

**The nautilus shell as a liminal object between *naturalia* and *artificialia*
in seventeenth-century Amsterdam**

Research Master's Thesis

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Summary

Nautilus shells were highly coveted items in seventeenth-century Amsterdam. Shells were imported to the Low Countries via the Dutch East India Company's extensive network from the Pacific and West Indies. In Amsterdam, Europe's chief market for mother-of-pearl at the time, nautilus shells were ornamented by highly skilled artisans and displayed in curiosity cabinets, where they represented both *naturalia* (natural objects) and *artificialia* (man-made objects). The Bellekin family was a small but prolific dynasty of artisans, best well-known for this type of work in Amsterdam. The nautilus shells with floral and insect motifs, made by the Bellekin workshop, will be taken as a case study here. This thesis examines the extent to which decorated nautilus shells were highly appreciated, partly due to being liminal objects, which allowed them to mediate between art and nature, blurring and obscuring the boundaries of the two. Their contemporaries were fascinated with the nautilus shell, not only for its material properties but also for a variety of other features. As I will argue, liminality was only one, but crucial feature that has contributed to the shell's overall appeal. Furthermore, I will demonstrate how the members of the Bellekin workshop utilized knowledge and skills from diverse industries to alter nautilus shells, and yet, in the curiosity cabinets, these shells in addition to artifice also recalled their natural origins. The concept of liminality allows for pondering how the nautilus shell fulfilled its function as a scientific and aesthetic object in natural history cabinets, how these objects constructed knowledge of the natural world, and how they served to reflect a coherent image of the world from a micro to a macro perspective.

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Introduction: Nautilus shell as a liminal object

The main aim of this thesis is to explore the liminality of nautilus shells against the backdrop of the seeming competition between art and nature in seventeenth-century Amsterdam. Nautilus shell, or pearly nautilus (*nautilus pompilius*) is a cephalopod mollusc native to Indo-Pacific waters. In the long seventeenth century, shells were captured with basket traps or gathered on the shore, and then brought to the Low Countries by the merchants of the Dutch trading companies - the VOC, East India Company (founded in 1602) and WIC, West India Company (1621). Amsterdam stood at the forefront of the Dutch Republic and rapidly developed into a powerful European port for the import of a broad range of curiosities. In addition, the city became the primary market for European mother-of-pearl work, also known as nacre, the raw material of nautilus shell. Highly skilful Netherlandish artisans transformed nautilus shells into an artifice, by exploring the properties of its mother-of-pearl, either by carving or engraving on its fluorescent surface. As a collector's item, the nautilus was a highly coveted curiosity in the Republic. In the cabinets of curiosities, these shells were integrated into the same collection with rare, monstrous, and other aberrant creatures, representing both *naturalia*, objects created by nature, and *artificialia*, objects crafted by man. Displayed as such, nautilus shells were objects of wonderment and fascination to their contemporaries. What exactly made these shells so appealing? A central premise of this thesis is that the liminality between art and nature was a crucial part of the appeal and appreciation of the nautilus shell.

In my view, the nautilus ought to be discussed under the umbrella of other curiosities which became widespread in the early modern Low Countries. Rare, outlandish, and ambiguous objects that proliferated through Amsterdam's art market, subsequently became a part of natural history collections in the cabinets of curiosities. Unlike sixteenth-century princely collections where the nautilus was prized as a status or even power symbol, a drinking vessel, or a purely aesthetic item with a sensual appeal, in the curiosity cabinet of the seventeenth century, the nautilus was instrumental in acquiring knowledge of the natural world. Undeniably, aesthetics played a great role in the arrangements of the cabinets, as well as it did in the decorative scheme of its items. Nonetheless, I suggest that background against which nautilus shells should be seen is the scientific pursuit of the late seventeenth and early eighteenth centuries, which guided the natural history collections of the period. I will attempt to show how exactly nautilus, as a curiosity, had a direct connection to knowledge.

Throughout the seventeenth century, boundaries and categorisation became gradually more fixed, but the system of taxonomy, that remained in use until today, was yet to be introduced by Carolus Linnaeus (1707-1778) in the eighteenth century. The ancient tradition coexisted in parallel with new sciences in the seventeenth century; the two fused, contradicted and combated one another, before they finally split - the nautilus stood in the middle of these developments, being influenced by both parties.

Liminality is by no means a static concept; it allows us to ponder varied interpretive readings of the nautilus shell. While shifting from different contexts, from Asia to Europe, from the sea to the cabinets of curiosity, the nautilus constructed a set of varied and complex meanings, which this thesis sets to unpack. The nautilus shells were like other items of a similar kind, considered aberrant and ambiguous because they were not restricted to any category. As a consequence, the boundaries between *artificialia* and *naturalia* were blurred, and the function of the nautilus shell was also undefined. This lead us to the main research problem, a paradox: the nautilus shell as a liminal object defied traditional categorisation because it was not confined to a single category, while simultaneously being a part of every category. It remains to be seen how exactly did nautilus coexist on the verge of art and nature, in a system which might seem from a present-day perspective as chaotic and confusing. As we will see later, writings of the ancients still strongly reverberated in the seventeenth century; the opposition between art and nature stemmed from Aristotle's assumption that man-objects were inferior to natural, as they lack the "innate impulse to change."¹

0.1 Research Questions

In order to grapple with the liminality of nautilus shells, this thesis will address the following research question: 'To what extent *did the liminal position of nautilus shells between art and nature contribute to its fascination in early modern Amsterdam?*', wherefrom follow the other sub-questions to which I will provide an answer(s) in each chapter, respectively:

- *What were the techniques and practices employed by the Bellekin family workshop and how did they relate to those of (regular) engravers (of etchings and woodblock prints)?*
- *To what extent did the shells' artistic features confirm/question/articulate/mediate the dichotomy between art and nature?*

¹ Lorraine Daston, and Katharine Park, *Wonders and the Order of Nature : 1150-1750* (New York: Zone Books, 1998), 263-265.

- *In what manner does the nautilus shell illustrate the transgression of boundaries between artificialia and naturalia in seventeenth-century Netherlands?*

This thesis sets to establish the conditions and the extent to which we can consider the nautilus shell a liminal object, which broke boundaries and mediated between art and nature in seventeenth-century Amsterdam - this is critical, as it will prove my assumption that liminality was a major factor in the appeal of the nautilus shell. The purpose of this research is firstly to broaden our knowledge of the meaning and function of nautilus shell in the curiosity cabinets; and secondly, to illuminate how can the concept of liminality help us to better understand the underlying relation of art and nature in the period under discussion.

As a case study, throughout the text, this thesis will analyse richly decorated nautilus shells with floral and insect motifs, most of which were made by the Bellekin family, and some of which are attributed to anonymous Netherlandish artist(s). The first chapter will focus solely on *artificialia*, examining the life and work of the Bellekins, carvers and engravers, and the best well-known Amsterdam artisans proficient in mother-of-pearl work. Even though they were certainly not the only engravers who specialized in this type of expertise, they distinguished themselves with very fine quality nautilus shell decoration. Carved or engraved vegetal and insect motifs on the shell's surface, in addition to a carved helmet and coat of arms, become a recognizable feature of the Bellekin workshop style.

The second chapter highlights the other counterpart - *naturalia*. It begins by establishing the connection of curiosities to knowledge, and it explains how was the contemporary knowledge of the nautilus shells generated through the writings of the ancient philosophers, Pliny and Aristotle in particular. Next, the comparison is made with other *naturalia*, flowers and insects - motifs that intermingled on the surface of the nautilus shell – I will unpack their likeness in terms of their natural origins, common associations and the arrangement in the cabinet of curiosities. Lastly, I will analyse the arrangement of shells, flowers, and insects in the collections from the cabinets of Levinus Vincent and Albertus Seba, some of the most familiar collectors of the period.

Finally, the third chapter will analyse the concept of liminality in more depth, reflecting on the previous two chapters. I will attempt to define how were the boundaries understood in the seventeenth century, or in other words, were they defined at all. The nautilus shell will be interpreted as a mediator, a 'conversation piece' between art and nature, that resided in both but never settled.

0.2 Historiography

The inquiry into early modern shells has increased recently with several publications approaching the topic from its disciplinary niche: the history of collecting, material and visual culture, the production of knowledge, colonial history, trade and art market. Aside from art history, zoology and technical science have also showed interest in this subject. Nonetheless, nautilus shells have remained an understudied area, being in general studied under a larger umbrella of shells of all types. There are notable exceptions, which I will address below.

To fully understand the context surrounding the handling, decorating, and displaying nautilus shells, I used the sources concerned with the long seventeenth century. With regard to principal sources, I will here only mention the ones I relied on most, although there were of course plenty more. The following two early modern accounts describe the techniques of processing shells in great detail: Georg Everhard Rumphius' *D'Amboinsche Rariteitkamer* (1705) and Jan Swammerdam's *Bybel der nature* (1737).² Regarding the Rumphius account, I predominantly used the English-translated edition, but I also consulted the Dutch original as a comparison. Similarly, concerning Jan Swammerdam's method of decorating relief, I looked into the original, but for the sake of accurate interpretation, I relied on Carson I. A. Ritchie's book *Shell Carving; History and Techniques* (1974), in which he quoted Swammerdam in full, in English.³ Other principal sources I relied on are Pliny's *Naturalis Historia* and Aristotle's *De Historia Animalium*, which were especially useful for grasping the seventeenth-century knowledge of nautilus shells, and classification and ordering nature, which were all influential for the early modern visual arts. In addition, the travelogue of Zacharias Conrad and Johann Friedrich von Uffenbach *Merkwürdige Reisen durch Niedersachsen, Holland und Engelland* (1753-1754) offered a first-hand insight into the Bellekin nautilus shells and mother-of-pearl, thus this is a useful and rare source that describes the experiences of these objects by its contemporaries.

The starting point for my research into nautilus shells of the seventeenth century were first and foremost two seminal, secondary sources; the first being the article of the art historian Wouter Hendrik van Seters, about the family history of the Bellekin/Belquin family

² Georg Eberhard Rumphius, et al., *D'Amboinsche Rariteitkamer*, [...] Amsterdam: François Halma, 1705. See also the English-translated edition: Georg Eberhard Rumphius, *The Ambonese Curiosity Cabinet (D'Amboinsche Rariteitkamer)* (Amsterdam 1705), translated, edited, annotated, and with an introduction by E. M. Beekman New Haven and London: Yale University Press, 1999); Jan Swammerdam, *Bybel der nature, of Historie der Insecten* (Leyden : I. Severinus, B. Vander Aa, Pieter Vander Aa, 1737-1738).

³ Carson I. A. Ritchie, *Shell Carving; History and Techniques* (South Brunswick: A.S. Barnes, 1974), 146.

(1958).⁴ To this day, this article has remained the authority on the Bellekin family history, which might seem surprising, and yet is understandable considering the scarce historical records that have come down to us concerning the family's life and work. Building on this source, I constructed a story revolving around the family's workshop practices, which did not blindly relied on Van Seters' arguments but questioned them, leading to slightly different conclusions in certain matters. This source served me well as a springboard for tracking down artworks, historical documents, and sale catalogues related to the family workshop. The next crucial source for my research is Hans-Ulrich Mette's *Der Nautiluspokal : Wie Kunst Und Natur Miteinander Spielen* (1995).⁵ This is an exhaustive study of 313 nautilus shells scattered worldwide and therefore a sort of survey, in which the author categorized these objects according to typology and techniques. The only similar attempt to my knowledge is by Marsely Kehoe, whose online catalogue features 366 objects, building up on the findings of Mette.⁶ Even today, Mette's book has remained the most comprehensive analysis of nautilus shell/cups, treating the topic as a singular object of art-historical research. This is an inciteful study in many regards, especially with regard to explanations of the decorative techniques applied on the shells, as well as the interpretation of the nautilus shell as a suitable object to address the scientific interest in *naturalia*. His iconographic analysis of the many different interpretations of nautilus shells was thought-provoking, as he would often drift into a philosophical discourse, an innovative, interdisciplinary perspective of looking at these objects, indeed.

The next secondary source I used concerns the Dutch history of collecting: *De Wereld Binnen Handbereik: Nederlandse Kunst - En Rariteitenverzamelingen, 1585-1735* (1992) is an extensive study of Netherlandish collections in their global reach, supplemented with the painstaking research by Jaap van der Veen which includes the information of even 90 Amsterdam's collectors. This source is likewise a wealth of knowledge on shells, their collectors, the context of forming shell collections, and it also pays attention to specific objects.

⁴ W.H. van Seters, "Oud-Nederlandse Parelmoerkunst: Het Werk Van Leden Der Familie Belquin, Parelmoergraveurs En Schilders in De 17e Eeuw," *Nederlands Kunsthistorisch Jaarboek* (nkj) / *Netherlands Yearbook for History of Art* 9 (1958), 173–238.

⁵ Hans-Ulrich Mette, *Der Nautiluspokal : Wie Kunst Und Natur Miteinander Spielen* (München: Klinkhardt & Biermann, 1995).

⁶ Marsely Kehoe, Nautilus Catalogue, <http://www.marselykehoe.org/nautilus>, last updated 5 May 2021.

One of the most recent study on shells is the commendable *Conchophilia: Shells, Art, and Curiosity in Early Modern Europe* (2021).⁷ By exploring the subject from a variety of perspectives, this book points to the main debates in the field, positioning shells in their time and place, and into the society that handled them. My research is somewhere along these lines, but focused on artists and collectors primarily.

Some recent scholars set forth the idea that the knowledge of carving shells came from Asia, along with the objects themselves.⁸ Namely, Anna Grasskamp argued that the decoration on the conches and parrot-shaped shells made in China during the Ming dynasty (1368-1644) influenced ‘the experiments with materials and designs’ of the early modern craftsmen in the Low Countries.⁹ According to this view, the decorated ‘Netherlandish shells’, are reduced to pure imitations of the Chinese ones. In this thesis, I will strongly argue against this view, by showing that the Bellekins utilised their knowledge of decorating shells from other crafts, fire-arms and print industry, and that the Bellekin nautilus shells are artworks in their own right.

Both primary and secondary sources served me well to set forth my arguments regarding the seeming competition between art and nature, and the problematics concerned with the premise that the nautilus shell transgressed or blurred boundaries between the two. To claim the latter means to affirm that boundaries were present and that they were fixed. However, recent scholarship has convincingly argued against this premise; for instance, Florike Egmond claimed that divisions were not as rigid as previously speculated, whereas Anne Goldgar went even a step further by arguing that “the idea that art and nature were seeming opposites is something of a cliché”.¹⁰ In line with these reasonings, I will argue that the nautilus shell coexisted in the seventeenth century as a representative of both, *naturalia* and *artificialia*, as these categories overlapped. Furthermore, liminality is one of the qualities that contributed to the fascination with this object in the period under discussion.

⁷ Marisa Bass, Anne Goldgar, Anna Grasskamp, Hanneke Grootenboer, Claudia Swan, Stephanie Dickey, and Watson Róisín, *Conchophilia : Shells, Art, and Curiosity in Early Modern Europe* (Princeton: Princeton University Press, 2021).

⁸ See Anna Grasskamp, “Shell Connections: The Exoticization and Eroticization of Asian Maritime Material Culture,” in *Art and Ocean Objects of Early Modern Eurasia: Shells, Bodies, and Materiality* (Amsterdam University Press, 2021), 23–66; Eugenia Zuroski, “Nautilus Cups and Unstill Life.” *Journal18*, Issue 3 Lifelike (Spring 2017) Accessed April 14, 2021, <https://www.journal18.org/1493>

⁹ Grasskamp, *Shell Connections*, 33.

¹⁰ Anne Goldgar, “Nature as Art. The Case of the Tulip,” in *Merchants & Marvels : Commerce, Science and Art in Early Modern Europe*, ed. Pamela H. Smith, and Paula Findlen (New York: Routledge, 2002), 324-346.

0.3 Theoretical framework

Before explaining the main concepts in this thesis, I will first explain why I opted for the term ‘nautilus shell’ instead of ‘nautilus cup’. In scholarly literature, these two terms are often used as synonyms, however, the distinction between the two concerns their usage in the time period and whether they were mounted or not. For instance, lavishly decorated nautilus shells were used as drinking vessels in princely collections from the second half of the sixteenth century onwards, hence the name ‘nautilus cup’. I will here refrain from using this term, and instead opt for the term ‘nautilus shell’, as my focus is on the shells from the natural history cabinets, so-called curiosity cabinets, where their purpose may have differed from the princely collections. As I will suggest, the arrangement and decoration of certain nautilus shells in curiosity cabinets indicates that they were used for study purposes, rather than for participation in a drinking ceremony or activity.

In the first chapter I use the term ‘fascination’, and in the second chapter ‘curiosity’, to describe enthusiasm for nautilus shells, expressed by the contemporaries. In the text, ‘fascination’ is sometimes replaced by ‘appreciation’, whereas ‘curiosity’ is to a certain extent aligned with ‘wonderment’, although all these terms were closely interrelated. I opt for this distinction in order to show that curiosity was a major drive behind early modern Dutch discoveries of foreign lands, and consequently, that it fuelled the accumulation of knowledge regarding nautilus shells and other curious and rare items brought through trade.

The primary emphasis of this thesis is the fundamental concept of liminality. The term has its etymology in the Latin *limen*, translated as the *limit*, which is related to the ‘threshold’ between two distinct places or domains.¹¹ Each of these areas is confined by real or fictional ‘boundaries’ and the inclination to transcend them. Liminality is thus closely linked to threshold and boundaries, but also central to this concept is the idea of ‘crossover’, or a transgression of boundaries. Crossing boundaries forces one into a liminal state: the threshold signals a transition from one zone to the other, a *passage* through an ‘in-between state’.¹² Ontologically, liminality is understood as occupying either one or the other state of being, or, interestingly, their overlapping areas. This is precisely where our concern in this thesis is. The liminal objects procured through early modern European trade played a pivotal role in

¹¹ Clemens Wischermann, and Philip Howell, “Liminality: A Governing Category in Animate History,” *Animal History in the Modern City : Exploring Liminality*, eds. Clemens Wischermann, Aline Steinbrecher, and Philip Howell (London: Bloomsbury Publishing Plc, 2018), 3.

¹² See Wischermann, et al., *Liminality*; and also Manuel Aguirre, Roberta Quance, and Philip Sutton, *Margins and Thresholds: An Enquiry into the Concept of Liminality in Text Studies* (Madrid: Gateway press, 2000).

mediating, as by embodying art and nature, they bridged the gap between the two domains. Art proved instrumental in transcending mental boundaries. This thesis will contend that as a ‘boundary breaker’ between art and nature in the early modern period, the nautilus shell is a liminal object whose position is best described as unsettled.

The concept of liminality has been discussed in a broad range of scholarly literature and from a variety of approaches, e.g. in the fields of anthropology, sociology, geography, history, history of art, literature and visual arts. The concept itself is a modern one; it can be traced to the anthropologist Arnold van Gennep (1873–1957), who in his book *Les Rites de Passage* (1909) described ‘liminal’ (as evident from the title) in terms of ‘rites of passage’ - separation between two worlds which allows one to enter into a transitional, liminal or threshold stage; he uses the term to refer to a crossover between different cultures, in sacred rituals.¹³ The term is further expanded by the anthropologist Victor Turner (1920–1983), who understood the liminal position as ambiguity or paradox, that is “no longer classified” and “not yet classified”, and therefore confusing, as remarked by Lynn F. Jacobs.¹⁴ Liminality was according to Turner associated with the transformation of societal structures: either deconstruction or creation.¹⁵ These seminal developments of liminality within anthropology and sociology were thus related either to persons, individuals or societal structures, and culture, but not to specific material objects. In humanities, liminality in relation to threshold and boundaries has been often examined quite literally as physical space(s), but also in a more conceptual manner. In historical studies, the concept of liminality has been frequently analysed in terms of defining boundaries of contested areas, territorial expansion and the extension of political and economic control, and the demarcation between two physical spaces. Art historian Lynn F. Jacobs studied Dutch seventeenth-century painting by identifying liminal as transitional zones between the interior and exterior of a Dutch house, or the house and the outside world.¹⁶ Opened or closed doors directly relate to *rites of passage*, not only as a division between two spaces but also a way of allowing connections, bridging the two seeming opposites. The Dutch *doorkijkjes* thus provide a fruitful ground for exploring a number of liminal spaces and for involving the sitter or the depicted object into the discourse around liminality. This thesis does not focus on the Dutch house interiors; instead, it examines Dutch curiosity cabinets, pondering associations that material objects might have

¹³ Wischermann, et al., *Liminality*, 2-4.

