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Materiality between Art, Science, and Culture in the Viceroyalties (16th–17th Centuries): An Interdisciplinary Vision toward the Writing of a New Colonial Art History

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Abstract

The seminar "Materiality between Art, Science, and Culture in the Viceroyalties" brought together art historians, conservators, and conservation scientists to analyze the art of the Spanish viceroyalties from the sixteenth through the eighteenth centuries. Over a period of three years, this project organized a series of seminars, involving presentations and site visits in Buenos Aires, Córdoba, and Los Angeles. Specialists from Latin America, Europe, and the United States have adopted a holistic research approach, taking into account all aspects of colonial artworks: material, contextual, and conceptual.

KEYWORDS: Spanish American colonial art history, Spanish Viceroyalties, New Spain, New Granada, Peru, Mexico, *q'eros*, technical art history, *Our Lady of Copacabana*—Lake Titicaca, San Ignacio—Buenos Aires

Introduction

> *I also say that, just as practice without theory is a body without soul, theory without practice is a soul without a body.*[1]

With this metaphor, Antonio Palomino de Castro stressed the importance of the practice of painting as part of an artist's apprenticeship in the eighteenth century. The conceptual understanding of artistic materials as silent but vital protagonists of all visual narratives, and as an embodiment of ideas and feelings, which usually relate to social, economic, religious, or political practices, is based on this argument. Today, this material dimension, which for too long has been overlooked by the history of art, deserves attention as an important theoretical perspective within the discipline.

The material condition of artworks reveals itself as a vast and complex field of research. In this sense, an interdisciplinary approach is an appropriate starting point. Chemistry as well as physics and conservation offer methods and techniques that the history of art can no longer ignore. Simliarly, visual culture studies, cultural history, social history, the anthropology of images (*Bildanthropologie*), and the science of images (*Bildwissenschaft*) have introduced materiality among their interests, although not as a central one. In the light of such observations, it is clearly important to trace the indelible marks of past artistic practices, to identify the knowledge and emotions that informed the creative process and left deep imprints in the material, and to identify how this material dimension contributes to the general meaning of the work of art.

The historiography of Spanish American colonial art has a long tradition dating back to the first four decades of the twentieth century. Pre-Columbian objects, as well as paintings, sculptures, and architecture produced between the sixteenth and eighteenth centuries in the Spanish viceroyalties were introduced in academic texts in response to the rise of nationalist movements, together with the emergence of neo-Hispanic, neoindigenist, and neocolonial styles in the field of Latin American art and architecture.[2] These texts also readmitted Spanish precedent by offering reconciliation with a past that had been almost silenced during the nineteenth century. Introducing these "new" artistic productions in Latin American art history demanded the identification and localization of those productions; their description and visual registry; the definition of styles, schools, and names; and, last but not least, their signification and meanings within the cultures that had produced them. As we know, the pursuit of

this major historical enterprise demanded the use of European artistic categories and methods that, although necessary, did not always fit in with the objects to be studied. This saw formalist approaches—such as that of Heinrich Wölfflin applied to pre-Columbian and colonial artworks—or the identification of "derivative" forms that supposed a controversial filiation with renaissance and Baroque styles. The latter enabled the emergence of terms such as *provincialism*, *regionalism*, *dependence*, *fusion*, *marriage*, and *assimilation*, although it also opened the discussion to the acceptance of new stylistic categories such as the one known as *mestizo art*.[3] Thanks to the evidence for the use of European architectural programs and the massive circulation of European prints and paintings within the Spanish territories in the Americas, the binomial "original-copy" was at the root of the discussion. On the other hand, the willingness to identify special features for each region and province in the largest viceroyalties (Mexico, Peru) led to the characterization of schools and to the search for names grounded in methods of attribution and dating. This encouraged the first huge data surveys in archives and libraries, and the construction of the first photographic records. By the 1950s, all of these goals had been well developed and supported by scholars such as Diego Angulo Iñiguez, Enrique Marco Dorta, George Kublei, Pál Kelemen, Erwin Palm, Martín Soria, Harold Wethey, Manuel Toussaint, Francisco de la Maza, Abelardo Carrillo y Gariel, Justino Fernández, Paul Westheim, Emilio Harth Terré, Jorge Cornejo Bouroncle, Rubén Vargas Ugarte, Carlos Arbelaez Camacho, Ángel Guido, Martín Noel, Héctor Greslebin, Guillermo Furlong, and Mario Buschiazzo, among many others. In interaction with them, a new generation represented by Jose de Mesa, Teresa Gisbert, Francisco Stastny, Santiago Sebastian, Isabel Cruz de Amenabai, Elisa Vargas Lugo, Jorge Manrique, Adolfo Ribera, and Héctor Schenone would continue this work.[4] Some introduced new questions regarding culture and society, while others paid special attention to the uses and meanings of images, establishing links between the European iconographic traditions and interrogating the ways it was resignified in the Americas. Since the 1980s, new horizons have emerged. These include an engagement with new objects beyond the traditional ones, the understanding of the old "assimilation process" in terms of appropriation and invention, the scope of religious and political coercion, economic and social practices within representational issues, the place of patronage and native decisions, art education, and the circulation and collection of objects in a global world defined by blurred borders.

Nevertheless, there is one aspect that still deserves to be more fully discussed—materiality. While some steps in this direction have been taken in recent years, it is necessary to pull these new reflections on materiality together, and to examine how materiality impacted images. At the same time, it is important to identify the materials most commonly used in the viceroyalties, the routes for their commercial distribution, and their specific local and European-influenced uses. At the same time, we need

to understand the role and importance of artistic materials in native and ancestral cultural practices, and how these materials acquired new meanings and uses with the arrival of the visual systems that accompanied the conquest and evangelization of the American territories.

During the three meetings that were part of the international seminar "Art and Materiality between Art, Science, and Culture in the Viceroyalties (16th–17th Centuries)," the following issues were addressed: theoretical and methodological concepts involved in interdisciplinary research on materiality; silver as a prominent material in curatorial discourses of museums of colonial art; the use of flowers, feathers, resins, or insects (cochineal being the most relevant material) in American production; and the use of corn paste as an organic material, which appeared as a mediator between ancient local traditions and the practices that emerged after the arrival of the Spanish. Other discussion topics included the differences and similarities between Spanish and American techniques in painting as well as sculpture; the relation between material sources; and the multiple local and foreign meanings of mineral pigments.

