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Imiter le textile en polychromie à la fin du Moyen Âge. Le brocart appliqué

Conservation et restauration

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## Applied brocade in Spain

Origin, making procedures and designs in Northern Spain

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### *Abstracts*

English Français

The lack of thorough studies of the significant number of examples of applied brocade found in the last two decades in Spain, originated in 2009 a European PhD thesis with Honours. This investigation presents an analysis and classification of the patterns, making procedures and combinations of materials of the applied brocades of the wooden altarpieces of the Basque province of Gipuzkoa, Northern Spain. Further studies have focused on the use of other analytical techniques that have completed the previous results and more recently, are being examined patterns of applied brocades belonging to the altarpieces sited in the other two provinces of the Basque Country.

L'absence d'études approfondies relatives au nombre important d'exemples de brocarts appliqué trouvés au cours des deux dernières décennies en Espagne, a été mise en évidence en 2009 dans une thèse de doctorat européen, obtenue avec distinction. Cette enquête présente une analyse et une classification des modèles, des procédures et des combinaisons de matériaux utilisées dans les brocarts appliqués des retables en bois de la province basque de Gipuzkoa, dans le nord de l'Espagne. Des études ultérieures ont porté sur l'utilisation d'autres techniques d'analyse lesquelles ont complété les résultats précédents et, plus récemment, sont en cours d'examen des modèles de brocarts appliqués présents dans les retables de deux autres provinces du Pays Basque.

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### *Index terms*

**Keywords :** brocart appliqué, décoration en relief, retable, haute Renaissance, Espagne

**Keywords:** applied brocade, relief decoration, altarpiece, early renaissance, Spain

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### *Full text*



# Introduction

- 1 Applied brocade, more accurately described as applied tin-relief brocade, is found in Spain on a variety of art and specifically, in the North prevails on wooden altarpieces. Instigated by the lack of in-depth studies in Spain, the first extensive research on applied brocade has been carried out as a European PhD<sup>1</sup>. The analytical results stemmed from the six early sixteenth century altarpieces with applied brocade of Gipuzkoa have been completed with other techniques proved particularly useful for the study of some materials of the applied brocades. Stylistic examination of the patterns located in the wooden altarpieces of Gipuzkoa, Araba and Bizkaia has led to a broader knowledge of the designs in the Basque Country and has enabled the finding of repeated patterns. The latter is providing insight into the attribution of the altarpieces and the dispersal of the artistic practice of the applied brocade in the Basque Country and nearby areas.
- 2 The precursor techniques of the applied brocade, its construction procedure based on bibliography and analysed examples, and a review of the documentation on Spanish cases with a brief description of their historical background and location put into context the previous corpus of information.

## Origin of applied brocade

- 3 Since the eighth century, European painters have decorated their works with different relief motifs. In the beginning, these were representations of objects, which were iconographically important, such as halos made out of metal leaves applied to the artwork with nails. From the twelfth century and up to the sixteenth century, the aim to realistically reproduce the fabrics of the time motivated painters to experiment with different techniques and painting materials to develop a wide range of relief techniques<sup>2</sup>.
- 4 Painters created three-dimensional motifs in three basic ways: 1. by subtraction (eliminating material selectively from the preparation layers); 2. by deformation (applying pressure with a mould or a burin on the area to be decorated); and 3. by addition (applying material to the surface)<sup>3</sup>. The third type comprises the largest variety of techniques, including applied brocade. This group of techniques was determinant for the development of applied brocade (a detailed glossary of terms with a description of each technique is provided at Rodríguez López and Bazeta Gobantes 2014)<sup>4</sup>.