¹⁴ Lynn F. Jacobs, *Thresholds and Boundaries : Liminality in Netherlandish Art (1385-1530)*. *Visual Culture in Early Modernity* (London: Routledge, 2018), 4.

¹⁵ Wischermann, *Liminality*, 2.

¹⁶ Jacobs, *Thresholds and Boundaries*, 8.

evoked among its contemporaries, about the ‘world’ outside the cabinet. The boundaries will be here explored more conceptually. Benjamin Schmidt, a historian, explores boundaries in the late seventeenth-century Dutch cartographic industry. He examines tactile engagement with geographic materials such as globes, maps, atlases, and a range of decorative arts, and curiosities, which he calls “three-dimensional replications of the world”.¹⁷ In line with this Schmidt’s premise, this thesis will show that handling nautilus shells meant to experience both ‘worlds’, art and nature, through its tangible form.

Recent scholarship has acknowledged that the liminality of the nautilus shell was part of its appeal, but this thesis seeks to further explore this concept and consequently uncover a deeper understanding of these artworks. For instance, Anne Goldgar observed, “Indeed, there is something particular about shells as liminal things, objects that hover between life and death, and that throw our thoughts into far places, not least those from whence they came.”¹⁸ And yet, hardly any recent scholar has grappled with the liminality of the nautilus more profoundly. An exception is Marsely Kehoe, who examined the nautilus cup as a liminal object between *artificialia* and *naturalia*, and also as a hybrid object that linked domestic and foreign.¹⁹ Hybridity is another lens through which nautilus shells might be examined. I instead opted for liminality, as I contend this concept will served me better for explaining the interplay between art and nature.

0.4 Methodology

In order to grasp the liminality of nautilus shells, this thesis will: increase our present knowledge of the Bellekin family workshop by showing that certain historical documents were misread; throw light upon the artistic invention by closely looking at material properties of shells and examining decorative techniques employed by the workshop; bring into connection the nautilus shells with floral and insect motifs that were previously not related to each other or unobserved; suggest a potential function of the nautilus in curiosity cabinets; illuminate the relationship of art to nature, science, religion, and economics.

¹⁷ Benjamin Schmidt, "Geography Unbound Boundaries And The Exotic World In The Early Enlightenment," in *Boundaries and their Meanings in the History of the Netherlands* (Leiden, The Netherlands: Brill, 2009), 35-61.

¹⁸ Anne Goldgar “Introduction. For the love of shells,” *Conchophilia : Shells, Art, and Curiosity in Early Modern Europe* (Princeton: Princeton University Press, 2021), 4.

¹⁹ Marsely L Kehoe, “The Nautilus Cup Between Foreign and Domestic in the Dutch Golden Age,” *Dutch Crossing*, 35:3 (2011).

I will apply a methodological approach that I would describe as ‘combined’, as it includes technical, historical and theoretical research, and applies various methods: material analysis, iconographical analysis, and stylistic analysis. Even though these methods are strictly divided into chapters for the sake of structural clarity, it should be pointed out that it occasionally proved difficult to distinguish between them, in particular in the discussion of the object’s function. I by no means suggest that these should be divided, on the contrary, a complete analysis of the form and content of the nautilus requires these methods to be analysed in correlation, and they often overlap. Also, it should be pointed out that the nautilus is a very unique object to be studied from the perspective of liminality. Without this process of ‘transformation’ from the raw material into the artwork in its own right, the object would not be liminal. That being said, iconographic analysis of the nautilus shell necessitates the explanation of its materiality. For that reason, I first explained the alteration on the surface of the object, and subsequently, I used the iconographic and stylistic analysis to expound on the meaning and function of the object in its specific context.

I will argue that the nautilus shell was not inert but an active object in the context of the Netherlandish curiosity cabinets of the seventeenth century. As evidenced by its material and display in the cabinets of curiosity, the object’s function was to fulfil, among other, a scientific purpose in the specific context of the cabinet. I therefore suggest a kinaesthetic approach to better understand how early modern people interacted with nautilus shells. This method implies a bodily response to handling material objects, either through motion or a sense of touch. The archaeologist Christopher Tilley applied this approach to interpret images of rocks in the landscape of prehistoric Europe.²⁰ I explored the possibilities of how the material might aid art-historical research when historical documents are scarce.

It might seem worth mentioning some drawbacks to this methodological approach. Firstly, I should point out, in principle the nautilus shells had been engraved before they were mounted on a stem by goldsmiths, therefore mounts might be of a later date. For this reason, mounts and goldsmiths will be omitted from the discussion in this thesis, as this might be a topic in its own right. Secondly, because attribution to some of the shells might be questionable, this will not be of concern to this study. Similarly, no extensive provenance research will be conducted due to a lack of documents and time limit, though certain suggestions regarding provenance might be given. Also, this study focuses on the floral and insect motifs, which are only a part of the oeuvre of the Bellekin workshop. Mythological,

²⁰ Christopher Y Tilley, and Wayne Bennett, *Body and Image : Explorations in Landscape Phenomenology 2. Explorations in Landscape Phenomenology 2* (Walnut Creek, Calif.: Left Coast Press, 2008).

and genre scenes, for instance, are not taken into account even though they might also include flower and insect motifs.

0.4.1 Object selection

The main primary source for this study is image material: 10 nautilus shells, kept in the collections of museums worldwide (Rijksmuseum, Amsterdam Museum, Museum Prinsenhof Delft, Grünes Gewölbe, Kunstgewerbemuseum SMBPK, V&A, Natural History Museum (London), National Museum of Denmark, and North Carolina Museum of Art). The criteria for this selection are based on the motifs (vegetal and insect) and their combination, as well as style and current attribution. The objects I selected for this thesis are either sporadically or separately analysed in other publications. I am bringing these into a dialogue due to their natural motifs, not necessarily artistic expertise. The relationship between these objects through the angle of liminality is previously unobserved.

In order to analyse the physical properties of the material, I inspected some of these shells on-site. Namely, I visited the depot of the Rijksmuseum and Amsterdam Museum, and examined nautilus shells and a turbo shell. These visits proved essential for my research, as I acknowledged the importance of experiencing nautilus shells first-hand. Based on the inspection of these nautilus shells, it became evident to me that handling nautilus shells requires kinaesthetic approach. The material features of the nautilus, the lustre of its mother-of-pearl, as well as the exceptional artistic features (carvings, engravings), are properties that one can only be fully grasped by being in direct contact with this object. Instead of asking how this object might have been used by the contemporaries, I tried to reconstruct this experience. In order to refrain from a modern-view perspective, I used primary sources which testify about the direct experience of these objects. In the following chapters, I will describe specific details on the shell's surface which indicate that the purpose of this object in natural history collections was scientific, not only aesthetic.

0.4.2 Overview of chapters

Most succinctly, the three chapters of my thesis aim to show the nautilus' connection to *artificialia*, in the first chapter; *naturalia*, in the second chapter; and both *naturalia* and *artificialia* in the third chapter.

The first chapter sets out to establish biographical information about the Bellekin family, in addition to analysing nautilus shells in terms of their material/technique, by comparing them to fire-arms, and printing techniques (woodcut, etching, and engraving). I will show that the Bellekins utilized their family background in gunmaking industry and their expertise in printing for decorating nautilus shells, instead of relying on Asian method(s). Also, in order to expound on the practices in the work of mother-of-pearl in relation to other crafts, it was essential to become acquainted with the techniques of making fire-arms, glass-making, and printing (etching, engraving, woodcut). Regarding the history of the Bellekin family, I thoroughly examined the historical records in the Amsterdam Archive, and I made a family tree chart for the reader to better follow the sequences of events, as well as family relationships.

In the second chapter, the shells will be interpreted by using iconographical, and stylistic analysis. In order to discuss the contemporary knowledge of nautilus shells, I studied the literature on emblem books and specific artworks related to shells in particular. It was necessary to get a deeper insight into the work of Joris Hoefnagel, in order to make a point that he influenced emblem books, and subsequently the motifs depicted on nautilus shells. The main focus here is on decoding the meaning behind the vegetal and insect elements in relation to shells, and on discussing their arrangement in curiosity cabinets. The argument I made here regarding the function of ornamented nautilus shells used as study samples in curiosity cabinets, is based on the examination of nautilus shells in the aforementioned museum depots; primary literature that describes how the shells were handled; secondary literature, and images of cabinets that show how the shells were displayed. For example, another Van Seters' article "*Nautilusbekers met problemen*", was particularly useful for explaining how the nautilus was hanged on a thread in curiosity cabinets, even though it might have also been displayed in a drawer.²¹

The third chapter is more theoretical; it will synthesise the findings of the previous two chapters, and deepen the discussion concerning liminality. I mostly relied here on secondary sources and personal experience in handling nautilus shells. The main concern in this chapter was to examine how strict the boundaries were in the seventeenth century, to determine to what extent we may consider the nautilus liminal, and lastly, and to illuminate the relationship of the nautilus to science and religion.

²¹ W.H. Van Seters, "Nautilusbekers met problemen," *Oud Holland* – Journal for Art of the Low Countries 83, 1 (1968), 182.

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Chapter 1: Nautilus shell and *artificialia*: Bellekin family workshop

In the early modern Low Countries, a lavishly decorated nautilus shell was a curiosity in which the realms of art and nature harmoniously converged into a single object. A nautilus shell, once a ‘single marvel of the sea’, as described by Pliny, and also known as a ‘silver of the sea’, is juxtaposed with a marvel of human craftsmanship. Yet it may be difficult for the onlooker to discern whether there is - a wonder of nature - or - a wonder of art - before one’s eyes. In the curiosity cabinets of the seventeenth century, the nautilus shell was presented both as *naturalia* (natural objects) and as *artificialia* (man-made objects), as these were inextricably intertwined. The interplay of the two truly comes to the fore when they not only contradict, but also cross, or obscure each other’s boundaries. This is critical, as in this thesis I will suggest that the liminality of the nautilus shell is one, but crucial part of its appeal. The liminal feature was an important factor that contributed to its fascination, wonder and admiration.

An example of exquisite craftsmanship is the type of nautilus shells with intricately carved floral design with vine tendrils and petals, and engraved insects, which are interspersed throughout the design, just like they appear in nature (fig.1). The artistic features of the shell do not overpower the underlying mother of pearl, which reaches through, displaying its iridescent shine. Similar nautilus shells and nacre carvings might have caught the attention of German brothers, scholars Zacharias Conrad and Johann Friedrich von Uffenbach, during their visit to Amsterdam in 1711. In a travel account, Zacharias took a note of a variety of curiosities from around fifty collections in Amsterdam. The two scholars viewed the *naturalia* collection in the cabinet of ivory turner Johannes Luther (ca. 1647-?), recalling that it contained “*all sorts of artificially twisted and cut things*”, abundantly filled with seashells: “*drawers with all kinds of shells, including many beautiful nautili and mother-of-pearl shells cut by C. Bellekins, who had been the best mother-of-pearl cutter here.*”²² The brothers were fortunate to see the masterfully ornated nautilus shells by Cornelis Bellekin, known as the ‘Rembrandt of mother-of-pearl’. He was a prominent member of the Bellekin family, the key figures of seventeenth-century Dutch carving and engraving of mother-of-

²² “*Er hatte in einem andern Schrank allerhand künstlich gedrehte und geschnittes Sachen.*”; “*Ferner wiese er uns noch viele Schubladen mit allerhand Muscheln, worunter viele schöne Nautili und Perlenmutter Muscheln von C. Bellekins, welcher der beste Perlenmutter Schneider allhier gewesen, geschnitten.*”. Zacharias Konrad von Uffenbach, *Merkwürdige Reisen durch Niedersachsen, Holland und Engelland*, 3 vols. (Ulm: Gaum 1753-54), 543.

pearl.²³ By examining nautilus shells embellished with vegetal and insect motifs made by the Bellekin family's workshop, this chapter focuses solely on *artificialia*. It will explore how the possibilities given by natural material, mother-of-pearl, aided artistic interventions on its surface, enabling *naturalia* and *artificialia* to coexist. Additionally, the range of technical abilities of the Bellekins will be compared with the techniques informed by the industry of fire-arms, glass-making, and printmaking. In this chapter I will address the following research questions: What were the techniques and practices employed by the Bellekin family workshop and how did they relate to those of (regular) engravers (of etchings and woodblock prints)? These are the questions prompted by the material and technique employed on the nautilus shell. In order to gain a better understanding of the nautilus shells' adornment, this chapter will shed light on the range of artistic capabilities of the Bellekins. Furthermore, by expanding our knowledge of specific nautilus shells, the reader will gain a deeper insight into the liminal relationship between art and nature in the seventeenth century.

1.1 Liminality as fascination with the nautilus shell: artificialia in the spotlight

While shifting from the natural context to the artificial one, from the sea to cabinets of curiosities, the nautilus shell evoked manifold, seemingly opposite connotations: art and nature, the ocean and the shore, domestic and foreign, micro and macro world, etc. Although this unsteady position might seem problematic as objects of a similar kind are difficult to categorise, this instead worked in nautilus' favour. I argue that the shell's ambiguity profoundly fascinated its contemporaries. On the one hand, its liminality was expressed in the curiosity about its natural origins and materiality, and on the other hand, the curiosity in its artificial ornamentation, and everything 'in-between' - the combination of precious material and exquisite craftsmanship. The early modern interest in *naturalia* and *artificialia* was especially pronounced when the two were fused, because the overall effect was awe-inspiring, it confused the viewer, consequently intensifying his curiosity.²⁴

But how did the confusion come about in the first place? Daston and Park stated that art and nature first mingled and ultimately merged: "during the heydays of the *Wunderkammern* in the late sixteenth and early seventeenth centuries, the ancient opposition

²³ I borrowed this laudable title for Cornelis Bellekin from the following source: Zeeuws Archief, Amsterdamse Notities, "Zeventiende-eeuwse schelp voor jarig museum," *Amstelodamum* 88 (2001), 27-28.

²⁴ I am here referring to the aberrant features of the nautilus shell which it has in common with other artefacts in the curiosity cabinets, relying on the article by Daston and Park, See: Daston, and Park, *Wonders and the Order of Nature Wonders*, 273. and overall.

between art and nature first blurred and then dissolved in natural philosophy, most notably in the works of Francis Bacon, Rene Descartes and their many followers.”²⁵ As a result, in the seventeenth century, art might either imitate, complement, perfect, compete, or try to surpass nature. The ancient philosophers Aristotle and Pliny, to which seventeenth-century artists were largely indebted, placed art next to mechanics, separating it from nature. Yet as Pamela O. Long has argued, the seventeenth-century drive for experimenting brought the two together by using mechanical devices to find the truth about the natural world.²⁶ The coexistence of multiple criteria allowed for blurred and non-rigid boundaries between art and nature, which consequently allowed *naturalia* and *artificialia* to overlap. This is best exemplified in the history of collections where natural and artefactual objects were placed next to each other: from the encyclopaedic interest of the curiosity cabinets of the late sixteenth century to the natural history cabinets of the early seventeenth century, and finally to the introduction of scientific natural museums of the mid-eighteenth century. The dichotomy of art and nature finally broke down in the latter phase, during the Enlightenment period, when the two disintegrated into their disciplines. The interest in shells and molluscs eventually diverged in the studies of conchology, and malacology. The nautilus shell was standing at the crossroads of these developments, maintaining its liminal position.

The discourse evolving around the liminality of the nautilus shell is multi-layered; first and foremost, it necessitates the understanding of the conditions under which shells were initially brought to Europe, before the nautilus was exalted to the level of artifice. The fascination with the nautilus shell was fostered by trade and exploration of the East by the Europeans from the late sixteenth century onwards, along with other rare objects. With respect to idiosyncrasies (form, colour, texture and material), the nautilus shell is only a piece of a larger assemblage of curiosities that came to Europe in the early modern period in order to be traded, collected, and admired. By analogy, collector’s ambitions, taking into account individual preferences, were part of a greater contemplation about curiosities (*wonders*) of the early modern European society. These altogether - nautilus shells and their collectors, were related to the early modern European expansionistic aspirations to discover and possess the unknown world. Examining the nautilus shell through the lens of liminality, allows us to better understand the fascination with the nautilus in seventeenth-century Low Countries. While commended as a curiosity on the one side, the nautilus shell was also a prized

²⁵ Ibid., 260.

²⁶ Pamela O. Long, “Objects of Art/Objects of Nature. Visual Representation and the Investigation of Nature,” in *Merchants & Marvels : Commerce, Science and Art in Early Modern Europe*, ed. Pamela H. Smith, and Paula Findlen (New York: Routledge, 2002), 63.

commodity on the other side. One did not exclude the other - great demand for rarities caused even greater enthusiasm for them.

An appreciation of and interest in nautilus shells exponentially rose in the seventeenth century; its *artificialia* aspect had a great deal to do with it. The role of the artist was of paramount importance for the transformation of the nautilus from a natural to an artificial curiosity. To return to Von Uffenbach's aforementioned memory from the beginning of this thesis, by "*artificially twisted*" he referred to artistic ingenuity, and perhaps, an appreciation of aberrant, outlandish, perhaps eccentric.²⁷ Just as collectors were interested in the boundaries between the natural and the man-made, they were also fascinated by the boundaries between the natural and deviations from the natural. The nautilus shells, 'decorated *naturalia*' of the Bellekin workshop fit perfectly within this formulation; these shells became objects in their own right.²⁸

Indeed, some nautilus shells that came from Asia became artworks in their own right, being decorated by European artists. This especially applies to the 'Bellekin nautilus shells', which distinguished themselves with an exceptionally high level of craftsmanship. To prove my point, firstly, I will suggest that the Bellekin techniques of decorating nautilus shells stem from other crafts, rather than being taken over from Asia, as argued by Grasskamp. Secondly, I will show that the family workshop experimented with precious materials, introducing innovation in designing devices used for decorating nautilus shells. Thirdly, I will argue that the Bellekin nautilus shells display highly individual features, distinguishable from Asian ones. Due to being very unique, these nautilus shells became a 'personal trademark' of the Bellekins. Importantly, the evidence presented by historical documents and rendering of the material objects shows that the Bellekins were not passive recipients of Asian practical knowledge of carving and engraving, but exceptional craftsmen of mother-of-pearl.

1.2 The Bellekin family: genealogy and craftsmanship

Some of the most exquisitely created nautilus shells or cups are the handiwork of the Bellekin family of highly skilled engravers and shell cutters. As the remaining documents of the family and their workshop methods are scarce, the existing material objects are, ultimately, our most valuable source of knowledge about the family. It is not my intention here to contribute to the

²⁷ For the original in German see footnote 22.

²⁸ I borrowed the term 'decorated naturalia' from Marlise Rijks. See Marlise Rijks, "Scales, Skins, and Carapaces in Antwerp Collections," in *The Matter of Mimesis. Studies of Mimesis and Materials in Nature, Art and Science*, ed. M. Bol and E. Spary (Boston: Brill, 2022).

complete family history, which Van Seters' seminal research has somewhat brought to a steady flow, but rather to pinpoint key moments in their lives which might have related, in one way or another, to the family's workshop practices.²⁹ Previous scholars have uncritically relied on Van Seters' research, without questioning his premises. In the following paragraphs, I will explain some discrepancies in Van Seter's interpretation of the historical documents. This is crucial because his observations have been paramount in forming the image of the Bellekin family we have today. I will draw slightly different conclusions than Van Seters, by examining family signatures in the records and artworks.