More than fifty papers were presented during the three-part international seminar. For the purpose of this text, we have chosen to focus on four case studies that highlight many of the themes and issues outlined above. All of these case studies are based on interdisciplinary work and reveal the significance of the material dimension of images in relation to their uses and meanings.[5]

Case 1. The Persistence of Native Materials and Objects: Looking upon Andean *Q'eros*

Gabriela Siracusano and Agustina Rodrîguez Romero

The *q'eros*, Andean decorated wooden ceremonial drinking vessels, are one of the most interesting cases for the study of materiality in the Americas (Figs. 1 and 2): not only because of their special significance as cultural objects, which were linked to historical, political, and religious events within the Andean region in Inca and colonial times,[6] but also because of the multiple investigations on their materials that have been undertaken during the last decades. We could say that they appear as an example of an object that remained as a mediator between old and new traditions. The Inca *q'eros* are relatively simple cups decorated with incised geometric designs and no applied polychromy as far as we know. As for the colonial ones, they show not only the presence of figurative representations but also a more elaborate polychrome decoration. The woods used to create the vessels and the materials used to bind the paint particles were found to be indigenous to South America, including *mopa mopa*, a resin from the southwestern highlands of Colombia, which was traded regionally.

The paper presented by Emily Kaplan and her colleagues explored the various aspects of *mopa mopa*, the common name of the resin produced by species of the genus *Elaeagia* in the family *Rubiaceae*, which is today best known in the Pasto region of southern Colombia as "*barniz de Pasto*."[7] As the authors showed, the use of *mopa mopa* was probably already a native tradition at the time when the earliest Europeans came to the Pasto region, while Pre-Columbian antecedents are unclear. Fernández de Piedrahíta, recounting in 1688 the travels of Hernán Pérez de Quesada in 1541–42, appears to be the first to document the use of the resin. Others followed, including Fray Pedro Simón (1574–circa 1628) and Alexander von Humboldt, who described artisans preparing the resin during his travels to Pasto in 1801–2. The Colombian botanist Luis Eduardo Mora-Osejo identified a new species of *Elaeagia* in 1977: naming it *pastoensis* after Pasto, Mora-Osejo concluded that earlier identifications had confused *pastoensis* with the species *utilis*. A few early twentieth-century scholars suggested that this resin was the binding medium for the lacquer-like inlaid polychromy on colonial *q'eros*. Preparation of *mopa mopa* is a complex process demanding experience and is today carried out by master artisans, involving repeated steps of cleaning freshly harvested resin in hot water and removing woody plant parts by hand. Colorants are kneaded into the resin, which can then be stretched into thin sheets, cut into design motifs, and either affixed directly onto the surface of the wood or laid into

Figure 1
Q'ero with design of nobles under a rainbow, circa 1550–1800. Carved and painted wood, 49 x 16 cm. Washington, D.C.: Smithsonian Institution, National Museum of the American Indian. Photo credit: Ernest Amoroso.

Figure 2
Q'ero with design of nobles under a rainbow (detail), circa 1550–1800. Carved and painted wood, 49 x 16 cm. Washington, D.C.: Smithsonian Institution National Museum of the American Indian. Photo credit: Emily Kaplan.

recesses carved into the wood. Layers are often used to create detail and depth. As the authors indicate, chemical analyses conducted over the last twenty years confirm *Elaeagia* resin as the diagnostic binder for colonial decorated wooden objects: *q'eros* from the southern Andes, and decorated wooden boxes, frames, and other items from Colombia and Ecuador. The question of species is crucial: only two species of *Elaeagia*—*utilis* and *pastoensis*—produce enough resin to be used as a binder. There are no known records of *Elaeagia pastoensis* or *Elaeagia utilis* anywhere in the Andean region besides Pasto during the Inca and colonial period, but today there are fifteen species distributed from Central America down the west coast of South America. Artisans in Pasto currently use *pastoensis*, but the identification of the species used in earlier times has been a matter of speculation.

The main problem presented in this case rested on the question of whether *E. pastoensis* and the complex processing techniques required were discovered and appropriated by the Inca when they reached the Pasto area in the last years before conquest or whether there was another source for the resin further south.[8]

The paper presented by Pearlstein, MacKenzie, and Kaplan focused on the uses of certain colors within these vessels,[9] including the use in Colonial Andean *queros* of cochineal—a colorant based on carminic acid, which is extracted by crushing the bodies of female *Dactylopius coccus* insects (Fig. 3).[10] This colorant is rooted in the economic and political life of the viceroyalty. Following a thorough explanation on the identification of cochineal in the southern region (from both written and material sources), and the uses of carmine colorants in the Americas—in such things as Mexican codices or Peruvian chronicles—the authors presented their

Figure 3
Detail of *q'ero* showing brilliant cinnabar or vermilion red areas, with carminic acid lake pigment identified in the lower left dark purple quadrant surrounding the diamond, carved and painted wood. Private collection. Photo credit: Ellen Pearlstein.

latest results.[11] By applying high-performance liquid chromatography, these researchers were able to identify a purplish-red colorant—derived from carminic acid—used alone and in mixtures on a preliminary study group of twenty-three Andean *q'eros* of colonial style, while a smaller corpus of vessels with purplish areas of decoration did not show evidence of carminic acid. This fact suggests that different colorants were capable of producing a similar appearance on these objects. Through pigment replication studies and emerging information about the distribution and development of pre-Columbian uses of cochineal pigments (Fig. 4), they proposed that cochineal was first used unprecipitated as a paint on porous media during the early Spanish period, and that the technology of production for carmine lake pigments found on the *q'eros* was based on recipes introduced through Spanish sources. Once again, this kind of investigation shows how relevant the study of materiality is in the consideration and understanding of historical practices and cultural exchange in the Spanish American territories.

