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Ch. 10 Artifacts, Cultural History of Color

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A close observation of a Renaissance painting of a scholar or saint in his or her study will reveal a kaleidoscope of colors on a variety of artifacts. Take for example, Ghirlandaio's painting of Saint Jerome in his study from the church of Ognissanti in Florence (Figure 10.1). European blue and white ceramics mimic colorful imports; paternoster beads made out of glass, ceramics, or precious stones hang on walls and glitter in the light; multi-colored Turkish carpets graze tables; books with colorful bindings litter desks and bookshelves; gold, silver, copper, and bronze vessels catch the light; while glass receptacles provide a luminous sparkle. Such a variety of artifacts and colors can be matched to descriptions found in contemporary inventories as well as customs registers.

Color played an important role in the interest in, and interpretation of, a wide range of small portable objects - from gems and jewels to glass and ceramics - that were increasingly collected and prized in the Renaissance. This chapter is attentive to the ways in which color held specific cultural or symbolic significance depending on the artifact and its color, from references to antiquity to that of foreign lands. Renewed interests in antiquity as well as expanded trade routes meant that new types of artifacts introduced new color sensibilities in the Renaissance. Ancient gems were highly celebrated not only for their iconographies but also for the allure of their color and the craftsmen's manipulation of the tonal differences of their materials. Jewels - from rubies to emeralds - were prized too for their color and the effects they had when worn on the body or adorning a book cover or reliquary. Medieval lapidaries paired with new antiquarian interests gave rise to an understanding that color could endow jewels with particular magical properties. An emphasis on brilliance also led to increasing interests in translucent materials such as Venetian glass, which was then enhanced with colorful decorations. Trade and diplomacy also introduced new types of objects and colors as discussed in chapter 2 in this volume, such as the blue cobalt designs appearing on Chinese porcelain that became copied and mimicked in ceramics across the globe from Persia to Turkey to Spain to Italy. Color also played a central role in the mimicry of materials - from the depiction of porphyry and marble on the back of small portable panels to the imitation of blue motifs on counterfeit porcelain. This chapter explores how color was integral to the interpretation of artifacts, but also how the introduction of new colors on novel artifacts gave rise to copies and replications, and in turn new objects, leading to novel approaches to the material and visual world.

A Culture of Collecting

The history of artifacts and their colors in the Renaissance is intrinsically tied to the history of collecting. An emphasis on classical austerity and a criticism of color was connected to sensibilities that were often at odds with the real practices of collecting and the desire of collectors. Indeed, color often played a controversial role as discussed in chapter 4 of this volume. In defining "taste", color was an easy target in attacks on opulence and display. For example, in Angelo Decembrio's *De politica litteraria* (on literary refinement) dating from the 1450s, learned courtiers and humanists discuss with Leonello d'Este, the Marquis of Ferrara the practices of collecting, from the objects and books suitable for a study to the physical appearance of the library. In one section, artists are singled out as "pandering to the extravagance of princes and the stupidity of the crowd" because they "are far more concerned with opulence of color and a frivolous charm" (Baxandall 2003: 54). In another section, individuals are ridiculed for prizing the adornment of their books over their content, stating that some "dress their books in purple, silk, pearls, gold, for the beauty of books entices many into reading them" (Celenza 2004: 58). In these discussions, color is characterized as an easy way to please the eye, appealing to the senses rather than the intellect. In the words of Giovanni Conversino "it is the ignorant man who is attracted simply by the color" (Hills 1999: 91). The inscription found in Duke Federigo da Montefeltro's library at the palace of Urbino brought the message home to those who entered the space:

Let there be wealth, golden vases, abundance of money, crowds of servants, sparkling gems. Let there be colorful clothes and precious necklaces; but this illustrious furnishing [i.e. the library] excels all of that by far (Campbell 2006: 35).

