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‘Unusual Excrescences of Nature’: Collected Coral and the Study of Petrified Luxury in Early Modern Antwerp

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ABSTRACT

Many seventeenth-century Antwerp collections contained coral, both natural and crafted. Also, coral was a pictorial motif depicted by Antwerp artists on mythological scenes, still lifes, gallery pictures, and allegories. Coral was many things at the same time: a commodity crafted into jewellery and *objets d'art*, a popular collectable in its natural shape, a motif for Antwerp painters, an essential commodity in the European-Indian trade network, a naturalia associated with classical mythology as well as with the Blood of Christ, and a problematic naturalia that raised questions about classification, origins and natural processes. This paper provides an itinerary of coral in early seventeenth-century Antwerp. It is argued that collecting in general and collected coral in particular were related to new understandings of matter and material transformation. Coral functioned in the collection as: first, a place of appreciation for artisanal work - or ‘process appreciation’; second, as a conversation piece; and third, as a visual motif related to the understanding of matter and material transformation, the process of petrification in particular. Added up, this explains the value attached to this ‘unusual excrescence of nature’.

KEYWORDS

coral; collections; Antwerp; petrification; 17th century

Walls of precious things

Within two decades after the ‘invention’ of still life painting as a separate and mature genre, the Antwerp painter Frans II Francken (1581–1642) came onto the market with a special type of still life: the *Preziosenwand* (wall of precious things). Also known as ‘encyclopaedic gallery pictures’, these still life compositions typically depict a wall and a table supporting the precious things that one could find in Antwerp collectors’ cabinets of the time (although they were not ‘pure’ still lifes, in that human activity is usually depicted through a vista into another space). Francken’s *Interior of an art cabinet with ânes iconoclastes* (Figure 1), a picture of collectables shown from so that the beholder seems almost to be present inside the cabinet, is a representative example.

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Figure 1. Frans II Francken, *Interior of an art cabinet with 'ânes iconoclastes'*, 1620 or 1626. Oil on panel, 101 × 143 cm, Quadreria della Società Economica di Chiavari.

In the painted image shells are scattered on the table next to a fine-grained piece of coral and a dried fish. An open book of hours leans against a lacquer box with a marble ball on top, while further to the left another lacquer box is filled with an assortment of shells. Paintings and drawings cover the wall behind the table. The tranquil scene of material objects is like a snapshot; an arrangement of objects that could have been slightly different just a moment before and might easily change in a moment after. The display of objects and images suggests the presence of human activity, yet there is no one to be seen in the room. In sharp contrast to the tranquility of room is the vista to the outside world, where men with donkey heads are destroying objects and images.¹

This paper deals with one particular object depicted by Francken: coral. Coral was widely collected in early modern Antwerp and, as such, also depicted on the Antwerp invented-genre of the gallery picture.² This paper follows the itinerary of coral as a collectable in early modern Antwerp. First, it focuses on Antwerp as a centre of the trade and craft in gemstones such as coral, second, on coral in relationship to other collected objects, and third, as part of the widespread debate on petrification as one of the most imaginative natural metamorphoses, which also had artisanal, mythological, and religious connotations. In the consecutive paragraphs, coral is taken as an exemplary case study to discuss some characteristics of the culture of collecting and the understanding of matter and the material world in early modern Antwerp.

Francken's *Preziosenwand* (Figure 1) exemplifies all the things that this paper is about: it is about the place of coral in Antwerp collections, on display amidst a range of *artificialia* and other *naturalia*. As a collectable, coral may be understood in relation to

other ‘aquatic collectables’, such as shells, pearls, tongue stones, dried fishes, sea horses, and horseshoe crabs. All of these were collectables were depicted by Francken on several gallery pictures, while inventories from Antwerp confirm that these objects were indeed collected.³ Coral was collected as part of a wider interest in natural specimen (in particular from the aquatic world), but also as a valuable material crafted into new luxury objects. In the words of Anselmus de Boodt, corals were ‘unusual excrescences of nature’: pieces of petrified luxury in demand with collectors throughout Europe. De Boodt testifies to: ‘have seen a piece of coral with many branches that was at one hundred *thaleris*. They can even be sold for a lot more. One’s desire for luxury cannot be underestimated. Many people are willing to give an incredible price for special metals and unusual excrescences of nature, even though they are totally useless’.⁴ This is noted by De Boodt in his lapidary *Gemmarum et Lapidum Historia* (1609), which may be considered the first systematic study of minerals ever published. While composing his lapidary, De Boodt had at hand the collection of stones and minerals in the cabinet of Emperor Rudolph II, for whom he worked as physician. In this work, De Boodt discusses coral among the world’s most precious minerals ‘used in luxury products’.⁵

Early modern cultures of collecting have been investigated from the perspectives of art history, material culture studies, and the history of science.⁶ Most of the innovative research focuses on art collections in relation to the art market and connoisseurship, on the role of collections in early modern consumer societies, or on the role of scholarly collections in relation to global trade networks and new scientific knowledge. Here, I argue that collected coral in particular, and culture of collecting in early modern Antwerp in general, were related to new ways of knowing the material world, in which knowledge, art, and craft were closely intertwined. Three so-called ‘new’ ways of knowing stand out: artisanal embodied knowledge, descriptive knowledge or information, and visual knowledge.⁷ Here, it is argued that the three overlapped and all played a role in Antwerp’s culture of collecting.

First, collected coral was related to the collection as a place of appreciation for artisanal embodied knowledge and what I coin as ‘process appreciation’: collectors showed increasing appreciation for artisanal processes of making and crafting (or even counterfeiting), which were analogously linked to natural transformation processes or metamorphoses. In a city with a powerful economic elite of guild-based masters such as Antwerp, process appreciation was central in the culture of collecting. Indeed, many artists and artisans were also avid collectors themselves.⁸ Also, it is telling artists and artisans themselves were self-conscious about their processes of making. During processions and marches, they carried images both of their products and of the production process.⁹ This aspect is discussed mainly in the first paragraph, on trading and crafting coral. Second, coral aligned well with the function of the collection as a conversation piece: collectors or visitors demonstrated themselves to be knowledgeable through conversations. Their knowledge implied a descriptive connoisseurship regarding objects (natural and man-made). As will be shown, coral was an extremely fertile subject for conversation. The multi-meaning of coral as points for conversation is discussed mainly in the second paragraph. Finally, the culture of collecting was related to knowing the material world via depiction. One may think of the rise of new painterly

genres that depicted assemblages of objects, such as the Antwerp-invented genre of the gallery picture, but also allegories, mythological subjects, and still life's. Such paintings depicted coral in relation to other objects or motifs and are understood as visualizations of the manner in which matter and the material world were understood. This is discussed mainly in the last paragraph, which focuses on the process of petrification and the manner it was visually imagined.

Trading and crafting coral

The coral trade in early modern Antwerp was tightly connected to the diamond trade. Most coral traded and collected in Antwerp was the red coral that was found in the Mediterranean and had been traded since antiquity. Marseilles, Naples, Livorno and Genoa were centres of coral fishing. From the sixteenth century on, the Mediterranean coral was shipped from the Mediterranean to Antwerp, where the Portuguese were then exporting it to India to trade for diamonds. Red coral was an essential commodity in the European-Indian trade network, since it, along with amber, was among the few European commodities actually in demand in India.¹⁰ Antwerp's central position in this trade network also made the city a centre for diamond cutting and polishing, which it still is today.

In the late sixteenth century, Philips Galle (1537–1612) published a print depicting the diving for coral in Sicily (Figure 2). It was part of the series *Venationes ferarum*, after



Figure 2. Joannes Stradanus and Philips Galle, *Diving for coral (on Sicily)*. *Venationes ferarum, avium, piscium*, plate 92 (Antwerp 1596 [first published: 1578]).

designs made by Johannes Stradanus (1523–1605). The caption to the image reads that it were ‘shrewd and careful Sicilians’, who dive for coral with the use of glasses – apparently diving goggles *avant la lettre*. Although coral had been harvested and traded since antiquity, the fact that this engraving was published at precisely this point of time in Antwerp is an indication of the growing market for this type print, depicting practical-material knowledge, either in the form of the subjugation of nature as here, or in the form of artisanal processes (as in Galle’s and Stradanus’ other famous series: *Nova Reperta*).¹¹

From the divers in Mediterranean, coral was shipped to other harbours, among them Antwerp. In October 1624 the Antwerp diamond grinder and jeweller Elias Voet (1586/88– after 1653) spent 1,775 lb on two loads of red coral from Italy, weighing respectively 2696 and 3468 ‘*oncen*’.¹² Elias probably sold most of the red coral to the Portuguese in Antwerp, with whom he traded extensively for his business in diamonds. Sometime later, his brother Reynier Voet sold 83 lb of the coral to Gaspar Boudaen, one of his clients in the Dutch Republic. Boudaen was a descendant of Antwerp emigrants, like many in the gem trade in the North.¹³ Profits could be considerable, but the long trade lines connecting Antwerp and the Dutch Republic to the Mediterranean and India were also vulnerable. Elias experienced the vulnerability of the extended trade network when he encountered delivery problems and was accused of breach of contract. He had been obliged to pay for the coral from Italy in woollen cloth, which was supposed to be delivered with the first ship to Genoa or Livorno by his agent in London. But after difficulties with this English agent and a serious delay of delivery, a prolonged lawsuit followed. To eventually settle the case, Voet had to confirm his financial liquidity, among other things by presenting an obligation of 800 *gulden* on an unidentified Rubens painting in his collection, made by the master’s ‘*eyghen handt*’ (‘own hand’).¹⁴

The Voets ran an international family business. The father, Jacques Voet, was a diamond grinder from Bruges who had moved to Antwerp in the late sixteenth century. The circumstances for diamond grinders in Antwerp were favourable around that time: in 1582 the Guild of the Diamond- and Ruby-grinders was founded and the importance of Antwerp as a centre of the diamond trade increased steadily.¹⁵ Elias and the other sons all followed their father’s footsteps as diamond grinders and jewellers and together they were able to set up an international trading network. One brother, Herman, moved to Milan to take care of the business in Italy, where he died in 1631.¹⁶ Another brother, Reynier, lived in Zevenbergen in the Dutch Republic from at least 1627 onwards. While living in the Republic, Reynier probably met his wife Johanna Anselmo, who lived with her father, the Antwerp native Anthonio I Anselmo, at his estate in nearby Kruiningen.¹⁷ The couple conducted the jewellery business in the North, but after the death of Reynier (sometime before 1654), Johanna first moved to Vlissingen and later back to Antwerp, the city to which her brother Anthonio II Anselmo had already returned.¹⁸

