cm	Parallel Striations	Vertical	16 - 17	Red Matte
Pentecost Apostle 1.5, Tunic	1	?	Parallel Striations	Vertical	16 - 17	Azurite
Coronation Virgin 2.4, Tunic	?	7.7 cm	Parallel Striations	Vertical	16 - 17	Red Glaze
Last Supper Apostel 3.3.1, Tunic	?	?	Parallel Striations	Vertical	16 - 18	Azurite
Last Supper Christ 3.3.4, Tunic	1		Parallel Striations	Vertical	17 - 18	Red Glaze
Group 8 Altar Table	?	6 x 7.5 cm	Parallel Striations	Vertical	12 - 13	Red Matte
Group 9 Altar Table	2	8.9 x 11 cm	Parallel Striations	Vertical	12 - 13	Red Matte

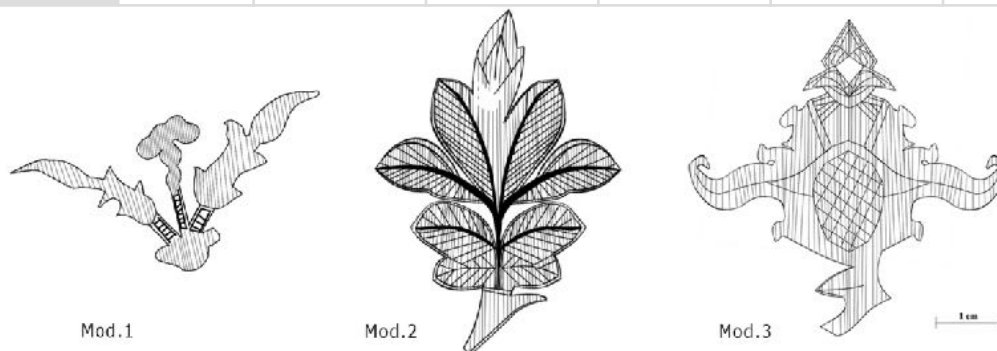


Figure 6. Local applied-brocade. Reconstruction of the relief: (left to right) models n° 1-2-3. © Albayalde

With regard to the local applied-brocades, three different patterns have been identified, all of them inspired by plant motifs (Figure 6):

Pattern 1: Three branches with stylised and pointed leaves and the occasional flower emerge from a small basket. The three pieces are independent, the middle one being lower, and the one at the bottom has a round form. The two sides join in such a way that the form of the opening can change, depending on the space available to adhere them, thereby changing the dimensions of the motif (2.1 × 5 cm, 2.5 × 4.6 cm, 4.2 × 4 cm).

Pattern 2: Seven rounded leaves on a small stalk, the upper one being hollowed out in the centre (5 × 5 cm approximately).

Pattern 3: A large leaf that emerges horizontally on both sides of a central pomegranate with crisscrossed lines and a perforated top (5.5×5 cm).

Other smaller fragments of brocade decorate the lacquered surfaces, but it is difficult to identify them. They may be remains of the motifs described previously or of other non-recorded motifs. Their manufacture is different from that of the continuous brocades and follows the traditional practice. In the three patterns, the relief marks follow the contours and the main lines of the design of the motif (veins of the leafs, crisscrossed lines of the pomegranate) with vertical striations.

Technological analysis

The patterns of continuous applied-brocade show a rather uncommon technology. The filler consists of two layers. The first, whitish and in direct contact with the tin foil, is wax-based ($20\text{--}25\text{ }\mu\text{m}$). It basically fills in the areas of relief. The second is orange ($25\text{--}150\text{ }\mu\text{m}$) and consists of white lead, minium, earth and sometimes calcium carbonate, yellow earth and even azurite in small quantities, mixed in oil. The brocade sheet created in this way is applied to the selected area of the sculpture, which is covered with the traditional preparation based on calcium carbonate. This ground is also covered with another layer, also of an intense orange colour and with similar characteristics to the second filler, although not so thick ($15\text{--}20\text{ }\mu\text{m}$) (Figure 8) [4].