Color did however have a place in artistic discernment and in aesthetic discussions, but there was a fine line between overt opulence through the use of color and jewels and the perceived simplicity of unadorned books and white marble. As is evident in the painting by Ghirlandaio, colorful artifacts could be found in abundance in a collector's study. Some collectors used the color of the bindings of books to correspond to the organization of contents (Hobson 1975: 10; Thornton 1997: 136-7). In the collections of Eleonora d'Aragona, Duchess of Ferrara, the color of *morello* (a purple-mulberry shade) was used to bind some of her books as well as a small diptych by Ercole de' Roberti (Clark, 2018).¹ There is evidence that brightly colored paternosters were used in combination with other art objects to decorate collecting spaces. The inventory from 1489 of Frate Franceschino da Cesena describes "83 lead medals [...] covered in red and white tin foil attached to the shelf in the study [...] with a row of paternosters of many colors" (Leino 2013: 254). Paternosters could indeed come in a variety of colors such as the "string of amber with some animals inside" that was sent to Isabella d'Este, the Marchesa of Mantua or the hundreds found in the inventory of her mother, that ranged from coral to black and gold amber to bright blues (Welch 1995: 265; ASMO 6114). As a new bride, Isabella d'Este wrote to Girolamo Zigliolo, a Ferrarese courtier, specifying different colors of rosaries as well as cloth that she wanted purchased in France: "these are the kind of things that I wish to have - engraved amethysts, rosaries of black, amber and gold, blue cloth for a *camora*, black cloth for a mantle, such as shall be without a rival in the world" (Welch 1995: 250).

Color also played a central role in the collection and appreciation of gems and jewels in the Renaissance that were highly prized, serving numerous functions: they adorned the body sewn into gowns or hats, worn as rings, necklaces or crowns; they were collected in their own right, particularly antique gems that were carved with mythological iconography that served as a material form of engagement with the classical past; and they were used to decorate drinking vessels and table services often carrying apotropaic qualities. In Brussels the Bohemian nobleman Leo of Rozmital remarked on a table where "clothes adorned with pearls and gems" were displayed alongside "all the precious stones, arranged according to their various names" (Buettner 2015: 213). Jewels were given names as a way to personalize them, but the organization of these stones might have been according to the generic names of the stones, their color, or their individualized "names." Their names could derive from the visual properties of the stones, such as the famous *Il spigo*, the Italian for lavender, a jewel once belonging to King Alfonso d'Aragona of Naples, or *il buratto* another famous stone referring to a type of lace, while others were given names that were anthropomorphic (Venturelli 2008: 96; Clark 2018).

The range of colors and gems was a sight to behold and was closely scrutinized by observers, such as when the Duke of Burgundy entered Paris in 1461 wearing a plume on his hat of inestimable price; it was garnished with nine large rubies, five large diamonds, three of the largest and clearest pearls on earth, and sixty-two other pearls of great value; and on the chamfer of his horse there were likewise nine large rubies interspersed with pearls without number. And on the sallet, carried behind him, was set a rich ruby of Flanders, the marvel [outrapas] of Christendom. (Buettner 2016: 212)

While many of these jewels no longer survive, such textual accounts as well as representations provide us with an indication of the chromatic variations and brilliance. A variety of jewels are visible in a painting by Petrus Christus depicting a couple visiting a goldsmith in his shop (Figure 10.2). Individual stones and large pearls are placed scattered on a dark cloth, so as to highlight their colors, and beside them a constellation of small pearls are on display, the painter paying particular attention to the gradients of grey and white so as to evoke their luster. Above, pinned to the wall are three jewels already mounted in gold, set with a variety of stones and pearls. The male purchaser wears a similar, yet smaller, jewel at the center of his black hat; the four pearls, central stone and dangling ruby are particularly highlighted against the dark material. The lady, likely the bride, wears no jewelry, but her hand points the viewer towards the small set of scales that are being used to weigh a

ring with a red stone, probably a wedding ring. More rings are on offer on the shelf, placed on white holders, juxtaposed against an orange display case. The shelf is framed by a string of brightly colored paternosters, similar to those described in inventories of collecting spaces.

Meticulously rendered jewels also appear in a manuscript of the jewelry of Duke Albrecht V and Duchess Anna of Bavaria commissioned in 1552 and painted by Munich court painter Hans Mielich (Figure 10.3).² Here, the artist has placed the individual jewel against a full-page dark background, so as to contrast the golden mounts and glistening pearls. The purple makes visible the artist's labor at filling the entire space with pigment, where brushstrokes remain discernible. The jewel hangs from a thin gold chain and Mielich has provided the illusion of a shadow, by utilizing a darker pigment of purple, setting the jewel into relief. Color is used sensitively and intently in the rendering of the jewels, particularly in the central dark jewel, where grey pigments highlight its cut. Similarly, different pools of red make up the rubies, imitating the way that light plays with the chromatic variations of stone.