Elias Voet was a respected and successful guild-based master, for whom the trade in luxuries was a natural extension of his artisanal pursuits. For instance, in 1618 he sold two pieces of unicorn horn to postmaster and collector Lamoral Tassis. For the impressive amount of 400 ducats, the postmaster purchased one horn the length of an ell and another one that was short and thick.¹⁹ Next to the sought after unicorn-horn, Voet also dealt in tapestry, for example during a trip to Italy in the 1630s.²⁰ Years later, in 1641, Voet sold a chain with pearls to Frederic-Henry of Orange for the incredible amount of 40,000 *carolus-gulden*.²¹ That Voet was held in high esteem in

Antwerp and beyond was also apparent from the fact that he was asked, together with some of his colleagues, to estimate the value of the jewels and silver in Peter Paul Rubens' estate in 1640.²²

Voet was exemplary of Antwerp's economic elite of guild-based masters, who headed large workshops and often behaved as merchant entrepreneurs. They did well in the first half of the century, when Antwerp transformed into a centre for the production of and trade in luxury goods.²³ Among them were also some of the city's most avid collectors: Rubens' collection in his city palace at the Wapper immediately comes to mind, but one may also think of the collections of wealthy silversmiths, such as Jan Herck (1593–ca 1660). In his house *Den Meersman* (the Merchant) at the Grote Markt, Herck and his wife had gathered a large collection, including 148 paintings, 54 statuettes and some pieces of tapestry.²⁴ In the 1627–1628 Herck cooperated with Rubens and the ivory carver Georg Petel on an immaculate object: a *Saltcellar with the Triumph of Venus* for the painters' own collection. Petel carved the ivory statuette of Venus after a design by Rubens, while Herck made the gilded foot and the top in the shape of a shell.²⁵ The saltcellar was decorated with several branches of red and white coral (the red coral is mostly broken off today), shells, and some small pearls (Figure 3).²⁶ Being a silversmith, it is highly likely that Jan Herck delivered the coral and pearls. Indeed, his inventory listed plenty of coral and even more pearls, of which he had an incredibly large stock.²⁷

The *Saltcellar with the triumph of Venus* is exemplary of two characteristics of Antwerp as a centre of luxury: first, artistic and artisanal cooperation, and second, the makers (artists and artisans) were also the collectors and appreciators.²⁸ Arguably, the artistic cooperation at the basis of the project had its equivalent in the 'conjoining materials' of pearl and coral, which were epistemologically connected to one another (or could be connected by a knowledgeable beholder) as well as to the marine theme. The similarities and differences between coral and pearl were duly noted by contemporaries (in lapidaries the two were usually discussed one after the other): both are natural 'growths' from the sea, associated more than any other gem with the human body, but while the one is associated with blood running through arteries (interior), the other is associated with human skin (exterior); while one is red, rough, and angular, the other is white, smooth, and rounded.²⁹ Objects like the Stockholm saltcellar were not mere decorative ornaments. The fame and status of the makers, as well as its large size and expensive materials, and the high status of ivory carving in general, all point to the high status an object like this occupied in what was one of Antwerp's most grandiose collections.

Although most red coral was exported to India to foster the diamond trade, some stayed on the local Antwerp market, where collectors took a keen interest in such naturalia. Local trade in coral took place in Antwerp's gold- and silversmiths' shops, where artisans sold unworked coral as well as pieces crafted into *objets d'art* or jewellery.³⁰ In 1449, Petrus Christus had already depicted a coral necklace and a branch of coral in his famous painting *A goldsmith in his shop*.³¹ Similar to Christus' painting must have been the goldsmith's shop of Hendrik Smits' at the Wisselstraat, where 'four coral branches' were displayed in a 'jewel case with glass'.³² Smits was a 'stranger' who became master in Antwerp in 1591 and he seems to have become something of a specialist in coral; he owned at least twenty branches of coral in



Figure 3. Jan Herck and Georg Petel, *Saltcellar with the triumph of Venus* 1627–1628, 43.8 × 12.5 cm, Royal Palace Stockholm.

their natural form, six boxes of coral (one containing the more rare white coral), a box with the ‘grit of coral’ and five coral necklaces.³³

Perhaps Smits also counterfeited coral, since he kept a box with ‘grit of coral’ as well as some vermilion – both common ingredients in the recipes for counterfeiting coral.³⁴ Smits was somewhat of a chemical experimenter, as we know from the ‘pearls made of glass’ and ‘false stones’ he sold in his shop.³⁵ The false stones were probably imitations from all sorts of ‘painted and unpainted pieces of glass, both from crystal as other’. Next to the numerous recipes in circulation on how to make fake pearls and colour glass, there were also recipes that described how to

counterfeit coral.³⁶ De Boodt wrote that artists had developed several techniques to imitate precious red coral; some merely tried to imitate its shape and colour, while others tried to make false coral that contained the powers and qualities of real coral.³⁷ In Elizabethan London, moreover, a certain immigrant goldsmith named Balteman Sanerdote shared his knowledge on how to produce artificial coral with Hugh Platt.³⁸ An anonymous French manuscript dated late sixteenth century also included such a recipe.³⁹ The numerous recipes for the counterfeiting of natural materials, or what has recently been coined as ‘material mimesis’,⁴⁰ can be positioned in a broader interest in material transformation. Arguably, counterfeits were appreciated more for the making process than for the end-result.

Another place to find coral was the apothecary’s shop. Precious red coral from the Mediterranean, in Dutch literally called *bloedkoraal* (blood-coral), was associated with blood-filled arteries because of the analogy of form and thus used as a medicine against all sorts of conditions. Ever since antiquity, red coral had been believed to have protective powers against evil influences and been ascribed medicinal qualities. A string of red coral was thought to protect children in particular; hence the many portraits of children wearing accessories of red coral. Also popular were children’s rattles with mounted coral. This practice fit with the idea that coral possessed antidote qualities. For adults coral was sometimes mounted in precious metal to be worn as a talisman.⁴¹ Coral could also be ground into powder as treatment against bleeding.⁴² The illustrious physician-chemist Michael Maier (1568–1622), who like De Boodt worked in the service of Rudolph II, was among the many who thought highly of coral’s curative powers.⁴³

Antwerp customers who wanted to buy coral medicaments could go to the apothecary Abraham van Horne (d. 1625). In his ‘testing room’ (*teste camer*) Van Horne almost certainly used red coral to produce medicines.⁴⁴ This was not exceptional, since at least until the end of the seventeenth century many apothecaries and doctors affirmed that blood-coral had antidotal powers. De Boodt personally testified to the strong healing powers of *Tinctura coralli*, which apparently cured him of a bad ‘pestilence fever’. In his lapidary, De Boodt confirms that ‘chymists’ ascribe miraculous powers to the tincture of coral and also gives the recipe they use for the distillation of coral to make the tincture or oil.⁴⁵

On a small painting on copper, Jan Brueghel the Elder depicted bottles of distillations, labelled ‘*tintura cora*’ (tincture of coral) and ‘*magisteria perlaram*’ (magistry of pearls) next to a stove and a distillation apparatus.⁴⁶ In this painting from 1608, *The Element of fire* (Figure 4). Brueghel also depicted a coral branch on the table (low left) next to all kinds of plates, goblets, jewellery and goldsmithing tools, while people are forging and hammering in the background. Brueghel’s allegory presents a view on the practices and products of smiths and, as Christine Göttler has demonstrated, on alchemy, as the Art of Fire.⁴⁷ Smiths were seen as ‘the Disciples of Vulcan’, because of their practical knowledge of forging metals through the use of the element of Fire.⁴⁸ But the forging of metals was not all there was to Brueghel’s allegory. Obviously, producing medicines, in the form of the ‘*tinctura coralli*’ and ‘*magisteria perlaram*’, was also considered a skill related to the element of Fire. Furthermore, ‘*tinctura coralli*’ was a term used as a synonym for the Philosophers’ Stone. Both coral and the Philosophers’ Stone were considered to contain properties of water and earth and

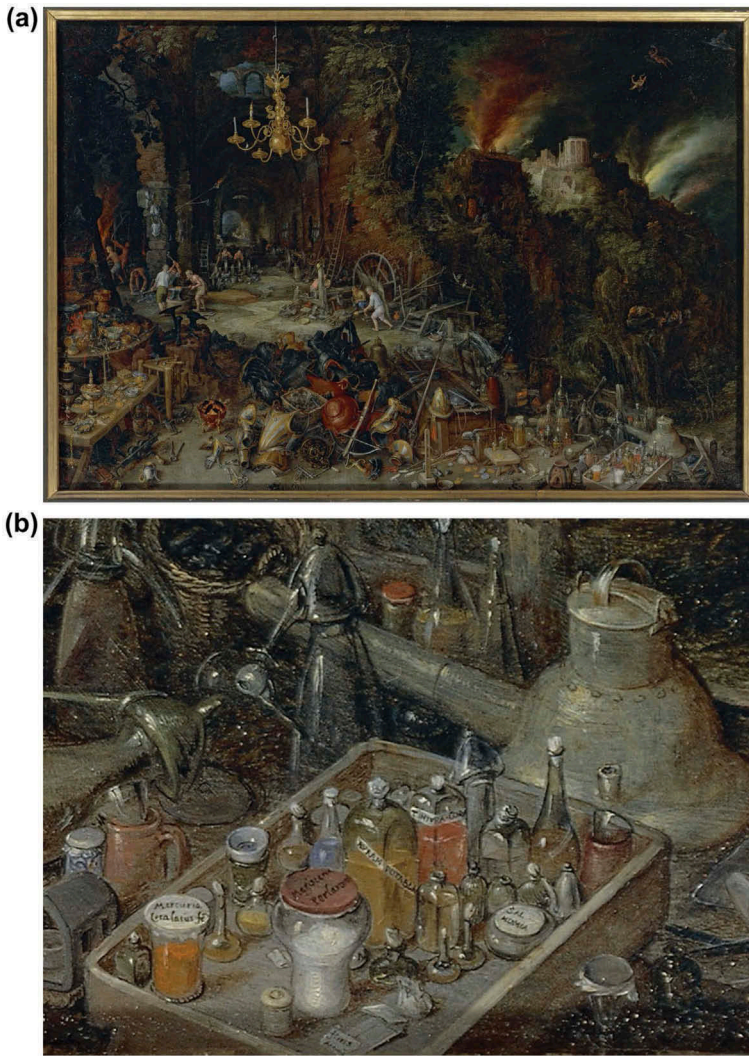


Figure 4. Jan I Breughel, *The element of fire*, 1608. Oil on copper, 46 × 66 cm, Pinacoteca Ambrosiana, Milan.

gain a red colour when solidified.⁴⁹ Some alchemical sources even speak of coral as an ingredient in the Philosophers' Stone.⁵⁰

Conversations about coral

The way coral and coral artefacts were put on display in actual collections (as we know from inventories) and the way in which coral was depicted on paintings give important clues to coral as a meaningful collectable. Like many naturalia in collectors' cabinets, coral had broader cultural connotations. First of all, coral was related to the myth of Medusa. In Ovid's *Metamorphoses*, Neptune violated the young Medusa in the temple

(c)



Figure 4. (Continued).

of Minerva, who was so angry with the beautiful Medusa that she punished her by turning Medusa into an evil creature that petrified anyone who looked her in the eyes. When Perseus later beheaded Medusa, he took her head as a trophy with him. When the hero laid down the head of Medusa on a beach, some of her blood came into contact with seaweed, whereupon it was petrified into red coral. Sea nymphs marvelled, took the coral and spread it over the seas of the world.⁵¹

Found and harvested in the Mediterranean, it is hardly a surprise that coral was associated with the sea, and seventeenth-century Antwerp painters frequently adorned Neptune as well as other marine figures like Amphitrite, Venus, and sea nymphs with

accessories of coral and shells.⁵² Coral was also used in as a motif in emblem books, for instance in Joannes Sambucus (1513–1584) *Emblemata et aliquot* published in Antwerp by Plantin.⁵³ The emblematic meaning of coral was linked to coral's metamorphosis: it was thought to be soft and white under water, while it hardened and got its red colour when harvested from the sea. Coral's wondrous material metamorphosis was here linked to growth or maturation of men. The hidden virtues in youngsters will surface when men grow up and virtuously deal with their fate.

