

# Mesoamerican Mosaics from Early European Collections: Style, Provenance and Provenience

Davide Domenici

In memory of Colin McEwan who,  
like an accomplished *tlatecqui*,  
made the turquoise shine

## INTRODUCTION

Mosaics are among the most popular and iconic ancient Mesoamerican artworks, often reproduced on book covers and museum posters. Ethnohistorical information and archaeological finds show that “turquoise” mosaics—actually manufactured with an array of different materials—were produced in various Mesoamerican regions and periods. However, a significant number of the known Late Postclassic specimens seem to have originated in a broad region including the Basin of Mexico and the present-day states of Tlaxcala, Puebla, Oaxaca, and Guerrero, in a culturally and linguistically heterogeneous area mostly inhabited by speakers of Uto-Aztecan and Otomanguan languages such as Nahuatl, Mixtec, Chocho/Popoloca, and Cuicatec. Given the uncertain ethno-linguistic identity of their makers, Late Postclassic turquoise mosaics are often designated with dual formulae, such as “Mixtec/Aztec” (e.g., Pasztory 1983, color plates 52–64), “Aztec/Mixtec” (e.g., Matos and Solís 2003, 325–29), “Mixtec-Mexica” (e.g., McEwan and López Luján 2009, 158, 160, 168, 239), or “Mexica-Mixtec” (e.g., McEwan and López Luján 2009, 146, 206, 214). This is especially true of a group of artifacts whose presence in European collections since the sixteenth century is backed by documentary sources, such as private letters, manuscript inventories, collection catalogues, and historical chronicles.

This group of mosaics—hereafter called the “early European corpus”—is the focus of the present article, whose main aim is to combine stylistic and

iconographic observations with provenance data in order to define two previously unrecognized stylistic groups, with no clear parallels in the extant archaeologically-excavated corpus, and to propose that their existence within the early European corpus is to be understood as the result of specific “provenance events”. More specifically, the distribution of most members of the two stylistic groups in early modern Italian collections reveals meaningful associations with other kinds of artifacts, such as pictorial manuscripts, carved and gilded spearthrowers, and stone figurines. Joining stylistic, iconographic and provenance data, it will be argued that one group of mosaics (Group 1) is strictly related to the Borgia Group manuscripts and could thus be ascribed to Eastern Nahua groups of the Puebla-Tlaxcala valley. The second group of mosaics (Group 2), on the other hand, was historically associated with Mixtec artifacts and could be related to mostly Otomanguan groups from Southern Puebla-Northwestern Oaxaca. Both groups of mosaics seem to have been brought to Italy by one or more Dominican missionaries during the sixteenth century. Additional observations will also be offered regarding the few mosaics in the early European corpus that do not fit into the two proposed stylistic groups : if Coastal Mixtec mosaics were also brought to Italy during the sixteenth century by a (probably Dominican) friar, the few properly Mexica mosaics within the extant early European corpus seem to have a collection history unrelated to the Italian peninsula, thus confirming the strict and meaningful relationships linking provenance and ultimate provenience.<sup>1</sup>

## THE CORPUS AND THE METHOD OF ANALYSIS

Mesoamerican mosaics in early European collections have long been the subject of study of an important scholarly tradition dating back at least to the seventeenth century (e.g., Aldrovandi 1648; Liceti 1634), with a veritable

<sup>1</sup> Following a now common usage, with “provenience” I refer to the original context(s) where an object was produced, used, and/or archaeologically recovered; “provenance”, on the other hand, refers to the history of its movements up to the place where it is currently held or, in other words, to its collection history.

boom of studies during the second half of the nineteenth century. Starting with the publication of Edward Burnett Tylor's *Anahuac* (Tylor 1861, 101, 337–39), different scholars initiated the systematic description of mosaics in various European collections, rapidly adding previously unknown (or, better said, forgotten) specimens to the known corpus. The main corpus of twenty-two extant specimens has been known since Hercules Read's publication of a mosaic helmet then in the Christy collection (Read 1895), in which the author reviewed the entire corpus. A rather unique specimen—a wooden sculpture in Vienna displaying a small mosaic decoration on the belly—was then added in 1906 (Heger 1906) as the twenty-third specimen, and in 1907 Walter Lehmann gave the first detailed description of two pieces in Berlin which had been previously mentioned only in passing (Lehmann 1907). Many other mosaics enumerated in early modern sources are today lost, so they cannot be considered as part of the extant early European corpus; however, among the lost specimens, a knife handle once owned by Jacob Gaffarel deserves special attention and will be included here as the twenty-fourth specimen of the corpus, due to the fact it was commented on and illustrated by Fortunio Liceti in an engraving (Liceti 1634, 116–22) whose scholarly relevance was first noted by Luigi Pigorini (1885). Despite its obvious limitations, the existence of this engraving permits interesting formal observations.

From 1907 onwards, the corpus of “early European” Mesoamerican mosaics had been so well-known that it became a standard part of every subsequent survey of Mesoamerican mosaic work (e.g., Pasztory 1983, 275–77; Saville 1922), to which were often added new specimens from archaeological deposits, either illegally looted or formally excavated.<sup>2</sup> The beginning of the twenty-first century marked a renewed interest in Mesoamerican mosaics and—especially due to the new possibilities provided by scientific analytical techniques—important breakthroughs were made in understanding the materiality mosaics, leading to a new wave of publications rich in scientific,

<sup>2</sup> Space constraints do not permit a detailed review of the rich literature on Mesoamerican mosaics. For the best general treatments of the topic, see Izeki 2007; King et al. 2012; McEwan et al. 2006; Saville 1922. Ramsey (1975) attempted a stylistic analysis of “Mixtec” minor arts, but with limited results on mosaics. Specific references are provided below in the text.

historical, and aesthetic analyses (e.g., King et al. 2012; McEwan et al. 2006; Melgar Tísoc et al. 2018; Thibodeau et al. 2018).

In addition to stylistic and iconographic aspects, scholars have also explored the mosaics' provenance. Since 1906, Lehmann's hypothesis that most of them must have been part of the early shipments sent by Juan de Grijalva and Hernán Cortés (Lehmann 1906)—although completely speculative and unsupported by documents—became commonplace, uncritically reiterated time and again (e.g., Biscione et al. 1993, 30; Cabello 2018; Izeki 2007, 170; Quiñones Keber 1995, 230; Toscano 1952, 249). Nevertheless, recent contributions have substantially enriched our understanding of the collection history of the early European corpus of mosaics, so their provenance history—which in many cases can be traced back to missionary gifts rather than to conquistadors' shipments—can now be identified with a fair amount of precision.<sup>3</sup>

The following is a list of the twenty-four pieces constituting the early European corpus, with the designations that will be used in this article to avoid becoming bogged down in conflicting iconographic interpretations, tangential to the present research:<sup>4</sup>

- Rome Long-Nosed Mask (Museo delle Civiltà, hereafter MUCIV, Rome, inv. 4214) (pl. 1)
- Gotha Bird Head (Friedenstein Schloss, Gotha, inv. Eth7R) (pl. 2)
- Copenhagen Animal Head (National Museum of Denmark, Copenhagen, inv. A.424-ODIh.40) (pl. 3)
- Copenhagen Tall Animal Head (National Museum of Denmark, Copenhagen, inv. A.425-ODIh.41) (pl. 4)
- London Jaguar Cup (British Museum, London, inv. Am +.165) (pl. 5)
- London Helmet (British Museum, London, inv. Am +6382) (pl. 6a–b)

<sup>3</sup> See, for example, Carmichael 1970; Caygill 2012; Domenici 2014, 2016a, 2017a, 2017b, 2017c, in press a; Domenici and Dupey García in press; Domenici and Laurencich 2014; Domenici and Nielsen 2018; Donattini 2008; Feest 1985, 1990, 1995, 2012; Heikamp 1972, 1976, 1982; König and Domenici in preparation; Laurencich Minelli 1980, 1982, 1983, 1984, 1985, 1992, 2012; Laurencich Minelli and Filippetti 1983; Markey 2016; Nielsen and Domenici 2012.

<sup>4</sup> The present article includes color or black and white illustrations of the nineteen specimens of the early European corpus central to our discussion. References to illustrations published elsewhere are given for the five remaining mosaics, less relevant for the discussion.

- Berlin Double Jaguar (formerly in the Berlin Ethnologisches Museum, inv. IV Ca 4014, now lost) (figs. 1–2)
- Rome Anthropomorphic Knife (MUCIV, Rome, inv. 4216) (pl. 7)
- Rome Zoomorphic Knife (MUCIV, Rome, inv. 4215) (pl. 8)
- London Anthropomorphic Knife (British Museum, London, inv. Am St.399) (pl. 9)
- Gaffarel Anthropomorphic Knife (formerly owned by Jacques Gaffarel, now lost) (fig. 3)
- London Serpent Pectoral (British Museum, London, inv. Am Am 1894,-.634) (pl. 10)
- London Anthropomorphic Mask (British Museum, London, inv. Am St.400) (pl. 11)
- London Serpent Mask (British Museum, London, inv. Am 1987,Q.3) (pl. 12)
- Rome Anthropomorphic Mask (MUCIV, Rome, inv. 4213) (pl. 13)
- London Shield (British Museum, London, inv. Am. St.397a) (pl. 14)
- London Animal Head (British Museum, London, inv. Am St.400a) (pl. 15)
- Berlin Jaguar Head, (formerly at the Berlin Ethnologisches Museum inv. IV Ca 7159, now lost) (fig. 4)
- Rome Notched Human Femur (MUCIV, Rome, inv. 4209) (pl. 16)
- London Skull Mask (British Museum, London, inv. Am. St.401) (McEwan et al. 2006, figure 102)
- Berlin Skull Mask (formerly at the Berlin Ethnologisches Museum inv. IV Ca 7160, now lost) (Schwarz 2013/2014, plates 1–3, 5)
- Vienna Animal Head (Museum für Völkerkunde, Vienna, inv. 43382) (Feest 2012, figure 8)
- Vienna Shield (Museum für Völkerkunde, Vienna, inv. 43379) (Feest 2012, figures 1–4)
- Vienna Wooden Sculpture (Museum für Völkerkunde, Vienna, inv. 12585) (Feest 2012, figure 10)

The following stylistic analysis is based on the identification of what I call formal resources and iconographic motifs. On the one hand, “formal resources”—such as the preferential use of certain materials, the creation of



Figure 1. Berlin Double Jaguar (formerly at the Berlin Ethnologisches Museum, inv. IV Ca 4014, now lost).

Photography: © Ethnologisches Museum der Staatlichen Museen zu Berlin - Preußischer Kulturbesitz



Figure 2. Upper part of Berlin Double Jaguar (formerly at the Berlin Ethnologisches Museum, inv. IV Ca 4014, now lost).

Photography: © Ethnologisches Museum der Staatlichen Museen zu Berlin - Preußischer Kulturbesitz

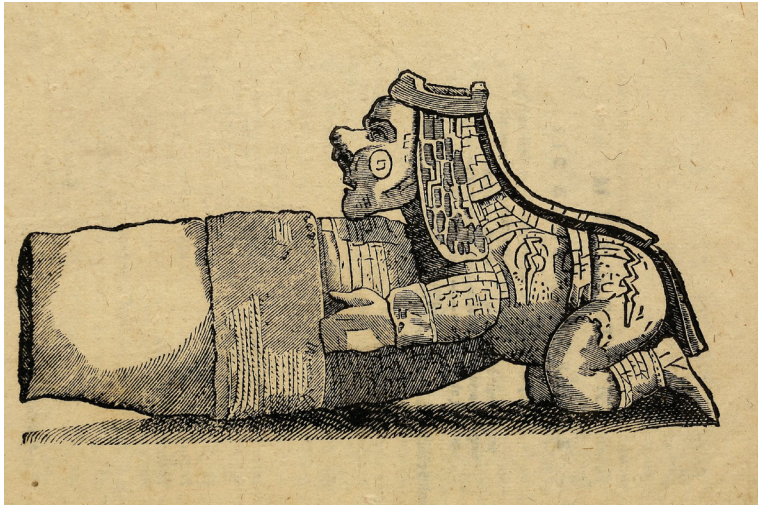


Figure 3. Gaffarel Anthropomorphic Knife  
(formerly owned by Jacques Gaffarel, now lost).  
Source: Drawing from Liceti 1634



Figure 4. Berlin Jaguar Head (formerly at the Berlin Ethnologisches  
Museum inv. IV Ca 7159, now lost).  
Photography: © Ethnologisches Museum der Staatlichen Museen  
zu Berlin - Preußischer Kulturbesitz

subtle changes of tonality within a same color area, and the intentional play with the three-dimensionality of the mosaic surface—depend on the manufacturing technique and are often shared by different mosaic groups, also including specimens from archaeological contexts. “Iconographic motifs”, on the other hand, are well known elements such as “stellar (or starry) eyes” and other motifs, which often seem to function as “property qualifiers”.<sup>5</sup> Even through most of them cross over into different media (e.g., codices, pottery, mural painting, etc.), when they appear in mosaics they seem to be group-specific. Formal resources and iconographic motifs are used as elements defining the two main stylistic groups, in which they form polythetic or discretionary groups of traits; this means that not all formal resources and motifs always appear on all the mosaics of a group, but rather, that several of them are recurrent and associated in the pieces of a specific group. Brief observations on the iconography of the mosaics of each group (a topic beyond the scope of the present discussion) will also be provided.

#### GROUP 1: “THE COLORFUL BUNCH”

*Members.* Rome Long-Nosed Mask (pl. 1); Gotha Bird Head (pl. 2); Copenhagen Animal Head (pl. 3); Copenhagen Tall Animal Head (pl. 4); London Jaguar Cup (pl. 5); London Helmet (pl. 6a–b); Berlin Double Jaguar (figs. 1–2); Rome Anthropomorphic Knife (pl. 7); Rome Zoomorphic Knife (pl. 8); London Anthropomorphic Knife (pl. 9); Gaffarel Anthropomorphic Knife (fig. 3).

*Description.* The most striking visual element defining the mosaics of this group is their conspicuous polychromy, obtained by juxtaposing tesserae of dramatically different materials, colors, shapes, and dimensions. The materials

<sup>5</sup> Property qualifiers are motifs with an attributive function, often expressing the material quality of an object or being. They are well known, for example, in Maya iconography (with signs standing for “stony”, “woody”, “bony”, “shiny”, “dark”, etc.; see Stone and Zender 2011, 13–15). Similar motifs, or patterns, were also employed in Late Postclassic Nahua and Mixtec iconography; see Mikulska (in press) for a recent treatment of their use in the codices Vaticanus B and Borgia.



are turquoise,<sup>6</sup> red/orange/pink/purple shell (*Spondylus* sp.), white shell (*Strombus gigas*), mother-of-pearl (*Pinctada mazatlanica*), malachite, lignite, gold and—rarely—pyrite (e.g., London Jaguar Cup).<sup>7</sup> These materials—as well as red and bluish paints<sup>8</sup>—provided a rich chromatic palette that was mostly used to create flat colored areas, with no shaded changes of tonality within a single color field. Nevertheless, Group 1 turquoise areas still display notable complexity: the use of different shades of turquoise tesserae in a single area creates a non-uniformly colored surface, whose irregular appearance was intentionally enhanced by bold variations in the dimensions of the tesserae (Rome Zoomorphic Knife; Gotha Bird Head; Copenhagen Tall Animal Head; Copenhagen Animal Head; London Helmet). This technique did not impede

6 Following a widespread practice, I will use the term “turquoise” to collectively refer to the various minerals usually known as “cultural turquoise”, including both proper “chemical turquoise” and other minerals such as chrysocolla, azurite, malachite, amazonite; at times calcite is also employed (Laclavetine et al. 2014; Martínez del Campo 2010; Melgar Tísoc et al. 2018, 19–21; Weigand 1993, 300–03; Weigand, Harbottle and Sayre 1977, 16). Martin Berger and colleagues recently observed that some Mixtec artifacts in the collection of the Royal Museums of Art and History in Brussels show an intentional use of chrysocolla as a material differentiated from turquoise, thus the inclusion of the former in “cultural turquoise” should probably be reconsidered (Berger, Moreau, Lemaitre, in press). The “cultural turquoise” phrase refers to the *emic* taxonomy of materials, rather than their *etic* geological characterization, since these minerals were collectively called *xibuitl* in Nahuatl. On the meaning and symbolism of *xibuitl*, see Dehouve 2018; Izeki 2007; Johansson 2012; Taube 2000, 2012.