The play of light could enliven depictions carved on gems, something contemporaries were aware of. Ciriaco d'Ancona remarked on the intaglio depicting *Alexander the Great* and how the limbs came alive when "one holds the solid part of the gem to the light" (Fusco and Corti 2006: 119). The weather, it seems, could also play a role in the viewing of gems. Domenico di Piero, the collector and trader of gems in Venice was recorded as not wanting "to show them in weather that makes them look different from what they actually are" and waited until a clear day appeared to show them (Fusco and Corti 2006: 120). Stones' color sensitivities to light thus played a role not only in their display but also in their engagement, requiring a close handling of the jewels or gems as the viewer held them in his/her hands, brought them up to the light, even twirled them, closely scrutinizing their material qualities and sheen.

Mineralogy, magic and the properties of stones

The allure of stones and gems and their chromatic qualities in the medieval spiritual context is well known in writings by Abbot Suger, Albertus Magnus, and in lapidaries (Evans 1922; Riddle 1977; Weisheipl 1980). New antiquarian interests combined these older ideas with the collecting culture of the Renaissance and also with the quest for knowledge of the larger world. The chromatic qualities of stones were part of their efficacy, connected to the belief in the humors. Aristotle's pupil, Theophrastus' treatise *On Stones* argued that gems obtained their "special excellence" from variations in "color, hardness, softness [and] smoothness" (De Maria 2013: 121). Green chalcedony flecked with red jasper, for example is described as a calorific. Red stones could function as styptics and wine-colored stones, such as amethysts prevented drunkenness (Buettner 2015: 215). Serpent's tongues (actually fossilized shark's teeth) were used to test food in court ceremonial but were rather bland in color, so elaborate and colorful *languiers* or *espreuves* were often made out of bright coral, shaped into a tree from which to hang the gilded "tongues" (Belozerskaya 2002: 97). Such an example still survives in Vienna where numerous teeth hang off of a coral tree supported by a gold base, also used as a saltcellar. The practice is alluded to in the painting by Petrus Christus where two shark's teeth in gilded mounts hang from a nail above a coral branch in the middle of the lower shelf (Figure 10.2). Coral could also come in handy to merchants as Albertus Magnus' treatise instructs, it "speeds the beginning and end of any business" transaction (De Maria 2013: 121).

Vases in hardstones such as porphyry, alabaster, and granite were often stored in church treasuries, carrying with them mystical properties praised by Abbot Suger as materials that reflected the glory of Heaven and were metaphors for spiritual illumination. Hugh of Saint Victor described the heavenly Church as built of "living stones" while fifteenth-century humanists such as Leon Battista Alberti noted that the physical characteristics of porphyry alluded to the virtue of patience. Wealthy fifteenth-century patrons who wanted to evoke the multivalent symbolic meanings of porphyry used it for their tombs (Butters 1996: 99-106).

Artists and goldsmiths utilized the color variations of stone and gems to create stunning works of art. A saltcellar belonging to Philip the Good is described in a variety of colors of hardstone with a red jasper bottom, a green jasper top, with a cover depicting a figure of a Saracen drawing a bow at a Turk (Belozerskaya 2002: 93). The tonal differences already visible in certain hardstones and gems were manipulated by craftsmen from ancient times to the Renaissance. Antique artists were praised

for their dexterity in this, showcased in the highly prized Medici gems and hardstones such as the *Tazza Farnese*. Caradosso Foppa, a leading Milanese goldsmith, was singled out by Teseo Ambrogio degli Albonesi in 1539 in this art, for his “knowledge and discernment of [...] pearls and other bright, variously colored stones” and for his use of bas-relief contrasts (Brown and Hickson 1997: 10). This use of contrasts is evident in a sixteenth-century cameo (Figure 10.4), where an anonymous artist has utilized the varied colors of sardonyx to highlight the profile of a Roman emperor, while utilizing the more subtle differences to add accents such as the laurel leaf and pendant cameo, creating a meta-cameo.

The emphasis on comparison or *paragone* was central to contemporary aesthetic evaluations, often facilitated by collections, which housed a wide range of objects in a number of materials. Most commonly understood as a competition between the arts such as painting to sculpture or painting to poetry, comparison was also key to understanding color relationships. The fifteenth-century Venetian Giovanni di Fontana instructed the application of “bright and dark colors” to not only indicate an image to be seen in relief but also for achieving perspective (Hills 1994: 94). Leonardo da Vinci referred to *paragone* as contrasting colors as well as contrasting light and dark in relief, as discussed in chapter 8 in this volume.