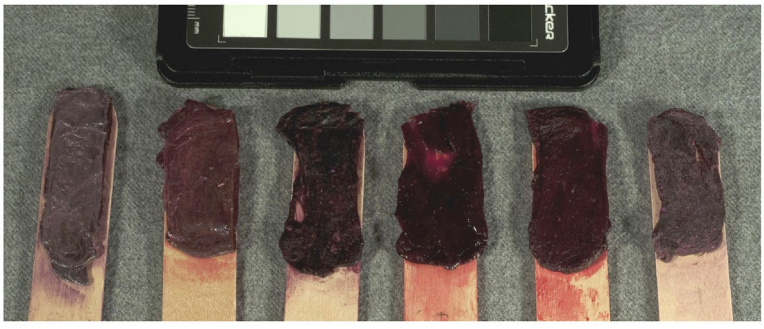

Figure 4
Prepared mixtures of *mopa mopa*. Left to right: carmine lake pigment plus lead white and linseed oil; Kremer carmine naccarat pigment, lead white, and linseed oil; prepared carmine lake pigment and linseed oil (no white pigment); Kremer carmine naccarat pigment and linseed oil (no white pigment); Kremer carmine Naccarat pigment (no white pigment or oil); and prepared carmine lake pigment (no white pigment or oil). Photo credit: Ellen Pearlstein.

Case 2. Materials for the Sacred in the Americas

The polychrome sculpture of *Our Lady of Copacabana* (1582) by Francisco Tito Yupanqui stands as a particular case of materials and techniques contributing strongly to the promotion of its devotional and sacred dimension (Fig. 5).[12] Through written sources such as *The History of the Sanctuary of Our Lady of Copacabana* by Alonso Ramos Gavilán and the *Holy Poem* by Fernando de Valverde, among others, we know how this devotional object was installed in the sacred region of Lake Titicaca as a way of counteracting and substituting ancestral native beliefs: "And where the Prince of Darkness set the stone of scandal, the Prince of Peace put the precious stone, the rich Daisy of His Mother to enrich heaven, for that means Copacabana: the place where you can see the precious stone.[13] The strategy might have been, in fact, to replace the "presence" of idolatry with a "true" object of belief that could "arouse" the souls of the native people. How could its material dimension contribute to this goal? Was the carver Tito Yupanqui—a member of the Anansaya moiety—a simple vehicle for these purposes, who employed traditional European materials and techniques, or could it be possible that he could have combined them with the uses of local ones and, therefore, maintain the survival of certain native practices? Regarding the techniques, the testimony of a hypothetical letter—apparently written by the sculptor's own hand and transcribed by Father Ramos Gavilán in *History*—noted the poor skills and talent Yupanqui had at his disposal not only to carve but also to color and gild the image. Interdisciplinary research carried out since 2002 offers some possible answers to these questions. The X-ray images combined with an organoleptic analysis applied to the image confirmed that the image is made of wood, gummed cloth—two traditional European materials—and maguey, a soft plant frequently used for similar devotional images in the region. As for the polychromies and gilding, the image exhibited a perfect Spanish *estofado*, thus contradicting the written source's lament on Yupanqui's lack of skill in this field. Scanning Electron Microscopy—Energy Dispersive Specroscopy (SEM-EDS) techniques in combination with Raman analysis and Fourier transform infrared spectroscopy showed

that together with gypsum, armenic bol, gold leaf, and cerusite, Yupanqui had used azurite and realgar in some parts of the Virgin's cloth, while in others he had applied a red lake for the vegetal motifs. Such pigments, mentioned in the palettes described in European manuals like those of Lomazzo, Carducho, or Pacheco, had always been present in the Catholic representational system. What seems very interesting is that some of them were also mentioned by colonial written sources as "idolatric" color powders blown to the wind in Andean ritual practices.[14] Moreover, a green color present in the Virgin's veil was shown to be a pigment that is absent in the Spanish manuals of the period, and had never been previously detected in the Andean palette (Fig. 6). This pigment is atacamite, a polymorph of the basic copper (II) chloride minerals group, of a native natural origin, used in pre-Columbian buildings, objects, and burials. This pigment was widely used for other purposes than artistic, and remained a powerful presence in the native tradition.[15] Another chemical result presented within the seminar was the identification of lazurite (the main element for lapis lazuli) as a thin layer over azurite in the blue flowers of the Virgin's

Figure 5
Francisco Tito Yupanqui, *Our Lady of Copacabana*, 1582, Gilded polychrome maguey, wood, and gummed fabric sculpture. Copacabana, Iglesia de Nuestra Señora de Copacabana. Photo credit: Gabriela Siracusano.

cloak. Apart from being one of the oldest and most unique examples of lapis lazuli in an artwork created in America, its color and the shape of the particles seem to exhibit a local precedence, two facts that give a special relevance to this finding (Fig. 7).

The combination of conservation practices and art history research is a practice that takes on a provocative dimension when it comes to be performed on devotional and cult images. These images, as we have seen in the previous case, have the privilege of being perceived by the faithful as "living bodies" full of sacred ontology—with their corresponding "capacity" for producing miracles. This could not happen if the materials employed did not conform to this strategy. This aspect is precisely what conservator and art historian Pablo Amador (IIE-UNAM) proposed to discuss within the three meetings of the seminar.[16]

The corn paste sculptures of Christ produced in viceregal Mexico during the fifteenth and sixteenth centuries have been one of Amador's interests in recent years. One of the main points in this research rests on the corroboration of a huge market and broad distribution of these images between the New Spain viceroyalty and the Iberian Peninsula. Owing to their lightness, they were greatly favored for processional purposes in Spanish domains, such as the Canary Islands, where many of these