Coral was known in the Southern Netherlands long before it became a popular *naturalium* in the cabinets of curiosities of the early seventeenth century. The Antwerp apothecary Pieter van Coudenberghe (1517–1599) had sent a piece of coral to Conrad Gesner (1516–1565) at some point. A drawing of this coral from Gessner's legacy became part of Felix Platter's (1536–1614) album with drawings of stones and minerals, who annotated the picture as coming from 'Coldenberg'.⁵⁴ When Dürer travelled to Antwerp in 1520, a branch of white coral was presented to him as a gift by his host Joost Plankfelt.⁵⁵ It was also known to Netherlandish painters of the fifteenth and sixteenth centuries. Jan and Hubert van Eyck, for example, painted coral on the panel of the *Hermits* of the *Ghent altarpiece*. Marjolijn Bol has recently argued that the gemstones on the altarpiece, flowing from the fountain, were signs of Paradise on earth, which natural philosophers considered to be an actual place. The hermits on the panel to the left were on their way to Redemption, but had not yet reached the Garden of Delights.⁵⁶ Less valuable than the paradisaical gemstones, the coral painted on the panel of the *Hermits* was likely associated with the faith of mortals on earth in the physical sacrifice of Christ. Although largely ignored by art historians, the gemstones and coral on the Ghent Altarpiece were remarked upon by contemporaries.⁵⁷ When Marcus van Vaernewyck (1516–1569) described the paintings and objects that needed protection during the *Beeldenstorm* in Ghent, he noted that in the panel of the *Hermits* 'from the mossy stones coral seems to grow'. Elsewhere, Van Vaernewyck described how the precious coral rosaries, meant for devotion, had also been subject to the rage of the iconoclasts.⁵⁸

Rosaries, through which believers honoured the life and sacrifice of Christ, were traditionally made of coral, as the material was associated with the blood not only of Medusa but also of Jesus.⁵⁹ The devotion to the Blood of Christ was especially strong in the Southern Netherlands; the legendary relic of the Holy Blood in Bruges (where solidified blood becomes fluid again: a miraculous metamorphosis in Christian context) is but one example of this cult.⁶⁰ Netherlandish painters made the connection too. Joos van Cleve (1485–1540/1541) was among the artists who depicted the sleeping Christ child wearing a coral rosary with a branch of coral (Figure 5).⁶¹ The coral is one of the details in Van Cleve's *Virgin and Child* that points to the foreshadowing of His suffering and sacrifice.⁶²

As one would expect in Counter-Reformation Antwerp, many inventories contained coral rosaries or other devotional objects such as a 'reliquary of mother-of-pearl with an Our Lady of coral'.⁶³ In 1622 the Antwerp goldsmith Hendrik van Paesschen (1571–1638) even got into a conflict with the Portuguese merchant Francisco Rodrigues d'Evora over a branch of coral.⁶⁴ A year earlier d'Evora had commissioned the goldsmith to make a Calvary on an ebony base, with some figures '*naer het leven*', for the substantial amount of 10 pounds Flemish.⁶⁵ When Van Paesschen delivered the



Figure 5. Joos van Cleve (and a collaborator), *Virgin and Child*, c. 1525. Oil on panel, 72.1 × 54 cm, Metropolitan Museum of Art, New York.

Calvary, d'Evora refused to pay for it, as he said he had not wished for the figures of monks that the goldsmith had made. Nor was the Portuguese merchant charmed by a coral branch that was added by the goldsmith. An angry Van Paesschen replied that he was not sure he could take the branch out, whereupon he left d'Evora's house agitated, taking the Calvary with the coral branch with him. According to witnesses he said that the object would 'not be brought back until I get my money'.⁶⁶

Next to the age-old association of coral with religious practices and with mythology, coral became appreciated as *naturalium*: as a piece of nature worth collecting for its natural qualities. One may speak of a turn to nature, but that did not mean older connotations became irrelevant overnight. Coral thus functioned in the collection as conversation piece. Collectors could converse about the different meanings of coral from the domains of antique literature and religion, but also about trade and craft

practices, and about natural knowledge. Of course erudition, literacy, practical experience and natural knowledge depended upon the interests and education of individuals. Not all conversations were in-depth discussions. But the point is that the collection opened up possibilities for conversation, and circumstantial evidence shows that such conversations did indeed occur.

The problem with oral communication, of course, is that it does not leave traces in the historical record, so the precise content of conversations are forever lost. There is, however, circumstantial evidence that collections were used as conversation pieces. This becomes clear from textual sources such as correspondences (e.g. the correspondence of Nicolas-Claude Fabri de Peiresc, which contains references to his learned conversations with Rubens), travel journals, and Grand Tours diaries.⁶⁷ Letters were basically written conversations over long distances, while many early modern books were published in the form of a dialogue. Furthermore, contemporaries described collections as places of friendship and conversation.⁶⁸ And when a correspondent of Abraham Ortelius (1527–1598) praised him for his ‘erudite eyes’, which ‘select the very best in every art’, he pointed to a tradition of erudition about objects and images.⁶⁹ Visual sources also confirm that cabinets were places of conversation, such as the gallery paintings with discussing figures (pointing to objects, picking them up).

On a gallery picture by Frans Francken, the painter has depicted an imagined conversation between Abraham Ortelius and Justus Lipsius (Figure 6).⁷⁰ In this painting, a piece of coral is pinned to the upper back wall, amidst dried animals. The coral and dried sea creatures are positioned in line with a statuette of a river god, who in



Figure 6. Frans II Francken, detail: *A collector's cabinet with Abraham Ortelius and Justus Lipsius*, 1617 (inscribed and dated), Oil on canvas transferred from panel, 52.5 × 73.5 cm. Private collection (auctioned 2011, Haboldt & Co.).

accordance with classical iconography leans on an overturned vessel of water.⁷¹ In gallery pictures from the Francken workshop, shells and corals are recurrent motifs. On the table in *The Archdukes Albert and Isabella visiting a collector's cabinet* by Hieronymus II Francken and Jan Brueghel for instance, are several branches of red coral next to some rare and beautiful shells, a large celestial globe, and the feathers of a bird of paradise.⁷² On the chimneybreast another branch of red coral (mounted in a base) is displayed next to some small statues and, again, some shells. In the above-mentioned painting from the Francken workshop, *Interior of an art cabinet with 'ânes iconoclastes'*, a piece of coral is on display on the lower right corner of a table, next to a dried fish, some shells, and a pair of glasses (Figure 1). It may also be noted here that Frans I Francken (1542/43–1616), father of Hieronymus and Frans II, like many other Antwerp artists and artisans, had gathered a collection of art and naturalia during his lifetime, which contained, among other things, a nice collection of shells and a box of fossils, described as 'shells turned into stones'.⁷³

Antwerp probate inventories confirm that coral and shells were used in artful objects, but also appreciated in their natural shape. The juxtaposition of crafted coral with natural branches of coral was especially appreciated. For example, one Antwerp collector kept in a single room 'a coral branch with a silver claw, a reliquary of mother-of-pearl with an Our Lady of coral, a coral branch, and two coral snakes'.⁷⁴ The beauty of such collectors' arrangements lay in the combination of the man-made and the God-made, the *artificialia* and *naturalia*, and the objects in-between art and nature. Also, coral could be discussed in relation to other collected objects. The comparison between pearls and coral was already mentioned, but one can also think about coral and objects related to the myth of Medusa, or coral and objects related to blood and arteries (the web of connections seems virtually endless). And then there was the most intriguing question about coral: how did it come into existence?

Petrifaction

Coral was a visual motif related to naturalists' debates on petrifaction. It was unknown how coral came into existence (just as it was unknown how fossils, likewise popular collectables, came into existence). Collectors' rooms were sites of knowledge where people tried to solve the questions raised by the objects right in front of them, such as coral and other problematic naturalia.⁷⁵ Coral seemed impossible to classify: was it a plant or a stone (or perhaps even an animal)? According to Maier, coral was one of the 'curative stones', which was at the same time vegetable and animal (just as were pearls and amber). But even more important was that 'they are formed by the secrets of Nature'.⁷⁶

As in the debate about fossils, the central issue was how it was possible that something of a stony hardness and quality could have the features of a living organism. Matter (inorganic) and form (organic) did not seem to correspond.⁷⁷ This incongruence was fascinating because of the juxtapositions of forms in different materials, as well as the artful hand of nature.