In portraiture, fictive variegated colors of stones on the *versi* of portraits played on the *paragone* tradition and the competition between poetry and art. Leonardo da Vinci’s double-sided portrait of Ginevra de’ Benci represents her physical beauty on the obverse, while the simulated porphyry with an inscription on the reverse speaks to the qualities often asserted to be unobtainable by the visual portrait (Cropper 1986). The representation of porphyry underlines permanence, thus using painting and representation to refute the notion that the literary portrait is more enduring. This simulated marble was not uncommon, appearing not only on the *versi* of portraits but also devotional panels, in manuscript illumination, as well as in fresco decoration (Didi-Huberman 1995; Schmidt 2005). The appeal of gems and stones as metaphors is evident in the poems about Ginevra de’ Benci circulating in literary circles that drew on particular colors. Cristoforo Landino remarked on her beauty, noting “her face resembled what we often see when white lilies are mixed with red roses, or if an Indian gem found in the Erythrean Sea should come tinged with purple color” (Walker 1967: 33).

Lapidaries discuss the importance of images and inscriptions in increasing the powers of the stones or gems, many of which spoke directly to the fears and hazards that rulers were particularly susceptible to, such as allowing the beholder to be bold or timid, and protecting him or her from disease, poison, enemies, demons and other evils. Early modern inventories, particularly from the Burgundian court, record knowledge of the magical properties of these gems (Evans 1922). The inventory of the artist Lorenzo Lotto reveals a chromatic range but also the symbolic interpretation of jewels and their representations. His will mentions “twelve cameos of naturally multicolored stones, with the twelve astrological signs carved on them” as well as “a gold ring inset with a beautiful antique cornelian, with a crane taking off and a yoke at its feet, and in its beak the sign of Mercury; this signifies the active and contemplative life, and the possibility of rising above earthly matters through spiritual meditation” (De Maria 2013: 124).

The *Picatrix*, an eleventh-century Arabic work on astral magic, which influenced fifteenth-century Italian treatises and thought, discusses the use of gems for medicinal purposes, including incantations and fumigations for dealing with demons and drawing planetary influences into engraved stones (Aakhus 2008: 187). The *Hortus sanitatis*, a sort of fifteenth-century natural history encyclopaedia provided information on the medicinal properties of certain plants. In Jacob Meydenbach’s publication, a lapidary section was included, as illustrated in Figure 10.5, where different stones are on display (in some editions color has been added to distinguish between different stones). In Marsilio Ficino’s *Books on Life*, color plays a key role in the health of a scholarly individual. In his classification of the planets and the spirit, he relates odors to colors as well as stones:

Watery colors, or white, green and sometimes saffron, violet, rose, and lily colors are colors that refer to Venus, the Moon and Mercury, while sapphire colors, which are even called airy, much fuller of purple, mixed with gold and silver, and perpetually green, belong to Jove. The more ardent colors of saffron, pure golds, and clearer

purples, belong to the Sun. If the colors are even more alive or like silks, they belong to the stars (Ficino 1980:120).

For Ficino, color and stone combinations could have particular effects, such as using gold and coral for illuminating the spirit. Specific stones, spices, and colors associated with 'Jovial' qualities could also help an ailing belly such as "silver, jacinth, topaz, coral, crystal [...] sapphire, green and aery colors" while one should at the same time "entertain thoughts and feelings which are especially Jovial, that is steadfast, composed, religious and law-abiding" (Ficino 1989: 249). The medicinal qualities of stones were put to use on the bodies of the very people who collected them. When Lorenzo de' Medici was on his deathbed, his doctor, Pier Leone placed the heliotrope stone onto his skin in hopes to reduce his fever (heliotrope is also known as 'bloodstone' often made of green jasper (chalcedony) with red speckles of hermatite). This was insufficient and instead, the Duke of Milan's physician was brought in, Lazzaro of Pavia who disagreed with the heliotrope technique insisting that Lorenzo needed a cooling rather than a calorific treatment, and prepared a poultice from crushed pearls (Aakhus 2008:191). The wearing of certain gems or colors on certain days was recommended by Ficino as a way to counteract bad astral influences, or to encourage good ones, and to inspire harmonization of dissonance in the soul (Aakhus 2008:191). In Georgius Agricola's sixteenth-century treatise on mineralogy he noted emeralds were not to be worn during "dangerous or lewd" acts, such as "cohabitation" for if worn by either man or woman and "it touches the flesh, even when set in a ring, it will be shattered." Equally, the color of emeralds could also prove a useful tool in determining infidelity, because "the stone will turn white" if a wife's "husband is unfaithful" (De Maria 2013: 129).