We shall commence with Jérémie Belquin, the progenitor of this small dynasty of artists, who originated from Metz in France.³⁰ There he pursued a career in the gunmaking industry, which will be further examined later. In 1589 Jérémie married Marie de Martilley (or d'Artillij); the couple had four children.³¹ It is not known where the family resided in the period from 1593 until 1598, when two more children (relevant for our discussion), Jean, and Paulijn (or Poulijn, Pauline), were born. In approximately 1600, the family went to Utrecht, where they lived until 1608 when they settled in Amsterdam. When Jérémie's wife died, in 1621 he remarried, this time to Barbe Hardy (or Hardij).³² The aforementioned Jean, Jérémie's son from his first marriage, an 'engraver and inlayer of mother-of-pearl', married three times: in 1619 to Geurte Claes (or Geertje, Geurtje) with whom he had a son Claes, who became a painter in Kampen and Copenhagen; in 1921 to Meynsje Claes (Meijntje), a marriage which was annulled; and in 1625 to Annetje Cornelis, a marriage which resulted in six children.³³ As Jean sadly passed away already in 1636, one of these children - Johannes, also known as Jan, was born posthumously, just a few weeks after. Jan was most likely the youngest family member who continued the family tradition of carving and engraving

²⁹ Van Seters, *Oud-Nederlandse Parelmoerkunst*, 173–238.

³⁰ In order to better follow the sequences of the events, as well as family relationships, please see below a family tree chart I made (fig.2).

³¹ For the marriage record see Van Seters, *Oud-Nederlandse Parelmoerkunst*, 180. Not all of these children are important for our discussion here.

³² For marriage record of Jérémie and Barbe see: Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 426: 301. The Amsterdam City Archives holds birth registers of four of their children: Elisabeth (1622), Marie (1624), Marie (1628), Anne (1631); none of these are known to have been involved with the family workshop.

³³ For marriage record of Jean and Geurte see: Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 424: 62; Also see Abraham Bredius, "Archiefsprokkelingen: Ondertrouw van Den Graveur Jean Bellequin," *Oud Holland* 49 (1932): 96–96. For the second marriage see: Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 426: 257. For the third marriage see: Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 430: 181. Jean's profession was identified in the latter deed, and also in the act in which it is stated that he had an apprentice Pieter Cornelissen: Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5075), 749: 257056. Van Seters mentions that Claes Bellekin was baptized in Amsterdam on 22 October 1620, however I could not find this document on the spot.

mother-of-pearl. To this day, there is still no clear understanding of the kinship between Cornelis Bellekin - the most renowned Dutch shell engraver - and the rest of the Bellekin family. It is suggested by Van Seters that he was either a son of Jean and Annetje, therefore Jan's brother, or a nephew. No birth certificate has been found at Amsterdam registers that would speak in favour of any of the two options, although it is plausible that he was born elsewhere, and therefore baptised in another parish.³⁴ Nevertheless, his work testifies to his skilfulness more than the scarce documents we have.

The existing historical records demonstrate that the family members used several variations of their name.³⁵ According to Van Seters, the family adapted their name to Belkin, Belkien, or Bellekin when they moved to Holland.³⁶ However, this is only true to a certain extent. After I had carefully examined the remaining documents, I came to a different conclusion.³⁷ I contend that these documents rather suggest that the older generations continued to use French variants in Amsterdam, whereas the younger generations preferred a Dutch version of their family name. During his stay in Metz, Jérémie used his father Christofle's surname, Belquin; similarly, in the marriage certificate of his second marriage in Amsterdam, Jérémie signed himself as 'Jeremie Belguin, Messain'. His offspring Jean also applied a French variant, signing as 'Jean Bellequin' in the records of every one of his three weddings.³⁸ In these documents his name is in most cases given three times: on the margin, in the text, and at the bottom of the text. Since the names written on the margin and in the text usually match and are different from the name at the bottom, I assume that the two were written by a notary, whereas the bottom one was the signature of the artist himself. In a single document, one could also find more variants given by the notary, who confused Jean with Jan. For instance, in the register of Jean's third marriage, both 'Jan Belquin', and 'Jean Belqui' were given by the notary, while Jean kept signing himself as 'Jean Bellequin'. Likewise, in the burial register of the Orphan Chamber (*weeskamer*), Jean's name was written

³⁴ Van Seters, *Oud-Nederlandse Parelmoerkunst*, 183.

³⁵ Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 424: 62; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 426: 257; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 430: 181; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5075), 749: 257056; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 426: 301.

³⁶ Van Seters, *Oud-Nederlandse Parelmoerkunst*, 173-237.

³⁷ Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 426: 301; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 424: 62; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 426: 257; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 430: 181.

³⁸ Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 424: 62; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 426: 257; Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5001), 430: 181.

as ‘Jan Balkyn’.³⁹ The document that resolves the doubt about the name variant, concerns Pieter Cornelissen, an apprentice of ‘Jean Belki’, specifically mentioning that Jean signs himself as ‘Bellequin’, and his signature at the bottom confirms this.⁴⁰ Most probably, names have been entered phonetically and depended on the literacy of the notary. All in all, the family name was used in various spellings, yet, the incorrect recordings by contemporaries may have also contributed to the name variety.

Other than scarce documents, another crucial source to validate family signatures are the artworks themselves. Luckily, many of the Bellekins artworks, nautilus shells included, bear the signature. Confusion in the signed works arose between the family members who had the same initials: Jean and Jan, and Claes and Cornelis. To solve this dilemma, Van Seters claimed that Jean signed himself with the initials IB, enabling us to distinguish him from his son Jan. This is again, partly true, as Jan, other than signing his name in full, also signed his artworks with ‘J. Bellekin’ or ‘J. Belkien’. Similarly, as suggested by the same author, both Claes and Cornelis signed their name in initials, and surname in full, but Claes used capital letters and Cornelis lowercase letters. The Bellekin family was unique amongst nautilus shell carvers, as they tended to sign their artworks almost by default, unlike other seventeenth-century Dutch artisans. Family signatures require our attention because, most likely, it was not only a way for the family to identify themselves but also to ‘brand’ their trade, a point we will address again later in the text.

Family workshop and guild membership

As we had already been informed, the artists of the Bellekin family were not great in quantity, and even with the inclusion of some lesser or unknown apprentices, the total is still a modest number. The tradition of family craftsmanship has been carried from Jérémie to the other family members; he was most likely the teacher to Jean, and to the apprentice Jacques des Fontaines, an 11-year-old son of a locksmith, for 5 years.⁴¹ Among the very few documents pertaining to ‘Jan Bellekien’, one states that he entered a sort of partnership with some Allert Allertsz for 12 years period, during which the former was obliged to teach the latter about the

³⁹ Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5004), 4, 1624-1639, p. 4.

⁴⁰ Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangsnummer 5075), 749: 257056; A. D. de Vries, “Biografische Aanteekeningen Betreffende Voornamelijk Amsterdamsche Schilders, Plaatsnijders, Enz. En Hunne Verwanten,” *Oud Holland* 3 (1885), 62.

⁴¹ Van Seters, *Oud-Nederlandse Parelmoerkunst*, 181.

art of inlay ('const van inleggen'), and the two will sell art and share half of the profit each.⁴² This is a binding contract according to which both parties ought to transparently cooperate, and practice art exclusively between themselves. This document is problematic for more reasons, not only because it is undated and unsigned, but also because Jean is one more time confused with Jan. Luckily, we know that this contract pertains to Jean because underneath the statement there are a few works listed by him, monogrammed as 'IB', and Cornelis is mentioned as 'presumably his son'.⁴³ Furthermore, the identity of Jean's teammate is obscure. From another aforementioned document we find out that Jean (in the document noted as 'Jan Belki') also took a 20-year-old apprentice Pieter Cornelissen under his wing for a year. Claus worked as a painter and guild master in Kampen, and later in Copenhagen. It is not known whether Jan had an apprentice. Cornelis allegedly had an apprentice called Jan Podt. In 1657, Jean's sister 'Poulijn Belliquien' married Jochem Kuhne (or Jochem Cunen) in Amsterdam, also a mother-of-pearl artisan, from Bremen.⁴⁴ Our knowledge of all of these apprentices is extremely limited. They might have carried out only minor work in the workshop, and have not established a successful career afterwards.

The Bellekins are not recorded as members of any guild, under any variation of their name. The only information we have concerns most probably a ban and fine to Cornelius from the Guild of St. Luke in Middelburg, for the years 1662-1663, for violating the laws of the guild.⁴⁵ From 1621, the Guild of St. Luke in Amsterdam tighten up its rules; the members were not allowed to exercise their profession in the city unless they obtain citizenship and pay the guild membership fee.⁴⁶ If Bellekins were members of the Guild as engravers, they would have been subjected to this rule. The membership list in the period between 1605 and 1636 does not exist - this is precisely in the period when the Bellekins came from Utrecht to Amsterdam. In 1608, Jérémie was registered as a member of the Walloon church community in Amsterdam. However, guild members were not always burghers, even though this was mandatory. As convincingly argued by Van Eeghen, those who were not citizens had another choice - they were obligated to pay fees for their citizenship.⁴⁷ Unless church membership granted the Bellekins burghers rights, we might assume that they rather opted to pay citizen

⁴² De Vries, *Biografische Aanteekeningen*, 62.

⁴³ *Ibid.*, 62; Van Seters, *Oud-Nederlandse Parelmoerkunst*, 184.

⁴⁴ Stadsarchief Amsterdam, Amsterdam: DTB-registers (toegangnummer 5001), 477: 474.

⁴⁵ Van Seters, *Oud-Nederlandse Parelmoerkunst*, 192-193.

⁴⁶ I.H. van Eeghen (Jasper Hillegers, translator), 'The Amsterdam Guild of Saint Luke in the Seventeenth Century' *JHNA* 4:2 (Summer 2012), DOI:10.5092/jhna.2012.4.2.4 <https://jhna.org/articles/amsterdam-guild-of-saint-luke-17th-century/>

⁴⁷ Van Eeghen, *The Amsterdam Guild*, 3.

fees. As for a reason why Middelburg might have been an attractive destination for Cornelis - this capital of the province of Zeeland was one of the six chambers of the VOC company, to which commodities, shells including, were imported in great quantities. In all probability, it was a viable option for Cornelis to continue with his trade, and find new clientele.

In essence, guilds were locally focused and cared much to protect their trade. Even though there is no evidence that the Bellekins were part of a guild, we may surmise that they also tended to promote and protect their 'business' in mother-of-pearl and nautilus shells. This is apparent from the engraved coat of arms on Bellekin nautilus shells, which was not only a fashionable, decorative asset, but also served as a cunning tool for their 'personal trademark', which I will show later. Nautilus shells were curiosities in their own right, highly sought after for their rarity and exquisite craftsmanship. Therefore, identifying the 'product', either via signature or coat of arms, was a way for the Bellekin workshop to cope against the competition and establish itself in this narrow, specialized branch.

1.3 Family workshop techniques and practices

Jérémie Belquin in Metz and thereafter

Before delving into the techniques used by the Bellekin family in the production of mother-of-pearl, it is essential to look back at Jérémie Belquin's early beginnings in Metz. Crucially, knowledge and skills he had obtained from gunmaking were transferred to the members of the family workshop, and were therefore utilised in the work of nautilus shells.

Towards the end of the sixteenth century, the city of Metz began to build its reputation as one of the French provincial centres for gunmaking, renowned for its fine quality fire-arms. The manufacture of fire-arms required the cooperation of specialized craftsmen, each of which possessed a different skillset, either for making a barrel, lock, stock or mounts. In principle, the production of weapons was governed by the division of labour: designs on carved and inlaid stocks were produced in the gun-stocker's workshop, while the barrel, lock and mounts, with engravings or etchings were made in the gunmaker's workshop.⁴⁸ Wooden stocks and metal surfaces of fire-arms were filled with inlay of a wide range of materials, especially mother-of-pearl, which comprised an integral part of the fire-arms decoration in this period. As evidenced by documents, Jérémie was a '*mounter d' arquebuses*', a maker of

⁴⁸ J.F. Hayward, *The art of the gunmaker* (London: Barrie and Rockliff, 1962), vol. I., 19, 29.

inlay for arquebuses, hand-held guns operated by match-lock or wheel-lock mechanism.⁴⁹ In addition to technical expertise, this complex mechanism also necessitated thorough understanding of material constraints. The purpose of adorning the stock with these precious, organic materials was not purely decorative but also practical, it was intended to prevent the stock from deteriorating. The process of decorating stock was straightforward: the design was carved first and then filled in with inlay material. The surface of the stock was often completely decorated, profusely inlaid with engraved plaques of stag-horn and mother-of-pearl, while the intervening spaces were ornamented with scrolls of brass wire.⁵⁰ The *horror vacui* was commonplace on gun-stocks, yet the precision of the inlays, and minute details that went into decorating spirals could have made a distinction in terms of style and quality. For example, a distinguished feature of French wheel-lock stocks was the metal ornament, pewter in particular, that was often combined with other inlays, such as mother-of-pearl.⁵¹ As a general rule, the prime concern of decorating either warfare or hunting fire-arms was, however, that its aesthetic should never compromise its function. Most likely, Jérémie would have been acquainted with both the material characteristics of mother-of-pearl, as well as its technique of decorating. His current position in Metz proved highly favourable for him, as some of the French inlay on stocks was unmatched in this period.

Jérémie must have been well versed in the inlaywork of mother-of-pearl - a knowledge he passed onto the future generations - but his proficiency in this craft is not possible to validate. To the best of my knowledge, there is no remaining piece of fire-arms signed by him. This is unsurprising because signing fire-arms was extremely rare, mostly because various parts were crafted separately, each by a different artisan. The gun-stocker would often remain anonymous, or was known only by monogram. If the gun was signed, however, it would bear the signature of the gunmaker - the person who purchased and assembled different parts from specialized gun-stocker's workshops and then sold it on the market.⁵²

Within the gun-making industry, Jérémie was not only specialized in inlaying fire-arms with mother-of-pearl; while in Amsterdam, he was also recorded as a '*maître monteur et graveur du musquets*' - an engraver of muskets who also assembled them. Engravers authored pattern books based on which they decorated ornamental designs on weapons. It is less likely

⁴⁹ The *arquebus* is an umbrella term for a broad variety of hand-gun fire-arms used from the 15th to the 17th centuries.

⁵⁰ Hayward, *The art of the gunmaker*, vol. I., 35.

⁵¹ *Ibid.*, 139.

⁵² *Ibid.*, 21.

that Jérémie engraved weapons already in Metz, as the late sixteenth century French fire-arms were adorned with less elaborate designs. Also, the artist who engraved designs and the one who authored pattern books did not necessarily have to be the same person - the former was usually anonymous, whereas pattern books originate from woodcuts and prints of engraved ornaments made by established artists.⁵³ Jérémie Belquin might have been one of those artists in the first category, thus his work remained largely unknown to us.

It is generally accepted that the Bellekins, akin to many other members of the Walloon congregation at the dawn of the sixteenth century, migrated from Metz to the Dutch Republic due to religious persecution.⁵⁴ It is plausible that they left slightly before or after the issuance of the Edict of Nantes in 1598, which provided substantial rights to French Calvinists, thereby causing in return the outrage of the Catholics. The fact that the family has subsequently been recorded in the Walloon church in Utrecht and Amsterdam, led some scholars to believe that they left Metz to be able to freely practice their religion. Whether or not this was the case, it shall not be further discussed here. Our interest here are the potential career opportunities offered by the Dutch Republic, which might have been as significant to Jérémie as religion. The choice to settle in Utrecht and later in Amsterdam was most probably not random, as both cities played a role in the arms industry, altogether with Middelburg. Whereas France was at the heart of gunmaking from the late sixteenth century onwards, the Dutch Republic truly rose to prominence in this industry in the seventeenth century.⁵⁵ Jérémie thus must have pondered the opportunities to continue with his profession in the country of arrival. Moreover, the beginning of the seventeenth century signalled an ornamental change in gunmaking - from mother-of-pearl and stag-horn inlay to pear-wood and walnut stocks.⁵⁶ The ornament of inlaid and engraved mother-of-pearl was gradually falling into disuse in stocks of decorated weapons, but instead, it became widespread in furniture and smaller decorative and functional objects, such as musical instruments, tobacco boxes, snuff-box lids, and board games - a fine example being Jean Bellequin's game board, which is inlaid with mother-of-pearl plaques.⁵⁷ This change in taste came in tandem with the family's departure from Metz,

⁵³ According to Hayward, these would be "Peter Flötner, Virgil Solis, Etienne Delaune, Jost Amman, the two de Brys (father and son), Adriaen and Hans Collaert, and many of their contemporaries". *Ibid.*, 27.

⁵⁴ Religious cause of migration has been reiterated in the following sources concerned with the Bellekins: Van Seters, *Oud-Nederlandse Parelmoerkunst*, 180; Carson I.A. Ritchie, *Shell Carving; History and Techniques* (South Brunswick: A.S. Barnes, 1974), 126; Harold Osborne, *Oxford companion to the decorative arts* (Oxford: Clarendon Press, 1905-1987), 585; Ulrich Leben, "The Waddesdon Manor nautilus shell and triton: A masterpiece from the William Beckford collection," *Magazine antiques*, (October 2003): 117.

⁵⁵ Hayward, *The art of the gunmaker*, vol. I., 229.

⁵⁶ *Ibid.*, 139.

⁵⁷ Ritchie, *Shell Carving*, 126.

leaving one to wonder whether it had any effect on Jérémie and the family's preference for the Dutch Republic. Perhaps one would romanticize the story of the family departure if one is to say that Jérémie sought opportunities where he could utilise his knowledge of inlaying mother-of-pearl. The deed of Jérémie's second marriage, in 1621, reveals what was at stake: in addition to being mentioned as an engraver and inlayer of mother-of-pearl, Jérémie was also mentioned as a 'lademaecker' - in literal translation, a 'drawer-maker', therefore referring to a field of furniture, an armorer. He surely seized every opportunity to find employment, cleverly adjusting to the Dutch market and his clientele. Even though his work has remained largely unknown to us, significantly, this document tells us that Jérémie was an all-encompassed artisan, who assembled, engraved and inlaid gun-stocks with mother-of-pearl, and perhaps did the same in furniture - a fine artistic legacy to leave to the future generations, indeed.

Handling nautilus shells

The chambered, pearly nautilus (*nautilus pompilius*) is a species of marine invertebrates commonly known as a 'living fossil', due to its longevity of approximately 500 million years and its essentially unchanged form. Underneath the chambered shell resides a soft-body creature; this is a cephalopod mollusc, kindred to squid and octopus. *Nautilus pompilius* is the only surviving species of the Nautiloidea subclass and is therefore naturally rare. The oldest extant sample of the nautilus shell, or at least its lookalike, dates from the year 1000 AD.⁵⁸

In addition, the practice of carving and engraving shells is ancient.⁵⁹ The techniques that have been used to decorate shells throughout the centuries had already been known around the 4th millennium B.C., in Ur, the ancient Mesopotamian capital.⁶⁰ In principle, this method consisted of carving in relief, inlaying mother-of-pearl with precious minerals, and engraving with embellished designs - in some ways similar to the techniques employed by the seventeenth-century Dutch artists. Moving forward, the processing of nautilus shells will be

⁵⁸ In fact, it more resembles a golden bowl, type of a vessel, than a nautilus shell. It is part of the Treasure of Nagyszentmiklós, and is currently kept at the Kunsthistorisches Museum Vienna, Inv.nr.: Antikensammlung, VIIb 5. www.khm.at/de/object/71360/ C. J. H. M. Tax, "Nautilus Shells as collectors' items in the "Kunst- und Wunderkammer." " *Vita marina*, vol. 43(1-2), July, 1995., 16, fig.3.