## Making procedure of applied brocade

- 5 Several publications provide thorough descriptions of the stages that the old artisans followed to obtain this painted relief decoration<sup>5</sup>. The creation of the mould by engraving the motif, including details such as the threads of the textile brocade, defines the first stage of the process. The most likely materials for the mould would be wood (a hard wood), metal (like lead) and stone. Afterwards, the tin leaf is placed on top of the mould and is covered with flax fibres or similar to absorb the beating of a mallet with which the tin leaf is pressed into the mould. The gaps left in the tin leaf are filled with a semi-liquid material that according to the written sources show a wide variety of materials that form the basis for the different mixtures. These materials are: wax (usually beeswax), resin, oil (like linseed), honey, animal glue, egg white, chalk, gypsum, plaster of Paris, paper bibers, tin leaf flakes and colour pigments<sup>6</sup>.
- 6 Once the filling material is almost dried, the tin leaf is separated from the mould and is prepared following a different procedure whether it is a juxtaposed or isolated decoration. A juxtaposed decoration implies a straight cut of the tin leaf to create a regular pattern (juxtaposed applied brocade) that when put side by side gives a continuous decoration. An isolated decoration consists of isolated pieces (isolated

applied brocade) cut following the shapes of the patterns to create random decorations<sup>7</sup>. Both juxtaposed and isolated brocade motifs can be adhered to the surface of the artwork with adhesive composed of wax, resin, oil, animal glue, chalk and pigments in different combinations. Only isolated patterns are applied over drying colour glazes that act as an adhesive. Rarely, juxtaposed applied brocades are held in place with no adhesive layer<sup>8</sup>.

7 Generally, the tin leaf is gilded with gold leaf using a mordant (constituted by diverse mixtures of resin, oil -typically linseed-, animal glue, egg, chalk and colour pigments) and next, the flat areas are painted with opaque paints or glazes (red, blue, green, black and white) to stand out the motif of the brocade. The common practice when working with juxtaposed brocades is to gild and paint the tin leaf once the desired surface of the artwork has been completely covered with the brocades; whereas with isolated brocades they are gilded before their application onto the artwork and once applied they are painted<sup>9</sup>.

8 In summary, the common layer structure -from bottom to top- of the applied brocade is the following: 1. Ground, 2. Imprimatura, 3. Adhesive, 4. Filling mass, 5. Tin leaf, 6. Mordant, 7. Gold leaf and 8. Opaque paint and/or glaze.

## Applied brocade in Spain

### Documentary sources

9 The first Spanish publication that mentions the technique of applied brocade is a book from 1943 by María Elena Gómez Moreno. She briefly discusses applied brocade by referring to *técnica flamenca del grabado o de la cera* (engraving or wax Flemish technique). The technique of applied brocade began to be more frequently studied in Spain from a historical and scientific point of view in 1988. That same year, two important examples of the technique were discovered in the Basque Country and were discussed in two different publications from 1991. One focuses on the motifs of applied brocade found in the main altarpiece of Santa María de Galdakao in the province of Bizkaia<sup>10</sup> and the other on the conservation and restoration of the Plateresco style altarpiece of la Santísima Trinidad at the monastery of Bidaurreta of Oñati in the province of Gipuzkoa<sup>11</sup>. From 1990, primarily two institutions worked on the study and classification of new samples: the Institute of Cultural Heritage of Spain (IPCE, by its Spanish abbreviation) in Madrid and the Restoration Service of the Provincial Council of Araba in the Basque Country. The resulting researches helped with spreading knowledge and information about applied brocade in Spain by means of speeches at congresses, specialized publications, technical and practical courses and registration of artworks with applied brocade<sup>12</sup>.

10 A remarkable amount of unpublished documentation, in the form of reports, can be found in the Restoration Services of the Provincial Councils of the Basque Country, Historical Heritage Institutes (IPCE and Andalusian Institute of Historic Heritage, IAPH, by its Spanish abbreviation) and conservation and restoration companies. These reports describe the conservation and restoration works performed on altarpieces and isolated artworks with brief sections dealing with samples of discovered applied brocades. Worthy of mention are two recent doctoral theses that focus exclusively on applied brocade and its uses in two geographical areas of the North of Spain: the province of Gipuzkoa<sup>13</sup> (autonomous community of the Basque Country and the provinces of Zaragoza and Huesca<sup>14</sup> (autonomous community of Aragon).

