TEMPORARY POLYCHROME: COLOUR DIGITIZATION OF THE ORNAMENTATION FOR CARLOS IV’S ENTRY INTO MADRID, 1789*

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The aim of this proposal, from a digital perspective, was to test out the polychrome of temporary structures erected in 1789 for the occasion of the enthronement of Carlos IV, an event that has been considered as the last festivity of the Old Regime in Spain1. All the towns in the kingdom celebrated this glorification of the new sovereign with diverse degrees of ostentation2, but it was in Madrid where the maximum splendour was attained, with the presence of Carlos IV himself, his wife, María Luisa, and the Prince of Asturias. The royal couple and their eldest son formed part of the entourage that paraded the streets of Madrid on the 21st and 23rd of September, this second day to attend the oath of allegiance of the Crown Prince. The hopes vested in the new king were a good reason for adorning the city; an event that exalted the king and which was to transform a specific area of the city’s fabric for just a few days: calle Mayor, calle de Atocha and the Carrera de San Jerónimo, including the square of the Royal Palace, the Plaza Mayor and the Salón del Prado. The main dignitaries of the time: the aristocracy; corporations and guilds; and the religious institutions, all put their efforts in erecting

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1 BONET, 1983.
2 SOTO-CABA, 1990.
series of arches and colonnades upon curtained façades to conceal the old, ramshackle mansions of Madrid.

A publication by the Imprenta Real (royal printers), the year of the celebration, gives a detailed account of these temporary structures in the Descripción de los Ornatos Públicos con que la Corte de Madrid ha solemnizado la Feliz Exaltación al Trono de los Reyes Nuestros Señores Don Carlos III. Y Doña Luisa de Borbón, y la Jura del Serenísimo Señor Don Fernando, Príncipe de Asturias (Description of the public decorations with which the Royal Court of Madrid has celebrated the happy Enthronement of our King, Don Carlos IV and Queen, Doña Luisa de Borbón, and the Oath of the Most Serene Don Fernando, Prince of Asturias). This work was anonymous, although the text has been attributed to the permanent secretary of the Academy, Joseph Moreno (Fig. 1).

![Fig. 1. Cover of the leaflet of Descripción... of 1789, and two cards of the ornaments](image)

This was the fundamental source for our project to produce a video on the festival and a virtual reconstruction of some of the temporary decorations. This book does not centre on the actual ceremonies and festivals of the celebration, however. Its sole purpose is to describe the temporary decoration that was erected in the two carreras, which the monarchs and their entourage paraded along. This ornamentation involved a total of 29 decorations, 9 of which are depicted in 11 prints by Francisco de Paula Martí, taken from original designs and drawings (Fig. 2). Four of these drawings are housed
in Madrid’s Academy of History\textsuperscript{3}. There is also another document that accurately maps out the route of the entourage: *Prevenciones y Reglas que deben observarse para el mejor órden y quietud en las fiestas Reales dispuestas en celebridad de la exaltación al trono del Rey. N. Sr. Don Carlos IV. Y Jura del Serenísimo Príncipe de Asturias Don Fernando en los días 21, 22, 23 y 24 de Septiembre de 1789* (Prohibitions and Regulations to be observed for the best possible order and calm during the royal festivities, arranged for the celebration of the coronation of King Carlos IV and the oath of allegiance of the most serene Prince of Asturias, Don Fernando, on 21st, 22nd, 23rd and 24th September, 1789). (Madrid, 1789, print works of Don Pedro Marín).