⁵⁹ In 2014, Dr Stephen Munro, the paleoanthropologist at Australian National University, made a breakthrough by revealing that the earliest known human engravings were created on the fossilised shell from the 19th century collection of the Dutch scientist Eugene Dubois. The shell was found on the Indonesian island of Java, and dated by Munro and his team of scientists between 540,000 and 430,000 years old, which was 300 000 years more than other previously assumed oldest man-made engravings. For more on this topic see: <https://www.australiangeographic.com.au/news/2014/12/worlds-oldest-engraving-discovered/>

⁶⁰ Ritchie, *Shell Carving*, 94.

examined, starting with the preparation, continuing to carving, and lastly, engraving of nautilus shells, as presumably practised by the Bellekin workshop.

The materiality of nautilus shell

‘The nautilus depicted in this table is the most elegant type of snail, which deserves the palm above many others, both because of its admirable form, and also for the nobility of the material of which it is composed.’⁶¹

Besides mistaking the nautilus for a snail, which is a gastropod mollusc, the observations of the Amsterdam apothecary Albertus Seba succinctly capture the essence of a nautilus shell.⁶² Something about the materiality of nautilus shells evoked curiosity of contemporaries, perhaps, like no other shell ever did. The nautilus was particularly fascinating partly due to its morphology: the outer, pearl-like shape coupled with the perfect geometry of the logarithmic structure of its inner chambers. The mathematical precision of its spiralling chambers sparked particular scientific interest. Curiosity stemmed from the contrasts manifested in its materiality: the robust shell versus the soft creature that dwells within its chambers, the coarse surface versus the smooth mother-of-pearl; a natural specimen versus an artificial object. But probably the most appealing feature within the shell is the shimmering iridescence of its mother-of-pearl, also known as nacre. When rotated in one’s hand, the nautilus unveils the entire visible spectrum, while also reflecting the colours of its immediate surroundings. This lovely pearly opalescence depends on the source of light and its intensity, something that is best noticeable by direct interaction with the object. A collector had the opportunity to fully indulge in all aspects of the nautilus’ materiality, which must have been a rewarding experience. Undoubtedly, personal contact added a whole extra level to this experience and appreciation of this object.

Our protagonists from the beginning of this chapter, brothers Zacharias Conrad and Johann Friedrich von Uffenbach, vividly recorded their experience of mother-of-pearl plaques

⁶¹ I translated this quote freely from the Latin original: “*Nautilus haec tabula depictos sistit, genus cochlidum elegantissimum, quod prae multis aliis palmam meretur tum ob admirabilem formam, tum ob ipsius etiam materiae, quaconstat, nobilitatem.*” Albertus Seba, *Locupletissimi rerum naturalium thesauri accurata descriptio, et iconibus artificiosissimis expressio, per universam physices historiam : Opus, cui, in hoc rerum genere, nullum par exstitit* (1758), vol. III, 175.

⁶² It was common among the contemporaries to mistake a snail for nautilus shell. For instance, Jan Swammerdam (1637-1680) in his *Bybel der nature* (1737) also made this mistake: next to the Latin *Conchae, Conchelarum*, is the Dutch *Slakken* (snails). Jan Swammerdam, *Bybel der nature*, Leiden 1737, t.1, 193.

and nautilus shells. In 1711, among many of Amsterdam's collectors, the brothers also visited Birrius, a merchant in jewels, who was eager to show them some mother-of-pearl pieces crafted by the Bellekins.⁶³

*“The most beautiful thing was an incomparable box made of all kinds of brightly coloured mother-of-pearls, on which the figures were deeply incised, or rather cut out, like glasses are made, but which presented itself so well in mother-of-pearl that one could swear if one did not feel it with its finger, that it was sublime. How then this work looks much more beautiful than the sublime one [...].”*⁶⁴

This observation is a clear testament to Cornelis Bellekin's expertise in mother-of-pearl carving. By 'sublime', the brothers here might not only refer to the transparency of the mother-of-pearl material, but also, significantly, to the ease of execution. When visiting a curiosity cabinet, the onlooker could not see the process of shell carving but instead had a transient experience of the final product. In line with Aristotle's belief that the final stage in any process is the most valuable, the final stage in the nautilus would be the point when art reached its maximal potential, in the art form.⁶⁵ The nautilus exemplifies the transformation of the natural material into art; this is what Von Uffenbach brothers might described as nature that 'sublimes' into art, by blurring the boundaries, making it difficult to discern where nature ends and art begins.

The connection Von Uffenbach brothers made with glass-making is also clearly significant. Dutch glass-making became fashionable roughly around the same time as shell engravings, emerging in the first half of the seventeenth century, and reaching its peak in the second half of the century. Glass craftsmen were commonly members of different guilds but were primarily engravers who were specialized in different techniques, e.g. diamond engraving, and stipple-engraving.⁶⁶ The brothers compared nautilus shells with glass based on

⁶³ I freely translated this: “Mr. Birrius showed us some other pieces of art, made by Mother of Pearls by Bellekins, one of which was very beautiful, worked in relief on both sides.” (“Herr Birrius zeigte uns noch einige andere Kunststücke, von Perlenmutter, von Bellekins gemacht, darunter eines sehr schön war, auf beyden Seiten erhaben ges arbeitet.”) Von Uffenbach, *Merkwürdige Reisen durch Niedersachsen*, 544.

⁶⁴ I freely translated this quote. “Das schönste war ein gar unvers gleichlick Kästgen von allerhand farbrichten Perlenmuttern, daran die Figuren tief eingeschnitten, oder vielmehr ausgeschliffen waren, wie man die Gläser macht, welches sich aber in Perlenmutter so wohl präsentirt, daß man schwören solte, wenn man nicht mit dem Finger darauf fühlet, es wäre erhaben. Wie dann diese arbeit viel schöner ausfichet, als die erhabene.” Ibid., 544.

⁶⁵ A. J Close, “Commonplace Theories of Art and Nature in Classical Antiquity and in the Renaissance.” *Journal of the History of Ideas* 30, no. 4 (1969): 472.

⁶⁶ For glass engraving see Rachel Russell, “Decorated Glass – The Dutch Connection,” in *The International Ceramics Fair and Seminar* : 14, 15, 16, 17 June 1991 ; the Park Lane Hotel Piccadilly London W1. London, 1991, 26-32.

the potentialities of the medium and engraving technique. Firstly, glass-making and nautilus shells engraving both relied on print engravings, either as a model or by copying designs directly. Secondly, glass-making included an array of emblemata (heraldic, patriotic, etc); similarly, nautilus shells were ornamented with carved helmet and engraved coat of arms (fig.5). Thirdly, glass or diamond-point engraving exploits the play of light in depth; it displays transparency, a luminous feature to which only translucent mother-of-pearl can compare.⁶⁷ There is also an association with functionality as a drinking vessel, although the nautilus shell had much broader usage, as we will see soon.

French merchant, specialized in fine arts Edmé-François Gersain, observed diverse shells forms, and wrote that nautilus shells (*paper nautilus*) “*are so light that you hardly dare to touch them*”.⁶⁸ But the evocative description of Von Uffenbach brothers above reveals another crucial point which might explain how these objects were handled - ‘*if one did not feel it with its finger*’ implies tactile handling of this object.

In the long seventeenth century, nautilus shells had different functional use, depending on their placement, either in a princely or natural history collection. From being used as drinking or ceremonial vessels, to purely aesthetic objects, and scientific specimens, I argue that handling nautilus shells included not only sensory perception but also bodily engagement. The reasons for this are provided on the one hand by the potentiality of raw material, mother-of-pearl, and on the other hand the intended purpose given to them by its makers, artisans. While in this chapter we focus on nautilus’ materiality, in the next chapter we will dedicate more attention to the potential usage of nautilus shells in curiosity cabinets.

In general, shell of a mollusc has quite a practical purpose: it protects the soft tissue of the animal, against dehydration and predators by serving as a defence mechanism.⁶⁹ On top of all, mother-of-pearl is a remarkably durable material, as its calcium carbonate composition allows it to remain resistant under varying temperature conditions.⁷⁰ However, extra care must be taken when handling nautilus shells due to their fragility, making the work of the artisans who decorated them all the more commendable.

⁶⁷ Diamond-point engraving is the technique of decorating glass by scratching the surface with a diamond.

⁶⁸ For the confusion between nautilus shell and Argonauta argo see Chapter 2 of this thesis. For Gersain’s quote see: “[...] *les autres font fi légères qu’a peine on oie les toucher, comme le Nautille de papier* [...]”. Edmé-François Gersain, *Catalogue raisonné de coquilles et autres curiosités naturelles*, Paris 1736, 8.

⁶⁹ Karin Annette Möller, and Staatliches Museum Schwerin, *Schimmern Aus Der Tiefe : Muscheln, Perlen, Nautilus*, ed. Blübaum Dirk (Petersberg: Michael Imhof Verlag, 2013), 14.

⁷⁰ Gustav E. Pazaurek, *Perlmutter* (Berlin: Gebr. Mann, 1937), 8-9.

Preparatory work on nautilus shells: method by Georg Everhard Rumphius

The initial method of processing shells was described in detail by Georg Everhard Rumphius (1627–1702), a naturalist and an official of the Dutch East India Company (VOC) of German descent. Rumphius spent most of his lifetime, from 1657 until his death in 1702, in the Moluccas, on the island of Ambon, the first trading post of this company in the East Indies. In the 1660s, he requested to be transferred from his post as a trade overseer, to dedicate his time solely to natural history.⁷¹ Sadly though, he lost his eyesight in the 1670s. The engraving made by his son Paulus Augustus portrays him as old and blind, clasping the shells he observed so attentively on Ambon (fig.3).⁷² This engraving features in Rumphius' *D'Amboinsche Rariteitkamer* (The Ambonese Curiosity Cabinet; 1705) - a rich source of knowledge of Ambon's flora and fauna, and also one of the earliest European scientific accounts on molluscs and mussels.⁷³ This comprehensive study is divided into three books, in the order of appearance, covering crustaceans, molluscs, and minerals. Besides Rumphius' systematic study of molluscs and other aquatic animals, the second part of the manuscript also includes painstaking descriptions of 360 species of all sorts of shells, which were at his disposal. Over the years spent on the island, Rumphius amassed a substantial collection of shells, crustaceans and other *naturalia*, which he shipped to European collectors.⁷⁴

Crucially, in the manuscript, Rumphius meticulously described the practices of removing the outer crust of the nautilus shell, step-by-step. Nautilus shell is composed of three layers; the first two layers, formed of an extra thin layer (periostracum) and the thicker middle layer (prism) have to be removed in order to reveal the underlying mother-of-pearl coating.⁷⁵ This is the initial yet critical method in modifying the nautilus shell, when it becomes an image carrier for ornamental and figurative representation, beginning to be transformed from *naturalia* into *artificialia*.⁷⁶

⁷¹ Maria-Theresia Leuker, "Knowledge Transfer And Cultural Appropriation: Georg Everhard Rumphius's 'D'Amboinsche Rariteitkamer' (1705)," in *The Dutch Trading Companies as Knowledge Networks* (Leiden, The Netherlands: Brill, 2010), 147.

⁷² The Latin text underneath the portrait reads as follows: 'Though he is blind, his mental eyes are so sharp that no one can beat him in inquiry or discernment'.

⁷³ Leuker, *Knowledge Transfer And Cultural Appropriation*, 148.

⁷⁴ Karin Leonhard, and Maria-Theresia Leuker, "Who Commissioned Hollar's Shells?" *Simiolus: Netherlands Quarterly for the History of Art* 37, no. 3/4 (2013): 228.

⁷⁵ Hendrikus Eduard Coomans, and Brus René, *Parels En Parelmoer* (Scheveningen: Stichting Zeebiologisch Museum, 1989), 6.

⁷⁶ Mette, *Der Nautiluspokal*, 81.

“...The shell is used most often to fashion beautiful drinking bowls, such as those known in Europe; to do this one should choose the biggest and smoothest ones, and look very carefully, that they do not have little holes, that one can see through anon, and which were made by certain hollow warts (a kind of *Balanis*), a slimy worm that has a sharp little tooth, with which it can drill through this hard shell, when it comes to grow on it, and which then makes these shells unfit for this kind of work. One should place a complete one in something sour for 10 or 12 days, such as spoiled rice, vinegar, or water that had grape leaves rotting in it, and then the outer shell will come away, which one should rub away by means of hard scouring, beginning at the place where it is the thickest, and if it is not entirely gone yet, one should put it back in there again, until the Mother-of-Pearl has come through everywhere, which one then rubs with a weak aqua-fortis, until it has acquired its perfect lustre, and finally rinse it with soapy water.”⁷⁷

By adopting the method described by Rumphius, one would strip the nautilus shell completely, down to the pure mother-of-pearl layer, leaving no prism layer on top. Those nautilus shells with their outer layer removed had a bigger appeal to connoisseurs than those that had not gone through the same process.⁷⁸ Smoothly polished nautilus shells revealed pure nacre, which provided a solid foundation for carving and engraving on this delicate layer. Yet a great many nautilus shells were not drastically altered, except for the addition of an ornamental mount, or sometimes nothing at all. Plain and ornated nautilus shell would often be placed next to one another, hanging on a string in the curiosity cabinets.⁷⁹ As it seems, the lustre of mother-of-pearl was beautiful enough on its own.

The method Rumphius described eventually became mainstream in seventeenth-century Dutch Republic, although there might have been also other methods in use.⁸⁰

⁷⁷ “De schaal is in grooter gebruik om ‘er schoone drinkvater van the maken, gelyk ze in Europa bekend zyn, hier toe moet men de grootste en gladste verkiesen, en wel toe zien, dat ze ann de zyde geen gaatjes hebben, want veele hebben een of meer ronde gaatjes, daar men pas door zien kan, die gemaakt werden door zeeke holle wratten, (een flag van *Balanis*) welker flymerige worm een scherp tandje heeft, waar mede hy deze harde schaal doorboord, als hy daar op komt teh groeijen, welke schaal dan tot dit werk onbequaam zyn. De geheele moet men 10 à 12 dagen in eenige fuurte leggen, als in gooren ryst, azyn, of water daar in wyngaart loof verrot is, zoo gaat de buitenste schelle af, die men met sterk schuuren afwryen moet, beginnende aan die plaatze daar ze op t’dikste is, en zoo ze noch niet geheel af is, moet men ze al wederom hier in leggen, tot dat het Paerlemoer over al voor den dag komt, ‘t welk men dan met een slap sterk water strykt, tot dat het zyn volkomen glans bekomt, en ten laastsen met zeepwater asspoeld.” Georg Eberhard Rumphius, *D’amboinsche Rariteitkamer*, 61. See also: Georg Eberhard Rumphius, *The Ambonese Curiosity Cabinet*, 90.

⁷⁸ Tax, *Nautilus Shells*, 19.

⁷⁹ Van Seters, *Nautilusbikers met problemen*, 182.

⁸⁰ Gustav Pazaurek proposed a method to avoid breakage: the outer layer should be scrubbed off with pumice stone, or pumice powder which will not cause damage to its delicate surface, and then polished it with ‘triple and oil’. Mette further expounded on this method, claiming that is time-consuming but includes lower risk of

C.J.H.M. Tax argued that we do not know “*whether this method was already used before the seventeenth century, as it may be probable that previously the outer layer was removed through abrasion*”.⁸¹ The top layer of the nautilus shell is extremely thin and it will fall off when the creature inside it dies.⁸² In fact, both layers, the top and the underlying mother-of-pearl layer, are prone to abrasion. In the aforementioned quote, by “something sour” and “aqua fortis” (Latin for ‘strong water’), Rumphius referred to acids of some kind. As mother-of-pearl is easily attacked by acids, any acidic solution will eventually have to be removed, not to abrade the surface of mother-of-pearl. Aside from this digression, I would like to make a point that the Bellekins may have been aware of this method, even though a concrete evidence is lacking. *D’Amboinsche Rariteitkamer* was not published until 1705, when Cornelis might have still been alive and thus able to obtain a copy. We do not know for certain when Cornelis died. Scholars are pinpointing the year 1711, as this was when Von Uffenbach brothers mentioned him as late. Nonetheless, the most beautiful samples of nautilus shells decorated by the Bellekins would had already been made by the time Rumphius’s manuscript was released.

Recently, scholars such as Anna Grasskamp and Eugenia Zoroski, argued that the method described by Rumphius originated from Asia.⁸³ They stated, respectively, that the method was transferred along with the import of nautilus shells to Europe. According to this view, Rumphius’ post at Ambon allowed him to develop an extensive network of contacts, which proved beneficial for reciprocal knowledge transfer, from Asia to Europe and vice versa. Furthermore, Grasskamp claimed that Rumphius described shells he directly observed and collected on Ambon, as well as the method he saw being done by the indigenous people. Indeed, this manuscript is not only a natural history work, but a description of cultural customs he had explicitly witnessed. However, the evidence presented by his writings suggest that his empirical knowledge was firmly grounded in European ways of thinking. We know that throughout his life he received shell specimens from his friends, either local or natives.⁸⁴ In addition, he had a small library on Ambon and he requested European books to be sent to him there. Rumphius relied on the ancients, although in regard to nautilus shells, he did not comply with Pliny. For instance, Pliny believed that nautilus is two different types of fish

breakage. None of them, neither Pazaurek nor Mette, explained if these methods were indeed used by the contemporaries. Pazaurek, *Perlmutter*, 8; Mette, *Der Nautiluspokal*, 76.

⁸¹ Tax, *Nautilus Shells*, 19.

⁸² Coomans, René, *Parels En Parelmoer*, 6.

⁸³ Grasskamp, *Shell Connections*, 23–66; Zuroski, *Nautilus Cups*.

⁸⁴ Hermann Leberecht Strack, and Jeroen Goud, “Rumphius and the “Amboinsche Rariteitkamer”,” *Vita Marina*, vol. 44(1-2) (November 1996): 32.

(*Nautilus* and *Pompilum*), whereas Rumphius thought it was one species, acknowledging that he relied on the writings by the French naturalist and physician Pierre Belon (1517-1565) and Polish-born naturalist Jon Jonston (1603-1675), a medicine graduate in Leiden.⁸⁵ Rumphius' way of thinking reflected his reliance on European sources more than on Asian.

Grasskamp developed her argument on type of Guangzhou conches, parrot-shaped shells which are shells in their own right, profoundly different from the Bellekin nautilus shells, in terms of motifs and execution, as well as techniques. Despite Grasskamp acknowledged this distinction, her reasoning led her to hasty generalization. Many of these Chinese decorated shells were mounted in nautilus cups between 1550 and 1600, by German artists Bartel Jamnitzer and Friedrich Hillebrandt.⁸⁶ Western nautilus shells were only decorated after 1600, and were, as I had already pointed out, completely different in style and technique. Carson Ritchie supported this view by claiming that the method of removing the outer layer by using acids and mordants was revolutionized by the Dutch, and was radically different from the one used by the Chinese, who according to Ritchie only used traditional tools, rubbing stone, knife and graver.⁸⁷ By claiming this, Ritchie did not imply that the method originate from Rumphius per se.

After we have explained how the contemporaries removed the top layer, in what follows next, we will expound on the methods of cutting, carving and engraving nautilus shells.

Methods of decorating nautilus shells: cutting and carving

Aside from removing the external layer, Georg Eberhard Rumphius also explicated ways of cutting nautilus shells. I will here break down his one sentence in order to elaborate on the relevant parts of his method: "*The clean ones are cut through by the chambers, so that the four or five back ones become transparent; the next three or four chambers are cut out entirely (...)*".⁸⁸ The nautilus shell attributed to the Bellekin workshop, currently at the Kunstgewerbemuseum in Berlin (fig.4), faithfully exemplifies this cutting technique.⁸⁹ The

⁸⁵ Rumphius, *The Ambonese Curiosity Cabinet*, 94-95.

⁸⁶ Tax, *Nautilus Shells*, 20.

⁸⁷ Ritchie, *Shell Carving*, 144.

⁸⁸ "*De schoon gemaakte worden by de kamertjes door gesneeden, dat de vier of vyf achterste doorkluchtig worden, de drie ofte vier volgende kamertjes worden geheel uitgesneeden, [...]* Georg Eberhard Rumphius, *D'amboinsche Rariteitkamer*, 61. See also Rumphius, *The Ambonese Curiosity Cabinet*, 90.