11 An analysis of the existing documentation on the topic unveils the lack of extensive and global publications in Spain about applied brocade from a historical, stylistic, technical and material perspective.

## Historical background

- 12 The most recent documentary sources pinpoint the origin of applied brocade to 1415-1431 based on five panel paintings that have relief applications similar to the motifs and technique used in applied brocade<sup>15</sup>.
- 13 Flanders, from the old territory of The Netherlands<sup>16</sup>; is suggested as the point of origin, however, the latest studies on the previous five panel paintings suggest other locations: Cologne (Germany), Berlin (Germany), Hamburg (Germany), the old territory of The Netherlands and Norwich (England). In addition to the old territory of The Netherlands, the place of origin of the technique should include Germany and England. It became a very popular decorative technique in artworks from the middle of the fifteenth century.
- 14 The technique was introduced to Spain in the middle of the fifteenth century<sup>17</sup> through the importation of numerous triptychs of Gothic style created in the old southern area of The Netherlands. This avenue of introduction was further reinforced around the first third of the sixteenth century with the arrival of foreign artists from the North of Europe, who were familiar with applied brocade and used it in Spanish late-gothic artworks<sup>18</sup>. At the same time, native painters began slowly assimilating and interpreting this type of decoration according to their own style and started introducing it in their own artworks. From the middle of the sixteenth century this relief technique was scarcely employed whilst *esgrafiado* became increasingly popular<sup>19</sup>. Therefore, the range of use of applied brocade in Spain was approximately a century; 1450-1550<sup>20</sup>.

## Examples of applied brocade in Spain

- 15 At present 145 artworks in Spain present applied brocade decoration. In concrete, 78 (above a 50% of the total amount) correspond to altarpieces and the remaining to sculptures. Most of them, specifically 136 pieces (including those found in Madrid; autonomous community situated in the center of Spain), are located in the North of the Peninsula. According to this, the provinces that keep the highest number of artworks with applied brocade are Araba and Burgos with 20 cases each one, followed by Palencia with 18 cases and Bizkaia with 17 cases. These locations are spread throughout the Northern route used for the introduction of the technique in Spain that connected the Cantabrian Sea ports with Burgos. More than a 50% of the 145 artworks date from the sixteenth century, whereas the other 50% mainly date from the fifteenth century, in compliance with the period of use of applied brocade in Spain.

## State-of-the-art in Northern Spain

### Methodology

- 16 The material and layer composition of the six altarpieces that cover the entire geographical area of the province of Gipuzkoa has been studied. The six altarpieces are the following<sup>21</sup>: the triptych of la Asunción-Coronación de la Virgen in the church of la Asunción de Santa María, Erretereria (*circa* 1505-1510), attributed to an unknown workshop; the triptych of San Antón in the church of San Pedro Apóstol, Zumaia (*circa* 1510-1515), attributed to unknown workshops; the altarpiece of la Piedad in the church of San Miguel Arcángel, Oñati (1533-1536), by Gaspar de Tordesillas, Andrés de Mendiguren, Miguel de Iragorri, Juan Martínez de Olazarán, Juan de Ayala II and Andrés de Espinosa; the altarpiece of San Juan Bautista in the church of San Miguel Arcángel, Oñati (*circa* 1530-1555), attributed to unknown workshops; the altarpiece of la Santísima Trinidad in the monastery of la Santísima Trinidad of Bidaurreta, Oñati

(*circa* 1531-1533), by Juan Martínez de Olazarán and probably Lope Lorenzo and Martín Ochoa de Irazábal; and the altarpiece of San Miguel in the church of San Miguel Arcángel, Alzaga (*circa* 1530-1550), attributed to unknown workshops.

17 A protocol of analysis has been created to obtain a complete understanding of the different types of applied brocades employed in the altarpieces. The use of multiple analytical techniques has been essential for the identification of the organic and inorganic components<sup>22</sup>. The designs of the applied brocades of 16 altarpieces located in the Basque Country have been studied.