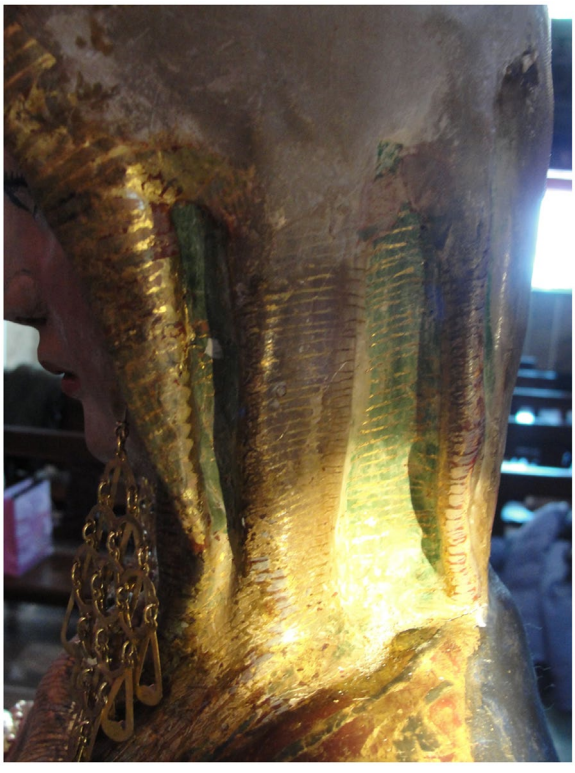

Figure 6
Francisco Tito Yupanqui, *Our Lady of Copacabana* (detail of the green veil), 1582. Gilded polychrome maguey and wood sculpture. Copacabana: Iglesia de Nuestra Señora de Copacabana. Photo credit: Gabriela Siracusano.

sculptures can be found. Written sources such as *Historia Eclesiástica Indiana* by Jéronimo de Mendieta mention how much appreciated these crucifixes were in Spain, as they showed the physique of a big man but could be carried by a child, due to their lightness. A special treatment was given to the *Christ of Telde* in Great Canaria (Fig. 8). In contrast to the conventional survey of historical documents, Amador was able, through the use of different physical techniques such as X-rays and clinical endoscopy, to analyze not only the constructive structure of the image but also its materials: a core made of corn canes tied together, with the additional use of corn paste and recycled Mexican codices, carrying native inscriptions, and traditional Spanish polychromy. This enables us to think about how the transmission of technical knowledge was performed within those territories: an exchange that combined the European models and techniques (in this case concerning polychromy) with materials and structural supports derived from indigenous native skills. The same relationships can be established when comparing many of the aesthetic, technical, and material aspects of other similar New Spanish sculptures, which are still venerated in Spain. Some examples that should be highlighted are the *Christ of Mercy* in Valverde de Leganés in Extremadura, or the *Crucified Christ* of the same advocation of the parish church of Santa Ana in Garacho, the main old port on the island of Tenerife.

Likewise, Amador has dealt in his other interventions with the topic of the importance of materials of pre-Hispanic origin in viceregal sculptures, showing the interesting example of the *Divino Indiano*, a sculpture that arrived at Chiclana de la Frontera, in Cádiz (Fig. 9). Aside from its use as a reliquary, this sculpture features the incorporation of green, shiny shells, obtained from local beetles—which are related to the Resurrection—and

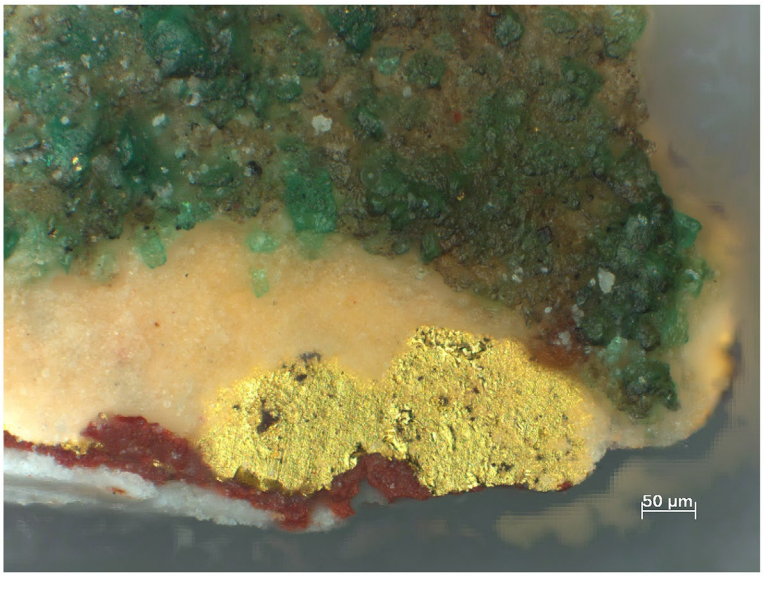

Figure 7
Microphotograph of sample from veil in *Our Lady of Copacabana*. Detail of the *esgrafiado* technique with atacamite. Photo credit: Marta Maier.

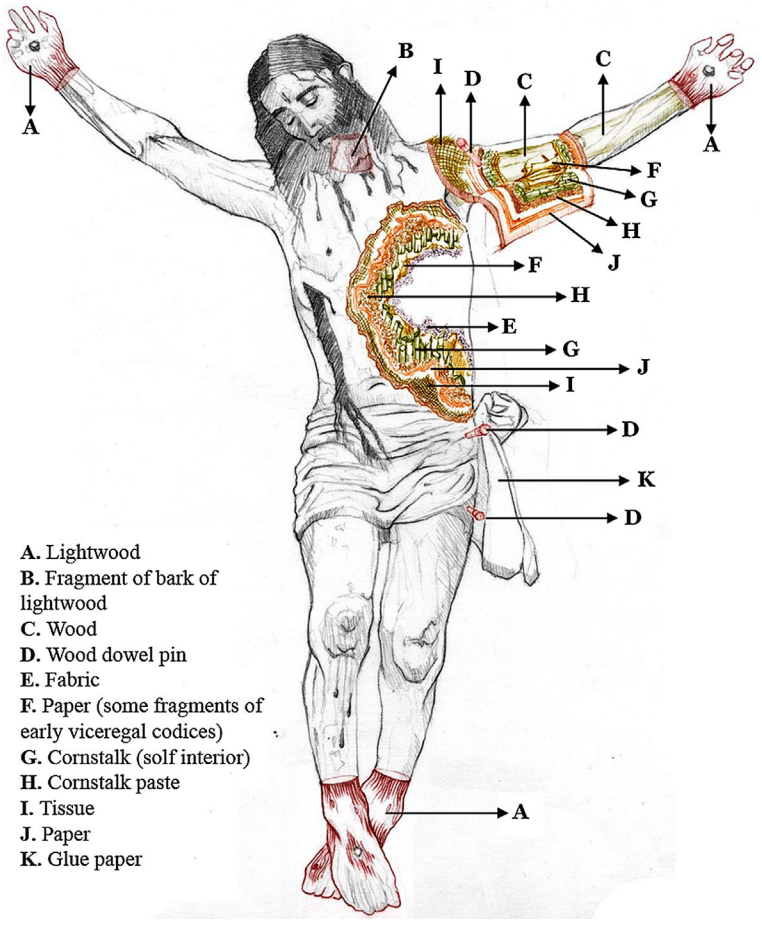

Figure 8
Constructive scheme of the *Holy Christ of Telde*, circa 1555. Polychrome light sculpture, molded, modeled, and carved, with paper, fabric, codex paper, and corn cane. Telde, Basilica Menor de San Juan Bautista. Photo credit: Pablo F. Amador Marrero and Dario Meléndez Manzano.