⁸⁹ This object is part of the permanent display of the Kunstgewerbemuseum, Berlin; inv. no. 1993, 63. The museum is in possession of another nautilus shell, which is decorated with vegetal and insect motifs, and attributed to Jean Bellekin; inv. no. K 3465; Correspondence with the museum: Manuela Krüger, museologist.

shell is cut in three series of longitudinal thick slits, opening the wall to such an extent that one could literally see through it, to the other side.

In the next phase, Rumphius noted, “(...) *one cuts a small open helmet in the innermost curl, (...)*”.⁹⁰ One of the Rijksmuseum's most impressive nautilus shells, signed by c. Bellekin f. [Cornelis Bellekin fecit], epitomizes this description (fig.5). The wall of the chamber is cut into an exquisitely carved barred helmet, surmounted by the engraved coat of arms consisting of a barred helmet with mantling and shield. Importantly, these elements recall Jérémie's original occupation as an engraver of fire-arms, during his early beginnings in Metz. The shield, which is a crucial part of the coat of arms, has a typically fifteenth-century French shape. During the sixteenth-century foliage was added to the mantle. The barred helmet, or barred burgonet, was commonly used by cavalry on the battlefield, or perhaps as a tournament helmet, from the end of the fifteenth century to the mid-seventeenth century. Naturally, heraldry was used for identification, on the battlefield and in various crafts alike. The carved helmet which is sometimes replicated with the same engraved element in the coat of arms, are both recognizable elements of the Bellekin family design. Almost identical helmet(s) can be seen on a couple of magnificent nautilus shells: Jan Bellekin's nautilus from the Hans Sloane collection at the Natural History in London (fig.6, fig. 21), and the Victoria and Albert Museum (fig.8).

And in the following phase “(...) *one can carve all kinds of figures on every side of the little boat, rubbing them with crushed coals mixed with wax or oil, until they stand out in black.*”.⁹¹ A very fine Rijksmuseum shell, signed by Cornelis Bellekin, is adorned with two fanciful fish-like creatures, which protrude from the curl (*krul*), following its spiral line, as an extension of rim (fig.9, fig.20). Another exquisite Rijksmuseum nautilus shell by Cornelis (fig.5), instead of animal-like figures features two carved female heads which flank the umbilicus from either side.⁹² In heraldry, the coat of arms and the shield are typically upheld by so-called supporters.⁹³ These are either human or animal figures, real or imaginary, a clever device added by artists either to fill in the surface surrounding the shield or to display

For more about this cup see “Jahresbericht 1993 Der Staatlichen Museen Zu Berlin.” *Jahrbuch Der Berliner Museen* 36 (1994): 265.

⁹⁰ “[...] *en in de binnenste krul snyd men een geopend helmte [...]*” Georg Eberhard Rumphius, *D'amboinsche Rariteitkamer*, 61. See also Rumphius, *The Amboinese Curiosity Cabinet*, 90.

⁹¹ “[...] *en aan de zyden rondom het bootje kan men alderhande figuren snyden, die men met gewreeve koolen en walch of oly door malkander gemengt wryft, tot dat ze zwart uitsteeken.*” *Ibid.*, 61. See also *Ibid.*, 90.

⁹² This motif also appears on the Waddesdon Manor nautilus shell, which is almost identical to the Rijksmuseum nautilus shell. For more on this shell see Leben, *The Waddesdon Manor*, 114-121.

⁹³ E. H. Gombrich, *The sense of order : a study in the psychology of decorative art* (Ithaca, N.Y. : Cornell University Press, 1984), 234.

their artistic skill and imagination. As proper supporters are missing here (perhaps due to a lack of drawing space), I suggest that carved female faces might come as a replacement. Being positioned on either side of the shell, these heads accentuate heraldic elements (helmet, shield and coat of arms) as recognizable features of the Bellekin workshop. One might wonder what these *à la antique* elements represent here. The rendering of clearly visible curls on female heads resembles Ancient Greek sculpture, perhaps of Aphrodite, because Venus was according to myth born out of sea foam and carried to Cyprus on a conch-shell.⁹⁴ Undoubtedly, these carvings are reminiscent of the ancient tradition which was still very fashionable in the seventeenth century. But also, these small heads figures were cunning devices for distinguishing a typically Bellekin work, which in modern jargon we might call a 'product', which has its brand, price and market. Nautilus shells with motifs of female heads are extremely rare; to the best of my knowledge, these do not appear on other European nautilus shells, unless signed by Cornelis Bellekin. The heraldic elements evoke family's original occupation as engravers of fire-arms, but also, when coupled with female heads, these indicate the artists' attempt to advance their trade and make a distinction among the competition. The tendency to sign their work and identify their craft through depicted motifs shows the family's aspiration to promote their name in this branch, through the demonstration of their artistic dexterity. Early modern commerce, curiosities and art were all closely related. Therefore, the family workshop had to devise innovations, while simultaneously being commercially minded.

Method(s) of decorating nautilus shells by Jan Swammerdam

Among the myriad of methods and techniques applied on nautilus shells we have so far discussed removing the outer layer, and have touched upon specific carved figurative elements. We will not examine nautilus shells with carved floral ornaments here, because these will be closely looked at in the second chapter. Now, we will discuss techniques applied on nautilus shells in relation to printing techniques.

Jan Swammerdam (1637-1680), draftsman, biologist and microscopist, explained the procedure in his *Bybel der natuure* (1737). The first step is to add yellow wax (which was previously thinned down with a little bit of Venetian turpentine) to a mix of enough

⁹⁴ Lucia Impelluso, *Nature And Its Symbols*, trans. Stephen Sartarelli (Los Angeles: Getty Publications, 2004), 351.

blackening that makes the colour compact.⁹⁵ Next, after the mixture has been melted in a spoon, the carved shell can be coated with the mixture, by using a little wooden pin to which a tiny piece of cloth was attached. The spots uncovered with wax have to be covered with alcohol, which will corrode leaving the pattern in relief. Finally, the corners can be chiselled off with a ‘little engraving iron’, in other words, an etching needle. This complete process is worth exploring in more detail.

Swammerdam's description of the method implies three printing techniques in use: woodcut, etching, and engraving. First, we will explore to what extent this method relates to the relief process of woodcut, and then the other two. Some nautilus shells contain tiny traces of black paint - a closer look at those, might help us to better understand how was the method proposed by Swammerdam applied. Even though hardly discernible to the naked eye, the residue is noticeable mainly on the edges of the branches and leaves. The application of the mixture of wax and colour on a carved nautilus shell suggests an analogy with the relief process of a woodcut. In sequence, the woodcut technique first implies removing the background of the wooden block, which will make the design stand out in relief; next, the ink is applied to the raised relief area, and the paper is pressed against it to create a print.⁹⁶ There are slight differences between the two methods. Instead on relief, ‘Swammerdam’s mixture’ is applied on empty spaces in-between the carved lines of the nautilus shell. This mixture is subsequently removed, but small particles of the original colourings occasionally remain on the surface. Furthermore, there is another significant difference: in a woodcut, lines are carved with a knife or a gouge - tools too unrefined to be used for carving delicate tendrils with leaves, flowers, fruit, and all kinds of other fanciful forms on a nautilus shell. With ‘little engraving iron’, Swammerdam probably implied an etching needle or the tip of a penknife, which is normally used to scrap away the etching ground.⁹⁷ Similarly, Hans-Ulrich Mette called this method ‘blind engraving’ (Blindgravur), in which cutting and scrapping are done with flat knives and gravers (burin).⁹⁸ Regarding the tools in use, one of a few extremely rare written pieces of evidence regarding Cornelis Bellekin has come down to us. From the advertisement in the local newspapers, *Amsterdamse Donderdagse Courant*, on 2nd February

⁹⁵ Swammerdam, *Bybel*, 193; Ritchie, *Shell Carving*, 146-147; Mette, *Der Nautiluspokal*, 84-85; Möller, *Schimmern Aus Der Tiefe*, 149.

⁹⁶ For more on woodcut technique see Antony Griffiths, *Prints and Printmaking : An Introduction to the History and Techniques* (Berkeley: University of California Press, 1996), 13-22; Clifford S Ackley, Museum of Fine Arts (Boston), and Saint Louis Art Museum (Saint Louis), *Printmaking in the Age of Rembrandt* : [Catalogue of a Traveling Exhibition] Boston, Museum of Fine Arts, [October 28, 1980 - January 4, 1981 Etc.]. Boston: Museum of Fine Arts etc, 1980.

⁹⁷ Mette, *Der Nautiluspokal*, 84.

⁹⁸ *Ibid.*, 81.

1696, there is a piece of important information that Cornelis “*has found an instrument with which he can drill diamonds, pearls, agates, &c., as curious as anyone has ever practised*”.⁹⁹ Even though there is no exact description of this tool in the advertisement, it is written that with its use Cornelis drilled holes and “*improved*” pearls, and made “*all kinds of broken East Indian curiosities and cabinets*”, and also “*counterfeits on mother-of-pearl (...)*”.¹⁰⁰ The layers of the nautilus shell are paper-thin, therefore this must have been a carving device delicate enough to make fine cuttings. He might have used a tool of different sharpness, perhaps one for making initial contour cuts and the other for applying finer, final touches, to modify the lines. If there indeed was a tool that he ‘invented’, as mentioned in the advertisement, it might have been custom-made and prepared in the family workshop. It might also be the case that this device did not have a broader application. Otherwise, we would expect ‘an invention’ to be also experimented by other members of his printmaker’s network, unless it was clandestinely shared only with the workshop members.

The part of the procedure that pertains to corrosion of alcohol, corresponds to a certain extent to the etching ground used by copperplate engravers. The process of making an etching necessitates acid to bite into copper. However, acids can cause corrosion to copper plates, as well as to nautilus shells. For that reason, Swammerdam suggested that alcohol should be thinned down with rain water so that it does not corrode the surface of the shell.¹⁰¹ Here Rumphius’ manuscript proves useful once again. An empty shell will lose its natural sheen and colour unless handled properly, so he gave specific instructions on how to properly gather, clean, and crucially, preserve nautilus from acid. The guidelines from Rumphius are to keep the shells in seawater for two days until the animal dies, then soak them overnight in a lukewarm solution of lye, and lastly, rub them with a piece of coarse linen and fine sand.¹⁰² Interestingly, boiling copper plates in lye was also used to remove the dried ink from the lines in order to prevent the metal from being corroded by acid.¹⁰³ As etching was part of the family profession, the Bellekins must have been aware of this, and thus may have utilised the method of preserving and decorating nautilus shells directly from their printmaking trade.

⁹⁹ “*Cornelis Bellekin, konstenaer, heft uytgevonden een Intrument, waer mede hij kan booren Diamanten, Peerlen, Agaten, & c. soo curieus als van iemand oyt gepractiseert is, verbeterd mede alle Peerlen die geele of onsuyvere vliezen of ook groote gaten hebben: hij maeckt se suyverder en kleynder van gaten, palijs (sic) alderhande zeegewassen en root Bloetcorael, en vermaeckt ook alderhande gebroken Oost-Indische Rariteiten en Cabinetten, snijt mede Conterfijtsels op Peerlemoen (sic), Bernsteen en Bloetcorael en ook veelderhande Historien uyt en inwendig, op verscheyde stoffen; hij is woonachtig in de Koestraat ten huysse van de Wed: Witteling, tot Amsterdam.*” Van Seters, *Oud-Nederlandse Parelmoerkunst*, 195.

¹⁰⁰ *Ibid.*, 195.

¹⁰¹ Ritchie, *Shell Carving*, 147.

¹⁰² Rumphius, *The Ambonese Curiosity Cabinet*, 224-226. See description in the book under number 13 and 25.

¹⁰³ Griffiths, *Prints and Printmaking*, 30.

The final technique of decorating the nautilus included engraving, which allowed for precise lines and intricate details. Aside from fragility, mother-of-pearl was a conducive material for engraving. Thanks to its smooth surface, lines were pulled with ease but its silkiness left no room for mistakes. Once set, the lines could not be erased or corrected, so engraving the nautilus required proficiency. At least regarding signed nautilus shells, it can be said that the family workshop maintained their quality. This is despite the fact that the manner in which these shells are engraved might differ. This is not only a matter of style, but also the extent of relying on prints or drawings as a template. For instance, there are some very beautiful, especially rare nautilus shells with *commedia dell'arte* characters of Jean Callot, attributed to the family workshop. Also, Jan Bellekin directly relied on prints with peasant scenes by Pieter Quast.¹⁰⁴ Although using prints as a source of an idea was commonplace in the seventeenth century, Van Seters claimed that “*Bellekin* [referring to Cornelis] *was so familiar that he was not obligated to slavishly copy paintings or engraving*”.¹⁰⁵ That said, Van Seters probably either inferred that Cornelis made his designs *near het leven* (from life) or from his imagination; in any way, it would mean that Cornelis had *disegno*, a highly praised quality, indeed.

1.4 Conclusion

Solely by focusing on the *artificialia* aspect of the nautilus' liminality, this chapter aimed to show how natural material was transformed into artificial object in its own right. After I have introduced the concept of liminality, I looked closely at the life and work of this small but prolific dynasty of artisans. The exquisite work of the Bellekin family workshop shows how art tried to improve nature, by transforming or perhaps improving natural material into par excellence artworks.

I explored family origins following Jérémie Belquin's translocation from Metz, the centre of fire-arms industry, to Amsterdam, the most important market for European mother-of-pearl. My goal was to show how Jérémie transmitted knowledge and skills to the other family members - to his son Jean, and his sons Claes and Johannes (Jan), and Cornelis, a son or nephew. This was made possible by an acute knowledge of the material, its characteristics and constraints, and a specific technical understanding. As the evidence about family life and

¹⁰⁴ See the following nautilus shells on museum websites: circle of the Bellekin family, first half of the 17th century, Grünes Gewölbe, Inv. Nr. III 185; North Netherlandish, 1640-1660, in Museo Poldi Pezzoli, Milano, Inv. Nr. 0784; Jan Bellekin, ca. 1660, Yale University Art Gallery, Inv. Nr. 1966.137.

¹⁰⁵ Van Seters, *Oud-Nederlandse Parelmoerkunst*, 207.

work is scarce, I discussed the methods described by their contemporaries, Georg Everhard Rumphius and Jan Swammerdam, to better understand the process of decorating nautilus shells by the Bellekin workshop. I demonstrated the workshop technical expertise in varied of decorative techniques, both two dimensional and three dimensional, applied on nautilus shells: removing the external layer, cutting, carving, and engraving. In addition to utilising specific knowledge for decorating mother-of-pearl and nautilus shells from fire-arms and marquetry, I argued that the Bellekins relied heavily on their printmaking profession. Against the assumption that techniques of decorating nautilus shells came from Asia, I argued that knowledge of different trades altogether allowed the Bellekins to be innovative in tools they used and the motifs they depicted. Thanks to their expertise, the Bellekin nautilus shells became highly appreciated as inherently Dutch *artificialia*.

As I have pointed out, there is no evidence that the Bellekins were part of a guild. Without the benefits of joining a guild such as protecting their economic interests against competitors, or procuring a social standing, the family workshop had to figure out an alternative. The workshop attained high quality and gain a reputation in this specialized trade, during their lifetime. To deal with the competition, they signed their work and fostered innovation, best seen in heraldic and figurative elements, such as helmets, coats of arms, and animal and human heads. In this chapter, I shed light on the advertisement in which Cornelis is described as the inventor of a drilling tool. This document indeed deserves more attention than scholarly literature has given it. Aside from short praises of his work in auction catalogues, this is the only document we have today that testifies about the range of Cornelis' artistic abilities, or of any member of the family for that matter. From this advertisement, we found out that the tool(s) he used was multifunctional, allowing him to become prominent in decorating a whole range of curiosities. The main goal of such advertisements was to promote trade, alert existing and potential customers of the range of skills and products, and by doing so, a way to stand out against the competition. Promotional activities, signing their work, artistic innovation (specific decorative details and drilling tool) all indicated that the family workshop tended to elevate their trade, from anonymous into established artisans, from craft into art.

Chapter 2: Nautilus shell and *naturalia*: flowers & insects

In an auction catalogue of Amsterdam's collector, Petronella Oortmans-De la Court (1624-1707), nautilus and other type of shells made by the Belleking family were collected under the name '*A rarity outside the cabinet*'.¹⁰⁶ This description alone indicates how liminal the nautilus shell was - even when placed in a curiosity cabinet, it still evoked its natural origins. The principle *Natura magistra artis* (Nature is the teacher of art) was manifested again and again in a delicate and ornate nautilus shell, in its material, form, and content. In order to unpack the concept of liminality between art and nature inherent in the nautilus shell, the previous chapter closely examined the *artificialia* concept. I showed how nautilus shells were altered from raw material into luxury product, enabled by the virtuosity of exceptional artisans, the Bellekin family primarily. The concern of this chapter is instead on the *naturalia* component of nautilus' liminality.

Whereas our focus in the first chapter was on the technical expertise, the preoccupation of this chapter is instead on the interpretation of concepts. More precisely, this chapter is concerned with the conceptual borders of art and nature that nautilus shells mediated or challenged while being altered. I will pose the following question: To what extent did the shells' artistic features confirm/question/articulate/mediate the dichotomy between art and nature? In the work of nautilus shells, nature is evoked explicitly, by its natural material, mother-of-pearl, and implicitly, by the 'artificial' elements of flowers and insects, carved or engraved on its surface. The crossing of boundaries will be discussed by exploring the close association of nautilus shells to flowers and insects. I will argue that the choice of placing shells, flowers and insects together was not random, but based on their natural origin, symbolics, and shared history as foreign and coveted objects. But before we explore the motifs depicted on nautilus shells, we shall first examine how essential curiosity was for the accumulation of knowledge about nature. Next, we will draw connections between nautilus shells, flowers and insects, and lastly, we will see how were these three displayed in curiosity cabinets.

¹⁰⁶ In Dutch original "*Nog eenige RARITEITEN buyten 't Kabinet*". Petronella Oortmans-De la Court, *Catalogus Van een Partye Uitmuntende Schoone Rariteiten* [...]. Amsterdam: 20-21.10.1707.

1.1 Curiosity and knowledge of natural history in seventeenth-century Dutch Republic

“Wonder is the first of all the passions”, noted René Descartes (1596–1650).¹⁰⁷ The preoccupation of Cartesian philosophy with dualism of body and soul, that seeks to explain the outside world through bodily response to senses, rendered wondering, as fundamental to all principal ‘passions’. Intriguingly, ‘wonder’ and ‘curiosity’ have been interchangeably used in scholarly literature, even to refer to the same quote above.¹⁰⁸ There are however, subtle differences between the two. Descartes claimed that ‘wondering’ is *de facto* admiration for what was hitherto considered to be strange or unknown to Europeans: “we wonder for only what appears rare and extraordinary to us [...] having been ignorant of it or through its being different from things we have known [...]”.¹⁰⁹ Curiosity, on the other hand, derives from Latin *cura*, which stands for care, concern, and attention to objects that require care and effort.¹¹⁰ Curiosity is about being inquisitive - exploring, observing, experimenting, and having a desire to learn, especially what is obscure or concealed. Therefore, there is a direct correlation between curiosity and knowledge. Being curious is epistemologically transgressive; it is about striving to look beyond the limits of the existing knowledge. As understood by Descartes, early modern Europeans marvelled at novelties, without necessarily needing prior knowledge of them. “Wonder takes us by surprise”, said Descartes, it is an instant reaction. Therefore, I reckon that wonder precedes curiosity - admiration precedes knowledge desire.

Curiosity has also had a pejorative connotation. By referring to its insatiable inquiry, Augustine called it “the lust of the eyes”.¹¹¹ Furthermore, by “sickness of the blindly curious” Descartes referred to excessive wondering, openly criticising “those who investigate rarities only to wonder at them and not to understand them”.¹¹² Lack of relevant knowledge of nature and its wonders indeed existed in the modern period, as we will see later on the example of nautilus shells in particular; however, this in turn led to an overwhelming curiosity regarding the relation of art and nature.