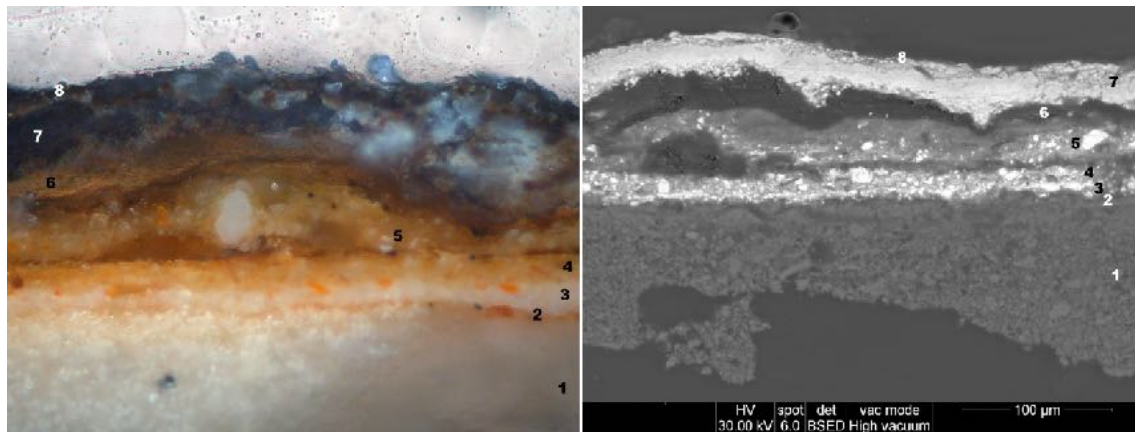


Figure 8. Left. Cross-section of a continuous applied-brocade. Image obtained by transmitted light microscopy (MPlan 50X objective / 0.75). Right. Image obtained by Scanning Electron Microscopy SEM (BSE 800 X objective). Layers: 8) Gold leaf with thin mordant. 7) Grey degraded tin foil. 6) Filler 1: beeswax. 5) Filler 2: orange opaque layer: lead white, red lead, azurite, calcium carbonate and linseed oil. 4) Adhesive: orange opaque layer: lead white, red lead, earths, calcium carbonate and flax oil. 3) White opaque layer: lead white, red lead, calcium carbonate and linseed oil. 2) Red bole. 1) White chalk ground. © Arte-lab

This complex structure poses a number of questions. The purpose of using a second filler is unknown. It seems to exist to strengthen the brocade sheet that ensures the stability of the wax relief, which is very fine and easily deformable. It is not clear why a stratum similar to the second filler has been applied on the preparation of the sculpture. Possibly it acts as an adhesive. The composition of the other layer is traditional, namely tin foil ($50\text{--}80\text{ }\mu\text{m}$), a linseed oil-based mordant and a sheet of gold leaf ($0.3\text{--}1\text{ }\mu\text{m}$). The gold leaf is of good quality, with a variable amount of silver in the alloy ($1.4\text{--}2.6\%$). In one of the analysed samples the gold leaf contains a small percentage of copper (0.5%). The morphology of the local applied-brocades is more common. They are all located on garments decorated with red lacquered silver plate, this being identified as a mixture of colouring agents derived from madder lake and kermes [5]. The three patterns are cut and placed on the lacquer, probably when the stratum of colour was still mordant, as no adhesives are observed. The filler consists of wax, without any extra coats, although its thickness is greater than in continuous brocades. In one of the samples the wax is mixed with white lead, minium, earth, calcium carbonate and oil ($100\text{ }\mu\text{m}$).

Comparative analysis

The mentioned Pattern 1 of continuous applied-brocade, although not identical, has clear formal similarities with the pattern repeated in the works polychromed by Master I*T, consisting of a bouquet of flowers and lanceolate leaves in a basquet inside an ogival framework [Geelen and Steyaert 2011]. It is present in the altarpiece of Saluces, the *Holy kinship altarpiece*, Gustrow or Vadstena, attributed to this master. In this model, the design is engraved in the mould and combines striations with flat areas and contours in relief. Consequently, the elaboration method is dissimilar from the fully striated plate of Errenteria.

The recent study by Geelen and Steyaert show that there can be several manufacturing techniques of the brocade, although exceptions to the standard techniques are not very common [Geelen and Steyaert 2011]. Indeed, the only documented example of striated vertical continuous parallel work is on the altarpiece of Gaasbeek (1520-1525), which does not seem to have other specific similarities to that of Errenteria.

In any case, this style of work, except for the engraved drawing in the mould (whose only relief consists of parallel grooves), could be interpreted as a simplification of the traditional technique. This simplification is also observed in the brocade of the curtains of the altarpiece of Saluces, which are uniformly striated and with punched lozenges, or in the mantle of Christ in the *Altarpiece of the Passion* in the Mayer van der Bergh Museum, which shows continuous striation and dotting. The brocade of the tunic of the Virgin of the altarpiece of *Strängnäs III* (1507-1508) is comparable. Here the pattern is obtained by stamping a thick fabric onto the tin foil and painting freehand on the gilding [Geelen and Steyaert 2011]. Given the late date, this could indicate a search for a simpler technique in the final years of manufacture. The existence of such elaborate and technically orthodox examples, such as the altarpiece of *Vadstena*, *Västerås III* and *Gustrow* seems to refute this hypothesis. However, the two situations are contemporary and perhaps not necessarily contradictory.