18 Six altarpieces are sited in Gipuzkoa (the aforementioned ones). Three in Bizkaia<sup>23</sup>: the main altarpiece of la Asunción de Nuestra Señora in the church of la Asunción de Nuestra Señora, Lekeitio (carving, *circa* 1507-1511 and painting and polychromy, 1511-1514), attributed to an unknown Master of Lekeitio and *Maese* Juan García de Crisal; the main altarpiece of Santa María in the church of la Asunción, Markina-Xemein (carving, 1526-1530 and painting and polychromy, 1540-1545), by Juan Martínez de Ayala el Viejo, Diego Ruiz and other artists; and the main altarpiece of San Martín Obispo in the church of San Martín Obispo, Arrieta (*circa* 1520-1525), attributed to unknown workshops.

19 And seven in Araba<sup>24</sup>: the altarpiece of el Santo Cristo in the Sanctuary of Nuestra Señora de la Encina, Artziniega (*circa* 1525-1550), attributed to the Beaugrant workshop; the main altarpiece of Nuestra Señora de la Encina in the Sanctuary of Nuestra Señora de la Encina, Artziniega (1510-20), attributed to unknown workshops; the altarpiece of la Piedad or la Pasión in the church of Nuestra Señora de la Asunción, Delika (*circa* 1530-50), attributed to the Beaugrant workshop; the main altarpiece of San Juan Bautista in the church of San Juan Bautista, Aspuru (*circa* 1515-1520), attributed to unknown workshops; the main altarpiece of San Nicolás de Bari in the Diocesan Museum of Sacred Art of Vitoria-Gasteiz (place of origin: the church of San Nicolás de Bari, Fontecha) (*circa* 1539), by Diego Guillén, Ortega de Córdoba and workshop of Diego de Torres; the main altarpiece of San Bartolomé in the church of San Bartolomé, Olano (*circa* 1520), attributed to unknown workshops; and the main altarpiece of San Vicente Mártir in the church of San Vicente Mártir, San Vicente de Arana (*circa* 1530-1563), attributed to unknown workshops.

20 Documentary sources, most of them non-published internal reports kept in official institutions and art conservation studios, have been studied to get access to the wide variety of designs employed in the decorations of the altarpieces. Those belonging to the altarpieces of Gipuzkoa have been personally documented *in situ*.

## Making procedures of applied brocade in Gipuzkoa

### Ground

21 Grounds were predominantly calcium sulphate, the exception being applied brocades of the triptych of Errenteria where calcite, calcium carbonate ( $\text{CaCO}_3$ ), was used applied in multiple layers. In most cases, the calcium sulphate grounds consisted of a coarse and thick ground layer at the bottom (yeso grueso), predominantly anhydrite (anhydrous calcium sulphate:  $\text{CaSO}_4$ ) and a fine and thin ground layer on the top (yeso fino), predominantly gypsum (calcium sulphate dihydrate:  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ). In some samples, the two gesso layers were applied in several layers sealed with a protein layer (probably glue) and in some other cases they were applied in a single layer. Other grounds had only a single zone of calcium sulphate identified as anhydrite and as gypsum.

22 The calcium sulphate was normally mixed with a protein-containing material (likely animal glue) and oil in different proportions. The upper layer of the ground was usually

sealed with a protein layer (possibly glue). Calcium carbonate, calcite, mixed with a protein-containing material and oil with an oil sealing layer were found in the triptych of Erreterria that is documented to come from Central Europe. Calcium carbonate grounds were more common in Central Europe than in Southern Europe where prevailed calcium sulphate grounds. The data showed that the ground used for juxtaposed applied brocades was more varied in terms of materials and construction than those of isolated applied brocades.