The process of petrifaction interested collectors, painters, and natural philosophers alike. De Boodt in fact used his hands-on experience with the collection of Emperor Rudolph II to discuss coral. In his lapidary, he writes that he had seen coral in different

colours, of which ‘the woody twigs were partly transformed into stone’.⁷⁸ He describes how coral comes into existence as a plant and then is slowly petrified by ‘petrifying juices’ in the water. The idea of stones formed through water was not new: Pliny had already discussed the petrifying qualities of some rivers, lakes and seas.⁷⁹ Yet De Boodt rejects the claim that coral petrified when taken out of the water and exposed to air; a claim that was made by Pliny and Ovid, but also by Maier.⁸⁰ This older claim was also included in the above-mentioned engraving of coral fishers (Figure 2): the caption reads that coral in the water is ‘soft’ and when ‘the branch is taken from the water it is hard and red’.⁸¹ But this old claim is wrong, according to De Boodt, because then we could not have branches of coral that are partly of a woody and partly of a stony substance, which De Boodt claims to have seen with his own eyes. Whether coral first grows as a regular plant and is then changed by this petrifying juice, or if coral can only originate directly from the juice, is according to De Boodt open to debate. But he is convinced that coral and all other sea-plants cannot grow without the petrifying juice in water. So, it is in coral’s nature to petrify, but when the process of petrification starts, the plant eventually dies. Quite literally, De Boodt claims that the petrifying juices kill the plant.⁸²

The intriguing process of petrification was central to Bernard Palissy’s (1510–1590) major works. This potter-cum-natural philosopher (who designed and built grottos for his patrons) claimed that the true secret of nature, or the true Philosopher’s Stone, ‘lay, quite literally, in the realm of petrification rather than in chrysopoeia’.⁸³ Moreover, De Boodt’s ideas on petrification show many similarities with the later arguments of the ‘chymist’ and physician Joan Baptista van Helmont, who, just as De Boodt, originated from the Southern Netherlands. Van Helmont devoted two chapters to petrification in his *Dageraed, ofte nieuwe opkomst der geneeskonst* (first published posthumously in 1644). One chapter discussed the process of petrification in mountains and the other addressed the process of petrification in the human body.⁸⁴

The central claims of Van Helmont’s ‘chymistry’ were that all things are made of water and that hidden internal qualities, *semina*, convert water in all other substances in the world.⁸⁵ In relation to petrification, this meant that all stones were in fact ‘children of the water’ coming from ‘stone-seed’.⁸⁶ Translucent precious stone are formed when this stone-seed occurred in pure water (unmixed with earth) in the mountains. Opaque stones are formed when the water is unclear or mixed with earth. Van Helmont does not mention coral, but he discusses the fertile potential of water in relation to shells. He argues that shells were originally made from another substance, but because of the stone-seed in water – depending on the makeup of the water in their environment – the shells could further petrify. Indeed, this stone-seed could also turn other substances into stone. Van Helmont gives the example of the petrification of a glove owned by Emperor Fredrick that was hung partly submerged in water: the half in the water had turned into stone, the other half remained leather. The same process could occur with all kinds of material: wood, herbs, bread, iron, shells, fish, animals, and birds.⁸⁷ Van Helmont emphasizes that the process of petrification does not create a genuine new stone, but only changes the existing animal or plant into a stony substance. Finally, as water can turn into stone, stone can turn back into water: the dripping in caves and quarries is a sign of this metamorphosis. These ideas about caves and petrifying juices were in fact older, and Van Helmont’s contribution was their integration into an all-encompassing

natural theory. But his work demonstrates that such theories on petrification were still very much current and evolving in the first half of the seventeenth century.

As early Netherlandish painters had visualized natural philosophers' theories on gems and water of Paradise, so did seventeenth-century painters visualize ideas about petrification and the origins of coral. The Francken workshop for instance produced some remarkable compositions with a still life foreground of shells and corals combined with mythological scenes with water and grottos in the background.⁸⁸ While the still life scenes refers to the natural transformation and origin of shells and coral, the mythological motifs in the background refer to Ovid's *Metamorphoses* (a best-seller widely available in Dutch translation).

One of Ovid's popular stories was about the river god Acheloüs. During a rich banquet in his cave, Acheloüs told Theseus and his company about his love affair with the water nymph Perimele.⁸⁹ Perimele's father was so angry about her affair with Acheloüs that he wanted to kill her. Acheloüs begged Neptune to save his beloved Perimele, a wish that was only partly fulfilled: she was turned into an island, forever embraced by the river.⁹⁰ This scene was beautifully depicted by Rubens and Brueghel in *The feast of Acheloüs* now in the Metropolitan Museum of Art. The painters adhered closely to Ovid's description of Acheloüs' cave, where 'the floor was damp with soft moss, conchs and purple-shells paneled the ceiling'.⁹¹ The painting was one of the most ambitious collaborations between Rubens and Brueghel, as Walter Liedtke claimed.⁹² Its size alone, 109.5 × 165.7 cm, indicates the aspirations of the painters, who most likely made the work for a wealthy private collector. The status of the painting is further confirmed by the fact that Jan Brueghel the Younger depicted the *Acheloüs*-composition by Rubens and his father in the *Allegory of painting* (Figure 7). This gallery-type allegory of a diverse arrangement of objects forms a direct link between *The feast of Acheloüs*, Antwerp's culture of collecting, and painters' interest in material transformation.⁹³



Figure 7. Jan Brueghel the Younger, *Allegory of painting*. Oil on copper, private collection (formerly Johnny van Haeften).



Figure 8. Simon de Vos, *Bacchanal in Grotto*, 1634. Oil on panel, 53.2 × 72,5 cm, private collection.

Banquets of the gods were widely collected in Antwerp, as we know from inventories and surviving examples.⁹⁴ Also popular were depictions of a feasting Bacchus, such as Simon de Vos' *Bacchanal in a grotto* of 1634 (Figure 8), the coral seems to grow directly out of the stony sides of the cave, just as do all sorts of shells. Unlike the transformation processes wrought by hard working artisans in Breughel's work (Figure 5), the painting by De Vos seems to refer to metamorphoses in an indirect manner. We see grapes and wine (and drunkenness), but also an allegory of the ages of man. The metamorphosis related to coral and shells may be seen in light of the debate on petrification.

An artificial rock wall with coral and wine had been a party decoration designed for Philip II. In 1549 an extravagant celebration was held in honour of the prince at the castle of Binche. One of the most sensational features of the event was a crafted wall of rock and red coral, from which wine flowed into the cups of the attendees (Figure 9).⁹⁵ The artificial rock-wall in the 'Enchanted Room' resembled the artificial grottos that had become fashionable garden elements among the elite, and which were often decorated with shells, coral, and crystals.⁹⁶ Grottos have been explained as places of embodied knowledge: pieces of 'artful nature', which addressed questions about nature and particularly about the origins of stones.⁹⁷ Grottos appealed to the imagination because of this combination of preciousness, luxury, marvellous nature, and naturalists' theories.⁹⁸

For humanistically-educated artists, knowledge of mythological metamorphoses of petrification was self-evident. But petrification also had a Christian connotation in



Figure 9. Anonymous, *Interior of the castle Binche during the celebration for Philip II: The enchanted room*, 1549. Ink on paper, 40.9 × 38.7 cm, Royal Library Brussels (F12931 plano C).

relation to the debates about images of stone, as well as in relation to coral in particular. First, as pointed out, coral was associated with the Blood of Christ and His suffering. More specifically, the transformation process that is petrification implied that things could last forever. Coral might die because of petrification; it also became a piece of immortal life.⁹⁹ Death and immortality at the same time: a perfect analogue for the sacrifice of Christ and the salvation waiting upon true Christians.

Second, coral was but one example of petrification in nature, which could basically be perceived as Nature making ‘images of stone’. Since ‘images of stone’ were a major point of debate in a religious context, this added extra importance to the debate on petrification. During the Counter Reformation the use of man-made images made of

stone was defended by using Biblical examples of stone statues.¹⁰⁰ Catholic writer Martinus Duncanus, for example, defended the use of ‘images of stone’ by claiming that petrification was actually described in the Bible. When Lot fled from Sodom with his wife and daughters, his wife looked over her shoulder, against explicit warnings, whereupon she was turned into a pillar of salt. Duncanus used this biblical story to demonstrate that ‘God himself had made a stone statue’.¹⁰¹ God changed the wife of Lot into a ‘salt-stone statue’ as a warning to all the mortals who would see the statue: a visual lesson approved by God. In the New Testament, Christ had also referred to the petrification of Lot’s wife as a warning against disobedience. Duncanus concluded that if God made a stone statue as ‘eternal remembrance of history’, mortal humans must follow God’s example and also make and use statues to remember and ‘to see before our eyes’ an ‘eternal remembrance of heavenly works’.¹⁰²

A reversal of the idea of ‘images of stone’ was the well-known notion of saints as the ‘living images of God’, a metaphor which ran parallel to that of God as the first artist.¹⁰³ In the Counter Reformation classic *Den bloemhof der kerckelicker cerimonien* (1607), the Jesuit Joannes David expands the idea from saints to all believers, and from images to ‘living stones’. He calls the ‘*gheloovighe menschen*’ (believing humans), the ‘*levende steenen*’ (living stones) who make up the edifice of the Church - just as ‘*de materiale kercke van steene ende verscheyden stoffe ende stucken ghemaect is*’ (the material church is made from stones and various substances and pieces).¹⁰⁴ David uses the metaphor of humans as ‘living stones’, because it supports his central claim, namely that the true Catholic Church is and should be both material and spiritual. Both the physicality of devotion and visual imagery were crucial for true believers.

Good Catholic believers do not honour or worship gold, silver, wood, stone or any other substance as such, but the Creator of all substances, in the words of another Counter Reformation writer.¹⁰⁵ Renatus Benedictus repeats the important Catholic argument that Christ himself is ‘the one who, for the good of us, has become substance, and has lived in substance’.¹⁰⁶ Humans should therefore ‘honour and worship the substance, through which we have received and obtained grace’.¹⁰⁷ His main argument is that substance – or material objects and practices – are all-important to true Catholic belief and tradition. Benedictus therefore writes fiercely about the ‘life-making blood of Jesus Christ’ and the importance of the ‘Calvary, the living stone, the holy grave, origin and fountain of our resurrection’.¹⁰⁸

Returning now to the Calvary with a branch of coral made by goldsmith Henrick van Paesschen, it becomes clear that such a collectable was one of those material objects important in Antwerp’s Counter Reformation not just because of its sacred meaning, but also because of the association of coral with the Blood of Christ and coral’s substance as a ‘living stone’. For contemporaries this association was probably so obvious that the goldsmith Van Paesschen had naturally assumed that his client d’Evora would like a branch of coral in his Calvary – an immortal piece of petrified life as a remembrance of Christian salvation.

Coral and the culture of collecting

The interest in coral among Antwerp collectors was related to some defining characteristics of the culture of collecting: first, collections as places of process appreciation, second,

collections as conversation pieces, and third, collections as visual reflections upon matter and material transformation.

Coral was traded and collected in many regions of the world, so Antwerp was hardly an isolated case. What makes Antwerp unique, however, is its position as the centre in northwest Europe for the trade and manufacture of luxury in the early seventeenth century, especially with regard to precious minerals. Antwerp's successful economic class of guild-masters put a strong mark on the city's culture of collecting. They were traders, producers, collectors and appreciators all at once. Also typical for Antwerp were the many cases of artisanal and artistic cooperation and the incredible production of images, in particular engravings and paintings. And among the most innovative paintings were precisely those genres that reflected upon the culture of collecting, matter, and material transformation.