7 For a scientific study of conch shell employed in mosaics, see Cartwright and Meeks 2007. Other, less common materials appear rarely in Group 1 mosaics, such as the single garnet on Rome Long-Nosed Mask, which might correspond to a later, European “restoration”. The material transformations that mosaics underwent during their European life (including the stripping of materials such as gold, additions of non-Mesoamerican minerals, etc.) is an extremely interesting topic, which merits a specific study on its own.

8 Apart from the (red or greenish blue) paints used to cover ample areas that were never covered by mosaic, traces of paint of the same colors are sometimes seen beneath missing tesserae, suggesting that painting was also employed to trace guidelines on the wooden surface of the sculpture before covering it with mosaic (for a description of this practice on the Gotha Bird Head, see Domenici and Dupey García in press). The wooden surfaces of the Copenhagen Tall Animal Head and of the Rome Zoomorphic Knife also display incisions that functioned as guidelines to apply the mosaic; interestingly, the former shows engraved wrinkles on one side of the snout that were not reproduced in the mosaic covering. These details providing hints on the mosaic manufacturing process, which deserves further study on its own, are not employed here as classificatory elements.

the creation of chromatically homogeneous areas, also used for refined juxtapositions between bluish and greenish turquoise surfaces.

As said, the striking polychromy of Group 1 is primarily determined by the ample use of non-turquoise materials. The quantitative and visual relevance of red and white shells and dark green malachite is a key aspect of the group. *Spondylus princeps* provided orange and red hues, while *Spondylus calcifer* was probably used for purple (Carter 2011, 64), the latter clearly as a color on its own and not merely as a shade of red. Dark green malachite, also employed as a color on its own and not as a greenish shade of “cultural turquoise”,<sup>9</sup> is a fundamental material in the group: on the one hand, it “plays” with turquoise in blue/green pairings; on the other, it is often used for visually startling chromatic contrasts with orange *Spondylus*, white shell, and mother-of-pearl (London Helmet, London Anthropomorphic Knife, Copenhagen Tall Animal Head, Gotha Bird Head).<sup>10</sup>

In connection with the ample use of non-turquoise materials, Group 1 mosaics exhibit a remarkable tendency toward the use of elongated, regularly shaped tesserae of these materials, often assembled in “Lego-like” fashion where one or a few tesserae can occupy an entire color field (e.g., Rome Anthropomorphic Knife, pl. 7). This usage of regularly cut non-turquoise tesserae (turquoise ones are never regularly shaped, probably due to technological constraints) often leads to the creation of color stripes, sometimes forming multicolored striped areas. The pairing of white and dark green stripes seems to have been especially appreciated (underside of London Anthropomorphic Knife and Rome Anthropomorphic Knife, fig. 5; ear ornaments of the Copenhagen Tall Animal Head, pl. 4).

9 Malachite comes in various chromatic hues, including a light green-blue color, so it was also used as “cultural turquoise” as, for example, in the shield excavated in Templo Mayor Offering 99 (Velázquez et al. 2012, 77). What is distinctive of dark green malachite in Group 1 is its usage to create homogenous dark green areas, which to the eye are clearly distinct from greenish “turquoise” fields (e.g., Rome Anthropomorphic Knife): this is what I mean when I say that dark green malachite is employed as a color “on its own”.

10 The pairing of dark green malachite and orange *Spondylus* that predominates in the London Helmet recalls the similar chromatic treatment seen in the Codex Laud, p. 40 (ballcourt and Tlaloc censor).



Figure 5. Underside of the Rome Anthropomorphic Knife.  
 Notice the dark green-white striped motif, almost identical to the one seen on the underside of the London Anthropomorphic Knife (McEwan et al. 2006, 77).  
 Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”

The Rome Long-Nosed Mask shows a complex striped pattern on most of its facial traits (pl. 1). Striping is especially common on the group’s three knives, whose diminutive mosaic surfaces seems to have increased the tendency for a “Lego-like” assemblage of the tesserae. In some instances, “bare” stripes were originally covered by some now-missing material, as in the case of the two large horizontal bands cutting across the headdress of the Copenhagen Tall Animal Head (pl. 4). Scientific analyses of other mosaics pertaining to both Groups 1 and 2 suggest these areas probably originally had gold foil (McEwan et al. 2006, 31, 45, 50, 54–57, 81).

The group’s preference for clearly defined, flat areas of color is best exemplified by the mode employed to darken the foreheads of the beings represented. Actually, a darker central region of the forehead of anthropomorphic and zoomorphic beings (hereafter “enhanced forehead”) is one of the most consistent traits in the entire corpus of Central and Southwestern Mesoamerican mosaics (not only the “early European” ones). A detailed interpretation of the meaning of this intriguing trait, perhaps a visual expression of some kind of *tonalli*-like spiritual force residing in the head, is beyond the scope of this article, but it is important to note that its recurrence in mosaics pertaining to different stylistic groups makes it especially useful for inter-group comparisons aimed at showing the diversity of technical and



Figure 6. Forehead of the Gotha Bird Head with descending skeletal figure.  
Photography: © Davide Domenici, Stiftung Schloss Friedenstein, Gotha

aesthetic solutions. As seen on the Rome Long-Nosed Mask (pl. 1) and on top of the Copenhagen Animal Head (pl. 3), in Group 1 enhanced foreheads are represented by straight, well-defined areas of dark green malachite, *Spondylus*, or turquoise, whose regular borders are neatly delimited by tesserae of a different color. A variation on this pattern is represented by the vertical *Spondylus* area between the eyes of the Copenhagen Tall Animal Head (pl. 4). The Gotha Bird Head displays a complex usage of the “forehead” functional niche, where a descending skeletal figure is represented above a neatly defined red *Spondylus* area (fig. 6) (Domenici and Dupey García in press).

Group 1 mosaics are characterized by the presence of at least four highly distinctive iconographic motifs (“precious dots”, “rosettes”, “stellar eyes”, and “Black & White motifs”), which will be briefly described along with provisional interpretations of their possible meanings. However, a detailed iconographic interpretation of these motifs would require a considerably larger comparative undertaking, not possible to carry out here; therefore, singling out these iconographic motifs is mainly aimed at stressing how they only appear in one of the stylistic groups being defined.

One of the most distinctive iconographic motifs of Group 1 is represented by circular, dot-like tesserae, either isolated or in multicolored rows of two, three, four or six dots. When in rows, dots can be either contiguous (Gotha Bird Head, pl. 2; London Helmet, pl. 6a; Rome Anthropomorphic Knife, pl. 7, fig. 5; Rome Zoomorphic Knife, pl. 8) or separated (eyebrows of Rome Long-Nosed Mask, pl. 1; back of Berlin Double Jaguar, along the white stripes, fig. 2). Rows of three dots (at times with a larger, central dot; see Gotha Bird Head, pl. 2) often display a symmetric chromatic pattern (Gotha Bird Head, pl. 2; Rome Anthropomorphic Knife, fig. 5; London Helmet, pl. 6a), while longer series tend to be sequentially colored (e.g., back of Rome Anthropomorphic Knife, pl. 7).

At first sight, especially when arranged in contiguous rows, these dots strongly resemble the multicolored series of numeral dots in Mixtec codices; nevertheless, in mosaics they are never associated with day signs, and numeral dots are represented in a slightly different way on the Copenhagen Tall Animal Head (see below). Rows of colored dots on mosaics instead recall similar motifs employed in codices, arranged both in a contiguous string of bead-like shapes and in a non-contiguous form, either with or without central circles (the central circle alluding to a “bead” shape). Jewel-like rows of dots/beads, usually in alternating blue and green, are employed (when not representing actual jewels worn by humans and deities) as “visual metaphors” or “graphic compounds of meaning” (Mikulska 2010, 2015a, 2015b) in Borgia Group codices. For example, on p. 22 of the Codex Borgia, where they appear within a blood stream, they represent jade and turquoise beads alluding to the verbal couplet *in chalchihuitl, in teoxihuitl*; indeed, this metaphoric value of jewel representations in codex imagery mirrors Nahua oral expressions in which terms such as “precious necklace”, “precious bracelet”, “precious turquoise”, as well as many other precious materials, are employed to refer to people, words, etc. (Mikulska 2017/2018, 487–91).<sup>11</sup>

When not contiguous (e.g., eyebrows of Rome Long-Nosed Mask, pl. 1; Rome Zoomorphic Knife, pl. 8; Rome Anthropomorphic Knife, fig. 7), dots

11 It is important to stress that these couplets transcended linguistic boundaries and Nahuatl examples are mentioned here given the far richer data for Nahuatl than for other elite languages.

can display different color patterns, including a single color, the typical green/blue pattern, or even multiple colors including red, white and yellow, probably also representing materials such as white, red and yellow shell or gold; this last pattern appears both in Borgia Group codices (e.g., Codex Borgia, p. 22; see also Oudijk 2020, 364) and in Mixtec ones (e.g., Codex Vindobonensis, p. 1, in pulque foam). Furthermore, similar rows of multicolored dots/precious materials appear on both Nahua and Mixtec polychrome pottery, as in the headdress of the goddess 9 Grass on the Nochixtlan pitcher (Pohl 2007, 16–19; Quiñones Keber 1994, figure 3) and in various examples from Tututepec (Forde 2006, 96–96); rows of red and white dots are also frequent in the Mitla mural paintings (Fahmel 2014).

In light of these comparisons, I would call the dots on mosaics (either isolated or in rows, both contiguous and non-contiguous, always without an inner concentric dot) “precious dots”, provisionally assuming that they represent precious materials and that in most cases they function as property qualifiers expressing “preciousness”.

A similar motif, also distinctive of Group 1 mosaics, is the “rosette”, in other words, a “precious dot” surrounded by a larger ring of tesserae distinguished from the outer surface by its color and circular arrangement. In some instances, the surface of the rosette is raised, higher than the surrounding mosaic surface. The central element of the rosette is composed of various materials, at times rare minerals such as garnet (a later addition?) on the right cheek of the Rome Long-Nosed Mask (which also displays two rosettes with central *Spondylus* dots on the left side of the mandible, pl. 1) or pyrite on the left foreleg of the London Jaguar Cup (pl. 5; see McEwan et al. 2006, 78); the latter also displays unique oval-shaped rosettes which have been interpreted by Berdan as possible depictions of mirrors (McEwan et al. 2006, 78–79, figure 122, note 63). It has been proposed that the rosettes on the Berlin Double Jaguar (figs. 1, 2) and the London Jaguar Cup (pl. 5) represent fur spots (Lehmann 1907; Mac Ewan et al. 2006, 79), but the appearance of the same motif on the mandible of the Rome Long-Nosed Mask and on the jaw of the Copenhagen Animal Head (whose specific identity, albeit unclear, is hardly feline, pl. 3) makes this interpretation unlikely. On the London Helmet (pl. 6b), *Spondylus* and malachite rosettes can be seen on the bodies of the two animals. I suspect that rosettes are sort of larger or “expanded”

precious dots, as also evoked by intermediate forms (e.g., cheek (fig. 7) and torso (pl. 7) of Rome Anthropomorphic Knife; parallel lines of dots on the back of Berlin Double Jaguar, fig. 2), where the rosette-effect is provided only by the circular arrangement of the first row of tesserae around the central dot, the outer ring not distinguished by either color or depth.

In codex imagery any bead could resemble the concentric arrangement of the rosette but more complex, concentric rosette-like circular motifs can be observed on the loincloths and bodies of Tezcatlipoca, Ehecatl, and other deities in the Codex Borgia, as on the painted surface of the Ocotelulco altar. Both Peperstraete (2006, 19) and Dupey García (2010, 450; 2014–2015, 84) interpreted them as symbols for the light-emitting stars of the night sky. In some instances (e.g., the Ocotelulco altar and Codex Borgia, p. 17) the circular motifs are inserted into a net-like pattern that visually mimics that of the “turquoise mantle” (*xiuhtilmatli*) of Nahua kings (Olko 2005, 218–32). This visual analogy between stars and large turquoise beads was probably based on the close link between *xihuitl* and celestial fire, also supported by the fact that comets and meteors were also called *xihuitl* (Taube 2000, 289–90). Thus, it seems possible that the rosettes qualify the mosaic surfaces (as well as the beings represented) not only as “precious”, but also as “light emitting”, “shiny”, or “brilliant”, an interpretation that would also fit with Berdan’s explanation of some rosettes as mirrors (which, for instance, in codex imagery assume a rosette-like shape).

The preference for neatly defined, flat color areas and the fact that knife handles are the only full-bodied anthropomorphic figures in the corpus give the costume items represented on the handles (*xicolli*, mantles, loincloths, bracelets, anklets, wings, etc.) particular significance for their details. In these costumes most examples of alignments of circular, semilunar, or feather-shaped tesserae usually appear along the edges of garments (e.g., anklets and leg ornaments of Rome Anthropomorphic Knife, fig. 5, pl. 7; anklets of London Anthropomorphic Knife, pl. 9). Although sometimes visually similar to the abovementioned multicolored rows of precious dots, I think these rows (usually monochrome and often including mother-of-pearl) perform a slightly different, albeit overlapping, semantic function, representing actual bracelets, anklets, and feathered/tasseled elements of garments and anatomical features (like the outer rims of the brows of the Rome Long-Nosed

Mask, pl. 1). A similar function seems to be represented by the single, circular mother-of-pearl tesserae constituting the base of the feather tufts emerging from the back of the head of the two entwined serpents on the London Helmet (pl. 6b). Their use recalls the larger (and engraved as if to represent feather down) circular mother-of-pearl tesserae of the base of the striped tufts hanging from the heads of the Berlin Double Jaguar (fig. 2); similar, feather down-like engraved *Strombus* tesserae appear on the wrists of the Rome Zoomorphic Knife, while feather-like, engraved triangular mother of pearl tesserae encircle the animal's neck (pl. 8). If the above-mentioned "precious dot" property qualifiers are distinctive of Group 1 mosaics, the frequent appearance of actual jewels on Group 1 mosaics is a consequence of the group's tendency to render garments in greater detail than in any other group, rather than constituting an exclusive trait of it (see, for example, the London Serpent Pectoral, pl. 10, below). Interestingly, both the Rome (pl. 7, fig. 7) and London (pl. 9) Anthropomorphic Knives display garments with a series of eyes along the border, a prestigious trait called *tenixyo* ("bordered with eyes") in the Nahuatl lexicon of ceremonial attire (Olko 2005, 212–14).

Apart from precious dots, rosettes and garment items, circular shapes can be observed in the form of shell rings framing circular tesserae. On the front of the Copenhagen Tall Animal Head (pl. 4), for instance, shell rings once encircled the numeral dots of the 3 Dog day name, thus clearly distinguishing them from the rows of precious dots seen on other pieces in the group. On the Copenhagen Animal Head, large circles with outer rings represented the animal's nose ornaments (pl. 3, on the animal snout just before the eye); although completely lost today, the shape of the tesserae is clearly visible on the underlying adhesive layer. On the London Helmet, a white shell ring encircles a large malachite nodule in a poorly understood detail of the decoration (pl. 6a). On the Rome Anthropomorphic Knife, engraved shell rings frame the circular elements of the right hand's bracelet (pl. 7).