### *Imprimatura*

- 23 The imprimatura between the ground and the applied brocade differed depending on whether it was juxtaposed or isolated brocade. Juxtaposed applied brocades were applied on top of one, two, three and four paint layers. These layers were white, orange or earth coloured principally composed of lead white and earth pigments. The most usual binding medium was a mixture of oil and protein. Isolated brocades were very often applied over glazes of organic red or copper-based green bound in oil and protein. These glazes were on top of silver leaf applied over an orange coloured bole made up of earth pigments mixed with protein (probably glue).

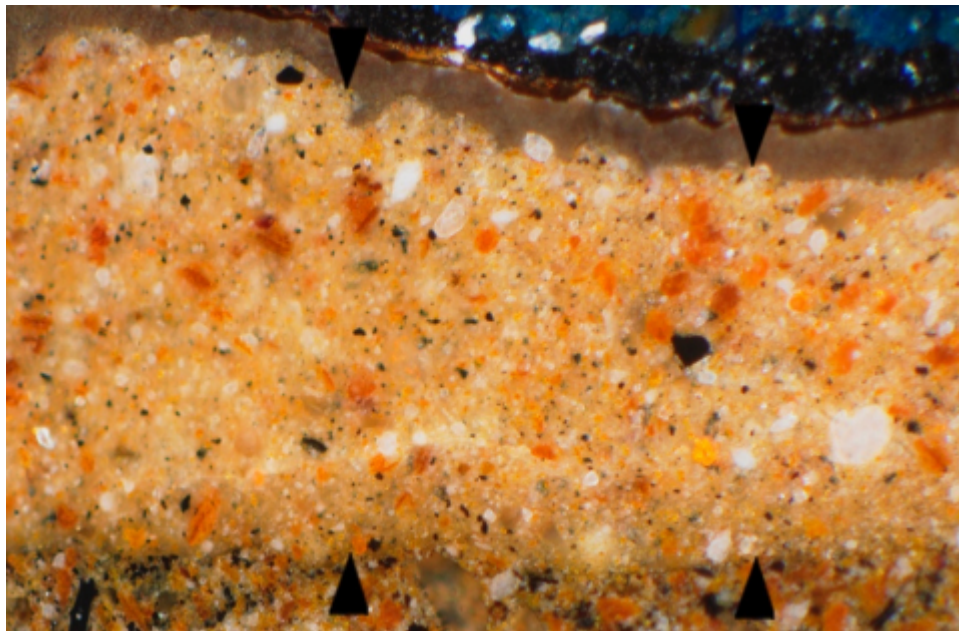
### *Adhesive*

- 24 Juxtaposed applied brocades appeared adhered with a layer of a protein-based adhesive over the coloured imprimatura, as found in the altarpieces of San Juan Bautista, la Santísima Trinidad and Alzaga. Resin or gum was also found in the altarpiece of San Juan Bautista. A small number of samples from the triptychs of Erreterria and Zumaia did not show adhesive.
- 25 The most common practice was the application of isolated applied brocades without adhesive on top of a tacky red or green glaze over silver leaf applied on a layer of bole, as observed in the triptychs of Erreterria, Zumaia and the altarpiece of la Piedad. Nevertheless, in both the triptych of Zumaia and the altarpiece of Alzaga, adhesive was identified on top of the glaze. In Zumaia, calcium sulphate mixed with protein and oil was found, whilst in Alzaga the adhesive was made up of a protein-containing material (likely glue) with lead white. The adhesives located in the juxtaposed applied brocades were thinner than the adhesives identified in the isolated applied brocades.