\textbf{Fig. 2.} Card of the ornament built in Marquis of Valmediano’s house, included in the *Descripción…* of 1789

This is a set of provisions that enabled us to rebuild the route of the entourage and closure of streets using palisades, where the entourage passed, using a 1785 plan of Madrid by Tomás López. This was, thus, an urban map of this great spectacle, demonstrating the scale of absolute control exercised upon the city. It is at the beginning of the modern age that we find the beginnings of this circular route for the celebration

\textsuperscript{3} TOVAR MARTÍN, 1980.
of festivities, proclamations and the entry of queens, however in 1789 this already formed a triangle with three vertices (the Royal Palace, the Basilica of Nuestra Señora de Atocha and the Palacio del Buen Retiro), in a circular route that demonstrated the power over the city within a process of urban appropriation. After reconstructing this circuit visually, the temporary decorations were placed along their respective carreras (Fig. 3).

These festivities have attracted the attention and interest of historians of art and architecture due to the fact that they formed part of the culmination of neoclassical expression and because the best architects, sculptors and painters of the time were involved in producing these temporary structures: Pedro Arnal, Manuel Martín Rodríguez and Juan de Villanueva — the triumvirate of neoclassicism who had begun during the previous reign of Carlos III, as well as architects of a next generation, such as Silvestre Pérez and Antonio López Aguado. There were also architects such as Mateo Guill, Mateo Medina, Carlos de Vargas Machuca and Blas Cesáreo Martín. Drawings by the already deceased architect of Madrid, Ventura Rodríguez, were used to devise some of these façades. The work was undertaken by masters such as Manuel Bradi, as well as many involved in assembly. The sculptors who participated were: Alfonso Bergaz, Josef Piquer, Josef Ripoll, Manuel Tolsá, Francisco López, Lázaro Rodríguez Medina, Josef Ginés, Anselmo Doret, Pablo Cerda, Vicente Rudiez, and Pedro and Felipe Salve, all teachers of sculpture.
Also involved were architects of stage design, such as Felipe de la Fontana and the brothers Antonio and Angel Maria Tadey, all three of Italian origin. Among the painters, the book mentions Josef Perroqueti, Isidro Carnicero, Bernardo Costa, Josef Micó, Josef López Enguidanos, Zacarias Velázquez and Luis Paret and Alcázar. Also forming part of this temporary architecture were portraits of the new monarchs by Francisco de Goya.

Advisers such as Jorge Balsá and a large number of general workers, gilders and painters should also be added, in view of the scope of these temporary projects. Coverings were mostly curtained façades, which, in the opinion of the author of the Descripción, concealed the aberrations, extravagances and monstrosities of the ‘vulgar’ and ‘small-minded’ Madrid architecture, as in the case of Academy of the Three Noble Arts itself. This printed book is a genuine plea against the Baroque past, as well as a clear exaltation of the neoclassical good taste which, for just a few days, illuminated the city of Madrid.

The fact that the most salient feature of ‘official’ art, neoclassical aesthetics, should be summarised in a festival at the close of the last decade of the eighteenth century has been a recurring theme in Spanish historiography on temporary art. Here is not the place to expound upon that topic. However, it should be remembered that many years later, in 1945, and still in full post-war reconstruction, the architect and town planner, Pedro Bidagor, wrote an article on the architectures of that celebration in the magazine Reconstrucción which, from a year after the Civil War, was edited by the General Directorate for Devastated Regions and Repairs, to publicise the restoration work after the damage caused by the war.

Bidagor, who, at that time, headed the Technical Office for the Madrid Board of Reconstruction, and at a time when building policy was trying to recapture the most prestigious and outstanding periods of Spanish architecture — that is, the tradition of Juan Herrera and therefore the emblematic constructions of Villanueva — this clearly identified with the exceptional value of the great compositions of figurative architecture, overflowing with classicism in 1789, as what is ‘critical’ and what is ‘applause’ «was seen then, as it is now»4. The full participation of Juan de Villanueva, leader of the neoclassical movement, was also a reason for reflection a decade later with Luis Moya.

When Moya took on the celebration project, he analysed Villanueva’s temporary façade for the front wall of the garden of the Duke of Alba’s house and included a drawing of it in an axonometric perspective. This we used for virtual reconstruction (Fig. 4), and compared it to the projects of the then Royal Office of Natural History, today the Prado Museum — the great legacy of that neoclassical architect5.