One of the most distinctive traits of Group 1 is the representation of eyes by means of white shell tesserae engraved with a circular groove, filled with a thin line of the same adhesive used to attach the mosaic. Following a common Mesoamerican pattern, one side of the eye is often marked by a red *Spondylus* tessera. This way of representing eyes is employed both for the actual eyes of living beings (skeletal figure on the forehead of Gotha Bird



Head, fig. 6; anthropomorphic being emerging from the jaws of Copenhagen Animal Head, pl. 3; Copenhagen Tall Animal Head, pl. 4; Rome Anthropomorphic Knife, pl. 7, fig. 7; London Anthropomorphic Knife, pl. 9) and for disembodied “stellar eyes” (Gotha Bird Head, pl. 2; Rome Anthropomorphic Knife, figs. 5, 7; London Anthropomorphic Knife, pl. 9; Berlin Double Jaguar, fig. 1, both on the ends of the headband and between the actual eyes), which mark dark/nocturnal phenomena and beings in Mesoamerican imagery. In various instances, the presence of white and red stellar eyes with no sign of engraved pupils suggests that a now lost adhesive line could have originally been drawn directly on their flat surface (e.g., Rome Long-Nosed Mask, pl. 1). A stellar eye seems to have occupied the cheek of the individual on the Gaffarel Knife (fig. 3); this trait, as well as the overall similarity with the Rome and London Anthropomorphic Knives (including striped decorations), is the main reason for ascribing the lost Gaffarel Knife to Group 1. The same technique employed for the eyes was also used to produce the earflares of the Rome Anthropomorphic Knife (fig. 7).

Another highly distinctive element of Group 1 is the Black & White motif, where a linear color band is interrupted by a brief sequence of alternating black and white tesserae (forming BWB, WBW, BWBWB patterns); this is one of the few instances in which lignite is employed in Group 1.<sup>12</sup> The Black & White motif is often found in the red linear lips/gums of zoomorphic and anthropomorphic beings (Rome Long-Nosed Mask, pl. 1; Gotha Bird Head, pl. 2; Rome Zoomorphic Knife, pl. 8); the only instances where the Black & White motif is not on lips/gums are on the Gotha Bird Head (a banded section of Ehecatl’s nasal protuberance and the stripes on the bird’s temples, pl. 2, fig. 6) and on the Rome Zoomorphic Knife (on bracelets and garment edges, pl. 8, fig. 8).

Both in codex and ceramic imagery, black and white motifs (usually alternating thick and thin lines) indicate certain kinds of feathers, a meaning that does not seem to be intended by the Black & White motif on mosaics,

12 Other instances are the ribbon-like ornaments embellishing the heads of the Berlin Double Jaguar, where lignite is also associated with white *Strombus* tesserae, as well as the facial paint and other areas on the Copenhagen Tall Animal Head.



Figure 7. Front of the Rome Anthropomorphic Knife.  
Notice how a similar technique was employed to represent eyes (both real and stellar ones) and earflares.  
Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”



Figure 8. Underside of the Rome Zoomorphic Knife.  
Notice the Black & White motif beside the Spondylus tessera, as well as the rounded perforation on the figure's abdomen.  
Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”

where it is mostly associated with lips/gums.<sup>13</sup> Lips/gums are rarely marked by property qualifiers in codex imagery, with the exception of Codex Vaticanus B, where lips are marked by a series of different patterns: red dots mark dogs' and other animals' "fleshy" lips, while pairs of vertical (usually red) lines often appear on the lips of diverse animals (e.g., serpents on Codex Vaticanus B, p. 26, 27); this last motif seems to be interchangeable (e.g., Codex Vaticanus B, deer on p. 29, Xolotl on p. 64) with the one usually marking shiny materials (Mikulska 2017–18, 481–83; in press), so it probably marks lips as (wet and) shiny. Thus, the Black & White motif might have functioned as a property qualifier, marking shiny surfaces, both of stone bracelets (as on Rome Zoomorphic Knife) and wet lips/gums.

Despite the uncertainties on their meaning, which remains to be fully and systematically explored in the future, the recurrence of the four above-mentioned iconographic motifs is a highly distinctive trait of Group 1 mosaics, since they do not appear at all in any other group.

*Iconography.* Group 1 knife handles represent a variety of costumed anthropomorphic figures (Gaffarel, Rome, and London Anthropomorphic Knives; see McEwan and López Luján 2009, 146) and a Xiuhtli-like creature (Rome Zoomorphic Knife). The Copenhagen Tall Animal Head has been recently identified as Xolotl, marked by a 3 Dog day sign represented as a disembodied ear, an almost unique trait only shared with the Codex Fejérváry-Mayer (Domenici and Nielsen 2018). The Gotha Bird Head has been interpreted as Ehecatl whose forehead bears an iconographic reference to the *tzitzimitl*-like deity represented on the Codex Borgia's central pages (Domenici and Dupey García, in press). Regarding the identity of the Rome Long-Nosed Mask, I concur with J. Eric S. Thompson's identification of it as the merchant god Yacatecuhtli (Thompson 1966, 169). The unique shape of the chin is matched by the "parallel" Maya merchant deity God M/Ek Chuah as depicted in the Madrid Codex, the Santa Rita Corozal murals, and other Maya artworks (Tokovinine and Beliaev 2013, 191–94), as well as by

13 A similar motif, whose specific meaning is unclear to me, is seen at the base of the temple jambs in the Codex Fejérváry-Mayer, p. 33–37, and the Codex Laud, p. 44.

the chin of a long-nosed figure in the Codex Borgia, p. 64. The upward pointing nose of the mask, on the other hand, closely recalls the way in which Yacatecuhtli (also known as Yacapitzahuac, “He with a pointed nose”) is represented in the Codex Fejérváry-Mayer, p. 36 and 37 (see Olivier 1999). Additionally, I cannot see any trait confirming alternative hypotheses on the mask as a representation of Xolotl or Ehecatl (e.g., Laurencich 1992, 119–20). This said, clearly various Group 1 mosaics represent divine beings (Ehecatl, Xolotl, Yacatecuhtli) linked with the Quetzalcoatl cult in ways that strongly recall the visual lexicon of the Borgia Group manuscripts.

*Functional categories.* From a functional point of view, mosaics of Group 1 are represented by three knives, three animal heads, one full-bodied animal, one mask, one helmet, and one “cup”. The Copenhagen Tall Animal Head and the Berlin Double Jaguar have sockets which suggest they were mounted on top of a staff or baton. Most of the objects could have been part of godly insignia, perhaps worn as impersonator costumes (by humans or statues) or attached to ritual bundles (Domenici in press b; Domenici and Dupey García in press; Domenici and Nielsen 2018). Interestingly, the London Anthropomorphic Knife seems to have been a non-functional item due to the weak insertion of the blade into the handle and the lack of any trace of blood (McEwan et al. 2006); the loss of both blades of the Rome knives, whose empty sockets have been later filled with an unidentified material (fig. 7), attest to a similar structural weakness. The fact that knives were not intended to be used as actual sacrificial implements, as well as the perforation on the abdomen of the Rome Zoomorphic Knife probably aimed at inserting the handle on a staff (fig. 8), suggest that they were also part of divine insignia or bundles. The Rome Long-Nosed Mask displays an undecorated protuberance below the curled chin which could have been used to insert the mask into some kind of support. Group 1 includes two specimens with unambiguous evidence that they had some kind of (feather?) appendages (Gotha Bird Head; Copenhagen Animal Head) (Domenici and Dupey García in press).

*Wood and adhesive.* The three scientifically analyzed objects of Group 1 (London Anthropomorphic Knife; London Jaguar Cup; London Helmet) are

all sculpted in *Cedrela odorata* wood. The adhesive employed in all three mosaics is pine resin, sometimes mixed with copal resin from the species *Bursera* sp. and *Protium* sp. (McEwan et al. 2006, 53, 75, 79; Stacey, Cartwright, and McEwan 2006).

*Provenance.* Seven of the eleven members of Group 1 surely are from early Italian collections. The Rome Long-Nosed Mask and the two Roman knives were in the Bolognese Aldrovandi and Cospi collections, respectively (Aldrovandi 1648, 550–51; Legati 1677, 477–78); the two Copenhagen Animal Heads and the Gotha Bird Head have a documented Roman origin (Domenici and Dupey García in press; Domenici and Nielsen 2018), while the London Anthropomorphic Knife is probably from Venice (Caygill 2012, 187).<sup>14</sup>

Of the four remaining specimens, two can also be traced—with differing degrees of probability—to Italy. A Venetian origin can be assumed for the Gaffarel knife because a letter that Jacques Gaffarel wrote to Fortunio Liceti informing him about the knife was signed in Venice, on September 17, 1633 (Liceti 1634, 118–19; also Capitan 1916); since it also included a detailed drawing of the knife (fig. 3), which could hardly have been drawn from memory, it is reasonable to assume that Gaffarel had the specimen with him in Venice, where he probably acquired it. The Berlin Double Jaguar, once owned by Alexander von Humboldt (Bastian 1885, 201; Lehmann 1907, 340), could have been acquired either in Mexico or Rome. Since it is not mentioned in Humboldt’s writings describing his Mexican acquisitions, it is possible he obtained it in Rome, where he was staying in 1805 and where he had the opportunity to see the Codex Borgia and be informed that it came from the collection of the Giustiniani family, who also owned dozens of Mesoamerican mosaics (Domenici and Laurencich 2014); the possibility that he obtained the double jaguar in Rome is thus worth further research (König and Domenici in preparation).

<sup>14</sup> Unfortunately, the documents concerning its origin are rather confusing. Bram Hertz stated in a 1859 letter that the London Anthropomorphic Knife and the London Serpent Mask—that he had bought in London—once belonged to “a celebrated collection in Florence”; in the same letter, however, Hertz then stated the knife came from Venice (Caygill 2012, 187).

The only two specimens of Group 1 that for the moment have no known relationships with Italy are the London Jaguar Cup and the London Helmet. The ultimate provenance of the former, bought in 1877 from the art dealer Joseph Myers (Caygill 2012, 194–95), is completely unknown, while the latter once belonged to Thomas Bateman who acquired it from the art dealer William Chaffers, who in turn had bought it in Paris in 1854 (Caygill 2012, 195); interestingly, this same William Chaffers also sold the two Roman mosaics to the Copenhagen Cabinet of Antiquities in 1856 (Domenici and Nielsen 2018, 123), so it is possible he was acting on behalf of various Italian families that were selling part of their heritage during the nineteenth century (Domenici in preparation a).

#### GROUP 2: TURQUOISE, RED, WHITE AND GOLD

*Members.* London Serpent Pectoral (pl. 10); London Anthropomorphic Mask (pl. 11); London Serpent Mask (pl. 12); Rome Anthropomorphic Mask (pl. 13); London Shield (pl. 14); Berlin Jaguar Head (fig. 4).

*Description.* Various formal resources are common to the whole group, being highly distinctive of Group 2 and clearly differentiating it from Group 1. The prominence of turquoise with respect to other materials is indisputable since, with the exception of *Spondylus* (whose usage is highly peculiar and meaningful, see below), materials such as *Strombus* shell, mother of pearl (*Pinctada mazatlanica*) and gold/pyrite are used more as inlays (eyes, teeth, serpent rattles, etc.) rather than as proper mosaic tesserae. The quadripartite combination of turquoise, red (*Spondylus*/paint), white (*Strombus* and mother-of-pearl), and gold (or gold-like minerals such as pyrite) seems to be the chromatic hallmark of Group 2, and thus one of its basic defining traits.<sup>15</sup>

The dominant turquoise areas in Group 2 mosaics are mostly composed of tiny, irregular turquoise tesserae employed to create highly controlled

15 It may be worth noting that gold, turquoise, white shell, and red shell are the characteristic materials of the four Quetzalcoatl's houses in Tula as described in the *Florentine Codex*, Book 10, chapter 29, where *teocuitlatl* (gold), *chalchihuitl/xihuitl* (jade/turquoise), *teccitli* (shell), and *tapachtli* (*Spondylus*) are listed.

chromatic areas, at times characterized by subtle variations in color tonality (London Serpent Pectoral, pl. 10, see McEwan et al. 2006, 57; London Anthropomorphic Mask, pl. 11). Small turquoise tesserae are often interspersed with much larger irregular tesserae and cabochons. Indeed, cabochons—never seen neither in Group 1 nor in any of the archaeologically known specimens (see below)—are common to all Group 2 mosaics, so they are one of the group’s main distinctive traits; their usage suggests they should not be understood as representations of skin warts (as supposed when identifying the London Anthropomorphic Mask as Nanahuatzin, see Carmichael 1970, 21) or allusions to the scaled skin of the serpent (McEwan et al. 2006, 57), but rather as aesthetically refined formal resources that enhance the “visual instability” of the mosaic surface, playing with light and three-dimensionality and giving it a dynamic, almost iridescent quality (fig. 9). Indeed, the combination of nuanced variations of tonality, large irregular tesserae,<sup>16</sup> and cabochons creates chromatically complex turquoise surfaces and a distinctive sort of polychromy.

In line with these prevalent modes, the “enhancing” of foreheads in Group 2 is achieved by means of shaded variations of tonality in the tesserae (London Anthropomorphic Mask, pl. 11; Rome Anthropomorphic Mask, pl. 13). Visual and chromatic complexity is also achieved by juxtaposing surfaces of slightly different green/blue hues (London Serpent Mask, pl. 12)<sup>17</sup> and by subtle variations in the depth of the mosaic surface (London Serpent Pectoral, pl. 10; London Shield, pl. 14), as also seen in Group 1.

Besides turquoise, red is the second most prevalent color of Group 2, mainly forming thin lines along the turquoise fields and often representing lips/gums. Most of the red lines are composed of small irregular *Spondylus* tesserae, but the lips/gums or similar red stripes are the only areas where elongated, stripe-like, tesserae, similar to those common in Group 1, are

16 It is interesting to note that the use of large irregular turquoise tesserae scattered within fields of tiny ones (also seen on the Berlin and London Skull masks) visually recalls masonry techniques employed in the Mixtec region, especially at the Classic period Nuiñe site of Cerro de las Minas (Winter 1994, fig. 10); nevertheless, since the walls were covered by stucco, their masonry would have been hidden from view.

17 See Caplan (2019, 130–36) for a refined analysis of the chromatic play in the London Serpent Mask.



Figure 9. Oblique view of Rome Anthropomorphic Mask. Notice the cabochons scattered on the surface of the mask and how they “play” with light.  
 Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”

employed (London Serpent Pectoral, pl. 10; Berlin Jaguar Head, fig. 4; London Shield, pl. 14; a single tessera in Rome Anthropomorphic Mask, pl. 13); significantly, Black & White motifs never occur on lips/gums, so they are completely absent in Group 2. The absence of Black and White motifs is especially noticeable in the prominent *Spondylus* stripes representing the gums of the large, open jaws of the Rome Anthropomorphic Mask (pl. 13). Purple *Spondylus* (probably from the *calcifer* species) is present in Group 2, but it is used as part of the red range, not as a color on its own; even in the single case where it has been clearly selected to create purplish lines on the body and tail of the serpents on the sides of the Rome Anthropomorphic Mask (fig. 10), it still functions as a shade of red in the general chromatic architecture of the object. In two instances, as in Group 1 mosaics, the red color comes from paint, as in the hematite-painted resin gums and ochre-painted back of the London Serpent Mask and in the cinnabar-painted back of the London Anthropomorphic Mask (McEwan et al. 2006, 47–50).

*Strombus* shell and mother-of-pearl are used (together with real animal fangs) to represent teeth, both slab-like as in the London Anthropomorphic Mask (pl. 11), and in canine-like form, as in the London Serpent Pectoral (pl. 10) and the Berlin Jaguar Head (fig. 4), which also share a





Figure 10. Side of Rome Anthropomorphic Mask.  
 Notice the Xiuhtcoatl-like serpent, with upturned snout and tail ending with a knife;  
 the eye of the serpent has the pupil marked with adhesive.  
 Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”

highly similar shape of serrated shell teeth. Eyes are often represented by means of single pieces of shell or mother-of-pearl with a central perforated dot (London Anthropomorphic Mask, pl. 11) or marked with resin (serpents of Rome Anthropomorphic Mask, fig. 10) in a way markedly different from that of Group 1 artifacts, where they are always represented by means of round white shell inlays with a central, circular groove filled with adhesive.