thus to life. The author has sustained these ideas by arguing that the beetle is an animal that remains under the soil during almost the whole year and then emerges, for which reason it was seen by the people of the ancient Americas as an animal that resurrects. Its brilliance, as well as the green color; can be also interpreted as life.

Case 3. Materials and *Invenzione* that Challenged Artistic Meanings: An Interdisciplinary View on Some Novo-Hispanic Paintings

The study of materiality in Spanish colonial art also enables the identification of different uses of certain raw materials in paintings and sculptures. American artists, like their counterparts in Europe, were subjected to the treatise formulas for the preparation of pigments and prune coats, their application, and the achievement of certain effects with

which they sought to astonish the viewer. Rare techniques are sometimes employed, which deserve research not only to identify the materials involved in them but also to make possible their reproduction. The team of Mexican art historians, conservators, physicists, and chemists has made very important contributions in this regard.

At the first meeting of the international seminar Jaime Cuadriello, Sandra Zetina, Elsa Arroyo, José Luis Ruvalcaba, and Manuel Espinosa presented the results of their research carried out on the panel painting *The Martyrdom of Saint Pontian* (1605) by the artist Baltasar Echave Orio,[17] now in the Museo Nacional de Arte in Mexico City.[18] It is not surprising that a work by Echave Orio should stimulate questions about the techniques and materials used in it. As the paper showed, he was a scholarly artist who was aware of the tradition of European treatises and of Baroque strategies designed to persuade and move the faithful. Saint Pontian, one of the first martyrs of the Catholic Church, was martyred because of his faith; in his final moments he was tortured with molten lead. In Echave Orio's depiction of the scene, we see Saint Pontian secured

Figure 9
Divino Indiano, before 1674. Polychrome light wood and agave sculpture, with wax and relics, heads and shells of beetles. Cádiz, Clausura del Convento de Agustinas Recoletas de Jesús Nazareno. Photo credit: Pable F. Amador Marrero.

by ropes and hanging in the air; looking up to heaven, while one of his tormentors approaches his body bearing a bar of red-hot lead (Fig. 10).

The researchers' interest is focused especially in the representation of the flame in the lead bar at the center of the painting. The texture and brightness of that area were striking and it was found that the artist took intentional decisions related both to the effects of the materials and their appropriateness to the depicted scene (Fig. 11). A series of studies by ultraviolet, infrared reflectography, X-ray stereomicroscopic surface, cross-sectional scientific analysis (optical microscopy, scanning electron microscopy, and X-ray diffraction), and material characterization were performed on the painting by nondestructive methods (X-ray fluorescence, Raman spectroscopy, and ultraviolet-visible spectrometry).

It was finally possible to determine that molten lead was used by Echave Orio to create this flame, precisely the same material used to torture Pontian. To increase the shine, the artist added yellow pigments and gold leaf. This use of lead and gold is a novel combination within the colonial art of New Spain. We might understand it not as a material element representing a color in a certain story but as a material presence, which gives agency to the story and image. It is interesting to compare this technical-aesthetic strategy with another case presented within the seminar: the study of the Getty Murúa manuscript presented by Thomas Cummins and Karen Trentelman at the Los Angeles meeting in 2012. Within all the pigments and colorants that could be identified in this manuscript by a combination of Raman and X-ray fluorescence techniques—vermilion, orpiment, indigo, azurite, lead white, organic reds, and lead-tin yellow, among others—the presence of silver in the representation of silver weapons and garments of the Incas seems to be achieving a similar "chromatic iconic stratagem."[19] Another instance of the unusual use of a particular material was presented by Elsa Arroyo, Manuel Espinosa, Eumelia Hernandez, José Luis Ruvalcaba, and Sandra Zetina.[20] This research focused on the study of the presence of ground glass in red lacquer pictorial layers. A survey of written sources on the use of ground glass showed that many treatises explained its application in various circumstances. Thus, the ground glass was used as an auxiliary material for pigment grinding, as a drying agent for oil painting, and also to give greater depth to the color from an optical perspective. Of particular relevance was Francisco Pacheco's mention of its use for the representation of rich red cloth like velvet.

The use of ground glass and quartz was identified in paintings of European origin such as *Our Lady of Atonement* and *Saint Cristopher* by Simon Pereyns, both in the Mexican Cathedral. In New Spain it was used in images by Andrés de la Concha, Echave Orio, José Juárez, and the anonymous artist of the *Virgin of Guadalupe* of Cuautitlan. This sampling confirms the use of translucent filler over a long time span and particularly in combination with red, orange, and blue pigments.

Of particular interest was the experimental reproduction of layers of different red lacquers and several types of ground glass and clear quartz