¹⁰⁷ *The Passions of the Soul* is Descartes’ final work, published in 1649. Descartes claimed that all other emotions, so-called *passions*, stem from the following six: wonder, love, hatred, desire, joy and sadness. René Descartes, *The Passions of the Soul*, trans. Stephen Voss (Indianapolis: Hackett Pub, 1989), 52.

¹⁰⁸ Daston, *Wonders and the Order of Nature*, 13; Pamela H. Smith, and Paula Findlen. “Commerce and the Representation of Nature in Art and Science,” in *Merchants & Marvels : Commerce, Science and Art in Early Modern Europe*, ed. Pamela H Smith, and Paula Findlen (New York: Routledge, 2002), 18.

¹⁰⁹ ‘Wonder’ is English translation of the French ‘l’admiration’. Descartes, *The Passions*, 59.

¹¹⁰ Möller, *Schimmern Aus Der Tiefe*, 18.

¹¹¹ *Ibid.*, 18.

¹¹² Descartes, *The Passions*, 61.

Curiosity was a stimulus behind the early modern drive to acquire knowledge of the natural world, through the exploration of unknown territories, the acquisition of material culture, and the practice of collecting and direct observation of nature. In the seventeenth century ‘decorated *naturalia*’ was in full swing; it ‘informed the development of natural history, by being accumulated, collected, observed and described. The range of liminal objects, natural and artificial, that proliferated through the Dutch cabinets of curiosities, offered an opportunity for the visitors to experience observing the interplay of art and nature firsthand. While some collected *artificialia* (antiquities, paintings, and paper art) in addition to (or only) *naturalia* (animals, plants and minerals), others preferred ethnographic items, or antique coins, medals, and gems, etc. This type of experimental, empirical knowledge, proved essential for the understanding of these curiosities, and consequently of nature itself. Once again, *artificialia* played a vital role in disseminating knowledge to those fascinated by nature.

Descartes’ discussion on wondering through senses was to the point: the circulation of natural and artificial objects and its fascination, trained the senses for naturalism. Sensory experience through liminal objects enabled appreciation, enjoyment, and enhanced understanding of nature.¹¹³ The encyclopaedic impulse of the late sixteenth century merged with seventeenth-century collecting curiosity in *mirabilia* - natural and man-made marvels, in conjunction with ‘pro-scientific’ inquiry of scholars, collectors, and artists. Opening senses in observation and interaction with diverse rarities, led to a pronounced interest in nature’s hidden and small creatures. As a consequence of these developments, the seventeenth century saw the advent of technical devices, such as magnifying glass and microscopic lenses, that opened doors to a new visual domain, previously unknown.

The *naturalia* collections of the seventeenth century, that contained shells as one of their most valuable items, served as a springboard for the scientific research and systematization that started with Carolus Linnaeus in the eighteenth century. Certain scholars raised the question of the extent of seventeenth-century collections, in terms of being scientific or ‘non-scientific’. As Linnaeus was the first to introduce the system of categorization of plants and animals that remained in use even today, I suggest to call seventeenth-century collections as ‘pre-Linnaeus’, rather than ‘non-scientific’. However, my focus is elsewhere - on seeking correlations between natural history objects and man-made objects.

¹¹³ Smith, *Commerce*, 9, 10, 18.

Early modern knowledge of nautilus shells

“Among the most remarkable curiosities is the animal which has the name of nautilus, or, as some people call it, the pompilos. Lying with the head upwards, it rises to the surface of the water, raising itself little by little, while, by means of a certain conduit in its body, it discharges all the water, and this being got rid of like so much bilge-water as it were, it finds no difficulty in sailing along. Then, extending backward its two front arms, it stretches out between them a membrane of marvellous thinness, which acts as a sail spread out to the wind, while with the rest of its arms it paddles along below, steering itself with its tail in the middle, which acts as a rudder. Thus does it make its way along the deep, mimicking the appearance of a light Liburnian bark; while, if anything chances to cause it alarm, in an instant it draws in the water, and sinks to the bottom.”¹¹⁴

Pliny's *Natural History* largely informed the knowledge that seventeenth-century artists and collectors had of 'nautilus, or sailing polypus'. This fundamental work offered a wealth of information about the natural world, credible enough to the contemporaries albeit based on hearsay data.¹¹⁵ It should be pointed out that Pliny's description of the nautilus only slightly differs from the earlier source on which it relies on - the description of Aristotle in his cardinal work *Historia animalium*.¹¹⁶ The quote (above) alone helped to envisage nautilus' appearance and behaviour that translated into visual representations of the early modern period. Ancient writers, Aristotle and Pliny in the first place, confounded *Argonauta argo* - a species of pelagic octopus that, among other, also dwells in the Mediterranean sea - with tropical *Nautilus pompilius*, as suggested by the nomenclature.¹¹⁷ *Paper nautilus* was a byword for *Argonauta argo*, based on the analogy that its paper-thin eggcase encircles the octopus in a similar way that nautilus resides in its shell. Hence the look of a ribbed instead of

¹¹⁴ Pliny the Elder, *Natural History*, trans. John Bostock, and H.T. Riley, vol. 2, (London: Henry G. Bone, 1855), 419.

¹¹⁵ The first Dutch edition of the book was published in Arnhem in 1610; and in Amsterdam in 1644. See, E. W. Gudger, "Pliny's *Historia Naturalis*. The Most Popular Natural History Ever Published," *Isis* 6, no. 3 (1924): 270, 277.

¹¹⁶ For the sake of comparison, I quote Aristotle in full: "The nautilus (or argonaut) is a poulpe or octopus, but one peculiar both in its nature and its habits. It rises up from deep water and swims on the surface; it rises with its shell down-turned in order that it may rise the more easily and swim with it empty, but after reaching the surface it shifts the position of the shell. In between its feelers it has a certain amount of web-growth, resembling the substance between the toes of web-footed birds; only that with these latter the substance is thick, while with the nautilus it is thin and like spider's web. It uses thus structure, when a breeze is blowing, for a sail, and lets down some of its feelers alongside as rudder-oars. If it frightened it fills its shell with water and sinks. With regard to the mode of generation and the growth of the shell knowledge from observation is not yet satisfactory; the shell, however, does not appear to be there from the beginning, but to grow in their cases as in that of other shell-fish; neither is it ascertained for certain whether the animal can live when stripped of the shell." Aristotle, In *History Of Animals*, Book IX (*South Bend: Infomotions, Inc., 2000*), Chapter 37, 201.

¹¹⁷ See the note 113. Also see Tax, *Nautilus Shells*, 13-28, esp. 15-16; Svetlana V. Nikolaeva, "A study of the type series of *Nautilus pompilius* Linnaeus, 1758 (Mollusca, Cephalopoda, Nautilida)," *Zootaxa* 3963(1) (2015): 65.

a smooth surface, and rather spotted than striped shell. “The appearance of a light Liburnian bark” further underscored the confusion: although Pliny might have based the resemblance to ships he saw or was familiar with, the association with Liburnians alludes more to the Mediterranean, than to Indo-Pacific.¹¹⁸ Nonetheless, the conceit of a nautilus sailing in its shell like a boat, with the support of a “thin membrane” between its tentacles as a sail, was embraced by many early modern European artists. The illustration based on Pliny’s description features in the earliest printed book devoted to fish, *L’histoire naturelle des estrange poisons* [...] (*The Nature and Diversity of Fish*) (1551) by the French naturalist Pierre Belon, and also in his second account of aquatic animals, *De aquatilibus libri duo* (1553) (fig.10).¹¹⁹ A range of other European seminal works of natural history contain an illustration of *paper nautilus* similar to Beloni’s, namely Ulisse Aldrovandi’s *De reliquis animalibus* (1606) (fig.11), Jan Jonston’s *Historiae naturalis* [...] (1657-1663) (fig.12), and Martin Lister’s *Historia conchyliorum* (1685-92). These illustrations closely resemble each other, and have all served as models for later prints in the period.¹²⁰ Rumphius’ *D’Amboinsche Rariteitkamer* also features a similar illustration of *paper nautilus* that reflects Pliny’s view regarding the means by which nautilus sails. However, Rumphius disagreed with Pliny on this matter. In contrast to Pliny, Rumphius concluded that nautilus does not sail with the help of thin little fleece, its skin, but with “*the hollow of the little boat, [...] so that the wind can blow in it*”.¹²¹ Therefore, Rumphius’ notes and the illustration in the manuscript do not correspond. Leonhard and Leuker argued that this discrepancy was because illustrations were inserted later by the collector Simon Schijnvoet, who acted as editor of the book.¹²² Some other scholars held a different view: Schijnvoet’s observations were clearly distinguishable from Rumphius, as well as the images, as Schijnvoet indicated when these were supplied by Rumphius.¹²³

Thanks to antique sources, going back to Aristotle and Pliny, the belief that nautilus can sail along the surface of the sea became widespread, so merchants often called it the *Little*

¹¹⁸ The Liburnians, or Liburni, were an ancient tribe who settled on the northeast Adriatic coast, of the present day Croatia.

¹¹⁹ Beloni’s description of nautilus corresponds to Pliny’s: [...] *between the arms of the Nautilus is a thin fleece, similar to that between the claws of flat-footed fowl, but much thinner, like unto a spider’s web, though it is strong, wherein it lets the wind blow [...]*” Rumphius, *The Ambonese Curiosity Cabinet*, 95.

¹²⁰ Wenceslaus Hollar made a similar etching of *paper nautilus*. See Royal Collection Trust, no. RCIN 804563. For more about Hollar’s print see Leonhard, *Who*, 227–39.

¹²¹ Rumphius, *The Ambonese*, 93.

¹²² Leonhard, *Who*, 227–39.

¹²³ Strack, *Rumphius*, 34; Florence Pieters, and Robert Moolenbeek, “Rare schelpen en schaaldieren. Raadsels rond de illustraties bij D’Amboinsche rariteitkamer van Georgius Everhardus Rumphius,” *Jaarboek van het Nederlands Genootschap van Bibliofielen* XII (2004): 115.

Skipper. Nautilus in fact went rarely to the surface. It is usually most active during the night, dwelling in the great depths of the sea, which is why it is rarely seen. We now know that to catch a sample with the living creature inside, one would have to submerge between 400 - 600 meters underwater.¹²⁴ It might have been challenging to catch nautilus using the fishing methods of the day. Fishing of these ‘rarities’ in the long seventeenth century was hindered by their natural behaviour; shells were either captured by basket traps baited with crayfish, or net, when they came closer to the surface, or more likely, when they following currents drifted ashore, already empty. The seventeenth-century ‘pro-scientific’ inquiry in living animals prompted the study of morphology, functions and behaviour of living molluscs. Contemporaries were particularly fascinated with the locomotion of the nautilus, partly prompted by the ancient understanding that it uses its tail as a rudder to navigate. And yet, the force called buoyancy, which enables the nautilus to move according to the Archimedean principle by ejecting water from its inner compartments was less known to the contemporaries. Therefore the discussion that stemmed from Pliny - whether nautilus set sail with the use of its shell or boat - substituted the incomplete knowledge.

Pliny's narrative, regardless of its inaccuracy, had a great influence on nautilus' visual representation in emblem books. This new pictorial genre that appeared around 1530, combined image with text, effectively sending a symbolic, moralising message to the audience. Insufficient knowledge coupled with Pliny's interpretation of nautilus, created an image of a creature with an intriguing outlook and unnatural behaviour. This image perfectly fitted within this type of visual genre, because emblems did not entail realistic illustrations. Quite the opposite - emblems favoured rare plants, animals, and hybrid creatures, which derived from phantasy, and Greco-Roman texts and mythology. Nautilus shell is a good example of the massive range of influence Pliny's *Natural History* had on emblem books, for the one who wanted to understand emblems had to read Pliny.

The emblematic representation of the nautilus, by Joachim Camerarius the Younger (1534-1598) from his monumental work *Symbola et emblemata*, closely follows Pliny's account (fig.15). The accompanying text read as follows: “*As the nautilus [ship] endures calm and stormy seas, so may the mind be equally brave.*”¹²⁵ The nautilus symbolized good fortune

¹²⁴ Peter Ward, Lewis Greenwald, and Olive E. Greenwald, “The Buoyancy of the Chambered Nautilus,” *Scientific American* 243, no. 4 (1980): 190–203.

¹²⁵ This is freely translated by me. The original in Latin: *Nautilus ut placidum & farum mare sustinet acque, Sic itidem fortis forte in utraque animus.*

due to its capacity to remain afloat on the surface of the sea and to persevere any condition.¹²⁶ In addition to the connotation to the sea as the nautilus' native habitat, this emblem likewise draws a parallel with seafaring, by means of which the nautilus was brought to the Dutch Republic, hence becoming the symbol of the economic power of a seafaring nation.¹²⁷ In antiquity, 'pompili' was the name given to fish that followed ships.¹²⁸ Its connection to water is thus essential. Especially curious was the belief, stimulated by Pliny, that nautilus is inclined to simultaneously reside under and above water - a belief which contributed to the notion of nautilus as unsettled. On another emblem by Camerarius (fig.14) nautilus is depicted among many different types of shells dispersed on the shore. The description underneath the emblem reads as follows: "*One day we will all emigrate / Here we shall never have certain faiths, but we will depart from here to the heavenly realms of the kingdom of God*".¹²⁹ The creature that abandons its home leaving an empty shell is a reference to the transience of human existence. Similarly, the transition from the sea to the coast, alludes to a passage from earthly to heavenly life.¹³⁰ Fanciful emblematic representations of nautilus opened mental boundaries - from being strictly associated with the sea surroundings, to enabling possibilities of conceiving it as an artificial object in the setting of artists' workshops and curiosity cabinets. The emblem thus suggests that art and nature entered into a dialogue, which is materialized in beautiful seventeenth-century nautilus shells.

1.2 Nautilus shell in dialogue with flowers

In the poem *Het Strande* (The beach), published in 1611, Dutch poet Philibert van Borssele extolled the beauty of shells so highly that it surpassed that of tulips, the most sought after seventeenth-century bloom. He dedicated this poem to his brother-in-law Cornelis van Blyenburch, a shell collector, "and all his Fellow-Shellfanciers".¹³¹ "*No tulip I have ever seen*

¹²⁶ Karin Leonhard, "Shell Collecting. On 17th-Century Conchology, Curiosity Cabinets And Still Life Painting," in *Early Modern Zoology: The Construction of Animals in Science, Literature and the Visual Arts* (Leiden: Brill, 2007), 205.

¹²⁷ Mette, *Der Nautiluspokal*, overall.

¹²⁸ According to Pliny "Some writers call the tunnies which follow ships in this manner, by the name "pompili". Pliny the Elder, *Natural History*, 388.

¹²⁹ I translated this myself. The Latin original: *Semel emigrabimus omnes. Hic nusquam certris habitamus fedibus, ast hinc Ibimus ad superi calica regna Dei.*

¹³⁰ Möller, *Schimmern Aus Der Tiefe*, 146-147.

¹³¹ In Dutch original "aen allen Mede-Schelpisten". H. E. Coomans, "Schelpenverzamelingen," in *De Wereld Binnen Handbereik : Nederlandse Kunst- En Rariteitenverzamelingen, 1585-1735*, ed. Ellinoor Bergvelt, Kistemaker Renée, Roelof van Gelder, K. van Berkel, and Hinke Wiggers (Zwolle: Waanders, 1992), 199. The

compares with these [shells], however curious it may be.”, wrote van Borssele probably based on the shells he observed in the van Blyenburch’s cabinet in Amsterdam. I will next draw analogy between nautilus shells and flowers: throughout the seventeenth century, these were compared, complemented or competed with each other on the grounds of their exceptional beauty and rarity, as well as the magnitude of enthusiasm for them in early modern period.

In Dutch still-life paintings, shells often appear in relation to flowers, which is why Karin Leonhard named this type of representation ‘shell still life’.¹³² Their connection in *pronkstilleven* were mostly interpreted as a reference to vanitas and transient beauty, or, according to Leonhard, a display of national self-image. Instead of paying much attention to each single piece, shells were seen under the umbrella of curiosities, in which nautilus shells were only marginally discussed by being associated with for instance, ostrich eggs, or rhinoceros horns. Moreover, in still life, shells were occasionally interpreted merely as a *parergon* to flowers, subordinated or supplementary to tulips in the first place. It should be pointed out, though, that flower still life with shells is *artificialia*, de facto artistic representation of intrinsically natural objects (which might be artistically ornamented). Painting as part of a *naturalia* collection serves as a ‘replacement for the living original’.¹³³ Undecorated shells, on the other hand, belong to the realm of nature. As this distinction was not so clearly delimited in the seventeenth century, I argue that engraved nautilus shells bring another level of complexity to the discussion, by large due to their liminality. With the tulip being so illustrative of the early modern obsession with the novel, I find it reasonable to make a parallel between this adored flower and the coveted nautilus shell.

The affinity between shells and flowers - nautilus shells and tulips in particular - is in their foreign origins. The former is native to Southeast Asia, the Indian or Pacific Ocean, whereas the latter were cultivated in the Middle East, more specifically Constantinople, though some sources suggest they originate from Persia.¹³⁴ Tulip bulbs were purchased through trade and negotiation with Turkish merchants, or given as diplomatic gifts, whereas shells were traded from the locals, or harvested from the sea by the Dutch. From the late

English translation is taken from Anne Goldgar, *Tulipmania : Money, Honor, and Knowledge in the Dutch Golden Age* (University of Chicago Press, 2007), 81.

¹³² Leonhard, *Shell Collecting*, 186.

¹³³ Roelof van Gelder, “De Wereld Binnen Handbereik : Nederlandse Kunst- En Rariteitenverzamelingen, 1585-1735,” in *De Wereld Binnen Handbereik : Nederlandse Kunst- En Rariteitenverzamelingen, 1585-1735* (Zwolle: Waanders, 1992), 30.

¹³⁴ According to another source, tulips originate from Persia, and were in the second half of the sixteenth century first brought to Vienna by Austrian consul who then brought them to Istanbul. Impelluso, *Nature*, 82.

sixteenth century, nautilus shells were mainly imported to Amsterdam from the Molucas.¹³⁵ New plants were imported along with cargo and other curiosities, natural and man-made, via extensive trade networks of Dutch merchants and the East India Company and West India Company ships to the Dutch Republic. For example, the VOC ship “De Witte Leeuw” which sunk in 1613 whilst returning from Bantam to Amsterdam, shipped diamonds, porcelain, spices and other exotic commodities, among which were also six examples of nautilus and turbo shells, as evidenced from the preserved cargo.¹³⁶ The trade of shells and tulips, respectively, was driven by unprecedented demand for them in the upcoming country, where they rose to the status of precious rarities.

The fascination with shells and tulips is comparable as both began to be extremely appreciated as rare novelties in the Dutch Republic roughly around same time, in the early seventeenth century, and to a similar extent. Although shells were in fashion since the Renaissance onwards, the enthusiasm for shells and their collecting - *conchophilia*, increasing grew at least since the middle of the seventeenth century, reaching its heights by the end of the century.¹³⁷ Somewhere around the turn of the century, when monetary value of shells soared dramatically, we can speak of a veritable *conch mania*.¹³⁸ The obsession with tulips that evolved into well-known craze called *tulipmania*, slightly predates it. As the phenomenon of cultivating tulips has received so much scholarly attention, my focus in what follows will only be on the overlaps with the increased appreciation of shells.

Seventeenth-century Dutch highly coveted shells and tulips both due to their shape, size, texture, colour, and crucially - great variety. Among the flowers that originated from the Ottoman Empire in the seventeenth century, such as iris, crocus, and hyacinth, tulips were the most desirable, especially variegated ones. The variation - in colour, and blooming period - enabled the tulip to stand out amongst other flowers. The pronounced interest in this flower from its first appearance in Europe in the mid-sixteenth century, steadily turned into craze, in the mid-1630s. Fascination led to obsession; people tended to make speculations, driven by

¹³⁵ Mette, *Der Nautiluspokal*, 174.