The last color used in the group is gold, represented by both actual gold leaf (maybe in the form of different gold alloys) and pyrite, whose visual resemblance to gold, at least in Western culture, is the reason of its proverbial name: “fools’ gold”. The London Anthropomorphic Mask has gilded eyelids (McEwan et al. 2006, 45, 47), the rattles of the London Serpent Mask were gilded (McEwan et al. 2006, 47–50), the back of the London Serpent Pectoral was probably completely gilded and the eyes of its serpents could have had polished pyrite orbs (McEwan et al. 2006, 54–57, 58), while the London Shield (pl. 14) shows a long sequence of gilded resin studs (McEwan et al. 2006, 64). It is noteworthy that the London Shield is the only known mosaic-covered shield employing—besides turquoise—*Spondylus*, white shell, and



Plate 1. Rome Long-Nosed Mask (MUCIV, Rome, inv. 4214).  
Photography: Davide Domenici. © Museo delle Civiltà/MPE "L. Pigorini"



Plate 2. Gotha Bird Head (Friedenstein Schloss, Gotha).  
Photography: © Davide Domenici/Stiftung Schloss Friedenstein, Gotha



Plate 3. Copenhagen Animal Head (National Museum of Denmark,  
Copenhagen, inv. A.424-ODIh.40).  
Photography: Roberto Fortuna. © Nationalmuseet



Plate 4. Copenhagen Tall Animal head (National Museum of Denmark, Copenhagen, inv. A.425-ODIh.41).  
Photography: Roberto Fortuna. © Nationalmuseet



Plate 5. London Jaguar Cup (British Museum, London, inv. Am +.165)  
Photography: © British Museum, London



Plates 6a-6b. London Helmet (British Museum, London, inv. Am +6382)  
Photography: © British Museum, London



Plate 7. Rome Anthropomorphic Knife (MUCIV, Rome, inv. 4216).  
Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”



Plate 8. Rome Zoomorphic Knife (MUCIV, Rome, inv. 4215).  
Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”



Plate 9. London Anthropomorphic Knife (British Museum, London, inv. Am St.399)  
Photography: © British Museum, London



Plate 10. London Serpent Pectoral (British Museum, London, inv. Am 1894,-634)  
Photography: © British Museum, London





Plate 11. London Anthropomorphic Mask (British Museum, London, inv. Am St.400)  
Photography: © British Museum, London



Plate 12. London Serpent Mask (British Museum, London, inv. Am 1987, Q.3)  
Photography: © British Museum, London



Plate 13. Rome Anthropomorphic Mask (MUCIV, Rome, inv. 4213)  
Photography: Davide Domenici. © Museo delle Civiltà/MPE “L. Pigorini”



Plate 14. London Shield (British Museum, London, inv. Am. St.397a)  
Photography: © British Museum, London



Plate 15. London Animal Head (British Museum, London, inv. Am St.400a)  
Photography: © British Museum, London



Plate 16. Rome Notched Human Femur (MUCIV, Rome, inv. 4209)  
Photography: © Museo delle Civiltà/MPE "L. Pigorini"

gold,<sup>18</sup> thus tightly fitting the Group 2 chromatic pattern and clearly distinguished from all other known shields (as is also the case for the use of cabochons); the formal treatment of human figures, not to mention the multiple perforations in its mosaic-covered surface, also clearly set this shield apart from all other known specimens with figurative scenes (see below).

The quadripartite chromatic uniformity of Group 2 implies that materials such as lignite and dark green malachite are completely absent. Furthermore, the tendency to create geometrically regular tesserae, a feature strictly restricted to *Spondylus* in Group 2, is also extremely limited. Likewise, stellar eyes, “precious dots”, rosettes and Black & White motifs are completely absent from Group 2. The London Serpent Pectoral shows rows of extremely regular, “pill-like” circular tesserae on the serpents’ noses, displaying a red-red-turquoise-turquoise pattern (pl. 10; McEwan et al. 2006, 58); they are not to be confused with the precious dots of Group 1, since they seem to represent actual jewels similar to those seen in Group 1 anklets and bracelets.

Some members of Group 2 seem to represent opposite extremes of the range of internal variation in the group: the chromatically irregular surface of the Rome Anthropomorphic Mask (pl. 13) to a certain degree is reminiscent of the irregular turquoise surfaces of Group 1,<sup>19</sup> while the almost “monochrome” surface of the London Anthropomorphic Mask (pl. 11) recalls the mostly “monochrome” surfaces of archaeologically recovered specimens (see below).<sup>20</sup> Despite these inevitable degrees of “proximity” among items

18 *Spondylus* is used, together with turquoise, on the Zaachila disk with four anthropomorphic figures (Melgar Tísoc et al. 2018, plates 51–52; see below). It is not clear to me if *Spondylus* was also employed in the Mixtec shield today in the Art Institute of Chicago. Be that as it may, none of these specimens clearly fit the quadripartite chromatic pattern of Group 2 mosaics. Notice how numerals on the Chicago shield—in the form of plain, round turquoise tesserae in the 4 House day sign (rendered in distinctively Mixtec style, with pointed roof) and in the 3 Flint year sign—are clearly distinguished from both those of Group 1 Copenhagen Tall Animal Head and those of the Berlin Skull Mask. On the same shield, circular tesserae also form the vertebral column of the skeletal figure.

19 As also noticed by Martin Berger (personal communication, January 2020).

20 For lack of a better term, I use “monochrome” to refer to mosaics solely employing cultural turquoise. Nevertheless, as observed in the description of the Group 2 mosaics, clearly the usage of different hues of turquoise makes these mosaics veritable polychrome objects. Although strictly speaking incorrect, the term «monochrome» still

assigned to different groups, the internal consistency and coherency of Groups 1 and 2 are still remarkable.

*Iconography.* The iconography of some Group 2 mosaics, such as the Berlin Jaguar Head and the London Anthropomorphic Mask, is so generalized that its assignment to a specific iconographic tradition is extremely difficult.<sup>21</sup> The same can be said about the London Serpent Pectoral, but it is worth noting that a very similar pectoral in the form of an undulating double-headed serpent (*maquizcoatl*, in Nahuatl) is worn by Tlaloc in the Codex Vaticanus B, p. 45.<sup>22</sup> The Rome Anthropomorphic Mask has been variously interpreted (for example as Quetzalcoatl, see Matos and Solís 2003, figure 52), but the most convincing interpretations identified it as the Mixtec goddess Lady 9 Reed (Beyer 1921; Nicholson and Quiñones Keber 1983, 172–73) or as a conflation of the Mixtec Lady 9 Reed and the Nahua Water Goddess Chalchiuhtlicue (McEwan and López Luján 2009, 160). The identification of Lady 9 Reed would also fit the iconographically identical wooden mask found in the Santa Ana Teloxtoc “*ñuhu* complex” deposit (see below), especially in light of the role that the Mixtec goddess played in the episode of the war waged against the *ñuhus* (Rivera, Jansen, and Pérez 2016). Moreover, as noticed by Javier Urcid (personal communication, June 2020), the fact that the tails of the Fire Serpents on the Rome Anthropomorphic Mask end

seems useful to me to easily distinguish Group 2 mosaics from those of Group 1. Other possible terms, such as “mono-material”, would be equally incorrect, since we know “cultural turquoise” included an array of different minerals.

21 The common interpretations of the London Anthropomorphic Mask as Nanahuatzin or Xiuhtecuhtli (Carmichael 1970, 21; McEwan et al. 2006, 45; McEwan and López Luján 2009, 274) are doubtful: the former is based on a misunderstanding of the function of the cabochons, which are a formal resource common to all the mosaics in the group and are not iconographic markers; the latter is based on an erroneous reading of the darker areas of the face as the image of a butterfly and on such a generic assumption (a “turquoise” face represents the “Turquoise Lord”) that it would fit most of the known mosaics from archaeological contexts (see below).

22 In other instances, the Storm God wears a similar pectoral, but in a simpler, U-like shape, as in the Codex Borgia, p. 16. As Javier Urcid kindly pointed out to me, a similar U-shaped pectoral, with right angles, appear in the two (Huave?) ceramic effigies of the rain deity found on the island of Manopostiac in the Laguna Superior of the Isthmus of Tehuantepec, on the Pacific Coast of Oaxaca (Fields, Pohl, and Lyall 2012, 152; Sellen 2017, 368–70).

with flint knives (fig. 10) is also consistent with a Mixtec rendition of this entity, since in the Nahua area it was usually represented with a tail ending in a sun's ray. A Mixtec manufacture is also reasonable for the London Shield since, as already noted (McEwan and López Luján 2009, 206–07), the scene of birth from a tree closely resembles a similar one in the Codex Vindobonensis, p. 37.

In contrast, it has been noted (e.g., McEwan et al. 2006, 50; McEwan and López Luján 2009, 158) that the London Serpent Mask—where two (blue and green) serpents intertwine around the deity's nose and mouth, with the serpents' feathered rattles ending over the eyes—has close parallels to Mexica representations of the Nahua Rain God Tlaloc. Similar examples can be seen in various Tlaloc jars found in Templo Mayor. Another highly significant comparative example is the Tlaloc sculpture in the Jay I. Kislak collection at the Library of Congress in Washington, D.C., where the deity's goggles are formed by the serpent bodies (also going around the mouth) and where the tails end in rattles, as on the mask (AA.VV. 2007, 66, cat. 210).<sup>23</sup> However, such representations of Tlaloc are not limited to the Basin of Mexico, as shown by a Storm God censer now at the Dallas Museum of Art (inv. 1967.5; Pitman 2012, 51) said to be from Teotitlan del Camino, Oaxaca, an area of sustained interaction between Nahua and Mixtec groups.<sup>24</sup>

23 It has been noticed (e.g., Pasztory 1983, 276–77) that a *coaxayacatl* (“serpent mask”) is mentioned in the Nahuatl text of the *Florentine Codex*, Book XII, Chapter 3, as part of the first Quetzalcoatl costume that Moctezuma sent to Hernán Cortés; the corresponding Spanish text describes it as a “una máscara labrada de mosaico de turquesas; tenía esta mascara labrada de las mismas piedras una culebra doblada y retorcida cuya doblez era el pico de la nariz y lo retorcido iba hasta la frente; era como lomo de la nariz; luego se dividía la cola de la cabeza, y la cabeza con parte del cuerpo iba por sobre un ojo de manera que hacía ceja y la cola con parte del cuerpo iba por sobre el otro ojo y hacía otra ceja. Estaba esta mascara enjerida en una corona alta y grande llena de plumas ricas, largas y muy hermosas de manera que poniéndose la corona sobre la cabeza se ponía la mascara en la cara”. A similar mask, but with a double-headed serpent is also represented below Quetzalcoatl's portrait in the Codex Durán, folio 228r. These data have led to the interpretation of the London Serpent Mask as Quetzalcoatl (e.g., Carmichael 1970, 25), but the presence of two intertwined serpents, and especially the goggle-like circles formed by their bodies, suggest the London specimen should be interpreted as an image of Tlaloc.

24 As Martin Berger (personal communication, June 2020) kindly pointed out to me, the provenience from “Teotitlán del Camino” was quite commonly attributed by art dealers to looted, unprovenanced materials in the 1960s and it is thus doubtful.



Nevertheless, I am not aware of any comparable specimen within the corpus of properly Mixtec representations of the Rain God Dzahui. In sum, the iconography of Group 2 mosaics is hardly indicative of a specific cultural/linguistic tradition, suggesting, rather, a blend of iconographic elements mostly found in Mixtec and Nahua artifacts (but probably also shared by less-known visual traditions attributable to other linguistic groups).

*Functional categories.* Group 2 includes three masks, one jaguar head, one shield, and one pectoral, items that could have been part of deity costumes worn by impersonators, statues, or attached to sacred bundles. The group does not include knives, but this could be related to contingent preservation issues rather than with the original ritual assemblages.

*Wood and adhesive.* The four specimen scientifically analyzed (London Anthropomorphic Mask; London Serpent Mask; London Serpent Pectoral; London Shield) were mostly carved in *Cedrela odorata* wood, with the exception of the shield which is made of *Pinus* sp. wood; adhesives have been identified as *Pinus* sp., and *Bursera* sp. resins (McEwan et al. 2006, 47, 50, 54, 57, 65; Stacey, Cartwright, and McEwan 2006).

*Provenance.* Five of the six members of Group 2 have a known Italian provenance: the Rome Anthropomorphic Mask, the London Anthropomorphic Mask, and the London Serpent Mask were originally in collections in Florence, the London Shield comes from Turin, while the London Serpent Pectoral is from Rome (Caygill 2012). The only member of the group without a documented Italian provenance is the Berlin Jaguar Head, in Bevern Castle until 1767 when—together with the Berlin Skull Mask—it was transferred to the Braunschweig Ducal Museum and then, in 1885, to the Berlin Ethnologisches Museum. How the two objects arrived at Bevern Castle is unknown, but a Berlin Museum inventory entry records a possible Italian origin (Bastian 1885; Lehmann 1907, 345; Schwartz 2013/2014, 39); this hypothesis, in consonance with the strong stylistic similarity between the Berlin Jaguar Head and the other members of Group 2, requires further exploration (König and Domenici in preparation).

## UNCLASSIFIED SPECIMENS

Seven mosaics of the early European corpus did not fit into the two above-defined stylistic groups, namely the London Animal Head, the Rome Notched Femur, the London Skull Mask, the Berlin Skull Mask, the Vienna Animal Head, the Vienna Shield, and the Vienna Wooden Sculpture. A detailed analysis of their stylistic traits is well beyond the scope of this article but, given the relevance of provenance issues for our discussion, it is important to note that most of these unclassified specimens do not have any documented relationship with Italy. Indeed, only the London Animal Head and the Rome Notched Human Femur have a documented Italian provenance. For this reason, they deserve to be briefly discussed in more detail.

*London Animal Head.* The London Animal Head (pl. 15), said to be from “Northern Italy” (Caygill 2012, 194), shows broad turquoise fields, a shaded enhanced forehead, and shell rings encircling the pyrite orbs that would assign it to Group 2, but the lack of red color and the presence of dark green malachite prevent its full inclusion in the group. Indeed, the usage of dark green malachite as a separate color—with tesserae cut in small, irregular shapes as also seen in the Gotha Bird Head and not in the regular, geometric form most common in Group 1—recalls the modes of Group 1. Rather than being completely unrelated to Groups 1 and 2, the London Animal Head seems then to stand in between them, so it serves as an important reminder of the fact that the definition of tight stylistic groups inevitably incurs the pitfalls of any taxonomic intent, attempting to draw neat boundary lines across fields of nuanced variations. Despite the general similarity that the London Animal Head shows with mosaics pertaining to Groups 1 and 2, its eccentric position is obviously enhanced by the usage of an array of highly unusual materials such as shark teeth, garnet, beryl, seed pearls, etc., at least in part stemming from later (European) restorations (McEwan et al. 2006, 83–85). Indeed, this last trait recalls the Vienna Animal Head, also employing unusual materials, both Mesoamerican (jade) and European (glass) (Feest 2012, 110–14). Although strikingly different in style, the two objects also share the same function: both are portable mirror frames, which were probably intensely manipulated (and thus broken and restored) in colonial times. The

analogies between the two objects thus seem to depend more on their function and chronology than on their belonging to related stylistic traditions.

*Rome Notched Human Femur.* This human femur worked into a musical instrument (pl. 16), is from the coastal Mixtec kingdom of Tututepec (Oaxaca) and, along with other artifacts including a mosaic-covered human skull (probably its sound box), it was brought to Italy by a priest (probably a Dominican) around 1564–70, then passing through various Italian collections until the present (Domenici 2016a). The femur’s head shows traces of a poorly preserved mosaic including red *Spondylus* and black obsidian. Most of the original tesserae are lost, but their “prints” are visible on the adhesive layer; unfortunately, no hints about the decorative pattern can be discerned. The use of obsidian tesserae, the function of the object, and its provenience from Tututepec clearly set it apart from the rest of the Italian corpus, as also does its highly specific and well-documented provenance history.