In the art of memory, certain gems were used as *aides memoires*. In the *Thesaurus artificiosae memoriae* published in 1579, Paradise is envisioned as a "wall sparkling with gems" whereby the reader is asked to "imagine the orders of spirits as painters paint them", creating memory places in abbeys and churches known to them (Yates 1992: 122). The association of gems with Paradise was linked to their provenances and beliefs that the Heavenly Jerusalem might be found by going "East". Increased travel and trade and the discovery of new routes both east and west inevitably contributed to new understandings of materials, but also introduced new color sensibilities and knowledge.

Trade and travel

Many precious objects in courtly collections had foreign provenances and interest in these artifacts was spurred by narratives about their exotic origins. As Stefan Smith has argued on the mystification of spices, marvels from the east were intricately bound in fanciful speculations, oral and popular beliefs and traveller and merchants' accounts of a foreign place, far from Europe (2001). Color played a central role in descriptions of the New World and the material culture that could be found there, as discussed in chapter 2 and chapter 3 of this volume. Bartolomé de las Casas, a Dominican friar who spent time in the New World was struck by the featherwork made by *amantecas* (feather artists). The feathers were described by de las Casas in the mid sixteenth century as "green, red or gold, purple, bright red, yellow, blue or pale green, black, white and all the other colors, blended and pure, not dyed by human ingenuity but all natural, taken from various birds" (Newall 2017: 55; Russo and Wolf 2015). These featherworks were highly collected: Margaret of Austria's collection of New World objects, for example, amounted to 170. They were received as gifts from her nephew Charles V in 1523 as part of the treasures the explorer Hernán Cortés had presented to Charles, originally given from the Aztec ruler Motecuhzoma II in 1519 (MacDonald 2002).

Imports from the "East" comprising Asia, North Africa, and the Middle East, were highly sought in Europe as indicators of the luxuries of wealthy courts abroad. Color had a large part to play in the allure of many of these artifacts—from blue and white porcelain to the bright yellows and reds of spices to colorful textiles. Duarte Barbosa discussed the great city of Bisnagua (present day Vijayanagar, India) as a place ripe with all precious objects desired by collectors in a range of colors:

Here [a] great store of the brocades of poorer quality brought for sale from China [and Alexandria], [and much cloth dyed scarlet-in-grain and other colors and coral worked into paternosters and in branches], vermilion, saffron, rosewater (Barbarosa 1967: 202-3).

The list of diplomatic gifts exchanged between the Mamluks and Italian states provide an array of colorful imagery. In 1473, during political and trade negotiations, the Mamluk Sultan Qaitbay of Cairo sent Doge Nicolò Tron of Venice twenty pieces of porcelain, medicinal herbs, fine sugar and a civet horn. Similarly in 1487, Qaitbay's ambassadors in Florence presented Lorenzo de' Medici with porcelain, "Moorish" vases, textiles, spices, as well as exotic animals including a prized giraffe (Behrens-Abouseif 2014: 113-4; Mack 2002: 23). This kaleidoscope of colors is alluded to in contemporary paintings of the Adoration of the Magi, where the biblical story of wise men from the east bearing gifts was conflated with contemporary diplomatic gift practices.

Chinese porcelain was rare in Europe in the fifteenth century, taking a circuitous route across the world travelling via Persia, and then into the collections of the Mamluk and Ottoman sultans, who then gifted it on to European courts. Two main colors of porcelain made its way into Europe in the fifteenth century—that of the celadon green variety and the more well known blue and white. Lorenzo de' Medici's 1492 inventory describes both types as does the 1493 inventory of Eleonora d'Aragona, Duchess of Ferrara. The list of Eleonora d'Aragona's collection of porcelain is largely organized by color, beginning with "green porcelain" followed by blue and white. Some pieces in Eleonora's collection were described as white, probably describing *qingbai* ware, made with glaze that carried a light tinge that ranged from bluish gray to bluish green (the famous Gaignières-Fonthill vase is an example of this type).

By the sixteenth century, however, these Italian collections were soon surpassed by the large numbers of porcelain making its way into Portuguese, Spanish, and Dutch collections through new trade routes. This is evident in Dutch paintings where porcelain is showcased as a colorful complement to other luxury objects on display (Weststeijn, 2014). In Lisbon, porcelain became a regular household item, and in some cases, was displayed in special rooms primarily used by women called 'Casa de Vidros' or 'das Porcelanas' alongside Venetian glass, medicine, fruit preserves, and scented waters (Crespo 2015). Spain's expansion into the New World meant that a sovereign such as King Philip II had access to colorful artifacts and materials from around the globe to make up his collection, which included manuscripts, tapestries, jewellery, prints, books, natural specimens, over fifteen hundred paintings, and an incredible amount of porcelain, amounting to over three thousand pieces (Finlay, 2010).