As collectors, artists and artisans further enhanced their status and the status of their products. Acquiring a type of connoisseurship about material objects that was earlier restricted to the workshops of artists and artisans became a natural interest of collectors. There was an increasing appreciation for artisanal transformation, or process appreciation. There are countless indications of the interest in artisanal processes (e.g. the painting by Brueghel), which could be compared to natural transformation processes (e.g. in displays that combined natural and crafted coral). Furthermore, artisanal processes that aimed to imitate natural processes – as well as counterfeited natural materials – were highly valued for the knowledge they represented. Even though counterfeiting processes were often expensive, difficult, and time-consuming (as the recipes indicate), the results were appreciated enough to make the effort worthwhile.

The multi-meaning and multi-functionality of coral made it a perfect subject of conversation. Collectors could demonstrate to be knowledgeable about objects from a variety of perspectives, such as trade, craft, art, antique literature, religion, and natural knowledge. Of course knowledge and erudition differed per individual: not all visits to collectors' rooms were paired with in-depth discussions. But at the very least the collection opened up possibilities for conversation, and circumstantial evidence shows that such conversations did indeed occur. Texts, prints, artefacts, and paintings testify to the fact that particular objects were collected not just for aesthetic pleasure, but also because of the discourses around them. Also, gallery pictures depict people in conversation while touching and looking at the objects. Through conversations collectors or beholders of collections demonstrated themselves to be knowledgeable about the arts and sciences (the all-inclusive ideal of the *consten*) that were represented in the collection. And via their collections, they supported a culture of debate and appreciation.

Collectors' growing interest in material knowledge went hand in hand with the emergence of new painterly genres that took the depiction of material objects and material transformation as their focal point. Next to the genre of the gallery picture, one can also point to paintings of banquets of the gods, and allegories of the senses or elements. These paintings not just documented a range of material objects found in actual cabinets in Antwerp, but they also, more importantly, were a particular view on the understanding of matter and the material world. They reflected upon the process of petrification for instance. The wondrous material transformation of coral fascinated collectors and painters alike, while petrification was seen as one of the most important natural transformations.

Notes

1. On this motif as a Counter-Reformation argument, see: Marlise Rijks, “Defenders of the Image. Painted Collectors’ Cabinets and the Display of Display in Counter-Reformation Antwerp,” in: H. Perry Chapman, Frits Scholten and Joanna Woodall (eds.), *Arts of display. Netherlands Yearbook for History of Art* 65 (2015), 54–83.
2. On the genre see: Zirka Z. Filipczak, *Picturing Art in Antwerp 1550–1700* (Princeton: Princeton University Press, 1987); S. Speth-Holterhoff, *Les peintres Flamands de cabinets d’amateurs au XVIIe Siècle* (Brussels: Elsevier, 1957); Ursula Härting, *Frans Francken Der Jüngere (1581–1642). Die Gemälde mit Kritischem Oeuvrekatalog* (Freren: Luca, 1989); Ursula Härting, “Doctrina et pietas’. Über frühe Galeriebilder,” *Jaarboek van het Koninklijk Musuem voor Schone Kunsten Antwerpen* (1993): 95–133; K. van Schueren, “De Kunstkamers van Frans II Francken: een kritische analyse van de aldaar aanwezige sculptuur,” *Jaarboek van het Koninklijk Museum voor Schone Kunsten Antwerpen* (1996): 59–89; Victor I. Stoichita, *The self-Aware Image. An Insight into Early Modern Meta-painting* (Cambridge: Cambridge University Press, 1997); Elizabeth A. Honig, “Making Sense of Things. On the Motives of Dutch Still Life,” *RES: Anthropology and Aesthetics* (1998): 166–183; Alexander Marr, “The Flemish ‘Pictures of Collections’ Genre: An Overview,” *Intellectual History Review* 20 (2010): 5–25; Sven Dupré, “Trading Luxury Glass, Picturing Collections, Consuming Objects of Knowledge,” in *Silent messengers. The Circulation of Material Objects of Knowledge in the Early Modern Low Countries*, ed. Sven Dupré and Christoph Lüthy (Berlin: Lit Verlag, 2011), 261–291; Rijks, “Defenders of the Image,” 54–83.
3. See my forthcoming paper “Aquatic Life on Display,” developed as part of the NWO-project *A New History of Fishes. A Long-term Approach to Fishes in Science and Culture*.
4. Many of the great European collections contained coral – both in its natural form and crafted. For example: Francesco I de Medici, Franz Ferdinand II, and Rudolph II.
5. Vidi corallii fruticem multis ramis ornatum qui centum thaleris aestimatus fuit. Potest etiam pluris vendi. Appetentis enim luxus aestimari non potest. Multi sunt qui singularia quaedam metallica ac insolentes naturae excrescentias immenso aestimant precio cum tamen inutiles sint.’ Anselmus de Boodt, *Gemmarum et Lapidum Historia* (Hanover: C. Marnium & heredes and J. Aubrii, 1609), 159. Thanks to Tom Deneire for his help with the Latin translations.
6. Richard A. Goldthwaite, *The Building of Renaissance Florence. An Economic and Social History* (Baltimore and London: Johns Hopkins University Press, 1980); Krzysztof Pomian, *Collectors and Curiosities. Paris and Venice, 1500–1800* (Cambridge: Polity Press, 1990); Oliver R. Impey and Arthur Macgregor, *The Origins of Museums. The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe* (Oxford: Clarendon Press, 1985); Ellinoor Bergvelt, Debora J. Meijers, and Mieke Rijnders eds., *Verzamelen. Van rariteitenkabinet tot kunstmuseum* (Heerlen: Gaade uitgevers, 1993); Horst Bredekamp, *The Lure of Antiquity and the Cult of the Machine. The Kunstammer and the Evolution of Nature, Art and Technology* (Princeton: M. Wiener Publishers, 1995); Susan M. Pearce, *On Collecting. An Investigation into Collecting in the European Tradition* (London and New York: Routledge, 1995); L. Jardine, *Worldly Goods: A New History of the Renaissance* (New York: Doubleday, 1996); Pamela H. Smith and Paula Findlen, eds., *Merchants & Marvels: Commerce, Science and Art in Early Modern Europe* (New York: Routledge 2002); Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven and London: Yale University Press, 2007); Eric Jorink, *Reading the Book of Nature in the Dutch Golden Age, 1575–1715*, trans. Peter Mason (Leiden: Brill, 2010); Renata Ago, *Gusto for Things. A History of Objects in Seventeenth-century Rome* (Chicago and London: University of Chicago Press, 2013); Evelyn Welch, “The Art of Expenditure. The Court of Malatesta Gonzaga in Fifteenth-century Mantua,” *Renaissance Studies* 16

- (2002): 306–317; Ulinka Rublack, “Matter in the Material Renaissance,” *Past and Present* 219 (2013): 41–85.
7. There is a lot of research on these so-called ‘new’ ways of knowing nature, matter, and the material world, be it descriptive, embodied or visual. See for instance: Cook, *Matters of Exchange*, Pamela H. Smith, *The Body of the Artisan. Art and Experience in the Scientific Revolution* (Chicago: University of Chicago Press, 2004), Thomas DaCosta Kaufmann, *The Mastery of Nature. Aspects of art, science, and humanism in the Renaissance* (Princeton: Princeton University Press, 1993); Sachiko Kusukawa, *Picturing the Book of Nature. Image, Text, and Argument in Sixteenth-century Human Anatomy and Medical Botany* (Chicago, IL: University of Chicago Press, 2012).
 8. Marlise Rijks, “Catalysts of Knowledge. Artists’ and Artisans’ Collections in Early Modern Antwerp” (unpublished PhD diss., Ghent 2016).
 9. Bert de Munck, “Artisans, Products, and Gifts: Rethinking the History of Material Culture in Early Modern Europe,” *Past and Present* 224 (2014): 39–74, on p. 54.
 10. Gedalia Yogev, *Diamonds and Coral. Anglo-Dutch Jews and the Eighteenth-century Trade* (Leicester: Holmes & Meier Publishers, 1978), 103.
 11. Joannes Stradanus (invent.) and Philips Galle (publisher), *Venationes ferarum, avium, piscium* (Antwerp: Philips Galle, 1583 [first published: 1578]); Joannes Stradanus (invent.) and Philips Galle (publisher), *Nova Reperta* (c. 1600). Stradanus’ designs for the *Nova Reperta* were commissioned by Luigi Alamanni, a learned member of the Florentine nobility. Even though books with inventions had been made since the mid-fifteenth century, Stradanus’ *Nova Reperta* was the first visual work devoted to inventions and discoveries. See: Dániel Margócsy, “Stradanus *Nova Reperta*,” in *Exh. Cat.: Prints and the Pursuit of Knowledge in Early Modern Europe*, ed. Susan Dackerman (Harvard Art Museums/New Haven and London: Yale University Press, 2011), 38–45.
 12. City Archive Antwerp (SAA), Rechtspraak Lakenhalle, V 2335: Joan Francisco and Joan Andrea Stratta against Elias Voet, concerning the trade in coral for white ‘saaien’ (wool). The first batch of coral was worth 7 schellingen and 2 ‘groten’ per ounce (total value 966 ponden, 1 schelling, 4 groten), the second, of lesser quality, 4 schellingen and 8 ‘groten’ per ounce (total value 809 ponden 4 schellingen).
 13. One of his Reynier’s clients was Gaspar Boudaen, the son of the Antwerp diamond cutter Elias Pauwelsz Boudaen, who moved to the Dutch Republic in the late sixteenth century. On 1 September 1628 Elias testified for his brother Reynier, who had sold a batch of coral of ‘dryentachtentich pont seven schellen ses groten Vlems’ to Gasper Boudaen. SAA, SR 591 V, fol. 379r. For Boudaen see: Eric Wijnroks, *Handel tussen Rusland en de Nederlanden 1560–1640* (Hilversum: Verloren, 2003), 94, 245.
 14. ‘ende noch een obligatie van 800 gs op Pietro Paulo Rubens in schiderye van syn eyghen handt’. SAA, Rechtspraak Lakenhalle, V 2335.
 15. At the time of the foundation of the guild in 1582 there were around 35 diamond grinders, in 1609 their number had risen to 59. Only in the second half of the seventeenth century did Antwerp’s dominance decrease in favour of Amsterdam and London. As a reaction to this decline, the Antwerp guild of diamond grinders became increasingly restrictive. D. Schlugleit, *Geschiedenis van het Antwerpsche Diamantslijpersambacht (1582–1797)* (Antwerpen: Guillaume, 1935).
 16. On January 19, 1632, Elias Voet testified that his brother Herman died in Milan the summer before. SAA, Notary G. Le Rousseau, 2421, fol. 34.
 17. Anthonio I Anselmo (c. 1536–1611) was a merchant in cloth in Antwerp (he became poorter in 1562) and a confidant of William of Orange. In 1581 he was appointed colonel and schepen of Antwerp. Maarten de Vos portrayed Antonio I Anselmo and his wife Johanna Hooftman with two children in 1577 (painting now in the Koninklijk Musuem voor Schone Kunsten in Brussels). In 1584 Anthonio and his family fled from Antwerp: they were in Delft in 1585 and afterwards moved on to the Diocese of Bremen (Hamburg and Stade), while somewhat later in 1594 the family