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4 BIDAGOR, 1945: 82.
The interest in studies on the festivities of the modern age was to continue in the numerous works of Antonio Bonet, where we find the proclamation of 1789. This is also the case of other authors. The research into Juan de Villanueva followed the same pattern from the point at which Chueca Goitia, along with Carlos de Miguel, entrusted themselves with the biography of the architect, as well as other neoclassical architects. This continued with contributions from recent years, which have run parallel with numerous texts of exhibition catalogues.

If the festivities of 1789 and their principal craftsmen have been the object of a generous bibliography, there is, however, one aspect of all this that cannot make the same claim. This is the polychrome element in the decoration; the element that made the festivities of the Old Regime bright and colourful and whose analysis is usually ignored, although this is almost always mentioned in studies. For Toajas López this is a fundamental component of temporary ornamentation, reiterated repeatedly by the descriptions that emphasize «the value that is given to these structures where everything

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7 FERNÁNDEZ DELGADO, 1984.
architectural is jasper, in various different tones, and *virtuoso* imitation: the supposed stone in shafts, architraves and friezes; the gold on pedestals, capitals, cornices and decorative details… and a multitude of statues, usually of bronze, gold and silver», to which must be added the pictures that were hung; the clothes; the draperies and textile elements that added colour scheme to this temporary device, in addition to the candelabras, crystal chandeliers and other forms of illumination. The printing of the chronicles has deprived us of this chromatic image and there are only a few drawings conserved — views and painted canvases, such as those attributed to Lorenzo Quirós in Madrid’s History Museum: the entry of Carlos III (Madrid, 1759). These can, indeed, offer us «the value of the colourful and insistent imitation of jasper and metals».

Naturally, the colour of these temporary structures was recorded and detailed — albeit briefly — by the author of the *Descripción de los Ornatos*. In his account he refers to pretence, with the application of colour to achieve the appearance of reality, and defends the fact that «the prints should be sufficient to form an idea». However, this, today, is a monochrome idea, in black and white (Fig. 5). The image of the print is not sufficient to gauge the final finish of what was so fleeting.

![Fig. 5. Card of the ornament built in Duke of Medinaceli’s house, included in the *Descripción… of 1789*](image)

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Moreno insisted on a polychrome specialised in faking granite, marble and jasper, and thus speaks of three-dimensional structures, where «nothing was feigned, and even the smallest decorative border was real and corporeal», as was the case of the free-standing archway erected by the Duque of Hijar (Fig. 6), or the decor to conceal the facade of the Academy of the Three Noble Arts. In the latter case, these were facades built as a series of projections, made essentially of wood, which could provide some depth or a real third dimension. Moreno also mentions the facades of unique and smooth surfaces where «everything was painted in perspective», such as the house of the Marquis of Valdecarzana in Calle de Alcalá, where six colossal jasper Corinthian columns, capitals and pedestals of gilded bronze were reproduced in imitation, with the remainder in imitation stone.

Fig. 6. Card of the arch built at the expense of Duke of Hijar for Carlos IV proclamation, included in the Descripción… of 1789
Likewise was the case of the house of the Marquis of Alcañices, where «balconies, parapets and balustrades were painted on frames imitating stone» (Fig. 7). In other cases, such as the house of the Conde de Campo Alenge, «the entire façade was decorated with plasterwork». These imitations on smooth surfaces respond to the pictorial practice of illusionism through perspective and geometry, and undoubtedly refer to the maximum visual and spatial device achieved by the quadrature (illusionistic ceiling painting) from the sixteenth century onwards.\footnote{TOAJAS LÓPEZ, 1992: 115.}

![Fig. 7. Project for the ornament built in Marquis of Alcañices’ house, drawing by Francisco Lopez, 1789](Academy of History, Madrid)