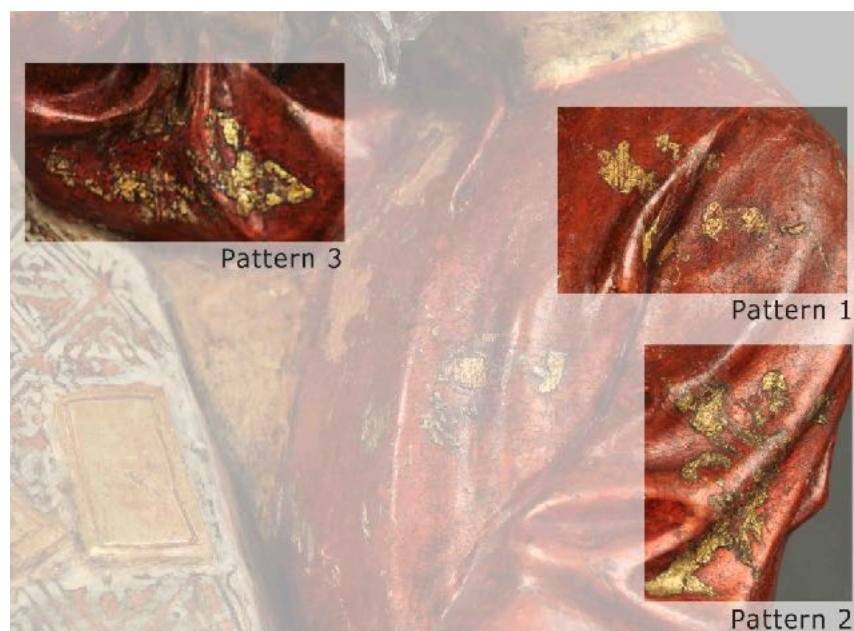


Figure 8. Local applied-brocade. Individual patterns are indicated in boxes. © Albayalde

The continuous applied-brocade of the altarpiece of Skepptuna, polychromed by Cornelis I van Conixloo, which represents a stylised pomegranate, offers some resemblance to this model. However, comparison is difficult because it is partially lost.

The motifs of the local applied-brocade of Errenteria do not repeat models identified until today in other altarpieces, neither are similar to recurrent patterns in polychrome works by Master I*T.

In addition, the location in the same area of different local applied-brocades seems to be an unusual practice (Figure 8).

Regarding the technology, the double layer of filler and the thick adhesive covering the sculpture is not very common. The brocade of the clothing of the angel that holds the viola in the *Holy kinship altarpiece* in Auderghem (1490-1500) contains two intermediate layers between the filler of brocade and the coloured surface of the tunic [Sanyova 2002, 87]. In the set of brocades applied to the Brabantine altarpieces both cases are exceptions to the rule.

Conclusion

In general terms, the polychromy of the altarpiece of Erreterria follows the traditional characteristics of the Brabantine workshops. It shows clear similarities with Brussels altarpieces made by the Borman workshop around 1500-1525, as Gustrow, Saluzzo, Villberga or Västerås altarpieces among others, recently attributed to the Master I*T.

However, the repertoire of models of applied-brocade of the Erreterria altarpiece is peculiar and does not correspond to the patterns identified in these mentioned other altarpieces. Despite some formal similarities, the fully striated plate, the mode of application and the different constituent layers of the continuous applied-brocades differ considerably. Concerning the local applied-brocades, we have seen that neither the models, nor their combination in the clothing are common.

All these peculiarities, and the fact that in Erreterria there is no braid brocade as is usually in works produced by Master I*T, makes it reasonable to consider the presence of a different polychromer. The absence of documentation on the origin, authorship or purchase of the altarpiece, in addition to the lack of wood marks or specific signatures [6], makes it impossible to identify the author at present.

Acknowledgements

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Endnotes

1. The altarpiece has undergone major modifications throughout its history. The loss of the painted and sculpted wings, of the *predella*, and the inversion of the lateral scenes and the sawing of the side frames are examples.
2. The technique has been well described by several authors.
3. The poor state of general conservation of the brocades prevents us from making systematic observations. In some case it is clear that the colour has been applied before the placing of the plate on the sculpture. However, the opposite procedure seems to be the most common.
4. In an analysis of applied-brocade in Erreterria an oil-based sealing layer has been detected on the chalk preparation [Rodríguez 2004]. This was identified by rhodamine staining. Rodríguez describes layers of primer on the preparation, which we interpret as the adhesive for the gluing of the brocade and the second filler. Another intermediate white layer has been found between the preparation and the adhesive of one of the samples analysed in the altarpiece of Erreterria, consisting of white lead, a very small quantity of minium, calcium carbonate, mixed in oil, 10 µm. Its function is not clear at present.
5. The colouring agent of the lacquers examined comes from the madder lake (*Rubiatinctorum L.*) and the kermes dyers (*Kermesvermilio Planchon*) of the dyers. Sanyova established a hypothesis that the lacquer of Erreterria was prepared using the fluff of the scarlet cloth, a waste material obtained after the shearing of the pieces [Sanyova 2013, 87].
6. In the border of the mantle of St Peter in the scene of Pentecost, there is a text that cannot be transcribed due to losses. It may be a kind of signature like the one on the altarpiece of the Virgin of Skepptuna [Guillot de Suduiraut 2002, 277, 283].

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