- was in Haarlem. Johanna Anselmo married Julien del Court in the city of Stade in 1593. Julien del Court was an immigrant from Aat in Hainaut (but had also lived in Antwerp). Antonion I Anselmo moved to Kruiningen in Zeeland, where he built ‘Het Klein Slot’, the house in which he died in 1611. See: Gustaaf Assaert, *1585: de val van Antwerpen en de uittocht van Vlamingen en Brabanders* (Tielt: Lannoo, 2004), 84–89; K.J.S. Bostoën, *Het album J. Rotarii: tekstuitgave van het werk van Johan Radermacher de Oude (1538–1617) in het Album J. Rotarii* (Hilversum: Verloren, 1999), 85–88. According to testimony by Johanna del Court from 1654, she lived with her father in Bremen (in the city of Bremen, instead of in Hamburg) and later at the ‘Cleyen Slot’ in Kruiningen (‘daer liggende int water met een optreckende brugge’). She also testified that she stayed at the Slot in Kruiningen after the death of her father (in 1611). The testimony further deals with the house in Bremen (and some precious objects kept there, like a painting, silver, tapestry, glasswork, gold leather wall paper), the father’s carriage with two horses, and the land and rights of the ‘heerlyckheyt’ Kruiningen. Probably sometime after the death of her father, she met Reynier Voet, who lived not too far away from Kruiningen in Zevenbergen. SAA, Notary P. Ghysberti, 1830, fol. 95r–95v.
18. Anthonio II Anselmo was born in Hamburg in 1589. He studied law in at the University of Louvain and after his return to Antwerp became schepenen of Antwerp, like his father before him. Ad Meskens, “Een familie herenigd met haar instrument,” *Scientiarum Historia* 27 (2001): 75.
 19. ‘vercocht heeft twee stucken eenhooren d’een een el lanck stuck wesende meer als een halff elle lanck ende d’ander cort ende dick’. SAA, Notary M. Cuylen, N 698, fol. 1r–1v (April 9, 1618).
 20. Godelieve van Hemeldonck, *Het Grootwerk. Goudsmeden, zilversmeden en juweliers vermeld te Antwerpen, 13de-19de eeuw*, CD-ROM (Antwerp, 2005); SAA, Notary G. Le Rousseau, N. 2421, fol. 17.
 21. Elias Voet, *Haarlemsche goud- en zilversmeden en hunne merken* (Haarlem: Bohn, 1928), 98, n2. ‘Aen Elias Voet de somme van 40000 carolusguldens over een keting ronde peerlen, inhoudende 120 stucken bij hem aan Z. Hoogheid (Prins Frederik Hendrik) op 19 April verkocht en geleverd (original at: Nausau Domeinen-Ordonnanties. No. 736, f37).
 22. A similar role was to be played by his brother Jan Voet in 1648, after the death of Daniel II Fourment, brother-in-law of Rubens. Voet, *Haarlemsche goud- en zilversmeden*, 98; Van Hemeldonck, *Grootwerk*.
 23. This period of social advancement for artists and artisans came to an end in the second half of the century. Hugo Soly, “Sociale relaties in Antwerpen tijdens de 16^{de} en 17^{de} eeuw,” in *Antwerpen: verhaal van een metropool 16^{de}-17^{de} eeuw*, ed. Jan van der Stock (Gent: Snoeck-Ducaju & zoon, 1993), 37–47, on p. 43; Hugo Soly, “The ‘Betrayal’ of the Sixteenth-century Bourgeoisie: A Myth? Some Considerations of the Behaviour Pattern of the Merchants of Antwerp in the Sixteenth Century,” *Acta Neerlandica* VIII (1975), 31–49. See also: Catharina Lis and Hugo Soly, “Export Industries, craft guilds and capitalist trajectories, 13th to 18th centuries,” in: *Craft Guilds in the Early Modern Low Countries. Work, Power, and Representation*, ed. Maarten Prak, Catharina Lis, Jan Lucassen, and Hugo Soly (Aldershot: Ashgate, 2006), 107–132; De Munck, “Artisans, Products, and Gifts,” 55; Soly, “Sociale relaties in Antwerpen,” 43.
 24. SAA, Notary G. Le Rousseau 2422 (1633) fol. 34–51v. See also: Erik Duverger, *Antwerpse kunstinventarissen uit de zeventiende eeuwvol. 1* (Brussels: Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, 1984), 322–332.
 25. There are two designs by Rubens that are related to the saltcellar: a grisaille on panel (The Fitzwilliam Museum, Cambridge) and a drawing in pen and brown ink (The British Museum). See also: Rijks, “Catalysts of Knowledge.”
 26. Paul Huvenne et al., eds., Exh. Cat.: *Antwerps huiszilver uit de 17e en 18e eeuw* (Antwerp: Dienst Beeldende Kunsten en Musea, 1989), 28. Rubens made several designs for Petel

- during the latter's stay in Antwerp in the 1620s: Kristin Lohse Belkin et al., *Exh. Cat.: Een huis vol kunst. Rubens als verzamelaar* (Antwerp: Rubenianum, 2004), 309; Lisa Skogh, "The 'Ivory Foot' by Georg Petel," in *Leidenschaft für Elfenbein. A Passion for Ivory zu Ehren von Reiner Winkler. Sammler, Connaissanceur und Mäzen*, ed. Jutta Kappel and Marjorie Trusted (Munich: Kunstammer Georg Laue, 2015), 22–23. Thanks to Lisa Skogh for pointing out the coral in this saltcellar.
27. The house *Den Meersman* counted 18 rooms. An inventory was made on the death of Herck's wife Elizabeth Sophie in 1633. It also included a large stock: 358 pieces of jewellery, 498 gold and silver objects, at least 674 separate diamonds and over 200 pearls (excluding the gemstones mounted in jewellery). In addition, Herck also owned at least 392 other diamonds and 1,440 other pearls, which were held for him by business contacts abroad. The total value was over 36,000 *gulden*. SAA, Notary G. Le Rousseau 2422 (1633) fol. 34–51v.
 28. Rijks, "Catalysts of Knowledge".
 29. Marcia Pointon, *Brilliant Effects. A Cultural History of Gem Stones and Jewellery* (New Haven and London: Yale University Press, 2009), 108.
 30. The coral listed in their inventories was ranged between 1 *gulden* per ounce to 5 *gulden* per ounce. Comparatively, silver and gilded object were appraised at between approximately 50 *stuivers* and 3 *gulden* per ounce, while gold fetched around 32 *gulden* per ounce. Comparatively, silver and gilded object were appraised at between approximately 50 *stuivers* and 3 *gulden* per ounce, while gold fetched around 32 *gulden* per ounce.
 31. Petrus Christus, *A Goldsmith in his Shop, possibly Saint Eligius*, 1449, oil on panel, 98 × 85.2 (New York: The Metropolitan Museum of Art). The figure in this painting has long been interpreted as Saint Eligius, but more recent interpretations suggest a goldsmith in his workshop, perhaps ordered for a guildhall. Maryan Ainsworth et al., *Exh. Cat.: From Van Eyck to Bruegel. Early Netherlandish Painting in the Metropolitan Museum of Art* (New York: The Metropolitan Museum of Art, 1998), 150–153.
 32. "Alnoch een juweelcasse bedeckt met gelas daerinne oock bevonden 't naervolgende vier corale tacxkens," SAA, Notary J. van der Herstraten 3850 (1621–1631).
 33. SAA, Notary J. van der Herstraten 3850 (1621–1631).
 34. Een doosken met gruijs van corael' and 'Een doosken daerinne wat pampierkens met vermelioen pinselen.' SAA, Notary J. van der Herstraten 3850 (1621–1631).
 35. 'Een swert fluweele casken daerinne synde een goude bagghe verciert met vier peirlen ende valsche gesteenten in 't midden staende een wit Troniekken van agate'; 'Een doosken daerinne vyff paer gelase perlen met goude oochskens daerinne". SAA, Notary J. van der Herstraten 3850 (1621–1631): fols. 3r and 17r.
 36. For instance in a manuscript now in Plantin-Moretus (Antwerp) by Pieter van Coudenberghe (1517–1599), the Antwerp apothecary and botanist with an internationally renowned reputation who corresponded with savants all over Europe. Manuscript in Plantin-Moretus, M.s. no. 64. See also: E. Vandamme, "Een 16e-eeuws Zuidnederlands receptenboek," *Jaarboek van het Koninklijk Museum voor Schone Kunsten Antwerpen* (Antwerp: KMSKA, 1974). On the collectors' interest in artsianal processes of counterfeiting, see the forthcoming book chapter: Marlise Rijks, 'Process appreciation in early modern Antwerp: gems in workshops and collections' in *Gems in the Early Modern World*, ed. Michael Bycroft and Sven Dupré (forthcoming).
 37. See note 5 (Anselmus de Boodt, *Gemmarum et Lapidum Historia* (Hanover: C. Marnium & heredes and J. Aubrii, 1609)).
 38. British Library, Manuscripts: Sloane MS 2210, fol. 3v, fol. 66v. See also: Deborah E. Harkness, *The Jewel House. Elizabethian London and the Scientific Revolution* (New Haven, CT, 2007), 217. Other examples are: 'The Goulde arte, or The Jewell House of Gemes. With divers other things divided into tow severall books for the better understanding thereof. Collected and gathered together out of divers and sundry