¹³⁶ The wreckage was located by a Belgian diver Robert Sténuît and his organization in 1976, near the isle of St. Helena, where the ship sunk as a result of a naval battle with Portuguese. Robert Sténuît, "De 'Witte Leeuw'. De Schipbreuk Van Een Schip Van De V.o.c. in 1613 En Het Onderwateronderzoek Naar Het Wrak in 1976," *Bulletin Van Het Rijksmuseum* 25, no. 4 (1977): 178.

¹³⁷ The name ‘conchophilia’ was conceived by the authors of the book with the same name, although the term to describe this phenomenon was not used by the contemporaries. Anne Goldgar, “Introduction For the Love of Shells,” in *Conchophilia : Shells, Art, and Curiosity in Early Modern Europe*, Marisa Bass, Anne Goldgar, Anna Grasskamp, Hanneke Grootenboer, Claudia Swan, Stephanie Dickey, and Watson Róisín (Princeton: Princeton University Press, 2021), 1-17.

¹³⁸ Albertus Seba, Rainer Willmann, Jes Rust, Volker Wissemann, and Koninklijke Bibliotheek (Netherlands), *Cabinet of Natural Curiosities = Das Naturalienkabinett = Le Cabinet Des Curiosités Naturelles : Locupletissimi Rerum Naturalium Thesauri 1734-1765* (Köln: Taschen. 2011), 8.

the possibility of generating easy profit. However, speculations over tulip variation were unsteady. It was not yet known that variegation can be achieved by cross-fertilization, and moreover, that spontaneous hybridization and diseases transmitted by insects may affect variegation.¹³⁹ As it seems, early modern knowledge of gardening was comparable to the limited understanding of shells. In 1637, as a result of these developments, the tulip frenzy turned into a crash. A great many were willing to invest in bulbs upfront, yet lost their fortune, blaming false promises. Other than this being an instructive story, we can also draw analogies from this incident: the way humans attempted to intervene in tulip variation, so did artists by incising engravings on nautilus shells. Art attempted to perfect nature by altering it.

In a way, this crash could have been foreseen. Decades long before the crash, contemporaries ridiculed this phenomenon in pamphlets, and artists gave their satirical critique in prints and emblem books. In *Sinnepopen* (1614), the emblem book of Amsterdam's poet Roemer Visscher, shells are depicted scattered on the shore, accompanied by the explanatory text 'A fool spends his money on the oddest things' (fig.16). The next page of the book contains similar content 'A fool and his money are soon parted.' (fig.17), attached to the illustration of tulips. Visscher brought shells in parallel with tulips in imagery and text alike, with an open critique: people were indeed ready to pay large sums of money for them. Tulips were costly even before the 1630s, but around 1636 the price skyrocketed: Viceroy (purple-white) and Semper Augustus (red-white) were the most expensive, even fetching thousands of guilders for a single bulb.¹⁴⁰ The monetary value of shells, by comparison, is also estimated between hundreds to thousands of guilders.¹⁴¹ For instance, a spiral Wentletrap could fetch up to 500 guilders.¹⁴² Albertus Seba in 1716/1717 sold his collection with 72 drawers of conchylia to the Russian Tsar Peter the Great, who spent 15 000 guilders for it.¹⁴³ Nautilus shells might have been sold separately, although it might be difficult to estimate the price of a single piece, because it was customary for a Dutch collection to be either sold or auctioned all at once, after the death of the collector. Collectibles were also occasionally sold

¹³⁹ Sam Segal, Ruth Koenig, and Nabio Museum of Art (Osaka), *Flowers and Nature : Netherlandish Flower Painting of Four Centuries* (The Hague: SDU, 1990), 44.

¹⁴⁰ Goldgar, *Tulipmania*, 2; Segal, *Flowers and Nature*, 45.

¹⁴¹ Leo Noordegraaf en Thera Wijsenbeek-Olthuis, "De wereld ontsloten, Aanvoer van rariteiten naar Nederland," in *De Wereld Binnen Handbereik : Nederlandse Kunst- En Rariteitenverzamelingen, 1585-1735*, ed. Ellinoor Bergvelt, Kistemaker Renée, Roelof van Gelder, K. van Berkel, and Hinke Wiggers (Zwolle: Waanders, 1992), 50.

¹⁴² Leonhard, *Shell Collecting*, 183.

¹⁴³ Möller, *Schimmern Aus Der Tiefe*, 131.

per drawer of a cabinet.¹⁴⁴ Shells and tulips were both either traded as commodities, or became currency themselves: a type of cowrie shell (*Cypraea moneta*) was used as currency in Africa, and the VOC traded them internationally and with the local clientele in the Dutch Republic; similarly, tulips were exchanged as currency between botanists and collectors.¹⁴⁵ Curiosity in novelties brought by commercial exchange, as convincingly argued by Pamela Smith and Paula Findlen, was inextricably linked to profit.¹⁴⁶ For Visscher, whatever the sums paid for tulips or shells may be, the two were equated. Visscher's emblems might have been seen as a warning against extravagance in acquiring these luxurious products, for investing and collecting alike.¹⁴⁷

To claim that flowers were symbols of wealth and prestige or merely objects of exchange would be too reductive and one-sided. The interest in rare *naturalia* was also a source of wonderment, knowledge and pleasure. From the second half of the sixteenth century, the pronounced interest in nature and gardening, known as 'green fashion', began to take root in Europe, in parallel with the surge of popularity of flowers and plants in decorative arts. The accumulation of new plants through land exploration and trade, was led by an underlying intellectual pursuit, that gradually developed into expertise in botany. In addition to botanical interest, plants had medical and pharmacological purpose, as most medicine was based on herbs. In the seventeenth century flowers also became increasingly appreciated for their aesthetics, acquiring broad decorative purpose and inciting intellectual engagement. Plants were increasingly studied in the gardens of affluent collectors, who started to cultivate rare species of flowers not only as remedies but also as curiosities. As a consequence, this ensured the direct connection of collecting with gardening as an extension of the curiosity cabinet.¹⁴⁸ This is the background against which the carved and engraved flowers on nautilus shells should be seen.

The nautilus shell at the North Carolina Museum of Art (fig. 18), attributed to Cornelis Bellekin, is a pretty unique part of his oeuvre. To the best of my knowledge, in terms of style, no other preserved and signed shell can truly relate to it. The floral design on this shell is

¹⁴⁴ As was the case with a drawer from the cabinet of Simon Schijvoet, for which a collector offered two thousand Dutch guilders. Bert van de Roemer, "Neat Nature: The Relation between Nature and Art in a Dutch Cabinet of Curiosities from the Early Eighteenth Century," *History of Science*, 42(1), (2004), 59.

¹⁴⁵ Bergvelt, *De Wereld Binnen Handbereik*, 196; Karin H. Corrigan, Jan van Campen, and Femke Diercks, with Janet C. Blyberg, ed. *Asia in Amsterdam, The culture of luxury in the Golden Age* (Peabody Essex Museum, Salem, Massachusetts, and the Rijksmuseum, Amsterdam, the Netherlands), 206; Gill Saunders, *Picturing plants: an analytical history of botanical illustration* (Berkeley: University of California Press in association with the Victoria and Albert Museum, London 1995), 49.

¹⁴⁶ Smith, "Commerce," 18.

¹⁴⁷ Mette, *Nautiluspokal*, 163-164.

¹⁴⁸ Saunders, *Picturing plants*, 44; Van Gelder, *De Wereld Binnen Handbereik*, 29.

based on Adriaen Collaert's *Florilegium* - literally 'flower book', a series of loose engravings.¹⁴⁹ *Florilegium* pays tribute to Giovanni de'Medici on its title page and the quotations in the book; the Medici family in Florence is known to have used the metaphor 'seed of knowledge' which gave gardening an intellectual dimension. In *Florilegium* flowers are divided by species, their stems are cut out at the bottom, and each flower singled out. As evident on the nautilus shell, flower arrangement does not follow any particular order, so I suggest that *Florilegium* was used as a model only design-wise. At least four types of flowers can be identified on the shell: tulip, sunflower, dianthus and crocus. From Greek, dianthus translates as 'God's flower'. When sunflower is turned towards the sun, it is symbolically interpreted as associated with devotion. A notable feature of the flowers on this nautilus shell is that they arise from the stem of another flower; dianthus and sunflower blossom from the same stem, thus indicating the devotion to God. Sunflower was unknown to Europeans until the sixteenth century, when it was brought from the Americas, it is therefore also associated with novelties.¹⁵⁰ In this depiction, crocus and tulip are not connected to other flowers by the same stem. Crocus blossoms in spring, and symbolises rebirth, joy and new beginnings, whereas tulip is related to earthy pleasures and vanitas.¹⁵¹ Based on the symbology of these flowers, in my view, the flower engravings represent a joyful reception of novelties from foreign lands, as they provided intellectual endeavour and enjoyment to the country, but their transience should remind the onlooker that these earthy pleasures are given by God, to which we should respond with devotion. If interpreted in these terms, I argue that the nautilus tries to communicate a moralising message: scientific pursuit in studying nature displays the power of God's provision.

Earlier in this text, we spoke about Pliny's belief that nautilus navigates the open sea like a boat aided with a "thin membrane"; based on this description, the cloth merchant Levinus Vincent named the nautilus 'Little Skipper', or 'Cloth Clover' (*Schippertje, of Doekhuijfe*).¹⁵² This is indeed informative, because it suggests that early modern people, collectors in particular, associated shell's outer layer to a piece of embroidery or cloth, helping us to better understand why was floral ornament applied on nautilus shells, and why it

¹⁴⁹ This idea was provided to me by Michele Frederick, Associate Curator Of European Art And Provenance Research, North Carolina Museum of Art. Private correspondence.

¹⁵⁰ Impelluso, *Nature And Its Symbols*, 106.

¹⁵¹ *Ibid.*, 82.

¹⁵² Albertus Seba said that these terms were used by the Flemings, Belgian people. Seba here actually refers to *paper nautilus*, *Argonauta Argo*, but as we have seen earlier, the two shells were confused by the contemporaries. Seba, *Locupletissimi* vol. III, 176; Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1715, 40-41.

followed symmetrical arrangement. Other than just a fine aesthetic, the ordering principle of intricate floral ornament followed its application in textile. Embroidery was labour-intensive and costly material; in connection to the nautilus shell, it indicates fine craftsmanship. But this shell was not an exception, ancients also drew links between other molluscs and cloths; for example, Tyrian purple dye was extracted from molluscs to produce clothes.¹⁵³

The interlacing of flower patterns deserves more attention. In an etched design, rendering of relief is notably different from the carved design, regarding the manner in which surface is covered with flower pattern. It is of course due to diverse potentialities of each medium. Engraving and carving nautilus shells both required exceptional artistic qualities. In order to engrave designs, an artisan either used a print as a model or real flowers as inspiration. Carving, on the other hand, allowed the artist to play with rich coloration of nautilus' surface. This task might not have been easy though, as the composition with carved elegant lines, that were often geometrically arranged, had to balance with the coloration. The tiger-pattern look on the Grünen Gewölbe nautilus shell (fig.19), displays a huge variety of spiral and radial stripes on its surface, which are the result of pigmentation that gradually develops during the shell's growth. Due to space and time dimension, Karin Leonhard granted molluscs the 'paradigm of passage of time and historical growth'.¹⁵⁴ This nautilus shell, attributed to a Netherlandish artist, showcases the potential of floral design to develop into elaborate fanciful creatures.¹⁵⁵ Ornamental tendrils are so densely spread that require the viewer's full concentration, in order to notice a face in profile with goatee and hat, which encircles the whorl from one side, and crocodile head from the other. There are also other forms that evolve from branches, such as dragon and parrot-like bird.

As the Rijksmuseum shell (fig.20) exemplifies, the flower carvings became more and more intricate and schematic, making the identification of a particular flower more difficult. Eventually the pattern evolved to the point of decorative ornament, as it does on the nautilus shell signed by Jan Bellekin at the Natural History Museum in London (fig.6, fig.21). This is a truly remarkable piece of work, in many regards; among other, because intertwined floral and foliage patterns form geometric circles. The ornament is overruling the surface, leaving only some space to reveal the putti scene. We ought to ask whether the purpose of this symmetry, with almost geometrical precision, was purely decorative or scientific. The answer

¹⁵³ Marisa Bass, *Insect Artifice : Nature and Art in the Dutch Revolt* (Princeton, New Jersey: Princeton University Press, 2019), 218.

¹⁵⁴ Leonhard, *Shell Collecting*, 181.

¹⁵⁵ For more about the nautilus shell from Grünen Gewölbe, see Martina Mining, Zu einem unbekanntem Nautilus-gehäuse aus dem Grünen Gewölbe : "Tutus per summa, per ima". *Dresdener Kunstblätter* ; 59(2015), 2: 34-41.

might lays in the ordering principles that governed the curiosity cabinet, that we are about to tackle soon.

As shown in this section, part of the fascination with flowers and shells overlap. On the one hand, the interest in tulips was incited by its unpredictability, on the other hand, nautilus shells were especially curious due to their unsettled nature. The mutability of the nautilus is indicative of its liminal character at the stage when it transforms from a natural to man-made object, and reciprocally, when its *artificialia* underscores the representation of nature in the artwork. Next, our discussion of liminality will continue with insects, and their commonality with nautilus shells.

1.3 Nautilus shell in dialogue with insects

One could imagine an early modern collector in his cabinet, cradling a nautilus shell gently in his or her palm and scrutinizing insects and flowers engraved on its surface, possibly by using a magnifying glass, and making some jottings on a piece of paper. While doing so, the collector might contemplate how much depicted motifs reflects Pliny's remark '*Nature is to be found in her entirety nowhere more than in her smallest creations*'.¹⁵⁶ At the turn of the sixteenth to the seventeenth century in Europe, from around 1590 to 1620, the interest in nature's minute creatures - insects - developed into a new subject matter, in tandem with the advent of new devices, such as magnifying glass, microscopic lens, and telescope, which aided artists, naturalists, and collectors alike in their study of natural specimens and collector's items. Throughout antiquity and the Middle Ages, insects were assigned a broad range of generally pejorative connotations, usually as an image of evil or the devil. However, in the early modern period insects became comparable to flowers and shells as part of the collecting culture. Instead of simply acknowledging their natural origins as a point of intersection, shells, flowers and insects should be grasped within the framework in which these were prized as collector's items.¹⁵⁷

As a starting point, I will be drawing on Ingvar Bergström's argument that the combination of flowers, insects and shells "reached its zenith" in the work of the Flemish

¹⁵⁶ Plinius, *De Wereld. Naturalis historia*, trans. Joost van Gelder, Mark Nieuwenhuis, and Ton Peters (Amsterdam: Athenaeum-Polak & Van Gennep, 2018), 273.

¹⁵⁷ Janice Neri, "Insects as Objects and Insects as Subjects: Establishing Conventions for Illustrating Insects", in *The Insect and the Image : Visualizing Nature in Early Modern Europe, 1500-1700*. (North Melbourne: University of Minnesota Press, 2011), 3-101.

artist Joris Hoefnagel (1542-1600).¹⁵⁸ Prior to discussing etched insect motifs on nautilus shells of the seventeenth century, we shall concisely analyse the work of this sixteenth century artist, whose artistic erudition is best demonstrated in exquisite miniatures of insects. By approaching his minute subjects with a keen eye of a natural historian, Hoefnagel elevated insects into an autonomous pictorial subject. He was however, not a pioneer of this artistic practice; Albrecht Dürer before him had paved the way with his iconic *Stag Beetle* image into placing insects as sole subject at the centre of composition.¹⁵⁹ Building on Dürer's beetle as a prototype for his illustrations, Hoefnagel developed strategies for producing extremely lifelike insect images that became highly influential models for subsequent artists, in still-life paintings and engraved series.¹⁶⁰

Three of Hoefnagel's illuminated manuscripts comprise studies of insects, flowers and shells: *Mira calligraphiae monumenta*, *Four Elements*, and the series of engravings he executed with his son Jacob, *Archetypha studiaque patris Georgii Hoefnagelii* (1592). In each of the four volumes of *Four Elements*, a classical element aligns with its object of study: insects with fire (Ignis), mammals and reptiles with earth (Terra), fish and crustaceans with water (Aqua), and birds with air (Aier).¹⁶¹ Hoefnagel's aim to display a collection of the hitherto known animal kingdom is at the heart of the Renaissance's understanding of nature which stems from the quest of Greek philosophers to explain the origins of the cosmos. Empedocles formulated the tenets of the cosmogenic theory, which core belief is that earth, air, fire and water constitute all matter, all living organisms, including humankind.¹⁶² Whereas the ancient four-element theory of matter is a macroscopic representation of the natural world, Hoefnagel's manuscript in question is a microscopic one. It is somewhat analogous to the Platonistic idea of a microcosm representing a macrocosm.¹⁶³ Hoefnagel's singular approach in rendering insects is a keen example of this idea. The oval frame around its figures serves to accentuate singularity of its subjects, within their own realm. The *Aqua* volume from the *Four Elements* moves away from singling out, while still representing a microcosm - of insects, slugs, mussels, barnacles, and significantly, shells (fig.22). These were all grouped together by juxtapositions that united them as liminal creatures that defy

¹⁵⁸ Bergström, *Dutch Still-Life Painting*, 33.

¹⁵⁹ Neri, *Insects*, 5-10.

¹⁶⁰ *Ibid.*, 5-10; Bass, *Insect Artifice*, 229.

¹⁶¹ Bass, *Insect Artifice*, VIII.

¹⁶² *Ibid.*, 193.

¹⁶³ As understood by Plato, in his work *Timaeus*, he described the visible universe as composed of the world-soul and the world-body; within the latter, there are four kinds of beings - the gods or stars, the animals of the air, water, and land. George Perrigo Conger, *Theories of macrocosms and microcosms in the history of philosophy* (New York : Columbia University Press, 1922), 8-9.

categorisation - land versus soil, water versus air, living versus sturdy creatures. Likewise, these were coupled due to an ancient belief, which became a matter of heated discussion in the early modern period - that animate beings emerged spontaneously, from lifeless, inanimate matter. This is Aristotle's theory of so-called 'spontaneous generation', which is allegedly made from the mixture of the four elements and magical force (*pneuma*).¹⁶⁴ From antiquity to the Middle Ages, spontaneously reproduced creatures, such as shells and insects, were believed to have emerged from dead matter, or from nothing, *ex nihilo*.¹⁶⁵ Aristotle believed that all life originates from the sea, and so are shells created from the mud on the seabed.¹⁶⁶ This belief lasted well into the seventeenth century, leading to the idea that shells were produced by themselves, rather than by nature. The theory of spontaneous generation was finally disapproved, in favour of the theory of biological procreation by Antoni van Leeuwenhoek.

The change of life form, from animate to inanimate, as represented in the plate LI, is symptomatic to the process of metamorphosis, through which all these represented creatures are subjected. The process of petrification, whereby plants and animals become fossils, resonated with the metamorphic process that is anticipated yet always in transition, in other words, in-between no longer and not yet.¹⁶⁷ Fossils, *de facto* stones in the form of shells, were not understood as such in the seventeenth century. Shells were referred to as 'stone-shelled' animals, long into the eighteenth century.¹⁶⁸ Due to being one of the oldest species to survive, in addition to sturdiness of their surface, shells were increasingly perceived as immutable, remaining constant as a stone. The predisposition to change while maintaining the status quo indicates the in-between zone, characteristic of the liminality of nautilus shells. Fossils were conceived of as ambiguous, just as shells, because they eluded traditional forms of categorization.

The plate LII of the Aqua volume shows that metamorphosis does not only pertain to insects, but also to marine creatures, such as shells (fig.23). The distinction between water animals and land animals originates from Aristotle's *Historia Animalium*. Hoefnagel's illustration represents transition from one milieu to the other, and therefore departs from the visual representation based on Aristotelian hierarchy of animals. Yet, Hoefnagel's *paper nautilus* remains faithful to ancients; it corresponds to the aforementioned Pliny's description,

¹⁶⁴ Jan de Hond, "Crawly Creatures From Abhorrence to Amazement," in *Crawly Creatures : Little Animals in Art and Science*, trans. Pierre Bouvier and Michael Hoyle (Amsterdam: Rijksmuseum, 2022), 13.