The pearly whiteness of Chinese porcelain was connected to its material qualities, but this whiteness also contrasted with the blue floral patterns depicted in cobalt blue (Figure 10.6). Whiteness as a category of color to reflect refinement seems to have emerged at this time. Porcelain appealed because its material properties were assumed to be magical, and similar to alabaster. It was speculated that it was a sort of precious stone, or that it was a marvelous liquid that solidified underground, or a mixture of water and crushed eggshells and seashells (Kerr 2004; Finlay 2010).

The particular decoration of blue floral motifs and interlocking patterns found on Ming porcelain vessels became a style eagerly mimicked in imitation ware. The variation in vocabulary makes it sometimes difficult to ascertain just exactly what is being conveyed in inventories. The terms "porcellana" might refer to authentic Chinese blue and white, while it could also be used to refer to Islamic variations. In the accounts of the Florentine merchant Filippo Strozzi, references to porcelain and damascene porcelain points to the variety of ceramics available through his trade networks. In the 1470s he is recorded purchasing in Venice "10 bowls of porcelain: 8 small white and 2 with blue leaf [patterns]" as well as "porciellana domaschina", alongside a significant amount of glass and chalcedony (Spallanzani 1978: 165-7). Vocabulary appearing in inventories also points to the foreign associations with colors, as discussed further in chapter 6 of this volume. For example "colore arabico detto turchino" was used to refer to a turquoise-colored glass, while blue paper known as *carta azzurra* was also referred to as *carta turchina*. The origins of pigments could also be discerned by their names such as "endego de baghedad" (Baghdad indigo) or more familiar in terms of ceramics "azzurro damascene" (damascene blue) (Berrie 2007: 144).

From Lisbon to Venice to Antwerp, inventories reveal that major trading centers were not only sites where colorful foreign objects were traded, purchased, and exchanged, but also places where traces of trade could be found in domestic interiors. Portuguese homes have already been mentioned but Venetian *palazzi* also became a repository for the possessions that were frequently acquired

abroad, as many merchants travelled and even lived in the Levant. Bright textiles, Turkish carpets, blue and white ceramics, and gold and brass metalwork, colored Venetian interiors, that could also influence local production. In Antwerp in the 1520s, Albrecht Dürer acquired a variety of colorful objects including “three porcelain dishes,” “Calicut feathers”, and a “green jug with myrobalans” from Portuguese traders (Newall, 2017: 58-9).

Those who died abroad also bequeathed their colorful possessions to loved ones back home, such as Stefano Ravagnino who left two coral rosaries to his sister in Venice (Howard 2007: 63). While today some of the vocabulary used in inventories can be confusing or unclear, what is remarkable is the attention to variations in color by inventory compilers. Cristoforo del Fiore was a notary that spent considerable amount of time in Mamluk cities, drawing up wills for merchants dying abroad. His familiarity with the Arabic language and with Syrian material culture provided him with a wide range of vocabulary to describe the objects bequeathed, paying attention to the variety of materials and colors (Howard 2003: 236-7). In one merchant’s inventory, Del Fiore recorded porcelain in a range of colors: a blue and white bowl, four small green bowls, and a large bowl containing ground ginger, demonstrating that porcelain was also used to house spices. The use of porcelain to hold food was a common practice in Mughal India, often represented in miniature paintings of courtly rituals (Figure 10.7). The painting is a concatenation of colors, from the blue and white motifs found on the porcelain bowls, the floor tiles, and the architectural decorations to the rich reds, blues, and oranges that constitute the textiles, architectural embellishments, and weaponry (Hess 2010: 7-10).

Repeatedly cropping up in inventories abroad as well as in Europe were drug jars or *albarelli*, often used to hold colorful spices and medicines (Figure 10.8). The Venetian Stefano Ravagnino had a warehouse in Damascus where he stored 280 “big spice-jars piled up, glazed in black and some white and red” (Howard 2003: 254). While most *albarelli* are now housed in museums, empty of their contents, the contrast between the colorful decorations on the jar with the bright hues of the spices inside would have been striking. An inventory of a spice shop in Florence from 1424 demonstrates that colorful drug jars were already in abundance at this time (Spallanzani 1978: 155-8). Nineteen vases were described as “white and blue”, while five small *albarelli* were white and yellow and others green and yellow.