- authors by William Heth, Clarke of his Maje store for the navy at Portesmouth' (1603), British Library Manuscripts Stowe 1071, fol. 99r; "The art of limeinge. An expert and compendious discourse concerning the art of minatura or limeinge. The names natures and properties of the colours," by 'Michael Yffington', British Library Manuscripts, Add MS 34120, fol. 44r. There were several copies of this work, for example one by the engraver Daniel King (1616–1661). See also: Robert Tittler, *Portraits, Painters and Publics in Provincial England 1540–1640* (Oxford: Oxford University Press 2013), 170.
39. Bibliothèque nationale, Paris: Ms. Fr. 640. This manuscript is currently analysed and the recipes reconstructed as part of the Making and Knowing Project at Columbia. See: <http://www.makingandknowing.org>.
 40. A more recent term used by Marjonlijn Bol (research project: *Art and Deception: functions, techniques and effects of material mimesis*) and Martha Ajmar (research project: *Material Mimesis: Reconnecting the Arts in the Global Renaissance*).
 41. Gerald W.R. Ward (ed.), *The Grove Encyclopedia of Materials and Techniques in Art* (Oxford: Oxford University Press, 2008), 146.
 42. Ward, *The Grove Encyclopedia of Materials and Techniques in Art*, 145.
 43. According to Maier, coral has 'As Much Curative Power as All Herbs Together.' H.M.E. de Jong, ed., *Michael Maier's Atalanta fugiens. Sources of an alchemical book of emblems* (Leiden: Brill, 1969), 227.
 44. Inventory Abraham van Horne; SAA, Notary B. Van den Berghe, 3495 (1624–1627).
 45. De Boodt, *Gemmarum*, 157.
 46. Christine Göttler, "Allegories of Fire and the Arts," in: Exh. Cat. *Art and Alchemy. The Mystery of Transformation* (Düsseldorf: Museum Kunstpalast, 2014), 134–145; Christine Göttler, *Last Things: Art and the Religious Imagination in the Age of Reform* (Turnhout: Proteus, 2010), 377–382.
 47. Göttler, "Allegories of Fire and the Arts," 134–145.
 48. 'Den Smidt al is hy den Discipel van Vulcanus, hy is oock van t'maegschap van Mars.' Smiths were not just 'disciples of Vulcan' but also akin to Mars, as they made instruments of War. Richard Verstegan, *Beschrijvinghe van de Proprieteiten oft eyghendommen, van de differente soorten van Ambacht-slieden, Dienende in stede van Medicamenten, teghen die Melancolie* (Antwerp: by the widow of Jeremias van Ghele, 1642 [first published: Antwerp, 1630]), 38.
 49. For example by Michael Maier: "The Philosophers' Stone may be compared with all these things, and especially with coral. For just as coral grows in water and gets its food out of the earth, in the same way the Philosophers' Stone grows out of the mercury water and what is earthly in it serves as food for the Stone and the superfluous fluid is drained away. Just like coral, the Stone gets a red colour, when it becomes solidified"; de Jong, ed., *Michael Maier's Atalanta fugiens*, 227.
 50. For example in the text *Turba Philosophorum*, a collection of alchemical texts translated from Arabic. It was published in Basel in 1572 under the title *Auriferae Artis, quam Chemiam vocant Antiquissimi Authores sive Turba Philosophorum* (Basil, 1572), 156–157. See: de Jong, ed., *Michael Maier's Atalanta fugiens*, 228.
 51. Ovid, *Metamorphoses*, Book IV, 706–803.
 52. For example: Jan I Brueghel and Frans II Francken, *Perseus liberates Andromeda* (Antwerp: *Rubenshuis*). In the story of Perseus and Andromeda petrification plays an important role. There are, of course, also Italian examples, such as Vasari's famous *Perseus and Andromeda* for Francesco I de Medici's studiolo (where coral was collected). Cristina Acidini, *The Medici, Michelangelo and the Art of Late Renaissance Florence* (New Haven, CT: Yale University Press, 2002), 55. See also the discussion of Cellini's *Perseus and Andromeda*: Michael Cole, "Cellini's Blood," *The Art Bulletin* 81 (1999), 215–235, in particular 228–229. For the mythological metamorphoses associated with coral see also: Anna Grasskamp, "Metamorphose in Rot. Die Inszenierung von Korallen-fragmenten in Kunstkammern des 16. und

17. Jahrhunderts,” in *Metamorphosen*, ed. Jessica Ullrich und Antonia Ulrich (Berlin: Neofelis Verlag UG, 2013), 13–24.
53. Joannes Sambucus, *Emblemata et aliquot nummi antique operis* (Antwerp: Plantin, 1576). The 1576–edition was the extended version of an earlier edition from 1564. See: Arthur Henkel and Albrecht Schöne, *Emblemata. Handbuch zur Sinnbildkunst des XVI. und XVII. Jahrhunderts* (Stuttgart and Weimer: Metzler, 1996), lii, 361. Thanks to Paul J. Smith for pointing me to these emblem books.
 54. MS K I 2 (Mineral-Stones Album), fol. 110, Universitäts Bibliothek Basel. Florike Egmond, “A collection within a collection. Rediscovered animal drawings from the collections of Conrad Gessner and Felix Platter,” *Journal of the History of Collections* 25 (2013), 149–170, on p. 154. Thanks to Florike Egmond for pointing me to this drawing.
 55. ‘Einen Ast weißer Koralle.’ From the same Joost Plankfelt he also received ‘Eine indische Nuss mehr ein alt türkische Geissel.’ See: Gerd Unverfehrt, *Da sah ich viel köstliche Dinge: Albrecht Dürers Reise in die Niederlande* (Göttingen: Vandenhoeck & Ruprecht, 2007), 219.
 56. Several other fifteenth-century paintings testify to the presence of gemstones in the waters of paradise, often in combination with branches of red coral. For example: Hieronymus Bosch, *Garden of Delights* (Madrid: Prado); Joachim Patinir, *Charon Crossing the River Styx* (Madrid: Prado); Master of Rotterdam, *Saint John of Patmos* (Rotterdam: Boijmans van Beuningen); Joachim Patinir, *The Penitence of Saint Jerome* (New York: Metropolitan). Marjolijn Bol, “Gems in the Water of Paradise. The Iconography and Reception of Heavenly Stones in the Ghent Altarpiece,” in *Le dessin sous-jacent dans la peinture. Colloquium Van Eyck Studies*, Brussels, ed. Christina Currie (Leuven: Peeters Publishers, 2016).
 57. Bol discusses contemporary ideas about paradisaal waters, which were thought to contain gemstones. Through the four rivers from Paradise these gemstone were spread on earth. Bol, “Gems in the Water of Paradise.”
 58. Marcus van Vaernewyck, *Van die beroerlicke tijden in die Nederlanden en voornamelick in Ghendt 1566–1568*, ed. by Ferdinand Vanderhaeghen (Ghent: Annoot-Braeckman, 1872–1881), 87, 145.
 59. Sometimes in combination with mountain crystal; associated with Godly Light. For a discussion of coral’s ‘special position in Christian imagery’ see: Pointon, *Brilliant Effects*, 134–136.
 60. Evelyn Underhill, “The Fountain of life: An Iconographical Study,” *Burlington Magazine* XVII, 1910, 102–103.
 61. Other examples are: *The Virgin and child with a Rosary with a Branch of Natural Coral, by a Follower of Hugo van der Goes around 1485* (London: National Gallery, inv. no. NG3066); anonymous, *Triptych of the holy kinship*, also with Virgin and a baby Christ with a rosary with a branch of coral, c. 1520–1530 (Leuven: Museum M Leuven, inv. no. S/8/O). Famous Italian examples are: Piero della Francesca, *Senigallia Madonna*, c. 1470 (Urbino: Galleria nazionale delle Marche); A. Mantegna, *Madonna della Vittoria*, 1495–6 (Paris: Musée de Louvre). Thanks to Ruben Suykerbuyk and Maarten Bassens for pointing me to the examples in London and Leuven.
 62. Maryan Ainsworth does not mention the coral as one of those details, but the coral may also be interpreted as a foreshadowing of Christ’s suffering and sacrifice. Ainsworth, *From Van Eyck to Bruegel*, 360–363. Reindert Falkenburg discusses the association between prayer beads and the consumption of fruit and wine in Flemish paintings of the Virgin and Child: Reindert L. Falkenburg, *The Fruit of Devotion: Mysticism and the Imagery of Love in Flemish Paintings of the Virgin and Child, 1450–1550* (Amsterdam: John Benjamins Pub., 1994), 85. See also: John Oliver Hand, *Joos van Cleve. The Complete Paintings* (New Haven, CT: Yale University Press, 2004), 149.
 63. SAA, Notary P. de Breuseghem 742 (1644–1645).

64. SAA, Notary F. Marcellis 2587 (1621–1623) 4–4v. See also: Duverger, *Antwerpse Kunstinventarissen*, II, 246–247.
65. Approximately 60 gulden. In 1593 Hendrik van Paesschen (1571–1638) married Magdalena Briers (sister of Margriet Briers, wife of the painter Hendrick van Balen). Van Paesschen lived in Paris for several years before returning to Antwerp, where he also worked as a coiner at the mint. His son Jan Adriaen van Paesschen was apprenticed to his brother-in-law Hendrick van Balen. See: Hemeldonck, *Grootwerk*. For the debt of the apprenticeship of Jan Adriaen see: SAA, Notary H. Van Cantelbeck, 3393 (1639).
66. SAA, Notary F. Marcellis 2587 (1621–1623). See also: Duverger, *Antwerpse Kunstinventarissen*, II, 246–247.
67. Ruth Magurn, *The Letters of Peter Paul Rubens* (Cambridge: Harvard University Press, 1971 [first published: 1955]), 83; Wojciech Tygielski et al., eds., Exh. Cat.: *De prinselijke pelgrimstocht. De 'Grand Tour' van Prins Ladislas van Polen 1624–1625* (Ghent: Snoeck-Ducaju en Zoon, 1997); Gerrit Verhoeven, *Anders reizen? Evoluties in vroegmoderne reiservaringen van Hollandse en Brabantse elites (1600–1750)* (Antwerp: Antwerp University Press, 2008), 131–160.
68. For instance: the collection of Emanuel van Meteren (a nephew of Abraham Ortelius) was described as a place of friendship and conversation by his biographer in the appendix to a posthumous edition of Van Meteren's *Historie der Nederlandscher ... Oorlogen en Geschiedenissen* (1623). See also: Dupré, "Trading Luxury Glass," 280–281.
69. Benito Arias Montano to Abraham Ortelius in 1590. Tine Meganck, "Erudite Eyes: Artists and Antiquarians in the Circle of Abraham Ortelius (1527–1598)" (PhD diss., Princeton University, 2003), 7. See also: Zur Shalev, "Sacred Geography, Antiquarianism and Visual Erudition: Benito Arias Montano and the Maps in the Antwerp Polyglot Bible," *Imago Mundi* 55 (2003), 60.
70. As Tine Meganck notes: "The friendship between the two men was widely acclaimed: even long after both had died, Frans Francken II commemorated them together in an Antwerp art cabinet, very much the setting one imagines for their learned conversations." Meganck, "Erudite Eyes," 100.
71. The statuette is reminiscent to the famous antique statues of the Nile and the Tiber at the Capitoline Hill in Rome (which were moved there by Michelangelo).
72. Hieronymus II Francken and Jan Brueghel the Elder (attributed), *The Archdukes Albert and Isabella visiting a collector's cabinet*, c. 1621–23. Oil on panel, 94 × 123.3 cm, Baltimore, The Art Walters Museum.
73. 'een doosken met schelpen in steen verandert.' SAA, Notary H. van Cantelbeck 3371 (1617).
74. The collection of the merchant Peter Licea: 'eenen coraeltack met eenen silveren clauw, een religuaris van peirlemoeyer met een Lievrouwken van corael, een coralen tacxken, twee corale slangeskens.' Duverger, *Antwerpse kunstinventarissen*, V, 225–228; Notary P. de Breuseghem 742 (1644–1645). Peter Licea (d. 1645) was chapelmaster of the Our Lady Chapel in the St. Jacob's church (see: estate Margriet Briers, widow Hendrick van Balen. Notary H. van Cantelbeck, 3393). There are plenty of other examples of 'branches of coral' in Antwerp collections. Often they are mentioned next to crafted coral.
75. See for example: Jorink, *Reading the Book of Nature*, 257–341.
76. de Jong, ed., *Michael Maier's Atalanta fugiens*, 226.
77. Most scholars believed that fossils, those 'jokes of natures', had to be inorganic, some of them putting forward theories of how fossils actually grew in the earth. Others put forward theories about the organic nature of fossils, claiming that it were petrified specimens of once living organisms. Still others concluded that organic life forms could grow within a stone, supporting their arguments with examples of curious stones containing organisms within. Many collectors were involved in this debate, for example Ortelius with his nephew James Cole in London. Ortelius actually believed