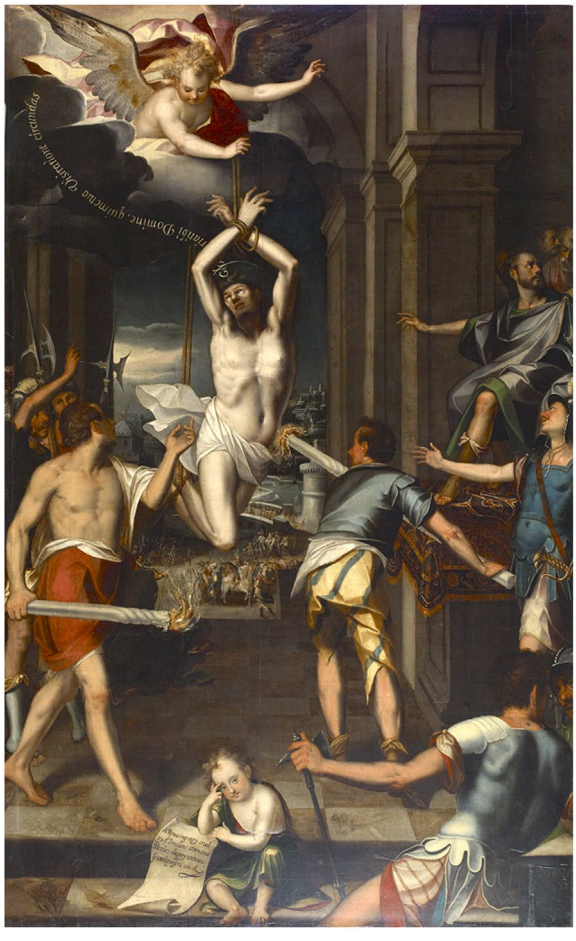

Figure 10
Baltasar Echave Orio, *The Martyrdom of Saint Pontian*, 1605. Oil on canvas. Mexico City, Museo Nacional de Arte del Instituto Nacional de Bellas Artes. Photo credit: Eumelia Hérnandez Vázquez/LDOA-IIE-UNAM.

performed by this Mexican team to identify the characteristics and variations in consistency, color; thickness, and brightness of the different results. This type of research is essential in the study of materiality because it reveals the importance of experimentation in a fundamental aspect of this field: the recovery of actual artistic practices inside Spanish American workshops.

Case 4. A Fragmented Story "Torn" into Pieces: The Fortune of an Eighteenth-Century Painting in an Argentine Jesuit Church

The conservation of Spanish American colonial artistic heritage occasionally confronts us with pieces that have been modified from what could have been their original appearance. Most commonly, sculptures and

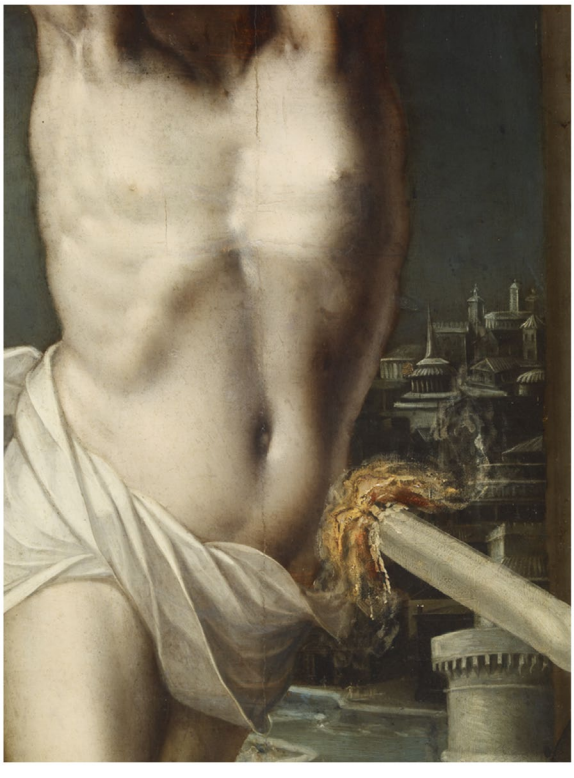

Figure 11
Baltasar Echave Orio, *The Martyrdom of Saint Pontian* (detail), 1605. Oil on canvas. Mexico City: Museo Nacional de Arte del Instituto, Nacional de Bellas Artes. Photo credit: Eumelia Hérnandez Vazquez/LDOA-IIE-UNAM.

paintings were altered in their polychromy or general structure, whether by modification, removal, or addition of some components. Professor Héctor Schenone noted that these changes are in part the result of the subjection of these pieces to religious functions and devotional practices that rely on constant updating of images in order to maintain their effectiveness. In other cases, images are altered, forgotten, or resignified over the passage of time, with the consequent loss of their symbolic, ritual, and communicational significance.

Less commonly, we deal with works whose materiality has been strongly modified in relation to practices that have nothing to do with devotion. Such is the case of the painting *Our Lady of Atonement* by Pereyns in the Cathedral of Mexico, or the sculpture *Our Lady of Mount Carmel* in the Cathedral of Santiago de Chile, both destroyed by fire.[21]

In both cases, the damaged images were actively used in the church ritual of the congregation. The study of works in such conditions presents new challenges and questions about images that exhibit a high degree of opacity at the moment of their research, conservation, and restoration.

The study carried out on a set of paintings and altarpieces belonging to the Church of San Ignacio in the city of Buenos Aires is a clear example of an interdisciplinary research project that poses a series of new enquiries and challenges for the researchers involved. In this case, it was necessary to

deal with clearly altered materiality in works that were considered lost and subsequently rediscovered. In addition, the past and present functionality of the paintings used in devotional practices as well as the reconstruction of their subsequent histories were other aspects of the research carried out by a team of conservators, chemists, and art historians from the Instituto de Investigaciones sobre el Patrimonio Cultural of the Universidad Nacional de San Martín, Argentina. The results of this research were presented at two of the meetings of the international seminar.[22]

During conservation work carried out at the Church of San Ignacio, a major discovery was made: some remains of what appeared to be a canvas had survived, buried a meter under one of the altars (Fig. 12). A first analysis of these spoils allowed the researchers to glimpse some fragments of a figure depicting Saint Aloysius Gonzaga, a young novice of the Jesuit order. The canvas was incomplete, however, having been separated into different pieces, with some signs of being cut intentionally. Schenone, who worked along with Adolfo Ribera on the paintings of this temple in 1944, knew this painting but considered it lost.[23] After this finding, he guided the team to two pieces formerly belonging to the canvas and now property of the Museo de Arte Hispanoamericano "Isaac Fernández Blanco" of Buenos Aires. These fragments corresponded to the corners of the canvas depicting Saint Aloysius, the Virgin and Child, and two cherubs. In addition, the original stretcher was still conserved: a complex structure with a mixtilinear upper edge and signs of fire damage. Small pieces of the canvas were still attached to its edges. Finally, following previous research by Schenone, it was found that the painting was part of a mechanism to display and conceal devotional sculptures by sliding canvases in a stage altarpiece.[24]

To summarize, the research had to deal with a dismembered painting missing important parts of the canvas, with remains conserved in radically different conditions, in different repositories, from a very particular altarpiece designed for a forgotten function. The different aspects of the study and conservation of this image presented a challenging scenario. The team proposed a series of fundamental questions in order to begin the research and the conservation proposal for the remains. The first question was based on its material dimension: What information did its materiality offer about its history and fortune? Could its material dimensions stand as a document of the past? Then came others: Considering the great loss of the pictorial surface, should the painting be returned to a state near to what it was originally? If not, how should the remains of this painting be treated? Which would be the function of the image after the process of intervention and study?