In this temporary architecture of 1789, fine brass sheeting continued to predominate, giving the appearance of precious metals, since bronze, silver and gold on statues was a repeated feature (works in silhouette, cut out on panels, or in full relief in plaster), alternating with figures also profiled in chiaroscuro. Nevertheless, there is an insistence on a balance in this new taste: white and gold decoration for shells, scallops, garlands, pendants or cornucopias — or on the choice of «soft and well-chosen colours» in the decorations for the house of the Countess of Benavente. The description, on occasions, accentuates the stone materials to be feigned: an imitation of «several stones of the kingdom», white stone, natural stone and granite. In the decoration of the Academy of Three Noble Arts, the description indicates:

*All the sculpture and balustrades of the parapets were imitated in white marble; the columns and all the order, in blue Montesclaros stone; and the shelves, in yellow stone from Redueña […]*
To the above we should also add San Pablo marble, green marble, blue jasper, porphyry, etc. — fake materials that stand out for their crystal chandeliers, large candles, and all kinds of lighting devices, accentuating the contrast with the textile element in the hollows of balconies and parapets, such as «gold-coloured taffeta, garnished with gold», crimson pavilions with drapes and curtains «with blue and cane-coloured back», etc.

The impression today of this polychrome colour scheme seems to us more tempered than what had been described for previous anniversaries, and although the Quirós canvases of Charles III’s entry (1759) may be a reference of colour (Fig. 8), the temporary architecture of 1789 had a more sober bias, following the premises of the simplicity and «good taste» of neoclassical aesthetics.

There was a predominance of natural stone, granite and white marble as noble materials to be imitated, in accordance with the decree of 25th November, 1777, which prohibited the construction of altarpieces in wood and the use of gold — a metal that was to be limited to decorative and ornamental elements, thus losing the symbolic and aesthetic protagonism it had previously had\(^{14}\). The temporary ornamentation of 1789, in part, was a result of the royal decree. However, the simplification of colour in neoclassical

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\(^{14}\) BARTOLOMÉ GARCÍA, 2006: 16.
architecture, whether temporary or permanent, contained a deep paradox, since it conveyed an erroneous impression of Antiquity.

As Gage has pointed out, each historical period has only been able to see the colours of the past «through the colours of its own present», and «from the Renaissance it was thought that the dazzling purity of white marble was one of the most remarkable features of ancient art»\(^{15}\), as Winckelmann was later to extol in the mid-eighteenth century. Since the 1980s, through antiquaries, travellers, early architects and archaeologists such as Chandler, Stuart and Revett, we have certain knowledge of the presence of polychrome and bright colours in ancient Greek architecture; a matter not devoid of controversy, which spread in the early decades of the nineteenth century\(^{16}\).

In 1789 colour was added to temporary ornamentation and for this purpose traditional procedures were followed, using a wide variety of different techniques and resources, applied to both altarpieces and wooden sculptures\(^{17}\). In Spain the theoretical principles go back to Carducho and Pacheco, later to be adopted by Palomino, however we should also consider the practical experience passed down and extending as far as the eighteenth century: the practical manuals in use at the time\(^{18}\). At this juncture our proposal does not aim to obtain the colours and painting of the eighteenth century, but rather an approach to polychrome or polychrome coating on temporary ornamentation as a methodology using digital technology\(^{19}\).

As indicated by Fernández Delgado, the prints from the temporary architecture of 1789 are simple and linear intaglio, expressing architectonic and sculptural motifs, and have been treated in an austere manner, alien to the urban setting and festive context\(^{20}\). The fact that they reflect the ground plan, elevation and scale has facilitated the first step towards a virtual reconstruction of the colourfulness of the temporary ornamentation. Once the prints were scanned, the criteria for digital reconstruction were laid down (location and geometrisation), enabling us to proceed with the virtual reconstruction process (modelling, mapping and texturing).