- in the possibility that ‘the fossilized remains of animals had somehow ‘grown’ in the earth from normally sized organic remains.’ See: Harkness, *The Jewel House*, 41.
78. ‘Vidi apud antiquarium Imperatoris varriis coloribus corallia ac cuius surculi lignose adhuc *ex parte* in corallium mutati erant, iti vt manifeste planta ipsa lignosa conspiceretur, & initium in ipsa corallii,’ De Boodt, *Gemmarum*, 154.
 79. Pliny the Elder, *Natural History*, book II, chapter 106.
 80. Pliny the Elder, *Natural History*, book XXXII, chapter 11: ‘Its form is that of a shrub, and its colour green: its berries are white and soft while under water, but the moment they are removed from it, they become hard and red.’ Ovid, *Metamorphoses*, IV, 706–752: ‘Even now corals have the same nature, hardening at a touch of air, and what was alive, under the water, above water is turned to stone.’
 81. ‘Piscatur: fit demptus acquis durusque ruberque / Ramus; qui tener, et viridis fuit ante colore.’ Galle and Stradanus, *Venationes ferarum, avium, piscium*, plate 92.
 82. ‘Fit enim Corallium dum succus lapidescens subit corpus ligni, id alterat & in suam naturam convertit, dum in eo coagulatur. Ex quibus colligitur, verisimile non esse, sub aquis, ut aliqui referunt, plantam plane ligneam esse & mollem, statimque e mari extractam congelascere, aut coagulari. Si enim hoc verum esset, nulla planta Corallii *ex parte* lignosa & *ex parte* lapidea haberi posset. Quaevis enim extracta subito lapidesceret. Quod tamen falsum est, ut dixi. Paulatim itaque ut in aliis aquis lapidescentibus contingit, succus penetrat ligni corpus, ac ligni formam & substantiam acrimonia, aliave qualitate mutat, atque in ipsius locum lapideum id, quod in se continet, substituit, quod concrescens in Corallii formam abit. An autem Corallium ex lapideo succo crescat aut generatum aliarum plantarum instar, demum succo dicto alteretur, dubitari posset. Ego plantam ipsam, ut coralinam, algam, caeterasque herbas, quae in mari ipso nascuntur, crescere non absque succo lapidifico autumo. Non tamen lapidescere, priusquam emoriatur. Emori autem ordinario naturae motu, vel agente in plantam nimis vehementer succo, qui eam necat, ac subiens & penetrans intimas illius partes facile transmutat.’ De Boodt, *Gemmarum*, 154.
 83. William R. Newman, *Promethean Ambitions: Alchemy and the Quest to Perfect Nature* (Chicago, IL, 2004), 145–146. Palissy built grottos for Anne de Montmorency and Catherine de Medici.
 84. Joan Baptista van Helmont, *Dageraed, ofte nieuwe opkomst der geneeskunst* (Amsterdam: W.N. Schors, 1978 [Reprint of 1660 edition, Rotterdam: Joannes Naeranus. First published 1644]), chapter 24: ‘Vier-en-twintighste Pael. De steenwordinge des bergh-werck’ and chapter 26: ‘Ses-en-twintighste Pael. De steenwordinge in ons.’
 85. William R. Newman and Lawrence M. Principe, *Alchemy Tried in the Fire. Starkey, Boyle and the Fate of the Helmontian Chymistry* (Chicago: University of Chicago Press, 2002), 63.
 86. Van Helmont, *Dageraed*, 199, 204.
 87. Van Helmont, *Dageraed*, 202.
 88. E.g. Hieronymus II Francken (attr.), *A still life of shells, with a triumph of Venus*, oil on panel, 65 × 90 cm, private collection (formerly Schweitzer Gallery New York); Frans II Francken, *Still life of shells with the feasts of the gods*, c. 1615, oil on copper, private collection.
 89. Ovid, *Metamorphoses*, book VIII, 547–610 (Acheloüs tells Theseus and his friends of Perimele).
 90. Acheloüs was also considered to be the mythical father of all the rivers on earth and the ultimate source of fresh water. According to some sources, Acheloüs was made from the tears of the petrified Niobe, who kept on weeping even after she was turned into stone.
 91. Ovid, *Metamorphoses*, book VIII, 547–610 (Acheloüs tells Theseus and his friends of Perimele).
 92. Walter A. Liedtke, *Flemish Paintings in the Metropolitan Museum of Art vol. I* (New York: The Metropolitan Museum of Art, 1984), 194–198; Anne T. Woollett, Ariane van

- Suchtelen, et al., Exh. Cat.: *Rubens & Brueghel: a Working Friendship* (Los Angeles: J. Paul Getty Museum, 2006), 60–64.
93. In the forthcoming volume of the series *Corpus Rubenianum* on portraiture, Koenraad Jonckheere relates the Rubens' *Portrait of Charles the Bold* and *The Feast of Acheloüs* (both depicted on Jan Brueghel the Younger's *Allegory of painting*) to the power of art: the way painting can put life into images. Koenraad Jonckheere, *Portraits After Existing Prototypes*. *Corpus Rubenianum* Ludwig Burchard XIX.4 (London: Harvey Miller, 2016).
 94. Hendrick van Balen collaborated with Jan Brueghel the Elder as well as his son Jan II Brueghel (1601–1678) on several paintings of feasting gods. For instance: *The wedding of Peleus and Thetis*, 1608, oil on copper, 44 × 61 cm (Dresden: Staatliche Kunstsammlung, Gemäldegalerie Alte Meister). There is also a collaboration between Jan Brueghel the Younger and Hendrick van Balen: *The Feast of Acheloüs*, 1610–20, oil on panel, 56 × 93 cm, (Dayton, Ohio: Art Institute) (this latter painting was probably a copy based upon an original by Breughel the Elder). See: Woollett and Van Suchtelen, *Rubens & Brueghel*, 60–64. Then there are two surviving examples by Frans II Francken: *Feast of the Gods*, oil on copper, 51 × 69 cm; *Still life of shells with the feast of the gods*, c. 1615, oil on copper. This latter work depicts two figures in red and blue garment who are very close to the figures of Theseus and Pirithoüs on the Rubens and Brueghel painting.
 95. Jacqueline Kerkhoff, *Maria van Hongarije (1505–1558). Tot plichtsbetrachting uitverkoren* (Hilversum: Verloren, 2008), 153.
 96. There were also miniature grottos made as collectables. Franz Ferdinand II (uncle of Rudolph II) had in his collection at Schloss Ambrass 'a glass-fronted wooden box with mirrors affixed to the side panels in which is constructed a grotto of pearls, shells and mother-of-pearl interspersed with branches of coral and figures (nereids and sea beasts) carved from red coral, the whole surmounted by a large branch of coral on which hangs, carved in coral, the crucified Christ.' According to Pointon, 'the crucifix in this miniature grotto was probably a later addition serving to legitimise this pagan display.' Pointon, *Brilliant Effects*, 127.
 97. Alette Fleischer, "Into the Light: Crystals and the Recreation of Nature in Seventeenth-century Garden Caves and Cabinets," *History of Technology* 29 (2009), 115. See also: Philippe Morel, "Mannerist Grottos in 16th-century Italy," in *Sixteenth-century Italian Art*, ed. Michael W. Cole (Malden MA: Wiley-Blackwell, 2006), 115–134.
 98. Pointon, *Brilliant Effects*, 133–134.
 99. For the metamorphoses of a living spirit into immortality see Michael Cole's discussion of metal, blood and coral in relation to relation to Cellini's Perseus and Medusa: Cole, "Cellini's Blood," 230.
 100. Jonckheere, "Images of Stone. The Physicality of Art and the Image Debates in the Sixteenth Century," in *Meaning in Materials. Netherlands Yearbook for History of Art*, ed. Ann-Sophie Lehman, Frits Scholten, and Perry Chapman (Leiden: Brill, 2012), 117–147.
 101. Martinus Duncanus, *Een cort onderscheyt tusschen godlyke ende afgodissche beelden* (Antwerp: Peeter van Keerberghen, 1567), 20.
 102. 'voer onse ooghen te hebben.' Duncanus, *Een cort onderscheyt*, 21.
 103. Koenraad Jonckheere, "Levende beelden Gods'. A note on the depiction of saints in Netherlandish art after 1585," in *Rekonstruktion der Gesellschaft aus Kunst : Antwerpener Malerei und Graphik in und nach den Katastrophen des späten 16. Jahrhunderts*, ed. Eckhard Leuschner (Petersberg: Michael Imhof Verlag, 2016).
 104. Joannes David, *Den bloemhof der kerckelicker cerimonien* (Antwerp: Gerrit Sickes, 1658 [first published: 1607]), 8.
 105. Renatus Benedictus, *Een Catholic tractate van de beelden en van het rechte gebruyck dier selfder* (Antwerpen: Peter van Keerberghen, 1567), no pagination.
 106. 'den ghene die om onsent wil substantie gheworden is, ende heeft inde substantie gewoont'. Benedictus, *Een Catholic tractate van de beelden*, no pagination.

107. 'so eeren wy dan en houden in weerde en aenbidde de substantie, door de welke wi ontfanghen en vercreghe hebben de gratie' Benedictus, *Een Catholic tractate van de beelden*, no pagination.
108. 'de plaets van Calvarien, de levendige steen, het heylich graf, oorspronck ende fonteyne onser verrijsenissen'. Benedictus, *Een Catholic tractate van de beelden*, no pagination. Benedictus' argument is very similar to the arguments of John of Damascus, see: David Freedberg, *The Power of Images. Studies in the History and Theory of Response* (Chicago and London: University of Chicago Press, 1989), 404.

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