### *Filling mass*

- 26 Twelve different combinations of materials were characterized: 1. Protein (Zumaia); 2. Beeswax (Erreterria); 3. Lipid and red lead (Alzaga); 4. Beeswax with red lead and sometimes fibres (la Piedad, Oñati); 5. Beeswax and lead white, vermilion, azurite and red iron oxide (Zumaia); 6. Beeswax and lead white, carbon black, red iron oxide, quartz, soda-lime glass, red lead and azurite (Zumaia) (Fig. 1 Filling mass); 7. Oil and protein with gypsum (San Juan Bautista, Oñati); 8. Oil and protein with anhydrite and lead white (Alzaga); 9. Oil and protein with lead white and red iron oxide (Zumaia); 10. Protein and oil with anhydrite (San Juan Bautista, Oñati); 11. Protein with red iron oxide and gypsum (bottom layer) and protein and oil with gypsum (top layer) (la Santísima Trinidad, Oñati); 12. Protein with red iron oxide and calcium sulphate (bottom layer) and oil and protein with calcium sulphate, red iron oxide and vermilion (top layer) (la Santísima Trinidad, Oñati) (Fig. 2. Filling mass). The predominant organic components were beeswax and a combination of oil and protein.

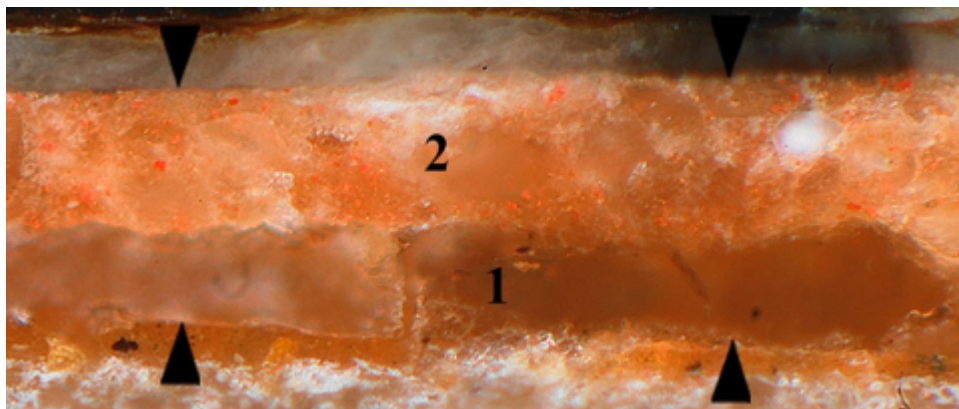
**Fig.1 Filling mass**



Filling mass (between pairs of arrows) made up of one layer (150  $\mu\text{m}$ ) of beeswax mixed with lead white, carbon black, red iron oxide, quartz, soda-lime glass, red lead and azurite. Sample taken from a juxtaposed applied brocade of the triptych of San Ant3n, Zumaia.

Credits: Ainhoa Rodr3guez-L3pez.

**Fig. 2 Filling Mass**



Sample taken from a juxtaposed applied brocade of the triptych of San Ant3n, Zumaia, Oñati.

Credits: Ainhoa Rodr3guez-L3pez.

27 Numerous filling masses contained, within the organic matrix, inorganic particles, such as: red lead, lead white, vermilion, azurite, red iron oxide, carbon black, quartz, soda-lime glass and calcium sulphate (both anhydrite and gypsum, but not mixed together). These were combined in a variety of mixtures with different organic phases resulting in a wide variety of filling mixtures as summarized above. The purpose of these pigments was to speed up the drying of these relatively thick masses and give them some colour.

28 Most filling masses consisted of one layer up to 150  $\mu\text{m}$ . The exceptions are the double-layer fillings discovered in the applied brocades of the altarpiece of la Sant3sima Trinidad, where each layer was maximum 40  $\mu\text{m}$  thick.

### *Metallic leaves and mordant*

29 The metallic leaves that covered the filling usually consisted (from bottom to top) of tin leaf, mordant and gold leaf. The tin leaf of the juxtaposed and isolated applied brocades of the triptych of Errenteria revealed a 55-135  $\mu\text{m}$  thickness, surpassing with a big difference the 7-20  $\mu\text{m}$  thickness of the tin leaf identified in the other five altarpieces. This outstanding variation may be due to a possible different type of tin used in Errenteria, which can differ in composition from the one employed in the other

altarpieces, resulting in a very advanced state of deterioration. This difference can be explained by the possible Central European origin of the triptych of Erreterria.