The application of color on these vessels gave rise to new styles and tastes. Ceramics produced in Persia, the Ottoman and Mamluk Empires looked to Chinese porcelain as inspiration incorporating blue and white motifs but combining them with local traditions. Likewise, these Islamic ceramics influenced potters in Spain and then Italy, who began using a wider range of colors. The colors of ceramics extended beyond what was found on shelves, as the floors of chapels, studies, and other interiors spaces were marked by bright tiles, mimicking much of the designs found on vessels. Surviving floor tiles can still be found in some churches in Naples, while the Museo Filangieri retains some from the Carafa Palace and the Louvre holds specimens from the Caracciolo chapel in San Giovanni a Carbonara in Naples. The Castel Nuovo’s floors in Naples were also decorated with Valencian tiles, ordered by King Alfonso d’Aragona in the 1440s, which contained colorful designs with manganese and red as well as others in blue and white incorporating Aragonese arms, devices and mottos (Filangieri 1937: 311-2). In 1577 David Ungnad, ambassador to Constantinople for Maximilian II and Rudolf II, sent Venice a present of ceramic tiles from Iznik that cost over 100 ducats, demonstrating that brightly tiles could be an appropriate diplomatic gift (Fontana 2007: 282).

Innovations to convey brilliance on pottery first emerged in Islamic Spain, where the technique of lusterware was employed. Here, whole vessels were covered in a tin oxide providing a form of a white canvas. But these vessels were not simply left white; instead highly vibrant colors such as manganese were added to provide vegetal patterns in rich purples. The firing process of the luster also gave rise to a metallic sheen and a copper appearance, turning these ceramics into artifacts that mimicked more expensive metals, and also speaking to cultural interests in brilliance (Hess 2004).

Brilliance: glass and gold

While not a color, brilliance and an emphasis on light and luster were central to color sensibilities in the Renaissance and informed cultural practices. Color could also be used to add luster to mimic more expensive materials, from gems to porcelain to gold (Bol 2014; Ajmar 2014). Fifteenth-century courtly magnificence placed an emphasis on splendor, reflected in the gems adorning one’s

body or the plate and table services adorning one's credenza. Princely bodies were understood to evoke brilliance, such as Borso d'Este, the Duke of Ferrara, who was described as "joyful and jocund and lordly and resplendent with his imperial appearance ornamented by gold and gems", his eyes "resplendent" and his face was as bright enough to "obscure the sun." Filarete, the fifteenth-century humanist compared princes to lustrous gems, noting that they should be "splendid and luminous without any stain" (McCall 2013: 446; 452). While certainly a metaphor for moral constancy, real bodies were adorned with metallic fabrics and gems in a range of colors to exude their inner brilliance.

The jewel-encrusted vessels that grazed many a princely table also spoke to luminosity. In the fifteenth century, interests in the designs and brilliance of metalware also informed humanistic writings where the notion of splendor could refer to luminosity. Passages from the Neapolitan humanist Giovanni Pontano's treatises on splendor and magnificence highlight the function of a diversity of objects as markers of distinction. Pontano remarks that King Alfonso had various vessels of silver and gold and beautifully embroidered table cloths but that a more modest man could also show splendor in the range of decoration, art, form and material of the objects, whether in "gold, silver or porcelain" (Pontano 1999: 231-3). In addition, the adornment of the house with "paintings, tapestries [...] cloth woven with gems, cases and caskets variously painted in the Arabic manner, little vases of crystal [...] bring prestige" (Welch 2002: 215). Pontano's list evokes a variety of objects from around the world, many of which were known to be highly colorful or luminous.

The play of light often brought out the colors and materials of objects and was something collectors were sensitive to. When Isabella d'Este was interested in four vases that once belonged to Lorenzo de' Medici, Francesco Malatesta sent drawings of the vessels noting that they recorded the correct sizes and colors, however the painters could not reproduce their "gloss" or luster. Indeed, Leonardo da Vinci, Malatesta notes, admired the rock-crystal vase for its clarity and the amethyst-jasper one for its transparency (Fusco and Corti 2006: 188-9).

This emphasis on light also gave rise to predilections for the transparency of glass, but also its decoration in color. Vanuccio Biringuccio a Sieneese metalworker noted that glass

is transparent and lustrous, and it is colored with substances or traces of metal to any desired color, in such a way that with the beauty of gems it deceives the judgement of the eyes of very experienced men[...] The best glasswork that is made in our times and that which is of greater beauty, more varied coloring, and more admirable skill than that of any other place is made at Murano. In addition to coloring them all possible tints, they make them very clear and transparent like true and natural crystal, and ornament them with paintings, and other very fine enamels (Syson and Thornton 2001: 183).