The potential of digital technology serves the interests of this research, using working protocols with advanced methodologies, where a simultaneous reading of historical narrative and print images becomes virtual reality. This is used not to see magnified detail, but rather to unveil a staged ambience full of colour. On the other hand, the process does not attempt a reconstruction or faithful reproduction, but rather the memory of an event of the past to complete our knowledge of it.

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\(^{15}\) GAGE, 1993: 11, 38.

\(^{16}\) RIVAS LÓPEZ, 2010: 162.

\(^{17}\) ECHEVERRÍA GOÑI, 2003; AA. VV., 2004.

\(^{18}\) Amongst the most recent works are in GONZÁLEZ-ROMÁN, 2015; GUTIERREZ PEÑA, 2016.

\(^{19}\) BORST, 2006.

\(^{20}\) FERNÁNDEZ DELGADO, 1984: 64.
It should be remembered that virtual reality has gained a great deal of strength in recent years, as it enables us to innovate in many of the current fields of research. This can be seen in archaeological studies and much of the refurbishment work on architectural heritage, studied over many years in the universities of Europe. This proves a valid instrument to recover the heritage of the past, and thus find the traces of identity that in many cases have been lost, either due to the passage of history, catastrophes or the radical transformations that have taken place in cities.

This experience attempts to offer an appearance of reality, but not in the immersive sense, rather through «responsible use of technology». In this regard, reference should be made to the objectives of Los Principios de Sevilla (the Principles of Seville), as well as to the London Charter, a 2009 document which standardised a series of principles on the visual computerisation of cultural heritage, based on the results obtained by computer, and which, to date, is the most advanced international document in this direction. And although the document, in its preamble, recognises the need to develop appropriate guidelines for the different fields, in its Principle 1, «Implementation», it states that «the application of computerised visualisation is valid wherever, for the purposes of researching into cultural heritage or its dissemination». This enables us to implement particular guidelines, appropriate to our discipline, provided that they are governed by the principles of the Charter of London. An interesting model for screening festive architecture is the work of Laura Fernández-González, who, besides recreating the Lisbon arches for the entry of Felipe II and Felipe III, has also considered including colours and textures wherever there is documentation available on this\(^{21}\). In our case, the information on colour scheme for the festivities of 1789 is more complete, since the sources used are more precise.

Our purpose has been to interpret bona fide historical documentation, which can be endorsed in the future by other professionals or scholars on the subject. The short-term objective, however, is directed towards presenting the public with an unknown part of the colour in history through the circulation in «full colour» of a forgotten cultural heritage. These are reasons that are supported by The London Charter, which takes into consideration the planning, documentation and dissemination of virtual reconstruction projects, in addition to their use in education.

As stated earlier, we started with prints with no colour and those which did not reflect the «life» of the decorations in 1789 (Fig. 9 and Fig. 10). They then underwent a technical procedure (presented as a poster at SIDOP 2017 in Granada\(^{22}\)), which started with advanced software, providing us with the results we aimed to obtain: ‘the simulated polychrome image’. Thus, in our methodology we have had to use different software programmes: firstly, a drawing programme, MicroStation, to delineate the sketch and

\(^{21}\) FERNÁNDEZ-GONZÁLEZ, 2010.

\(^{22}\) SOLÍS ALCUDIA & SOTO-CABA, 2017.
obtain a polygon structure, known as ‘wire cage’ (Fig. 11 and Fig. 12), to which volume was then added using the same software to export it to 3D Studio Max (similar to Blender and SketchUp), to create a 3D animation and obtain shadows at the moment of rendering (Fig. 13 and Fig. 14). Secondly, with Photoshop the materials were prepared so that they could be applied to the chosen temporary decorations.