30 Mordants were made up of one, two and three layers. Oil was the only material characterized in the one-layer mordants (triptychs of Erreterria and Zumaia and altarpieces of San Juan Bautista and Alzaga). Double-layered mordants showed two combinations: Oil in the bottom and protein in the top (triptych of Zumaia and altarpiece of la Piedad), and oil or oil and protein in the bottom and lead white with occasional earth pigments mixed with oil and protein in the top (triptych of Zumaia). Very few samples revealed a three-layer mordant made up of oil and protein in the bottom, lead white, earth pigments, quartz, vermilion and carbon black mixed with oil and protein in the middle, and oil in the top (triptych of Zumaia).

31 Matte gold leaf of <math><1-2\ \mu\text{m}</math> in thickness was observed covering the tin leaf. Some applied brocades from the triptych of Erreterria and the altarpieces of la Piedad and la Santísima Trinidad showed double-gold leaf.

### *Paint and glaze*

32 White, red, blue, green and black opaque paints and glazes were identified covering the flat areas to stand out the relief of the brocade designs. The opaque paints showed lead white, earth pigments, organic red, azurite, carbon black, soda-lime glass and vermilion mixed with a protein-based material, oil or oil and protein. The glazes showed organic red dye and copper-based green mixed with either protein or oil. Most juxtaposed applied brocades were decorated with opaque paints contrary to isolated applied brocades which almost always showed glazes to match the glazed background.

33 The final colour layer (either opaque or transparent) on top of the flat gilded areas was usually made up of one coloured layer. However, two coloured layers were identified in the triptych of Zumaia and the altarpieces of Alzaga and la Santísima Trinidad.

34 In the triptych of Zumaia and the altarpiece of Alzaga was identified the use of a double layer composed of an intense and opaque colour in the bottom (carbon black or vermilion) and a pale and sometimes thinner colour on the top (azurite -combined with carbon black beneath- or red glaze -combined with vermilion in the bottom-). The aim of this combination was the production of a visually intense colour.

35 The gold leaf of the applied brocades of the altarpiece of la Santísima Trinidad was completely covered with paint: white or blue opaque paint was used on top of the flat areas and red glaze on top of the raised threads that form the brocade pattern. This resulted in one continuous two-coloured layer. The edges of the robes (sleeves, neck and hems) were also decorated with a thin black line over the white and red glazed layer resulting in two layers that combined three different colours.

## **Designs of applied brocade in the Basque Country**

36 The wide range of motifs in applied brocade emerged directly from the luxurious brocaded fabrics of the fifteenth and sixteenth centuries. Applied brocade motifs exist in two typologies: juxtaposed and isolated. A total of 27 juxtaposed brocade designs and 46 isolated brocade designs have been registered amongst the applied brocade decorations of the 16 altarpieces studied in the Basque Country. In some cases, the poor condition state of the examples found has resulted in failure to recognize the designs.

37 Juxtaposed applied brocade imitates fabrics with uniform decoration. To achieve this uniformity, the technique employs several pieces of brocade with the same design, typically in a square or rectangular pattern, which are then juxtaposed to create a continuous decoration. Plants are the most common design theme, in particular leaves,



flowers and sometimes even fruit. These are combined to create simple or more complex compositions forming symmetrical patterns around a vertical axis (trptych of Zumaia and altarpieces of la Santísima Trinidad, Markina-Xemein, Arrieta, Lekeitio, Nuestra Señora de la Encina, Aspuru and Olano). Another pattern is the combination of plant and animal designs. The most complex compositions are grouped under the motif category known as *candelieri-grutesco* that consists of vegetable branches in zigzag with winding leaves, which create a network inside of which imaginary figures such as sea monsters are interwoven (trptych of Zumaia and altarpieces of Arrieta, Lekeitio and San Vicente de Arana). (Fig. 3. *Candelieri-grutesco* design).