#### COMPARISON WITH ARCHAEOLOGICAL SPECIMENS

It is now time to test the validity of the proposed stylistic groups against the larger corpus of known Late Postclassic mosaics, both unprovenanced pieces in museum collections and those from known archaeological contexts. The latter are especially important to build hypotheses on the possible provenience of the two groups discussed herein.

The corpus of archaeologically recovered Central-Southwestern Mesoamerican Late Postclassic mosaics is huge, including hundreds of specimens. Unfortunately, most of them were looted during illegal excavations and are today in museums and private collections in Europe and the Americas. The specimens recovered during formal archaeological excavations, with varying degrees of scientific control, form a relatively small group of crucial importance to investigate ancient patterns of use of mosaic-encrusted artifacts, as well as to provide comparative data that can help to “anchor” the decontextualized specimens in time and space.

Combining functional and stylistic analyses, provenance studies, and archaeological records makes it possible to split the larger corpus of

“archaeological” mosaics into various major groups. Space constraints make it impossible to describe them in detail, so my comments will be limited to those aspects that are useful in ascertaining their degree of similarity with the early European corpus.<sup>25</sup>

*The ñuhu complex.* A huge number of mosaic masks, shields, earspools, and dog-shaped pectorals were looted (along with a wide variety of other materials such as textiles, mats, sandals, and artifacts of vegetal fibres) from one or more caves in the vicinities of Tehuacan and Acatlan, Puebla (Berger 2019; Berger, Moreau, and Lemaitre in press; Domenici 2016b, in press b; Montoya 2017; Saville 1922). Highly similar items, conforming analogous archaeological assemblages, were excavated in caves such as Santa Ana Teloxtoc, Puebla (Vargas 1989), Cueva de Ejutla, Oaxaca (Moser 1983), and Cueva Cheve, Oaxaca (González and Márquez 1994; Steele 2005; Steele and Snively 1997). Since I have described and illustrated this complex in detail elsewhere (Domenici in press b) and Martin Berger has thoroughly investigated its collection history (Berger 2019), suffice it to say here that most of the mosaics of this complex seem to represent *ñuhus*, key beings from Mixtec sacred histories that in the mosaics are characterized by codified traits such as blackened eyelids, fanged mouths, and temporal perforations. As can also be seen in various scenes of the Codex Selden (p. 3, 4, 5, 12), masks, earspools, shields, arrows, pectorals, and other items would have been attached to sacred *ñuhu* bundles deposited in caves in the Mixteca Baja and Cañada de Cuicatlán, as part of ritual evocations of the so-called “War with Earth, War with Heaven”.<sup>26</sup> Interestingly enough, most of these mosaics were found in regions lying outside the “core” region of the Mixteca Alta, that is to say regions where Mixtecs interacted with Popolocas and Nahuas (in the Mixteca Baja) and with Cuicatecs (in the Cañada region). A stylistically distinct group of *ñuhu* masks have been found in Zaachila Tomb 1 (Melgar Tísoc et al. 2018, plates 43–45), thus probably representing a specific Oaxaca

25 The following synthesis is far from exhaustive. I will exclude, for example, early Postclassic Central Mexican mosaics, as well as Late Postclassic Maya, Purépecha, and other isolated finds, given their limited relevance for our discussion.

26 Scholarly discussions of the War with Earth, War with Heaven are abundant; for specific references see Domenici in press b, note 34.

Central Valley branch of the “*ñuhu* complex”, which seems to have been shared by various Otomanguan-speaking groups of Northern Oaxaca and Southern Puebla (thus, my use of the Mixtec term *ñuhu* does not necessarily imply a specific ethno-linguistic affiliation). The attention focused on representing the black eyelids of the vanquished *ñuhus* suggests that these “prototypical enemies” were perceived as Nahua, called *sahmi nuu* (“burnt eyes”) in Mixtec as an allusion to a famous episode of the Mixcoatl saga (Jansen and Pérez 2010, 38–39; Pohl 1994, 95).

Actually, the “*ñuhu* complex” is more a thematic than stylistic group, since different mosaic styles can be spotted among the various archaeological contexts where the complex appears. The most common of these styles is represented by masks and shields where an extremely “coarse” mosaic of turquoise and a shale-like, yellowish unidentified material (which, in some instances, could be turtle’s carapace) were glued with a “paste-like” substance, containing sand or grit of varying granulometry; this paste often covers entire areas of the objects, constituting the “mosaic” itself. Subtle variations in the dimension of the grit are used to create “shades”, such as those meant to represent the enhanced forehead of the *ñuhus*. The eyes are usually represented by oval pottery, stone, or mother-of-pearl plaques. Associated with these masks and shields (usually bearing solar imagery), there are often very crude wooden “masks” (actually small wooden plates) where black and red paints were used to trace the distinguishing traits of the *ñuhus*; in some instances, “strokes” of sandy paste are irregularly spread over the wooden surface, often in the center of the forehead. Interestingly, a shield of the kind usually included in “*ñuhu* complex” assemblages was found in Offering 48 of the Templo Mayor; scientific analyses confirmed that its manufacture technique (tesserae worked with basalt, cut with obsidian, polished with silex and burnished with animal hide) is clearly different from the technique most commonly found in the Templo Mayor and matches the one detected on Mixtec artifacts, so that the shield has been interpreted as a non-local piece from the Mixtec region (Melgar Tísoc et al. 2018, 54, 78–82). The masks found in Coixtlahuaca, although not part of the “*ñuhu* complex”, share similar stylistic traits (Solís 1998, 175).

A second stylistic group in the “*ñuhu* complex” is represented by some refined mosaics within the “Purpus lot” today in the National Museum of

the American Indian (Saville 1922). In this second group, diminutive turquoise tesserae were employed to create shaded areas both on *ñuhu* masks and shields, often showing subtle depth variations. Within this group is the famous shield decorated with a complex scene with two individuals flanking a “Bent Mountain” glyph beneath a descending deity. Completely “monochrome” (that is, only employing various hues of cultural turquoise), this shield is strikingly different from the dozens of other shields found in the “*ñuhu* complex”, giving the impression it is somewhat “out of place”. Since it recalls in many ways the shield excavated in Templo Mayor Offering 99 (showing evidence of local, Mexica “imperial” manufacture, see Melgar Tísoc et al. 2018, 82), it could also be an “intrusive” Nahuatl object within the “*ñuhu* complex”, thus mirroring the presence of the above-mentioned Mixtec shield in Templo Mayor Offering 48.

The usage of *Strombus* and *Spondylus* in the “*ñuhu* complex” mosaics is limited, but still present: the latter appears on the Cueva Cheve tablet and probably on a mask at the Milwaukee Public Museum (Gredell 2007, 26). It is also worth noting that no mosaic-covered knives are so far represented in the “*ñuhu* complex”: the only known knives from Cuicatlan Cañada, not clearly associated with the “*ñuhu* complex”, display sculpted wooden handles with no traces of mosaic (Holland and Weitlaner 1960).

*Mosaic covered skulls.* Various Mixtec mosaic-covered human skulls are known. Besides the famous piece excavated in Monte Albán Tomb 7, which also displays red paint (Caso 1969; Izeki 2007, 343), various other examples are held in museum collections. According to Javier Urcid (2010) and Martin Berger (2013), most of these items—when not modern forgeries—are modern reconstructions assembled with original tesserae looted from archaeological contexts. Interestingly, *Spondylus* and *Strombus* are frequently used alongside turquoise. Less frequent materials are pyrite, jade, and quartz (Berger 2013, 19–23). The use of mosaic-covered skulls in the Mixtec region is also reported in the *Descrittione dell’India occidentale*, where such an item from the coastal Mixtec kingdom of Tututepec is described (Domenici 2017a).

*Mexica group.* Our knowledge of the Mexica mosaic tradition is limited, largely represented by the specimens found in the Templo Mayor, including

earflares, pendants, nose ornaments, knives, scepters, disks, and the wonderful figurative shield found in Offering 99 (Laclavetine et al. 2014; Melgar Tísoc et al. 2018, cat. 32; Velázquez et al. 2012). Mexica mosaics, which share technological traits with other materials found in the Templo Mayor strongly suggesting local manufacture (Melgar Tísoc et al. 2018, 82), mostly employ turquoise (often the proper, “chemical” one)—at times forming subtly shaded areas—while jade, *Pinctada mazatlanica*, *Strombus*, *Spondylus*, lignite, and pyrite are also employed, but are quite rare (shells are used for teeth and eye-frames but not as tesserae). The shield at the Museum für Völkerkunde in Vienna, which probably derives from an early shipment sent by Spanish conquistadors to the Hapsburg court, shares similar stylistic traits, showing a complex figurative scene with anthropomorphic figures and employing only turquoise tesserae (Feest 2012, 104–10). Some of its stylistic characteristics, such as the human faces and flexed arms made with a single turquoise piece, are more reminiscent of the Purpus Shield and the Cueva Cheve tablet than the Templo Mayor shield, while the human trunks and legs composed of various tesserae do indeed recall the Templo Mayor piece (cf. Melgar Tísoc et al. 2018, 106). However, the absence of *Spondylus* and *Strombus*, which do occur in the Templo Mayor and Purpus shields, clearly sets the Vienna Shield apart from the Cueva Cheve tablet. The attribution of the Vienna Shield to the Mexica or to the Mixtec tradition, as well as a clear-cut distinction between these traditions in their figurative mosaic expressions (which seems to be more complex than outlined in Melgar Tísoc et al. 2008) obviously requires further investigation, but a Mexica origin seems to be conceivable.

*Zaachila group.* Besides the abovementioned *ñuhu*-like masks, various mosaics disks and shields were found at Zaachila. An outstanding shield shows an important use of gold foil together with turquoise tesserae, while mosaic disks display the ample use of *Spondylus* and turquoise (Melgar et al. 2018, plates 30, 51, 52).

*Comparisons.* If we compare the two groups of the early European corpus with the “archaeological” ones summarized above, the first striking difference is the absolute lack of archaeologically recovered mosaics sharing the stylistic traits of Group 1, thus confirming its highly distinctive stylistic

character. An unprovenanced mosaic mask in the Dallas Museum of Art (McEwan et al. 2006, 14) shows a generally colorful appearance, which to a certain degree resembles that of Group 1 mosaics, especially the Rome Long-Nosed Mask; however, the Dallas mask only employs turquoise, *Spondylus*, and lignite and lacks all the distinctive iconographic motifs of Group 1, so it cannot properly be included in it. In contrast, a Mixtec (?) ornithomorphic knife at the De Young Museum in San Francisco shows the use of engraved, “precious dot”-like circular tesserae on the handle’s edge, as well as multicolored bands and a rosette-like eye; however, despite these traits, its general appearance can hardly be described as fitting the flagrant polychromy of the mosaics of Group 1, which thus appears to be a highly specific and internally homogeneous group with no clear counterparts outside of the early European corpus.

Instead, the predominant use of turquoise in Group 2 mosaics, as well as its use to create subtle tonal variations have clear parallels in some of the “archaeological” specimens, especially the NMAI Purpus lot specimens and the Templo Mayor figurative shield from Offering 99. The use of large, irregular tesserae interspersed among fields of tiny turquoise tesserae, seen on various Group 2 specimens and especially evident in the London Serpent Pectoral, has a close parallel on the Brussels shield. However, unlike the London Shield from Group 2, most of the archaeological shields completely lack *Spondylus*. The only known archaeological mosaics, beside some specimens of the “*ñuhu* complex” (e.g., Cueva Cheve tablet), which frequently employ *Strombus* and *Spondylus*, are the Zaachila disks, various Mixtec skulls, and the mask from Malinaltepec, Guerrero (Martínez Del Campo 2010). The Rain God mask at the Saint Louis Art Museum, probably from the Mixtec region, also employs these materials, with a clear predominance of a tripartite turquoise/red/white color pattern, which, if not perfectly matching the quadripartite pattern of Group 2, is close to it. Of outmost comparative interest is the wooden mask (devoid of any mosaic covering) found in the cave of Santa Ana Teloxtoc (Vargas 1989, 128, figure 37, plate 2) which, as quite unique within the “*ñuhu* complex”, is almost identical in shape to the Group 2 Rome Anthropomorphic Mask. This mask, the similar color pattern of the mosaics from the Mixtec/Popoloca/Cuicatec regions, and the use of large irregular tesserae on the Brussels shield suggest that the



closest comparisons for Group 2 are from the Mixtec—or, more generally, Otomanguan—mosaic tradition. Nevertheless, the quadrichrome pattern and the use of cabochons (never seen in archaeologically recovered specimens) clearly mark Group 2 as a specific, separate group, with no exact matches in the archaeological corpus.

#### PROVENANCE

In addition to the stylistic homogeneity and the lack of clear parallels in the archaeologically-recovered corpus, a striking trait of mosaics in Groups 1 and 2 is the fact that the vast majority of them can be traced back to Italian collections, thus suggesting the very existence of the two groups within the early European corpus could be the result of specific, Italy-related “provenance events”.

To explore this possibility further, it is useful to recall that Group 1 mosaics were held in Rome, Bologna, and Venice, while Group 2 mosaics were from Rome and Florence. This distributional pattern becomes even more meaningful if we bring into the picture other Mesoamerican artifacts, such as pictorial manuscripts. On the one hand, three of the five pre-Hispanic Mesoamerican codices with a known Italian provenance pertain to the Borgia Group (Cospi, Borgia, Vaticanus B) and were held in Rome and Bologna, precisely matching the distribution of Group 1 mosaics with which they also share several iconographic and stylistic similarities. On the other hand, two Mixtec codices (Vindobonensis and Nuttall) were held in Rome and Florence, precisely matching the distribution of Group 2 mosaics, which show several Mixtec iconographic elements. This apparently neat division between Borgia Group codices/Group 1 mosaics, on the one hand, and Mixtec codices/Group 2 mosaics on the other, becomes more blurred if we consider other categories of artifacts in the same ancient Italian collections, namely three Mixtec carved and gilded spearmen, in Bologna and Florence (Buscaroli 2017; Laurencich 1992, 118–19), and a series of stone figurines, including Mixtec penates, in Rome, Florence and Bologna (Domenici in preparation b; Heikamp 1972, plates 58–59).<sup>27</sup> In sum, leaving aside objects

<sup>27</sup> Laura Laurencich (1992, 118–19) interpreted the spearmen from Bologna on the basis of Nahua iconography and mythology, but its Mixtec identification is made clear

clearly unrelated to the issues discussed here, the distribution of pre-Hispanic artifacts in historical Italian collections can be summarized as follows: Florentine collections only included Mixtec figurines, Mixtec spearthrowers, one Mixtec codex (Nuttall), and Group 2 mosaics; Venetian collections only had Group 1 mosaics; Bolognese collections included a Borgia Group Manuscript (Codex Cospi), various Group 1 mosaics, and a few Mixtec artifacts (one spearthrower and, perhaps, some greenstone figurines); finally, Roman collections had both Group 1 and 2 mosaics, as well as both Borgia Group (Borgia and Vaticanus B) and Mixtec manuscripts (Vindobonensis).

This geographical distribution of mosaics and other artifacts in Italian collections was clearly the result of the contingencies of specific “provenance events”, such as gifts, exchanges, etc. At present, we know of four documented events that occurred during the sixteenth century that involved the transfer of pre-Hispanic Mesoamerican artifacts to Italy.<sup>28</sup> The first, and most doubtful one, regards Codex Vindobonensis Mexicanus I which, according to a late manuscript note traced between 1537 and 1557 by Albrecht Widmanstetter, said to have been donated to Cardinal Giulio de Medici (the future Pope Clement VII) in 1521 by Manuel I, king of Portugal. Since the information is hardly believable given the very early date of the event, we are led to agree with J. Eric S. Thompson’s opinion that the codex must have

by the presence of the image of a *yahui* with its typical body in the shape of a turtle carapace. Various other stone figurines (e.g., Heikamp 1972, plates 7, 8, 9, 60) are of unclear cultural attribution.