Fig. 9. Card of the ephemeral ornament projected by Pedro Arnal for the Academy of the Three Noble Arts, included in the Descripción… of 1789

Fig. 10. Card of the ephemeral ornament projected by Juan de Villanueva for the Duke of Alba’s palace, included in the Descripción… of 1789
Fig. 11. *Jaula de alambre* or computerised delineation of the ornament projected by Juan de Villanueva for Duke of Alba’s palace. Essay made for the video presented in *Lost and Transformed Cities* (Lisbon, 2016) by Victoria Soto-Caba and Isabel Solís Alcudia.

Fig. 12. *Jaula de alambre* or computerised delineation of the ornament projected by Pedro Arnal for the Academy of the Three Noble Arts. Essay made for the video presented in *Lost and Transformed Cities* (Lisbon, 2016) by Victoria Soto-Caba and Isabel Solís Alcudia.
Fig. 13. Simulated, non-rendering, polychrome of the ephemeral ornament projected by Pedro Arnal for the Academy of the Three Noble Arts. Essay made for the video presented in *Lost and Transformed Cities* (Lisbon, 2016) by Victoria Soto-Caba and Isabel Solís Alcudia.

Fig. 14. Simulated, non-rendering, polychrome of the ephemeral ornament projected by Juan de Villanueva for the Duke of Alba’s palace. Essay made for the video presented in *Lost and Transformed Cities* (Lisbon, 2016) by Victoria Soto-Caba and Isabel Solís Alcudia.
The process continued with a realistic simulation of the behaviour of lights, textures and materials that provided a reliable finish. Then, to conclude the virtual reality, we proceeded to filter all the results using photo-editing software that edits the rasterized images, as does Photoshop. This procedure was applied to two specific decorations: that of the Academy of the Three Noble Arts (Fig. 15), and the Duke of Alba’s house (Fig. 16). Both temporary architectures are of special interest in this virtual narrative, as a result of their stylistic and ideological significance in historical narrative. The peculiarities that have emerged from the infographic process will be considered in other works, as they have revealed a possible fundamental way forward in historical research into this question of polychrome, besides being a powerful instrument in working with this intangible (temporary) cultural heritage.

Fig. 15. Result of rasterized polychromy of ephemeral ornament projected by Pedro Arnal for the Academy of the Three Noble Arts. Essay made for the video presented in Lost and Transformed Cities (Lisbon, 2016) by Victoria Soto-Caba and Isabel Solís Alcudia
Some results may look artificial, at first sight, as we are not accustomed to seeing prints of this type in colour. For the time being we have used the colour that digital programmes provide us with for the rendering process, and have taken this as a basis. Obviously, for the colour to be real, polychrome remnants must be extracted from the conserved stone and polychrome materials, to avoid going beyond the limits or principles laid down for many years.

Our biggest challenge was that high resolution texture packs do not have many of the materials that are essential for a true polychrome result of the elements that make up these decorations. For the future, we hope to be able to have a technology of «real-life textures» and be able to apply them to 3D projects. But before that we have to work on them, since real-life textures are photographs taken from real life, and in our case we do not have many of those materials that were used in the eighteenth century to make festive decorations. For that reason we resorted to primary sources, which are sometimes pictorial images which, in turn, must be treated before use. With the results we manufactured our own package of real-life textures to apply in chromatic reconstructions.

Finally, an objective to be pursued will be to continue work on the eighteenth-century scenography, contextualizing the images we are dealing with, depicting the city as reflected through the life and atmosphere of the time, far from an empty city.
with solitary decorations, which would lead to a misleading story. Imagine the pictorial representation of Lorenzo de Quirós at the Puerta del Sol in Madrid in 1759 (Fig. 17), where what was really reproduced were urban stage sets: characters acted in the way and form required by the particular moment, and buildings were dressed accordingly. This would be the line of research to follow in the future.

Fig. 17. Ornate of the Puerta del Sol on the occasion of the entrance in Madrid of Carlos III, attributed to Lorenzo Quirós, oil/canvas, 1789. Museum of History of Madrid

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