Indeed, the extent of the losses suffered by the image led to the questioning of the traditional concept of reintegration, and demanded a thorough study involving experimental testing of materials on prototypical models. In parallel, a systematic and methodological contrast of textiles, fibers, and samples from the pictorial layer of all the fragments of the

Figure 12
Fragments of the painting *Saint Aloysius Gonzaga*, eighteenth century. Oil on canvas. Buenos Aires, Iglesia de San Ignacio. Photo credit: Ana María Morales.

Figure 13
Saint Aloysius Gonzaga, eighteenth century. Oil on canvas. Buenos Aires: Iglesia de San Ignacio. Photo credit: IIPC-UNSAM.

Figure 14
Thomas Cummins explaining research work done on the Getty Murúa (Ms. Ludwig XIII 16) to the members of the international seminar at the Getty Center. Photo credit: J. Paul Getty Trust.

canvas found in the Church of San Ignacio was carried out in order to corroborate the relation between them by analysis, along with the pieces belonging to the Fernández Blanco Museum.

By determining the extent of the area lost and the possible structure of the composition, the art historians moved on to trace the possible iconographic sources and to study the formal and stylistic characteristics of the picture, including the fragments in the museum. Furthermore, the discovery of this image led to the analysis of the inventories related to the expulsion of the Jesuits, documents that allowed the reconstruction of the principal devotions in the Church of San Ignacio and the iconographical organization of the altarpieces. Fieldwork done in the church was contrasted with these primary documents and secondary sources, which allowed further study of the other altarpieces in this location. Furthermore, printed written and visual sources indicated that burn marks on the stretcher were related to political episodes that took place in Buenos Aires in 1955, when many churches were set on fire.

Once the fragments of the work had undergone individual conservative treatment, a joint decision was taken not to advance on a traditional restoration program, since it was impossible to achieve a full reintegration and the recovery of its original functionality. Moreover; the insertion of these remains in the history and historiography of Argentine art, and in the history of both religious and museological practices, led the researchers to interpret the remains of this canvas from the perspective of cultural history. The comparison of visual and written sources is a usual practice in this methodology. Our own research has led us to regard materiality as a specific source of knowledge when studying works of art. In this sense, taking into account the particularities of this case, and while not disregarding the artistic and devotional origins of the whole, the fragments were treated as a historical document, as a primary source of the past. This

methodological perspective led to the decision to apply a nap bond lining technique that could allow a high degree of reversibility of the process in order to permit further studies on the pieces and make it possible to exhibit them in various ways. Although some gaps were completed in the intersections to give the recovered parts of the canvas a coherent interpretation, no major gap was filled in. The stretcher was recovered and a supporting scrim fitted over it. As in a giant puzzle, the pieces were placed in this area, using the remains still attached to the frame as points of reference (Fig. 13).

In short, this is a case that challenges diverse views on the past by making the material dimension a relevant testimony to a painting's history and fate.

Brief Epilogue

The case studies we have described in this article show only a few aspects of the main topics and problems discussed within the three meetings. We would offer the following as general conclusions:

1. Interdisciplinarity in the study of artworks is a must if we want to challenge our own discipline, be it art history, chemistry, conservation, and so forth (Fig. 14).
2. Theoretical and methodological discussions about the materiality of images and objects produced during the colonial period have tended to privilege cultural-historical views over technical ones.
3. The study of the material dimension of these images—either inorganic or organic, natural or synthetic—opens a path for the understanding of symbolic anthropological practices and discourses engaged in by diverse social actors.
4. European artistic traditions regarding materials and techniques were not passively assimilated by local producers. On the contrary, invention and creativity were activated in order to produce a whole new aesthetic, with specific identities in the Spanish American territories.
5. Experimental and practical knowledge of the ancient uses of local materials on the comment were not disregarded but exploited and combined with foreign technical theories.
6. The poetic of artistic materials in Spanish America is closely linked to the economy and politics of images.

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Notes

1. Antonio Palomino de Castro y Veiasco, *El museo pictórico y escala óptica*, vol. 1, bk. 8 (Madrid: Imprenta de Sancha, 1796–97), 168.
2. See Ana Telesca, Laura Malosetti, and Gabriela Siracusano, "Impacto de la 'moderna' historiografía europea en la construcción de los primeros relatos de la historia del arte argentino (1910–1930)," in *(In)disciplinas: estética e historia del arte en el cruce de los discursos. XXII Coloquio Internacional de Historia del Arte* (Mexico: IIE-UNAM, 1999), 395–426.
3. Marta Penhos, "De categorías y otras vías de explicatión: una lectura historiográfica de los Anales de Buenos Aires (1948–1971)," in *AAVV: Memoria del III Encuentro Internacional de Barroco* (La Paz: Unión Latina, 2005), 167–74.
4. It should be noted that in the 1940s two studies focused on the uses of materials and techniques in the Americas; see Abelardo Carrillo y Gariel, *Técnica de la pintura de Nueva España* (Mexico: Imprenta Universitaria, 1946); and Adolfo Ribera and Héctor Schenone, *El arte de la imaginería en el Río de la Plata* (Buenos Aires: Universidad de Buenos Aires, 1948).
5. The following case descriptions are based on the abstracts and papers presented by the corresponding authors mentioned. We wish to thank not only these authors but all of the participants for sharing with us such important conclusions and results.
6. See Thomas Cummins, *Toasts with the Inca: Andean Abstraction and Colonial Images on Quero Vessels* (Chicago: The University of Michigan Press, 2002).
7. The paper "An Extraordinary Andean Resin Binder: mopa mopa, Elaeagia spp." was presented at the Buenos Aires / Córdoba meeting of 2014 by the following scholars: Emily Kaplan (Smithsonian National Museum of the American Indian, Cultural Resources Center), Richard Newman (Scientific Research Laboratory, Museum of Fine Arts, Boston), Michele Derrick (Scientific Research Laboratory, Museum of Fine Arts, Boston), Ellen Pearlstein (UCLA Information Studies and UCLA/ Getty Program in Archaeological and Ethnographic Conservation), Ellen Howe (Metropolitan Museum of Art), and Judith Levinson (American Museum of Natural History, New York).
8. See Emily Kaplan et al., "Análisis técnico de qeros pintados de los períodos Inka y colonial," *Iconos: revista peruana de conservación, arte, y arqueología* 2 (1999): 30–38; and Richard Newman and Michele Derrick, "Painted *Qero* Cups from the Inka and Colonial Periods in Peru: An Analytical Study of Pigments and Media," in Pamela B. Vandivei, Martha Goodway, and Jennifer L. Mass, ed., *Materials Issues in Art and Archaeology 6*, Materials Research Society symposium proceedings, November 26–30, 2001, Boston, Mass. (Warrendale, Penn.: Materials Research Society, 2002), 291–302.