28 For further details on these four events and on the history of Mesoamerican objects in early modern Italian collections see Domenici (in press a) and Domenici and Laurencich (2014), where specific references can be found. The four events mentioned here are by no means the only instances in which pre-Hispanic Mesoamerican artifacts were brought to Italy during the sixteenth century. Indeed, the presence of pre-Hispanic objects in collections such as those, for example, of the Farnese family, Tommaso de Cavalieri, Ferrante Imperato, and Paolo Giovio, not always traceable to the four events described here (perhaps with the exception of the codex owned by Giovio, who also possessed various pieces of featherwork and a greenstone heart received from Cortés; see Domenici and Laurencich 2014, 186, n. 27, 197–98), suggests that Mesoamerican artifacts also arrived on other, currently unknown occasions; however, to the best of my knowledge, none of these collections included mosaics. Later, mostly seventeenth century events, such as those that brought the Teotihuacan mask (Domenici 2017d) and other items in the Medici collections (e.g., Heikamp 1972, plates 43, 56, 61), are almost surely unrelated to the issues discussed herein.

reached the hands of Giulio de Medici on a later, unknown occasion (Thompson 1972, 14, n. 1; see also Domenici and Laurencich 2014, 196–97).

A second, poorly known event is the “rich gift” that, according to Bernal Díaz del Castillo, Juan de Herrada offered to Pope Clement VII on the occasion of a Spanish embassy sent by Cortés to the Vatican in 1529; unfortunately, Bernal Díaz did not describe the gift at all (Díaz del Castillo 1991, 795–96; Domenici and Laurencich 2014, 353). The same event was synthetically recorded by the Italian humanist Paolo Giovio who was present at the encounter, but he only mentioned some “small golden images” brought by the Nahua nobles that were part of the embassy, giving much more attention to the gifts that the Pope gave them in exchange (Giovio 1551, 305).<sup>29</sup> One of the indigenous nobles who took part in this event may have recalled its memory in a song collected in the *Cantares Mexicanos* (Bierhorst 1985, 335–37).

The richest and best documented arrival of Mesoamerican objects in Italy was due to the Dominican friar Domingo de Betanzos who, between 1532 and 1533, met Pope Clement VII twice, offering him two different gifts, one in Rome and one in Bologna (Domenici and Laurencich 2014). Both gifts included mosaics. The first one, offered in Rome in 1532, was described in a very synthetic way by Agustín Dávila Padilla, who stated that, apart from featherwork and knives, Betanzos gave a mitre “hecha de pedreria, de turquesas y esmeraldas” (Dávila Padilla 1596, 73–74). On March 3, 1533 Betanzos met the Pope again in Bologna, giving him featherwork, painted codices, and “some very thick masks furnished with turquoise, through which he said the demons were speaking to those peoples. Then a two finger-wide and two ounce-long knife made of yellow stone with the handle entirely covered by turquoise” as well as “many other similar objects” (Alberti [1548] 2006, 629–30).

The fourth event is described by the anonymous and undated *Descriptione dell’India occidentale*, perhaps written and printed in Venice between 1564 and 1570, narrating the arrival of a (probably) Dominican friar in Rome (Domenici 2017a). Among the objects that the friar brought, said to

<sup>29</sup> Byron Hamann (personal communication, May 2020) kindly shared with me his knowledge about this embassy, which he is studying as part of a current research project.

be from the coastal Mixtec kingdom of Tututepec, there were a mosaic-covered skull and the Rome Notched Human Femur (Domenici 2016a).

Of these four events, Domingo de Betanzos's trip to Italy in 1532–33 seems to have the stronger explanatory potential. Indeed, the presence of three Group 1 mosaics (Rome Long-Nosed Mask; Rome Anthropomorphic Knife; Rome Zoomorphic Knife) and the Codex Cospi in sixteenth–seventeenth century Bologna, a city where the only known arrival of Mesoamerican objects was due to Domingo de Betanzos, strongly suggests that the Italian voyage of the Dominican friar could be the specific event that gave rise to the presence of Group 1 mosaics and Borgia Group manuscripts in sixteenth-century Italy. On the one hand, the presence of both Group 1 mosaics (Copenhagen Tall Animal Head; Copenhagen Animal Head; Gotha Bird Head; and, perhaps, Berlin Double Jaguar) and Borgia Group codices (Borgia and Vaticanus B) in Rome is also consistent with such a hypothesis, since Betanzos resided in Rome, where he first met Clement VII. On the other hand, the presence of two Group 1 mosaics in Venice (London Anthropomorphic Knife; Gaffarel Knife) is at the moment unexplained and could be related either to an unknown detour of the friar (who also stayed “in other Italian convents” according to Dávila Padilla [1596, 72]) or to subsequent, unrecorded movements of the objects within the Italian peninsula.

Group 2 mosaics and Mixtec objects were mainly preserved in Florence (Rome Anthropomorphic Mask; London Anthropomorphic Mask; London Serpent Mask; Codex Nuttall; Florence spearthrowers; Florence greenstone figurine) and Rome (London Serpent; Codex Vindobonensis). In both cities, several of these objects were owned by members of the Medici family, Clement VII (Giulio de Medici) foremost among them. At the same time, the fact that the Codex Nuttall was in the Dominican convent of San Marco in Florence further suggests a “Dominican connection” behind its arrival to Italy. Since Bolognese collections, arguably from Betanzos's voyage, also included Mixtec artifacts, and since Betanzos met Clement VII on two occasions, the possibility that Group 2 mosaics and several Mixtec codices and artifacts might also be traced back to Betanzos's trip is certainly worth considering. This possibility is further strengthened by the fact that mosaics from both Group 1 and 2 (Gotha Bird Head and London Serpent Pectoral) could ultimately derive from the same Giustiniani collection (Domenici in preparation

a; Domenici and Dupey García in press), which in the early years of the seventeenth century included around forty (!) mosaics and the Codex Borgia. In sum, if the relationship linking Group 1 mosaics and Borgia Group codices with Domingo de Betanzos's voyage is quite obvious, the hypothesis that the same Dominican missionary also brought Group 2 mosaics and Mixtec codices and artifacts is worth considering, without ruling out the possibility of other, currently unknown, Dominican-related events.

Finally, the presence of the Rome Notched Human Femur, whose arrival was recorded in the *Descrittione dell'India occidentale*, can be traced to a later event (ca. 1564–70), tied to an anonymous friar who I tentatively identified as the Dominican Juan de Córdova, who was probably also involved with the arrival of the Codex Vaticanus A (Domenici 2016a, 2018).

The picture sketched out so far clearly shows that most pre-Hispanic objects in sixteenth-century Italy were brought by Dominican missionaries and ultimately came from Mesoamerican regions within the Dominican sphere of activity, such as the Eastern Nahua area of Puebla-Tlaxcala and the mainly Otomanguan regions of Southern Puebla/Northwestern Oaxaca. Contrary to what is commonly assumed, none of these objects shows any relationship with the Cortés shipments. Conversely, the few Mexica objects in early modern Italian collections (e.g., a now lost greenstone heart owned by Paolo Giovo in Como and perhaps a greenstone figurine held in Verona and then in Parma by members of the Farnese family; Domenici and López Luján, in preparation) derived from specific, contingent events which at the moment appear to be completely unrelated to the above-mentioned pattern of Dominican activities.

## CONCLUSIONS

Combining stylistic and iconographic analyses with provenance data, I have attempted to define different groups of mosaics within the early European corpus, in order to put forward hypotheses on their ultimate provenience and cultural attribution, as well as on the historical circumstances that led them to early modern Europe. The general picture that has emerged from my analysis can be summarized as follows:

Group 1 is composed by eleven mosaic specimens characterized by a conspicuous polychromy mostly the result of the ample usage of turquoise, red and purple *Spondylus*, white shell (*Strombus* sp.), mother of pearl (*Pinctada mazatlanica*), dark green malachite, lignite, gold, and pyrite. All Group 1 mosaics were attached with pine resin on bases sculpted in *Cedrela odorata* wood. These mosaics often employ a highly distinctive set of iconographic motifs (stellar eyes, precious dots, rosettes, Black & White motifs). No mosaics ascribable to Group 1 are known outside the early European corpus. Both iconographic elements and provenance data strongly suggest that Group 1 mosaics might be related to the Borgia Group manuscripts and thus, according to the prevalent hypothesis on their much-debated geographic origin and cultural affiliation (Olivier 2020), with the Eastern Nahua groups of the Puebla-Tlaxcala region. Interestingly, the mosaic tradition of this area is currently unknown from an archaeological point of view, so that Group 1 mosaics could well fill this void. The iconography of the mosaics, representing beings such as Ehecatl, Xolotl, and Yacatecuhtli, is also consistent with an Eastern Nahua attribution. As far as their function is concerned, Group 1 mosaics include (probably non-functional) knives, masks, and “standards”, which could have been part of godly costumes or attached to sacred bundles similar to those represented in the Codex Vaticanus B, p. 64 (Bundled Xolotl) and Selden Roll (Ehecatl bundles). Group 1 mosaics and some Borgia Group codices (Cospi, Borgia, and Vaticanus B) were most probably brought to Italy by the Dominican friar Domingo de Betanzos in 1532–33, a fact that is perfectly consistent with the important missionary activity that Dominicans carried out in the Puebla-Tlaxcala region.<sup>30</sup> After passing through several Italian collections, Group 1 mosaics ended up in various European museums, so today they can be seen at the Museo delle Civiltà in Rome, the British Museum in London, the National Museum of Denmark in Copenhagen, and the Freidenstein Schloss in Gotha; sadly, the double jaguar once held in the Berlin Ethnologisches Museum was lost in the final phases of WWII.

Group 2 is composed by six mosaics characterized by the predominance of turquoise in a quadripartite chromatic pattern also including red (*Spondy-*

30 See Domenici (2014, 2017b, in press a) for more detailed discussions of this topic.

lus/hematite/cinnabar), white/yellowish (*Strombus/Pinctada mazatlanica*), and gold (gold/pyrite) colors. White shell (as well as gold and pyrite) is mainly used as inlays (eye-rings, teeth, etc.) rather than as proper mosaic tesserae. Cabochons are a distinctive trait of this group and have no counterparts in archaeologically recovered mosaics. The peculiar iconographic motifs seen in Group 1 are never found in Group 2. A certain material heterogeneity within Group 2 is supported by scientific analyses, which revealed the use of various woods and resins. Comparisons with archaeological specimens suggest that Group 2 mosaics could be from northern marginal areas of the Mixtec region, such as the Mixteca Baja, areas of sustained interactions between Otomanguan and Uto-Aztecan speakers. The blend of Mixtec and Nahuatl iconographic traits in Group 2 mosaics seems compatible with such a hypothesis. The arrival of Group 2 mosaics, Mixtec codices, and other Mixtec greenstone sculptures in sixteenth-century Italy could also be related to Domingo de Betanzos's 1532–33 trip or to another, still unknown, provenance event connected to the Dominican world. Group 2 mosaics were held in Italian collections until the nineteenth century, when most of them were sold abroad (Domenici in preparation a). Group 2 mosaics can be found today at the Museo delle Civiltà in Rome and at the British Museum in London. The Berlin jaguar head was unfortunately lost in WWII.

A third “group” in the early European mosaic corpus is represented by the Rome Notched Human Femur from Tututepec (Oaxaca), whose specific cultural biography, also related to the Dominican world, is known in detail (Domenici 2016a). Unfortunately, the mosaic covering of the musical instrument is too poorly preserved to provide any insight into the specific characteristics of the coastal Mixtec mosaic tradition, beyond the use of *Spondylus* and obsidian tesserae.

A fourth “group” in the early European corpus is represented by the Vienna Shield, whose iconography and “monochrome” turquoise mosaic strongly suggest a Mexica attribution, which would also be consistent with the shield provenance from the Hapsburg's collections at Ambras Castle (Feest 2012, 104–10). If the general classification that I am proposing here is valid, it would mean that—contrary to what has often been assumed—the Vienna Shield and the London Skull Mask (see below) would be the only properly Mexica mosaics within the early European corpus. As strange as it

might seem, this situation would almost perfectly mirror that of pictorial manuscripts, since no Mexica codices were preserved in early European collections. It is also worth noting that the general similarity between Mexica and Mixtec mosaics (which to a certain extent is also mirrored in Group 2 mosaics), much stronger than any similarity they share with specimens from Group 1, could be the result of the intense contacts between the two regions in the Late Postclassic period, witnessed by the presence of a technologically and stylistically Mixtec shield in the Templo Mayor, as well as by ethnohistorical information recorded in the *Matrícula de Tributos* and in the Codex Mendoza, confirming that mosaics and turquoise from Oaxaca and Guerrero were given as tribute to the Mexica imperial capital (Berdan 2012; Melgar et al. 2018, 82–102; Thibodeau et al. 2018, 6).

Finally, five mosaics of the early European corpus—two mirror frames (London Animal Head, Vienna Animal Head) and two skull masks (London Skull Mask, Berlin Skull Mask)—do not fit the picture sketched out here and were not studied in detail on this occasion. The London Animal Head, in consonance with its Italian provenance, still displays strong similarities with Groups 1 and 2 mosaics. The London Skull Mask, once held in Bruges (Belgium), displays clear Mexica iconographic attributes, apparently merging traits of Tezcatlipoca, Huitzilopochtli, and Mictlantecuhtli (McEwan and López Luján 2009, 168–69). The Berlin Skull Mask, whose possible Italian provenance remains to be explored, originally had an attached rectangular nose bearing a 4 Flint date (Schwarz 2013/2014, 37), where the flint knife was represented with horizontal partitions typical of the Borgia and Mixtec styles but not the Mexica style, where knives are crossed by a diagonal line (Lacadena 2010, 391–92); the association of the flint knife with a rope also recalls an image from the Codex Borgia, p. 16. The Vienna Wooden Sculpture is probably the representation of a *ñuhu*, thus suggesting an ultimate provenience from the Otomanguan world. The Vienna Animal Head is probably the most “eccentric” mosaic of the early European corpus, which could be due to both regional origin and chronology.

I am aware that the panorama sketched out so far is inevitably fraught with the pitfalls and over-simplifications of any classification, which should be kept in mind to counterbalance a necessarily contrived attempt to create a taxonomy. I am also aware of the risks inherent in proposing specific



correlations between stylistically-defined material assemblages and ethnic or linguistic traditions, especially in regions such as those of Postclassic Central and Southwestern Mexico, which were characterized by a complex ethnic mosaic and sustained translinguistic interactions which gave rise to the so-called Mixteca-Puebla style (Nicholson and Quiñones Keber 1994). However, it is important to emphasize that my primary concern has been to propose a correlation between the newly defined mosaic stylistic groups and wider assemblages of material culture (especially pictorial manuscripts) and then, consequently, with specific ethnic and linguistic traditions. Without intending to discuss the ways in which my proposal could contribute to a revision of the much-debated Mixteca-Puebla concept, I would say that my attempt follows the lead of previous ceramic studies that succeeded in distinguishing between Nahua and Mixtec stylistic and thematic modes, connecting them to ceremonial behaviors that were predominant in specific regions of the macro-region of highland Mesoamerica (e.g., Hernández 2005; Lind 1994; Pohl 1998). Another problem that must be kept in mind is that of chronology, since given the lack of firm radiometric data, in my comparative analysis I have treated all Late Postclassic mosaics (including the archaeological specimens) as roughly contemporaneous; clearly, chronological differences could account for formal variations, here mainly understood as evidence of different spatial/ethnic identifications.