The profusion of foreign goods into Venice as well as the translucency and reflective quality of water have been seen as being influential on the material culture of that city and residents' color sensibilities (Hills 1999). Glass' ability to mimic other materials, while at the same time demonstrating transparency, particularly appealed to collectors. By the end of the fifteenth century a new type of turquoise glass had been developed that imitated a semi-precious stone imported from Khurasan. Other transparent vessels were molded into shapes that looked like gold or silver, including bulbous annotations painted with blobs of color to imitate gemstones (Syson and Thornton 2001: 188-9).

Duchess Eleonora d'Aragona's collection of glassware amounted to over 130 pieces and included two vases made out of blue glass with gold, two glass jugs with gold, seven crystal ewers with handles decorated with gold, a bucket in blue glass used for holy water, as well as a bucket in white glass, five beakers with their covers all gilded, and a crystal cup with gold sporting Eleonora's arms. Four small pitchers are described as "glass with various colors of glass" probably referring to millefiori glass (ASMO G114). Millefiori (a thousand flowers) mimicked an ancient technique, utilizing multi-colored canes sliced into thin sections that look like flowers, resulting in highly colorful patterned vessels, which could vary from flower-like designs to pools of color to even blurring or marbling (Figure 10.9) (Syson and Thornton 2001: 187; Hills 1999: 117-8). By the sixteenth century, techniques that employed twists or net decoration (*retorti* or *reticello*) utilized color interspersed

with white and became highly sought after. Biringuccio praised these, noting he had seen “glass the color of pearl or tinted green or blue or formed in various spirals [*vetro a retorti*] made entirely of a single very slender fiber like a thread.” Such “twisted designs [*a reticello*] of thorn branches and other crisscross inlays” he declares, could appear on “rosaries, saltcellars and drinking vessels” (Syson and Thornton 2001: 196).

Eleonora’s inventory also records numerous vases in chalcedony glass including four *tazze* (two small and two big), and cups with feet. Chalcedony glass refers to the imitation of veined hardstones in glass and was known as a specialty of Venice. Collectors sought this material as a form of imitation of more expensive materials such as antique hardstones, but it certainly came to be a work of art on its own, rather than simply imitation ware. By 1602 Antonio Neri praised chalcedony glass describing it as “none another than a gathering of almost all the colors, and *scherzi*”, alluding to the musical term *scherzo*, meaning a vigorous, light, or playful composition (Hills 1999: 119).

In 1507 Eleonora’s daughter, Isabella d’Este sent a silver soup dish to her agent Lorenzo da Pavia in Venice for him to copy in five different colors of glass. Lorenzo, however, was only able to send her ones of green and crystal since other colors had not yet been put in the furnace. Isabella d’Este’s correspondence demonstrates that she was eager to procure Venetian glass, but felt that the style often needed updating. In February of 1496 she ordered two to three crystal beakers but specified she wanted them without gold trim—the absence of gold was a new style that she was particularly keen on having. In 1510 Isabella ordered and received six large water glasses with handles and covers but she was not pleased with them, noting that the glass was not white enough, probably referring to its transparency (Brown 1982: 215-6). In 1534 she was eager for the Mantuan ambassador to select various drinking glasses among the new designs, specifying she wanted those decorated with the “lattimo design” and again, no gold (*lattimo* referencing the opaque white vessels that were decorated with designs often drawn from contemporary artists) (McCray 1999: 73). Glass and ceramics point to the ways in which artists copied a variety of materials, often utilizing color to do so. This gave rise to new cultural sensibilities but also technical innovations.

An attention to color on a variety of artifacts reveals particular cultural attitudes to materials and the world of goods in the Renaissance. Collecting spaces and domestic interiors were sites of chromatic experiences, and colors on particular types of artifacts required specific engagement from viewers, such as looking at the ways light could play on the material properties of hardstones or gems. This play of light also gave rise to a new emphasis on brilliance, contributing to cultural symbolisms attached to luster. Specific colors were also understood to endow stones and gems with special, even magical properties. The expansion of trade routes, exploration, and diplomatic exchanges also meant that novel artifacts found their way into European homes, giving rise to new vocabulary to describe new ranges of colors. This in turn provoked local imitations of materials and artifacts. Color thus played a central role in an emerging collecting culture, but also gave rise to new ways of understanding the ever-expanding material and visual world.

Endnotes

1. Archivio di Stato di Modena, Guardaroba (hereafter ASMO G114) ,133V. The diptych is now in the National Gallery, London (Campbell 2001)
2. The entire manuscript can be found online at <https://www.wdl.org/en/item/4104/>

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