9. Ellen Pearlstein, Mark MacKenzie, and Emily Kaplan, "Cochineal and Andean *Qeros*: More Questions than Answers," presented at the Buenos Aires / Córdoba meeting of 2014. See also Ellen Pearlstein et al., "Tradition and Innovation: Cochineal and Andean *Qeros*," in Barbara Anderson and Carmella Padilla, eds., *The Red That Colored the World* (New York: Rizzoli/Museum of International Folk Art; 2015).
10. This paper bore a close relationship to three other papers presented at the 2014 Buenos Aires/Córdoba meeting, such as Barbara Anderson, "The Red that Colored the World: A Cochineal Project Sponsored by the Museum of International Folk Art, Santa Fe, and New Mexico"; Marta S. Maier et al., "'Linda Grana, y finos colores de flores, con que no queman lo que tiñen': Usos del índigo y la cochinilla en el territorio andino: Un enfoque interdisciplinario"; and Ana Roquero, "Colección de patrones de referenda para el análisis cromatográfico de tintes naturales."
11. Historical and chemical results on the research developed from the Getty Murúa chronicle were presented by Thomas Cummins and Karen Trentelman at the second seminar in Los Angeles in 2012.
12. This research was conducted by an interdisciplinary team of scholars belonging to the National Research Council of Argentina, the University of Buenos Aires, the University of San Martín, and the Ministry of Cultures of Bolivia: Gabriela Siracusano, Marta Maier, Fernando Marte, Noemí Mastrangelo, Carlos Rúa Landa, and Eugenia Tomassini. It also received support from the Agencia Nacional de Promoción Científica y Technológie of Argentina (PICT 2011-1327).
13. Alonso Ramos Gavilán, *Historia del Santuario de Nuestra Señora de Copacabana*, 1621 (Lima: Ignacio Prado Pastor, 1988), chap. 32, 194.
14. See Gabriela Siracusano, *El poder de los colores: De lo material a los simbólico en las prácticas culturales andinas (s.* XVI–XVIII*)* (Buenos Aires: FCE, 2005).
15. See Eugenia Tomasini, Carlos Rua Landa, Gabriela Siracusano, and Marta S. Maier, "Atacamite as a Natural Pigment in a South American Colonial Polychrome Sculpture from the Late XVI Century," *Journal of Raman Spectroscopy* 44, no. 4 (2013): 637–42.
16. "Imaginería ligera novohispana: un recurso añejo para la evangelización: Nuevos planteamientos desde lo formal y material," presented at the 2011 Buenos Aires/Rosario meeting; "Como si fuesen de cuerpo natural. Singular ingenio constructivo en la i-ma-gi-ne-rí-a virreinal al servicio del culto," presented at the 2012 Los Angeles meeting; "Otros materiales orgánicos en la escultura hispanoamericana como señas de identidad," presented at the 2014 Buenos Aires/Cordóba meeting.
17. Laboratorio de Diagnóstico de Obras de Arte del Instituto de Investigaciones Estéticas, UNAM; Instituto de Física, UNAM; and Instituto de Investigaciones Nucleares, Mexico.
18. "Ojos, alas y patas de la mosca: visualidad, tecnología y materialidad del cuadro," presented at the 2011 Buenos Aires / Rosario meeting.

19. See Thomas B. F. Cummins and Barbara Anderson, eds., *The Getty Murúa: Essays on the Making of Martín de Murúa's* Historia General del Pirus, *J. Paul Getty Museum Ms. Ludwig XIII,* 16 (Los Angeles: Getty Research Institute, 2008), 138.
20. "Transparent Grinded Glass: Its Influence in Color, Occurrence in New Spain's Painting and Correlation with European Practices," presented at the 2012 Los Angeles meeting.
21. Elsa Arroyo, "Biografía de una ruina prematura: la Virgen del Perdón," *Goya* 327 (2009): 95–111; and Federico E. Eisner Sagüés and María Carolina Ossa Izquierdo, "Estudio y diagnóstico de la materialidad de la Virgen del Carmen," *Conserva* 15 (2010): 67–83, 2012.
22. Damasia Gallegos, Ana María Morales, Fernando Marte, Mariana Pinto, Gustavo Tudisco, Agustina Rodríguez Romero, Gabriela Siracusano, and Héctor Schenone, "Imagen, ruina, fragmento, documentor vestigios de un San Luis Gonzaga para una investigación interdisciplinaria," presented at the 2011 Buenos Aires/Rosario meeting; and Damasia Gallegos and Ana María Morales, "Del lino europeo al cedro americano: Los materiales vegetales en los soportes de la pintura colonial," presented at the 2014 Buenos Aires/Córdoba meeting. This research received support from the Agencia Nacional de Promoción Científica of Argentina and the program "Diálogos entre las Ciencias" (UNSAM).
23. Adolfo Ribera and Héctor Schenone, "Los lienzos corredizos y breve noticia del pintor Miguel Aucell," *Archivum* 2, no. 1 (1944): 333–45.
24. This kind of altarpiece is known in Spanish as *retablo tramoya*.