Hopefully, fresh data from controlled excavations and scientific material analyses will confirm, reject, or modify the general classification proposed here. If it is to retain some value, part of it would depend on the contributions provided by provenance studies, a research field that, although rarely employed with stylistic analyses in Mesoamerican scholarship, has a strong potential to shed light on wider cultural-historical phenomena.

#### ACKNOWLEDGMENTS

I would like to express my deepest thanks to all the friends and colleagues who shared their ideas and opinions on Mesoamerican mosaics on various occasions or invited me to conferences where I presented parts of my research: Frances Berdan, Martin Berger, James Brady, Byron Hamann, Viola

König, Nicolas Latsanopoulos, Mary Ellen Miller, the late Laura Lauren-cich Minelli, Leonardo López Luján, Guilhem Olivier, John Pohl, Hansjorg Schwarz, Rebecca Stacey, and Javier Urcid. My research has been made possible by various museums and their personnel, which also conceded photos publication permits: Donatella Saviola and Filippo Maria Gambari (Museo delle Civiltà, Roma), Mille Gabriel (National Museum of Denmark, Copenhagen), Ute Däberlitz (Stiftung Schloss Friedenstein, Gotha), Birgit Sporleder (Ethnologisches Museum der Staatlichen Museen zu Berlin), María Martínez and Emily Kaplan (National Museum of the American Indian, Washington, D.C.). Two anonymous reviewers offered extremely useful comments and criticisms. Debra Nagao revised my English text, greatly improving its clarity. Valeria Bellomia kindly assisted me during my work at the Museo delle Civiltà. With Jesper Nielsen I had the pleasure of studying the Copenhagen mosaics. Last but not least, Élodie Dupey García must be acknowledged not only for inviting me to publish this article in *Estudios de Cultura Náhuatl* and for commenting on a draft of the text, but also for sharing with me her profound knowledge of Mesoamerican art and aesthetics; many of the ideas expressed here took shape during our endless discussions, many of them in front of the Gotha Bird Head that we had the great privilege to study together. The responsibility for the opinions expressed in this article and for any error or misinterpretation is solely mine.

## REFERENCES

- Alberti, Leandro, O. P. [1548] 2006. *Historie di Bologna, 1479–1543*. Bologna: Costa Editore.
- Aldrovandi, Ulisse. 1648. *Musaeum Metallicum*. Bologna: Ferroni.
- Bastian, Adolf. 1885. “Zwei altmexikanische Mosaiken.” *Verhandlungen der Berliner Anthropologie Gesellschaft*: 201.
- Berdan, Frances. 2012. “Turquoise in the Aztec Imperial World.” In *Turquoise in Mexico and North America*, edited by J. C. H. King et al., 91–102. London: Archetype.

- Berger, Martin. 2013. "Real, Fake or a Combination? Examining the Authenticity of a Mesoamerican Mosaic Skull." In *Creating Authenticity: Authentication Processes in Ethnographic Museums*, edited by Alex Geurds and Laura Van Broekhoven, 11–37. Leiden: Sidestone Press.
- . Christophe Moreau, and Serge Lemaitre. In press. "Reconnecting Collections – Provenance, Material Analysis and Iconographic Study of Mesoamerican Turquoise Mosaics and Related Pieces." In *Contextualizing Museum Collections at the Smithsonian Institution: The Relevance of Collections-Based Research in the 21st Century*, edited by Maria M. Martinez, Erin Sears, and Lauren Sieg. Washington D. C.: Smithsonian Institution Scholarly Press.
- . 2019. "'From a Cave near Tehuacán'. An Attempt to Reassemble Post-Classic Mesoamerican Ritual Deposits that were Separated by the Art Market." In *The Market for Mesoamerica: Reflections on the Sale of Pre-Columbian Antiquities*, edited by Cara G. Tremain, and Dona Yates, 112–35. Gainesville: University Press of Florida.
- Beyer, Hermann. 1921. "Una máscara prehispánica con mosaico de turquesa." *Revista de Revistas*, 12: 43–44.
- Bierhorst, John. 1985. *Cantares Mexicanos. Songs of the Aztecs*. Stanford: Stanford University Press.
- Biscione, Marco, Carlo Nobili, Donatella Saviola, and Ilaria Candeloro. 1993. *Prima America. Gli oggetti americani nelle "Camere delle meraviglie."* Rome: Ministero per i Beni Culturali e Ambientali.
- Buscaroli, Giulia. 2017. "A New Iconographic Analysis of the Two Mesoamerican Dart-Throwers of the Museum of Anthropology and Ethnology of Florence." *Archivio per l'Antropologia e la Etnologia*, 147: 33–52.
- Cabello Carro, Paz. 2018. "Las colecciones perdidas de Cortés y Pizarro. Descubriendo un Museo Real desaparecido." In *Arqueología de los museos: 150 años de la creación del Museo Arqueológico Nacional*, edited by Andrés Carretero Pérez, Concha Papí Rodes, and Gonzalo Ruiz Zapatero, 977–96. Madrid: Ministerio de Educación, Cultura y Deporte.
- Capitan, Louis. 1916. "Le couteau de pierre à sacrifices humains de l'ancien Mexique dans deux livres du XVIIe siècle; comparaison avec les deux pièces originales." *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, 60(5): 368–77.

- Caplan, Allison. 2019. "Their Flickering Creations: Value, Appearance, Animacy, and Surface in Nahua Precious Art." PhD Dissertation, Tulane University.
- Carmichael, Elizabeth M. 1970. *Turquoise Mosaics from Mexico*. London: British Museum.
- Carter, Benjamin. 2011. "Spondylus in South American Prehistory." In *Spondylus in Prehistory: New Data and Approaches. Contributions to the Archaeology of Shell Technologies*, edited by Fotis Ifantidis, and Marianna Nikolaidou, 63–89. Oxford: British Archaeological Reports, Archaeopress.
- Cartwright, Caroline, and Nigel Meeks. 2007. "Aztec Conch Shell Working: High-Tech Design." *British Museum Technical Research Bulletin*, 1: 35–42.
- Caso, Alfonso. 1969. *El tesoro de Monte Albán*. Mexico: Instituto Nacional de Antropología e Historia.
- Caygill, Marjorie. 2012. "Henry Christy, A.W. Franks and the British Museum's Turquoise Mosaics." In *Turquoise in Mexico and North America*, edited by J. C. H. King et al., 183–96. London: Archetype.
- Dávila Padilla, Agustín, O. P. 1596. *Historia de la fundación y discurso de la Provincia de Santiago de México*. Madrid.
- Dehouve, Danièle. 2018. "La polisemia de *xihuitl*. Un ejercicio de análisis cognitivo." *Estudios de Cultura Náhuatl*, 55: 9–52.
- Díaz del Castillo, Bernal. 1991. *Historia verdadera de la conquista de la Nueva España*. Madrid: Alianza Editorial.
- Domenici, Davide. 2014. "Cose dell'altro mondo: nuovi dati sul collezionismo italiano di oggetti messicani tra XVI e XVII secolo." In *L'Impero e le Hispaniae. Da Traiano a Carlo V. Classicismo e potere nell'arte spagnola*, edited by Sandro de Maria, and Manuel Parada López de Corselas, 471–83. Bologna: Bononia University Press.
- . 2016a. "The Wandering 'Leg of an Indian King'. The Cultural Biography of a Friction Idiophone Now in the Pigorini Museum in Rome, Italy." *Journal de la Société des Américanistes*, 102: 79–104.
- . 2016b. "Máscaras, escudos y tablas con mosaicos de turquesa en Puebla y Oaxaca." *Arqueología Mexicana*, 141: 44–49.

- . 2017a. “The *Descrittione dell’India occidentale*, a Sixteenth-Century Source on the Italian Reception of Mesoamerican Material Culture.” *Ethnohistory*, 64: 497–527.
- . 2017b. “Missionary Gift Records of Mexican Objects in Early Modern Italy.” In *The New World in Early Modern Italy, 1492–1750*, edited by Elizabeth Horodowich, and Lia Markey, 86–102. Cambridge: Cambridge University Press.
- . 2017c. *Il senso delle cose. Materialità ed estetica nell’arte mesoamericana*. Bologna: Bononia University Press.
- . 2017d. “Maschera litica da Teotihuacan (Messico).” In *Leopoldo de’ Medici, principe dei collezionisti*, 336–37. Florence: Tesoro dei Granduchi.
- . 2018. “Códices mesoamericanos en la Italia de la primera edad moderna: historia y recepción.” In *Códices y cultura indígena en México. Homenaje a Alfonso Lacadena García-Gallo*, edited by Juan José Batalla Rosado, José Luis de Rojas, and Lizardo Pérez Lugones, 351–75. Madrid: Distinta Tinta Ediciones.
- . In preparation a. “From the Market to the Museum. Nineteenth-Century Circulation, Display and Scholarly Study of Mesoamerican Artifacts in Italy and Beyond”, in *Collecting Mesoamerican Art Before 1940*, edited by Andrew D. Turner, Megan E. O’Neil, and Matthew H. Robb. Los Angeles: Getty Research Institute Publications.
- . In preparation b. “The Return of the *Idolum pileatum*. Rediscovery of a Mesoamerican Greenstone Sculpture from the Collection of Ulisse Aldrovandi.”
- . In press a. “The Dominicans as Conveyors of Mesoamerican Objects to Italy and Europe.” *Oxford Research Encyclopedia of Latin America*.
- . In press b. “The Gaze of the *Ñuhu* Bundles. An Interpretation of Mesoamerican Mosaics at the National Museum of the American Indian.” In *Contextualizing Museum Collections at the Smithsonian Institution: The Relevance of Collections-Based Research in the 21<sup>st</sup> Century*, edited by Maria M. Martinez, Erin Sears, and Lauren Seig. Washington DC: Smithsonian Institution Scholarly Press.

- Domenici Davide, and Élodie Dupey García. In press. “The Wind God and the Descent of the Tzitzimitl. New Insights on the Iconography and Provenance of the Mosaic-Encrusted Bird Head at the Friedenstien Palace, Gotha (Germany).” *Ancient Mesoamerica*.
- Domenici, Davide, and Jesper Nielsen. 2018. “The Face of Xolotl: A Unique Mosaic-covered Object in the National Museum of Denmark.” *Mexicon*, XL(5): 122–34.
- Domenici, Davide, and Laura Laurencich Minelli. 2014. “Domingo de Betanzos’ Gifts to Pope Clement VII in 1532–1533: Tracking the Early History of Some Mexican Objects and Codices in Italy.” *Estudios de Cultura Náhuatl*, 47: 169–209.
- Domenici, Davide, and Leonardo López Luján. In preparation. “A Tale of Two Gods. The Curious Story of Two Twin Huitzilopochtli between Italy and France.”
- Donattini, Massimo. 2008. “Il mondo portato a Bologna: viaggiatori, collezionisti, missionari.” In *Storia di Bologna*, III vols., *Bologna nell’età moderna (secoli XVI -XVIII)*, t. II: *Cultura, istituzioni culturali, Chiesa e vita religiosa*, edited by Adriano Prosperi, 537–682. Bologna: Bononia University Press.
- Dupey García, Élodie. 2010. “Les couleurs dans les pratiques et les représentations des Nahuas du Mexique Central (XIVe-XVIe siècles).” PhD dissertation, École Pratique des Hautes Études, Paris.
- . 2014–15. “The materiality of color in the body ornamentation of Aztec gods.” *RES: Anthropology and Aesthetics*, 65/66: 72–88.
- Fahmel Beyer, Bernd. 2014. *Las pinturas murales de los palacios de Mitla*. Mexico: Universidad Nacional Autónoma de México.
- Feest, Christian. 1985. “Mexico and South America in the European Wunderkammer.” In *The Origin of Museums. The Cabinet of Curiosity in Sixteenth and Seventeenth Century Europe*, edited by Oliver Impey, and Arthur MacGregor, 237–44. Oxford: Clarendon Press.
- . 1990. “Vienna’s Mexican Treasures: Aztec, Mixtec, and Tarascan Works from Sixteenth-Century Austrian Collections.” *Archiv für Völkerkunde*, 45: 1–64.
- . 1995. “The Collecting of American Indian Artifacts in Europe, 1493–1750.” In *America in European Consciousness, 1493–1750*, edited by

- Karen Ordahl Kuppermann, 324–60. Chapel Hill: University of North Carolina Press.
- . 2012. “Mexican Turquoise Mosaics in Vienna.” In *Turquoise in Mexico and North America*, edited by J. C. H. King et al., 103–16. London: Archetype.
- Fields, Virginia, Pohl, John M.D., and Victoria I. Lyall, eds. 2012. *Children of the Plumed Serpent. The Legacy of Quetzalcoatl in Ancient Mexico*. Los Angeles: Los Angeles County Museum of Art.
- Forde, Jamie. 2006. “Ideology, Identity, and Icons: A Study of Mixtec Polychrome Pottery from Late Postclassic Yucu Dzaa (Tututepec, Oaxaca).” M. A. Thesis, University of Colorado.
- Giovio, Paolo. 1551. *Elogia virorum bellica virtute illustrium veris imaginibus supposita, quae apud Musaeum spectantur*. Florence: Lorenzo Torrentino.
- González Licón, Ernesto and Lourdes Márquez Morfín. 1994. “Rito y ceremonial prehispánico en las cuevas de la Cañada, Oaxaca.” In *Mixteca-Puebla. Discoveries and Research in Mesoamerican Art and Archaeology*, edited by Henry B. Nicholson, and Eloise Quiñones Keber, 223–34. Culver City: Labyrinthos.
- Gredell, Erin B. 2007. “The Research Potential of Poorly Provenienced Museum Collections: A Case Study of a Mexican Cave Assemblage at the Milwaukee Public Museum.” M. S. Thesis, The University of Wisconsin-Milwaukee.
- Heger, Franz. 1906. “Verschwundene altmexikanische Kostbarkeiten del XVI. Jahrhunderts, nach urkundlichen Nachrichten.” In *Anthropological Papers written in Honor of Franz Boas*, edited by Berthold Laufer, 306–15. New York: G.E. Stechert & Co.
- Heikamp, Detlef. 1972. *Mexico and the Medici*. Florence: Edam.
- . 1976. “American Objects in Italian Collections of the Renaissance and Baroque: A Survey.” In *First Images of America. The Impact of the New World on the Old*, edited by Fredi Chiappelli, 455–82. Berkeley: University of California Press.
- . 1982. “Mexico und die Medici-Herzöge.” In *Mythen der Neuen Welt. Zur Entdeckungsgeschichte Lateinamerikas*, edited by K. Heinz Köhl, 126–46. Berlin: Frölich & Kaufmann.

- Hernández Sánchez, Gilda. 2005. *Vasijas para ceremonia. Iconografía de la cerámica tipo códice del estilo Mixteca-Puebla*. Leiden: CNWS Publications.
- Holland, William R., and Robert J. Weitlaner. 1960. "Modern Cuicatec Use of Prehistoric Sacrificial Knives." *American Antiquity*, 25(3): 392–96.
- Izeki, Mutsumi. 2007. "Conceptualization of Xihuitl: History, Environment and Cultural Dynamics in Postclassic Mexica Cognition." PhD dissertation, University of London.
- Jansen, Maarten E.R.G.N., and Gabina Aurora Pérez Jiménez. 2010. *The Mixtec Pictorial Manuscripts. Time, Agency, and Memory in Ancient Mexico*. Brill: Leiden-Boston.
- Johansson, Patrick K. 2012. "Teoxihuitl: Turquoise in Aztec Thought and Poetry." In *Turquoise in Mexico and North America*, edited by J. C. H. King et al., 135–44. London: Archetype.
- King, J. C. H., Max Carocci, Caroline Cartwright, Colin McEwan, and Rebecca Stacey, eds. 2012. *Turquoise in Mexico and North America*. London: Archetype Publications.
- König, Viola, and Davide Domenici. In preparation. "On the Provenance of some Mesoamerican Mosaics in German Collections."
- Lacadena, Alfonso. 2010. "Highland Mexican and Maya Intellectual Exchange in the Late Postclassic: Some Thoughts on the Origin of Shared Elements and Methods of Interaction." In *Astronomers, Scribes, and Priests. Intellectual Interchange between the Northern Maya Lowlands and Highland Mexico in the Late Postclassic Period*, edited by Gabrielle Vail, and Christine Hernández, 383–406. Washington, DC: Dumbarton Oaks.
- Laclavetine, Kilian, José Luis Ruvalcaba-Sil, Christian Duverger, and Emiliano Ricardo Melgar Tísoc. 2014. "Les 'turquoises culturelles' et la caractérisation par fluorescence de rayons X (XRF) *in situ* du disque de mosaïque de l'offrande 99 du *Templo Mayor* de México Tenochtitlan." *ArcheoSciences*, 38: 205–18.
- Laurencich Minelli, Laura. 1980. "L'interesse americanista di Bologna attraverso i secoli." *Il Carrobbio, Rivista di studi bolognesi*, VI: 236–37.
- . 1982. "Bologna und Amerika vom 16. bis zum 18. Jahrhundert." In *Mythen der Neuen Welt. Zur Entdeckungsgeschichte Lateinamerikas*, edited by K. Heinz Köhl, 147–54. Berlin: Frölich & Kaufmann.