**Fig. 3 Candelieri-grutesco design**



*Candelieri-grutesco* motif of a juxtaposed applied brocade from the triptych of San Antón, Zumaia. The same design has been also found in the main altarpiece of la Asunción de Nuestra Señora, Lekeitio and the main altarpiece of San Martín Obispo, Arrieta.

Credits: Ainhoa Rodríguez-López.

- 38 Juxtaposed brocades with geometric pattern are also common. Sometimes, plant designs are included in geometric decorations (altarpieces of Lekeitio, el Santo Cristo, Nuestra Señora de la Encina and Fontecha). Isolated applied brocade imitates embroidery appliqué. Thus, the brocade pieces are placed at random over the surface creating a spattered pattern of applied brocades, which repeat the same design or combine different ones. Many isolated applied brocades show a plant theme. There are simple patterns of leaves or flowers with variations in the number of petals or complex and intricate outlines with pomegranates and foliage (trptychs of Errenteria and

Zumaia and altarpieces of la Piedad, San Juan Bautista, Markina-Xemein, Lekeitio, Nuestra Señora de la Encina, Delika and Fontecha) (Fig. 4. Plant design).

**Fig. 4 Plant design**



Plant motif of an isolated applied brocade from the triptych of la Asunción-Coronación de la Virgen, Errenteria.

Credits: Ainhoa Rodríguez-López.

- 39 Stars also are used as a decorative element and have only been detected in the altarpieces of Delika and Olano, Araba. Sometimes, isolated applied brocades are partial motifs extracted from juxtaposed applied brocade pieces as is observed in the altarpieces of Nuestra Señora de la Encina and Delika, Araba.

## Conclusion

- 40 A significant number of combinations of materials of the technique within Gipuzkoa have been characterized and classified. A group of 73 designs have been registered amongst 16 altarpieces of the 23 altarpieces with applied brocade located in the Basque Country. This catalogue of designs is being decisive toward the finding of repeated juxtaposed patterns, their possible dispersal and workshop connections within the central part of Northern Spain, particularly the Basque Country and Burgos. In general terms, both the materials and the designs agree with the specialized documentation.
- 41 The few thorough publications on the subject in Spain along with the revealing data provided by our latest studies, point out a following stage of research that includes a more detailed analysis of the technique in the already studied altarpieces and the

remaining ones sited in Bizkaia and Araba. These two provinces, in addition to Burgos and Palencia, comprise the higher number of artworks with applied brocade. The analysis would imply a methodical study of the materials, layer structures and designs of the wide variety of applied brocades.

42 Considering the results obtained up to the present and summarized in this contribution, such a broad study would very possibly provide a broaden knowledge of the materials, layering and patterns employed throughout the period of use of applied brocade in the Basque Country. This would assist in the definition of more stylistic and technical connections that result in more accurate attributions and better understanding of the dispersal of the technique in the Basque provinces and very probably in the nearby areas of Northern Spain where applied brocade was profusely used.

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## Notes

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## List of illustrations

	<b>Title</b>	Fig.1 Filling mass
	<b>Caption</b>	Filling mass (between pairs of arrows) made up of one layer (150 µm) of beeswax mixed with lead white, carbon black, red iron oxide, quartz, soda-lime glass, red lead and azurite. Sample taken from a juxtaposed applied brocade of the triptych of San Antón, Zumaia.
	<b>Credits</b>	Credits: Ainhoa Rodríguez-López.
	<b>URL</b>	<a href="http://journals.openedition.org/ceroart/docannexe/image/7208/img-1.jpg">http://journals.openedition.org/ceroart/docannexe/image/7208/img-1.jpg</a>
	<b>File</b>	image/jpeg, 245k
	<b>Title</b>	Fig. 2 Filling Mass
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	<b>URL</b>	<a href="http://journals.openedition.org/ceroart/docannexe/image/7208/img-4.jpg">http://journals.openedition.org/ceroart/docannexe/image/7208/img-4.jpg</a>
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