- \_\_\_\_\_. 1983. "Oggetti americani studiati da Ulisse Aldrovandi." *Archivio per la Antropologia e la Etnologia*, CXIII: 187–06.
- \_\_\_\_\_. 1984. "L'indice del Museo Giganti: Interessi etnografici e ordinamento di un museo cinquecentesco." *Museologia Scientifica*, 1: 191–242.
- \_\_\_\_\_. 1985. "Museography and Ethnographical Collections in Bologna during the Sixteenth and Seventeenth Centuries." In *The Origin of Museums. The Cabinet of Curiosity in Sixteenth and Seventeenth Century Europe*, edited by Oliver Impey, and Arthur MacGregor, 17–23. Oxford: Clarendon Press.
- \_\_\_\_\_. 2012. "From the New World to Bologna, 1533. A gift for Pope Clement VII and Bolognese collections of the sixteenth and seventeenth centuries." *Journal of the History of Collections*, 24: 145–58.
- Laurencich Minelli, Laura, and Alessandra Filipetti. 1983. "Per le collezioni americaniste del Museo Cospiano e dell'Istituto delle Scienze. Alcuni oggetti ritrovati a Bologna." *Archivio per la Antropologia e la Etnologia*, CXIII: 207–26.
- Laurencich Minelli, Laura, ed. 1992. *Bologna e il Mondo Nuovo*. Bologna: Grafis.
- Legati, Lorenzo. 1677. *Museo Cospiano annesso a quello del famoso Ulisse Aldrovandi e donato alla sua patria dall'illustrissimo signor Ferdinando Cospi*. Bologna: Giacomo Monti.
- Lehmann, Walter. 1906. "Altmexikanische Mosaiken und die Geschenke König Motecuzomas und Cortés." *Globus*, XV(20): 318–22.
- \_\_\_\_\_. 1907. "Altmexikanische Mosaiken in Kgl. Museum für Völkerkunde zu Berlin." *Congrès Internationale des Américanistes, XV Session, Quebec 1906*, vol. 2, 339–49. Quebec: Doussault and Proulx.
- Liceti, Fortunio. 1634. *Pyronarcha sive de fulminum natura deque februm origine libri duo*. Padua: Crivellarium.
- Lind, Michael. 1994. "Cholula and Mixteca Polychromes: Two Mixteca-Puebla Regional Sub-styles." In *Mixteca-Puebla. Discoveries and Research in Mesoamerican Art and Archaeology*, edited by Henry Nicholson, and Eloise Quiñones Keber, 79–99. Culver City: Labyrinthos.
- Markey, Lia. 2016. *Imagining the Americas in Medici Florence*. University Park: Pennsylvania State University Press.

- Martínez del Campo Lanz, Sofía, ed. 2010. *La máscara de Malinaltepec*. Mexico: Instituto Nacional de Antropología e Historia.
- Matos Moctezuma, Eduardo, and Felipe Solís, eds. 2003. *Aztecs*. London: Royal Academy Publications.
- McEwan, Colin, and Leonardo and López Luján. 2009. *Moctezuma. Aztec ruler*. London: British Museum Press.
- McEwan, Colin, Andrew Middleton, Caroline R. Cartwright, and Rebecca J. Stacey. 2006. *Turquoise Mosaics from Mexico*. London: British Museum Press.
- Melgar Tísoc, Emiliano Ricardo, Reyna Beatriz Solís Ciriaco, and Hervé Victor Monterrosa Desruelles. 2018. *Piedras de fuego y agua. Turquesas y jades entre los nahuas*. Mexico: Instituto Nacional de Antropología e Historia.
- Mikulska, Katarzyna. 2010. "Secret Language in Oral and Graphic Form: Religious-Magic Discourse in Aztec Speeches and Manuscripts." *Oral Tradition*, 25(2): 325–63.
- . 2015a. "Las 'metáforas visuales' en el *Códice Borbónico* y otros manuscritos religiosos: signos de bolas de zacate y de la noche." In *Entre el arte y el ritual. Las manifestaciones artísticas en México pre-colonial y colonial, y sus supervivencias actuales*, edited by Katarzyna Szoblik, 31–67. Warsaw: Polish Institute of World Art Studies.
- . 2015b. *Tejiendo destinos. Un acercamiento al sistema de comunicación gráfica en los códices adivinatorios*. Zinacantepec: El Colegio Mexiquense; Warsaw: University of Warsaw, Instituto de Estudios Ibéricos e Iberoamericanos.
- . 2017-18. "Green Jewels and divine Turquoises. Glyph Design in Mesoamerican Divinatory Books." *Etnografía nowa/The new ethnography*, 9/10: 467–509.
- . In press. "Tres componentes de codificación en el sistema de comunicación gráfica de los códices *Vaticano B* y *Borgia*." In *Nuevo comentario al Códice Vaticano B (Vat. Lat. 3773)*, edited by Katarzyna Mikulska. Mexico: Universidad Nacional Autónoma de México; Warsaw: University of Warsaw; Rome, Biblioteca Apostolica Vaticana.

- Montoya, Julia. 2017. "Textiles y otros materiales arqueológicos del valle de Tehuacán, México, en los Museos Reales de Arte e Historia (MRAH), Bruselas." In *PreColumbian Textile Conference VII / Jornadas de Textiles PreColombinos VII*, edited by Lena Bjerregaard, and Ann Peters, 104–31. Lincoln: University of Nebraska.
- Moser Christopher L. 1983. "A Postclassic Burial Cave in Southern Cañada." In *The Cloud People. Divergent Evolution of the Zapotec and Mixtec Civilization*, edited by Kent Flannery, and Joyce Marcus, 270–72. New York: Academic Press.
- Nicholson, Henry B., and Eloise Quiñones Keber. 1983. *Art of Aztec Mexico: Treasures of Tenochtitlan*. Washington, DC: National Gallery of Art.
- Nicholson, Henry B., and Eloise Quiñones Keber, eds. 1994. *Mixteca-Puebla. Discoveries and Research in Mesoamerican Art and Archaeology*. Culver City: Labyrinthos.
- Nielsen, Jesper, and Davide Domenici. 2019. "'Kjøbt underhaanden': Historien om en samling ægte og falske genstande fra det gamle Mexico." In *Yearbook of the National Museum of Denmark*, 78–98. Copenhagen: National Museum of Denmark.
- Olivier, Guilhem. 1999. "Espace, guerre et prospérité dans l'ancien Mexique central: les dieux des marchands à l'époque postclassique." *Journal de la Société des Américanistes*, 85: 67–91.
- . 2020. "Controversy on the Borgia Group Codices from Ancient Mexico." In *Encyclopédie des historiographies: Afriques, Amériques, Asies, Volume 1: sources et genres historiques* (Tome 1 and 2). Paris: Presses de l'Inalco. Online edition: <http://books.openedition.org/pressesinalco/23406>
- Olko, Justyna. 2005. *Turquoise Diadems and Staffs of Office. Elite costume and Insignia of Power in Aztec and Early Colonial Mexico*. Warsaw: University of Warsaw.
- Oudijk, Michael. 2020. "The Making of an Academic Myth." In *Indigenous Graphic Communication Systems. A Theoretical Approach*, edited by Katarzyna Mikulska, and Jerome A. Offner, 340–75. Louisville: University Press of Colorado.
- Pasztor, Esther. 1983, *Aztec Art*. New York: Harry N. Abrams, Inc.

- Peperstraete, Sylvie. 2006. "Los murales de Ocotelulco y el problema de la procedencia del *Código Borgia*." *Estudios de Cultura Náhuatl*, 37: 15–32.
- Pigorini, Luigi. 1885. "Gli antichi oggetti messicani incrostati di mosaico esistenti nel Museo Preistorico ed Etnografico di Roma." *Reale Accademia dei Lincei, Roma*, CCLXXXII (12) 1885: 3–9.
- Pitman, Bonnie, ed. 2012. *Dallas Museum of Art: A Guide to the Collection*. New Haven: Yale University Press.
- Pohl, John M. D. 1994. *The Politics of Symbolism in the Mixtec codices*. Nashville: Vanderbilt University.
- . 1998. "Themes of Drunkenness, Violence, and Factionalism in Tlaxcalan Altar Paintings." *RES. Anthropology and aesthetics*, 33: 184–207.
- . 2007. *Narrative Mixtec Ceramics of Ancient Mexico*. Princeton: Princeton University Press.
- Quiñones Keber, Eloise. 1994. "The Codex Style: Which Codex? Which Style?" In *Mixteca-Puebla. Discoveries and Research in Mesoamerican Art and Archaeology*, edited by Henry Nicholson, and Eloise Quiñones Keber, 143–52. Culver City: Labyrinthos.
- . 1995. "Collecting Cultures: A Mexican Manuscript in the Vatican Library." In *Reframing the Renaissance. Visual Culture in Europe and Latin America 1450–1650*, edited by Claire Farago, 229–42. New Haven y London: Yale University Press.
- Ramsey, James Robert. 1975. "An Analysis of Mixtec Minor Art, With a Catalogue." PhD. dissertation, Tulane University.
- Read, Hercules. 1895. "On an Ancient Mexican Head-piece, Coated with Mosaic." *Archaeologia*, LIV: 383–98.
- Rivera Guzmán, Angel Iván, Maarten E. R. G. N. Jansen, and Gabina Aurora Pérez Jiménez. 2016. "Searching for the Sanctuary of Lady 9 Reed: Huajuapán, Ring of Stones." In *Places of Power and Memory in Mesoamerica's Past and Present. How Sites, Toponyms and Landscapes Shape History and Remembrance*, edited by Daniel Graña-Behrens, 199–232. Berlin: Gebr. Mann Verlag.
- Saville, Marshall H. 1922. *Turquoise Mosaic Art in Ancient Mexico*. New York: Museum of the American Indian Heye Foundation.

- Schwarz, Hansjörg. 2013/2014. "Zur Rekonstruktion des verlorenen mexikanischen Türkischschädels aus dem Ethnologisches Museum, Staatliche Museen zu Berlin nach einem Aquarell aus dem 18. Jahrhundert und einer Beschreibung von 1888." *Baessler-Archiv*, 61: 29–41.
- Sellen, Adam. 2017. "Giving Shape to the Past: Pre-columbia in Nineteenth-Century Mexican Literary Journals." *Boletim do Museu Paraense Emílio Goeldi - Ciências Humanas*, 12(2): 359–75.
- Solís Olguín, Felipe. 1998. *Tesoros artísticos del Museo Nacional de Antropología*. Mexico: Consejo Nacional para la Cultura y las Artes.
- Stacey, Rebecca J., Caroline R. Cartwright, and Colin McEwan. 2006. "Chemical Characterization of Ancient Mesoamerican 'Copal' Resins: Preliminary Results." *Archaeometry*, 48(2): 323–40.
- Steele, Janet F. 2005. "Pre-Hispanic Rain ceremonies in Blade Cave, Sierra Mazateca, Oaxaca, México." In *In the Maw of the Earth Monster. Studies of Mesoamerican Ritual Cave Use*, edited by James E. Brady, and Keith M. Prufer, 91–116. Austin: University of Texas Press.
- Steele, Janet F., and Ralph Snavelly. 1997. "Cueva Cheve Tablet." *Journal of Cave and Karst Studies*, 59(1): 26–32.
- Stone, Andrea, and Marc Zender. 2011. *Reading Maya Art. A Hieroglyphic Guide to Ancient Maya Painting and Sculpture*. London: Thames & Hudson.
- Taube, Karl A. 2000. "The Turquoise Hearth. Fire, Self, Sacrifice, and the Central Mexican Cult of War." In *Mesoamerica's Classic Heritage: From Teotihuacan to the Great Aztec Temple*, edited by David Carrasco, Lindsay Jones, and Scott Sessions, 269–340. Niwot: University Press of Colorado.
- . 2012. "The Symbolism of Turquoise in Ancient Mesoamerica." In *Turquoise in Mexico and North America*, edited by J. C. H. King et al., 117–34. London: Archetype.
- Thibodeau, Alyson M., Leonardo López Luján, David J. Killick, Frances F. Berdan, and Joaquin Ruiz. 2018. "Was Aztec and Mixtec Turquoise Mined in the American Southwest?" *Science Advances*, 4(6): 1–8.
- Thompson, Eric. 1966. "Merchant Gods of Middle America." In *Summa Anthropologica en homenaje a Roberto J. Weitlaner*, 159–72. México: Instituto Nacional de Antropología e Historia.

- . 1972. *A Commentary on the Dresden Codex. A Maya Hieroglyphic Book*. Philadelphia: The American Philosophical Society.
- Tokovinine, Alexandre, and Dmitri Bealiev. 2013. “People of the Road. Trades and Travelers in Ancient Maya Words and Images.” In *Merchants, Markets and Exchange in the Pre-Columbian World*, edited by Kenneth G. Hirth, and Joanne Pillsbury, 169–200. Washington, D.C.: Dumbarton Oaks.
- Toscano, Salvador. 1952. *Arte precolombino de México y de la América Central*. Mexico: Universidad Nacional Autónoma de México.
- Tylor, Edward Burnett. 1861. *Anahuac: or Mexico and the Mexicans, Ancient and Modern*. London: Longman, Green, Longman and Roberts.
- Urcid, Javier. 2010. “Human Skulls with Mosaic Designs.” In *Ancient Mexican Art at Dumbarton Oaks*, edited by Susan Toby Evans, 185–90. Washington, D.C.: Dumbarton Oaks.
- Vargas, Ernesto. 1989. *Las máscaras de la cueva de Santa Ana Teloxtoc*. Mexico: Universidad Nacional Autónoma de México.
- Velázquez, Adrián, María Eugenia Marín, Emiliano Ricardo Melgar Tísoc, and José Luis Ruvalcaba-Sil. 2012. “The Turquoise Disk from Offering 99 at the Templo Mayor in Tenochtitlan.” In *Turquoise in Mexico and North America*, edited by J.C.H. King et al., 75–87. London: Archetype.
- Weigand Phil C., Garman Harbottle, and Edward V. Sayre. 1977. “Turquoise sources and source analysis: Mesoamerica and the Southwestern U. S. A.” In *Exchange Systems in Archaeological Perspective*, edited by Timothy K. Earle, and Jonathan E. Ericson, 15–34. New York: Academic Press.
- . 1993. *Evolución de una civilización prehispánica: arqueología de Jalisco, Nayarit y Zacatecas*. Zamora: El Colegio de Michoacán.
- Winter, Marcus. 1994. “The Mixteca Prior to the Late Postclassic.” In *Mixteca-Puebla. Discoveries and Research in Mesoamerican Art and Archaeology*, edited by Henry Nicholson, and Eloise Quiñones Keber, 201–21. Culver City: Labyrinthos.