¹⁶⁵ De Hond, *Crawly Creatures*, 13.

¹⁶⁶ *Ibid.*, 13.

¹⁶⁷ Bass, *Insect Artifice*, 213.

¹⁶⁸ Möller, *Schimmern Aus Der Tiefe*, 14.

and accordingly Pierre Belon's illustration of nautilus (fig.10). Marisa Anne Bass suggested that Hoefnagel's shoreline compositions from the *Aqua* volume may have inspired the Camerarius' emblems of 1604 (Fig. 14; Fig. 15).¹⁶⁹ Hoefnagel insinuated transitions between different stages of development, but refrained from making abrupt distinctions. The illustrations of shells on the shore, instead in water, might have helped to envision the nautilus shell as appropriated and decorated by man in the curiosity cabinets. I am here suggesting a mental, or subtle conceptual shift that allowed for perceiving nautilus both in the sea and on the land - which as a result might have motivated artists to decorate nautilus shells. The nautilus shell refigured associations with metamorphosis as *naturalia*, when depicted as moving from water to the mainland, as well as when carved or engraved with floral and insect motifs, as *artificialia*.

In my view, Hoefnagel's animal and insect studies helped to inform the concept, composition, or rendering of individual motifs on decorated nautilus shells, as well as on other types of seventeenth-century shells - such as *Turbo marmoratus* from the Amsterdam Museum (fig.24). There may not be a more telling embodiment of the Hoefnagel's *Four Elements* than in this shell. The only difference is, instead on four classical elements, this shell is conceptually divided on three elements: air, earth and water; Ignis and Aer are connected in the same zone, followed by Terra in the middle, and Aqua at the bottom. The remarkable variety of animals and fantastic creatures that represent each element is arranged in concentric formation, conforming to the morphology of the turbo shell. The anonymous artist of this shell had a similar vision as Hoefnagel - to unite creatures that humans tend to divide by putting them in categories, but they all belong to the same order of nature, all originate *ex ovo*. A pronounced fascination with shell collecting was strongly correlated to the theories of the origins of life and cosmological evolution.

Hoefnagel's miniature depictions, of insects in particular, paved the way for empirical study of miniature creatures in the seventeenth century. The concept of metamorphosis as an element of change, opened mental borders for exploration, manifested in empirical study of small creatures. After being fairly neglected since antiquity, insects were one of the first animals to have been systematically studied. Jan Swammerdam (1637-1680), a gifted draughtsman, was the frontrunner of anatomical observation of insect, aided by the revolutionary new instrument, the microscope. This device is said to have been invented by

¹⁶⁹ Bass, *Insect Artifice*, 221.

the Dutchman Cornelis Drebbel.¹⁷⁰ Swammerdam popularized this object of study; the scope of depicted insects broaden along with the number of collected items, the deep interest led to new discoveries, and consequently to a craze in the late seventeenth century. Eric Jorink argued that Swammerdam used microscope to inspect shells, insects, and corals.¹⁷¹ If studied together in curiosity cabinets, with the use of the same device, and perhaps displayed next to each other, these may have incited their observer, presumably a collector, to seek their mutual associations.

The rendering of insects on nautilus shells from the V&A museum (fig.7, fig.8) and the Museum Prinsenhof (fig.25) recalls the 1630 print series *Diversæ insectarum volatiliūm*, executed by Jacob and Joris Hoefnagel, and published by Claes Jansz. Visscher. On both shells, moths, flies, bees and butterflies seem incredibly lifelike. For example, a closer look at moths on both shells, with their bulging eyes and tentacles in the upright position, reveals fine artistic skill and attention to detail (fig. 26, 27, 28). They are depicted as individual objects, singled out as floating in space. The attribution to both shells changed over time. The V&A shell is currently attributed to an unknown Netherlandish artist, presumably Jean Bellekin. The attribution of the Prinsenhof shell to ‘Joachim Bellekijn’ is based on the museum’s annual report from 1948.¹⁷² This name, however, does not appear in the existing documents, as we have seen in the first chapter. Hans-Ulrich Mette claimed that this attribution is incorrect and attributed it to Michel Le Blon (1587-1658) instead, dating it to the first half of the seventeenth century.¹⁷³ Whether or not this was the case, the two nautilus shells share striking similarities, which is evident in both carved and engraved design; therefore it is highly likely that both were made in the same workshop. The nautilus shell from the Kunstgewerbemuseum - also attributed to an unknown artists from the Bellekin family - showcases an incredibly rich assortment of insects - butterflies, grasshopper, dragon fly, and bees which are accompanied with a fanciful bat, snail, and frog which sits on a turtle smoking a pipe.

Before we examine in the next section how shells, flowers and insects were all arranged in curiosity cabinets, we should highlight one more practicality that connected them. We have previously discussed how flowers and shells were transported together, and the

¹⁷⁰ Eric Jorink, "Between Emblematics And The ‘Argument From Design’: The Representation Of Insects In The Dutch Republic," in *Early Modern Zoology: The Construction of Animals in Science, Literature and the Visual Arts* (Leiden, The Netherlands: Brill, 2007), 154.

¹⁷¹ Eric Jorink, *Reading the Book of Nature in the Dutch Golden Age, 1575-1715*, Brill’s Studies in Intellectual History, V. 191 (Leiden: Brill, 2010), 314.

¹⁷² Private correspondence with the museum.

¹⁷³ Mette, *Der Nautiluspokal*, 212.

same follows for insects. Despite their commonality as natural specimens, these were brought together due to transportation, thus very practical and economic reason. Their moderate size and relative ease of preservation ensured low-cost transportation.¹⁷⁴ Earlier we have seen how collecting flowers and shells was mocked in the Roemer Visscher's emblem book. Similarly, Jacob Campo Weyerman rendered shells and insects unworthy of collecting or being displayed in a cabinet.¹⁷⁵ Their affinities, popularity and other features suggest otherwise, as we shall see next.

1.4 *Nautilus shell in cabinet of curiosities*

Whilst travelling through the Dutch Republic from 1733 until 1749, Edmé-François Gersain, a French art dealer and collector, remarked that “*everyone there is curious*”.¹⁷⁶ The eighteenth century reaped the fruits of the collecting enthusiasm of the sixteenth and seventeenth centuries, when curiosity cabinets appeared and as a result collecting became a popular leisure activity. In Amsterdam, curiosities of all kind were sold at East Indies shops, and also obtained from apothecaries, or from auction sales.¹⁷⁷ From all the curiosities that Gersaint has seen in the Dutch Republic, he admitted that “*Indeed, nothing is more alluring than the sight of a drawer of well-enamelled Shells; the best flowerbed is not more pleasant, [...]*”.¹⁷⁸ Gersaint was so smitten by shells that he “returned for them to Holland”.¹⁷⁹ Alongside purchasing old masters, after he had visited the cabinet of the cloth merchant Levinus Vincent, he must have also bought shells, planning to fashion them as a curiosity in Paris by publishing his *Catalogue raisonné de coquilles [...]* (1736), a pocket-size introduction to conchology.¹⁸⁰

¹⁷⁴ Rijks, *Scales*, 306. See also Dániel Margócsy, “Shipping costs, the exchange of specimens, and the development of taxonomy,” in *Commercial Visions : Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: University of Chicago Press, 2014), 29-73, esp. 38.

¹⁷⁵ Bergvelt, et al., *De Wereld Binnen Handbereik*, 27.

¹⁷⁶ S. Peter Dance, *A History of Shell Collecting*. rev.ed. (Leiden: Brill/Backhuys, 1986), 39.

¹⁷⁷ There were at least fourteen East Indies shops in Amsterdam in the seventeenth century. Jaap van der Veen, “East Indian shops in Amsterdam,” in *Asia in Amsterdam, The culture of luxury in the Golden Age* (Peabody Essex Museum, Salem, Massachusetts, and the Rijksmuseum, Amsterdam, the Netherlands), 137.

¹⁷⁸ “*En effet, rien n’est plus fédusant que ls vuë d’un tiroir de Coquilles bien émail-lées; le Parterre le mieux fleuri n’est pas plus agréable, [...]*”. Edme-François Gersaint, *Catalogue raisonné de coquilles et autres curiosités naturelles [...]*, Paris 1736, 7.

¹⁷⁹ “*E goût qu’il m’a paru que l’on prenoit en France pour les Coquillages, qui font partie de l’Histoire Naturelle, m’a engagé à retourner en Holande pour y faire un choix de tout ce que je pourrois trouver de bean & de rare en ce genre [...]*” Gersaint, *Catalogue raisonné*, intro.

¹⁸⁰ E. C. Spary, “Scientific Symmetries,” *History of Science*, 42(1) (2004): 13. See also Dance, *A History of Shell Collecting*, 39.

It was by no means coincidental that the collecting impulse emerged in the Dutch Republic. Naturally, the favourable position of Amsterdam as the trading hub of the Dutch Republic and the chief domestic harbour of the VOC prompted the influx and exchange of goods and curiosities. But also, the profile of Dutch collectors who compiled their private collections with rare objects and specimens of *artificialia* and *naturalia* from every corner of the hitherto known world was remarkably different from their European equivalents. In contrast to European aristocrats who founded princely collections comprised of various curiosities, the Dutch royalty focused on supplying their collections with paintings. In contrast, Dutch *Liefhebbers* who collected rarities were mainly members of the middle or higher strata of society, by large well-off burghers - officials, merchants, apothecaries, and artisans. During the period under question, the Dutch Republic had indeed sheer abundance of bourgeois collections of curiosities. At the instigation of Jaap van der Veen, painstaking research into the Dutch collections from 1585-1735 was conducted in 1986, revealing that approximately three-quarters of all seventeenth-century Amsterdam collections contained natural objects, almost all of which incorporated shells.¹⁸¹ Every collection of a certain importance had shells among its most valuable *naturalia* and *artificialia* items.¹⁸²

In what follows, I will examine the *naturalia* - shells, flowers and insects - which were plentiful in the cabinets of notable collectors and naturalists Levinus Vincent (1658-1727), and Albertus Seba (1665–1736). I will explore the arrangement of cabinets of these two collectors, who belonged to the humanistic circle of learned men, Seba as a pharmacist, Vincent as a cloth merchant, and whose collections attracted a considerable international interest. They assembled their collections through complex systems of exchange, gift giving, commerce, patronage, and other forms of social and financial intercourse. To some extent, the collecting activity provided a social nexus in which a noble, scholar, and tradesman, and even craftsmen could participate in the same realm.

The natural history collection of Levinus Vincent, which he called ‘*Wondertooneel der Nature*’ (Wonder Theatre of Nature) (1706), was one of the finest collections of its period in the Dutch Republic. The name of Vincent’s cabinet ‘*Wondertooneel der Nature*’ is directly associated with the concepts from the realm of theatre, *theatrum mundi* and *theatrum sapiente* (the Great Theatre of the World), from which the German term ‘Kunst- und Wunderkammer’

¹⁸¹ This fruitful research resulted in the exhibition *De wereld binnen handbereik*, an extensive catalogue and a collection of essays written by specialists in different field of expertise. See: Bergvelt, et al., *De Wereld Binnen Handbereik*.

¹⁸² See Hendrik Engel, *Alphabetical List of Dutch Zoological Cabinets and Menageries* (Leiden: Brill, 1986), 247-346.

derives from.¹⁸³ In the frontispiece of the collection catalogue (fig.29) the inviting scene is set: four figures in the foreground welcome the onlooker into the wonderful cabinets set in the background, as an overture into the theatre play that is about to be performed. The protagonists are allegorical figures that personify various aspects of collecting.¹⁸⁴ They are seated on the apron of the stage, each with its own attributes associated with collecting. On the left of the middle, the personification of Nature intrigues the Explorer next to her by showing her embroidered garment that symbolise diversity - the reader will forgive the digression - similar foliage pattern features on the nautilus shells we had previously examined. The personification of Seafaring shares the spotlight with Nature in the middle, seated on the right. Seafaring is represented as a woman with ribbed shell on her head (which resembles *paper nautilus*) and with hair curls that imitates waves, holding an oar. On her right side is the figure of a Collector (enthusiast, or *curieux*) holding a caduceus, typically an attribute of the messenger god Hermes, thus taking over his role as a patron of negotiation, trade, and commerce. As I mentioned earlier, nautilus often symbolized Seafaring. Positioned in the centre of the composition, Seafaring and by extension nautilus, did not cast a cameo role, nor was it a typecast for the rarities of its kind - on the contrary, the nautilus was one of the main protagonists in the art and nature screenplay. If one looks carefully enough at this 'theatrical scene', one might notice framed insects bottom-middle, and an album with dried plants bottom-right, forming a triangular compositional with the nautilus helmet on the figure of Seafaring. We ought to see next how was this triangle shells-insects-flowers displayed in curiosity cabinets, and what were the rationale for their arrangement. While the ensemble of four allegories is playing their parts, the audience' gaze is dragged into the cabinets, where the contents of its drawers are as curious as the front scene we have just witnessed.

Also, this cabinet is illustrative of the practical usage of Dutch word 'rariteitkabinet' or curiosity cabinet, which in time period meant a room or studio with storage, cupboards, and collection.¹⁸⁵ Collection catalogues such as Vincent's were one way of introducing and publicizing its collectibles to the most frequent cabinet visitors - collectors, but also to other *liefhebbers*; the other way was to read theoretical writings on collections, and the third option was to experience the objects on-site. The admission to a cabinet depended on the

¹⁸³ Patrick Mauriès, *Cabinets of Curiosities* (London: Thames & Hudson, 2002), 51.

¹⁸⁴ For more on these allegorical figures see: Bert van de Roemer, 'Redressing the Balance: Levinus Vincent's Wonder Theatre of Nature' in: A. Green (ed.), *The Public Domain Review: selected essays. - Vol. II*, Cambridge 2015, 46-59.

¹⁸⁵ Essentially, the Dutch word meant a drawer with collectibles. It was not until the end of the seventeenth century when the term became to be understood as a room of curiosities. Bergvelt et al., *De Wereld*, 24; Roemer, *Neat Nature*, 78-79, note 2.

benevolence of the owner, the visitor's reputation and his or her letter of introduction.¹⁸⁶ Another illustration of Vincent's cabinet (fig.30), although seems somewhat idealized, give us an insight into the profile of its visitors, their interactions, how were the objects presented to them and how they might have interacted with them. Separate drawers were probably taken out of its cupboards and placed on the tables to allow for this interaction. As hinted in the frontispiece of the catalogue, the content of the drawers with *naturalia*, among other, revealed shells, insects, and flowers. Whereas shells and insects were placed in drawers and compartments because these were small and fragile objects, plant drawings or albums of dried plants were kept in portfolios or bound in bindings.¹⁸⁷ The practice of pressing, drying and gluing real plants onto the blank paper or folio - herbaria, became commonplace from the sixteenth century onwards¹⁸⁸. As flowers are prone to decaying, drying was an effective solution of preserving a piece of nature by turning it into a collectible item. Books were essential for plant identification not only in herbal medicine but also for collectors. Herbaria exemplifies how books about nature and natural history collections were inextricably linked.¹⁸⁹ As part of a curiosity collection herbaria was also used for study, but it did not substitute studying living plants in gardens.

The prints from the catalogue show that in terms of their arrangement and ordering, special attention was paid to material properties of these *naturalia* - form, colour, texture, and size of each specimen - with an aim to display balance between symmetry and contrast (fig.31, 32, 33). In addition, for example, shell drawers were organized according to shell types; a special drawer was reserved for bigger or more fragile samples, such as nautilus shells, like the ones embellished by the Bellekins. In similar fashion, insects, butterflies in particular, were arranged symmetrically in round frames, facing front. As argued by Eric Jorink, their display was based on type, and showing successive phases of their development.¹⁹⁰ In contrast to neatly arranged drawers, the specimens scattered on the floor - marine animals such as crabs, or types of insects, such as grasshoppers and stag beetle, can be interpreted as disorder or chaos - which serves to balance the order.¹⁹¹ Against the principle that governed encyclopaedic collections of late sixteenth-century, which accentuated abundance and diversity of specimens by juxtaposing them, natural history collections of

¹⁸⁶ Ibid., 38.

¹⁸⁷ Ibid., 33.

¹⁸⁸ For more about image collections of the period see Florike Egmond, *Eye for Detail : Images of Plants and Animals in Art and Science, 1500-1630* (London, UK: Reaktion Books, 2017).

¹⁸⁹ Seba, et al., *Cabinet of Natural Curiosities*, 9.

¹⁹⁰ Jorink, *Between Emblematism*, 166.

¹⁹¹ Spary, *Scientific Symmetries*, 9.

late-seventeenth and early eighteenth-century exhibited more systematic order and gradually became more specialized, attempting to showcase individual objects as a harmonized whole.¹⁹²

Displaying natural specimens in an aesthetically pleasing arrangement became a common feature of curiosity cabinets. Vincent's collection shows refined taste for aesthetics, owing primarily to his wife Joanna van Breda.¹⁹³ In addition to being a merchant in textiles, Vincent also designed figured silks, but it was his wife Joanna who aesthetically arranged the composition of the drawers, ornate borders around the specimens, and shell patterns that imitate embroidery.¹⁹⁴ She turned butterflies into tendril-like ornaments, just like some nautilus shells we have already examined (fig.34).¹⁹⁵ This was a tendency of ordering nature; just like vegetal elements were put in order in embroidery, so everything around it had to follow, be it a room or an art object.¹⁹⁶ We see here how the choice of motifs on nautilus shells is not random. Vincent's cabinet is a prime example of man's attempt to tame nature, as reflected in the interiors and man-made objects alike.

The Amsterdam pharmacist Albertus Seba amassed a comprehensive collection of art and natural specimens, one of the greatest collections of the seventeenth and eighteenth centuries of its kind.¹⁹⁷ The voluminous catalogue entitled '*Locupletissimi rerum naturalium thesauri accurata descriptio*' (Accurate description of the very rich thesaurus of the principal and rarest natural objects) (1734-1765) is illustrative of the scope of its collection. A great deal of work put into this collection spans over three decades and comprises four-volumes: the first was published in 1734, the second the following year, after which Seba died in 1736; therefore, the last two volumes were published posthumously, in 1758 and 1765. *Thesaurus* is an ambitious undertaking, containing a grand total of 446 copperplates of plants and animals, to which 13 artists have contributed.¹⁹⁸ In addition, the profusely illustrated catalogue is supplemented by accompanying text that describes the items in detail.

¹⁹² Roemer, *Redressing the Balance*, 49.

¹⁹³ *Ibid.*, 53.

¹⁹⁴ *Ibid.*, 59; Bert van de Roemer, *De geschikte natuur. Theorieën over natuur en kunst in de verzameling van zeldzaamheden van Simon Schijnvoet (1652-1727)*, dissertatie 2005, 127, 130; Van de Roemer, *Neat Nature*, 58-59.

¹⁹⁵ Bert van de Roemer, *De geschikte natuur*, 105.

¹⁹⁶ *Ibid.*, 130.

¹⁹⁷ For more about Albertus Seba and his collection see: Bert van Roemer, "Art Opens the Book of Nature: Skilfulness and Knowledge in Dutch curiosity Cabinets around 1700," in *Medusa's Menagerie: Otto Marseus van Schrieck and the Scholars*, ed. G. Seelig (Munich & Schwerin 2017), 164.

¹⁹⁸ Some of the artists that have participated are Jacob Houbraken and Tanjé, Frans de Bakker, Adolf van der Laan, and Jan Punt.

Thesaurus is in fact Seba's second collection. The Russian emperor Peter the Great purchased the first collection in 1716/1717, subsequently forming the foundations of his Kunstkamera in St. Petersburg. Jozien J. Driessen van het Reve made a strong point against the common understanding that tsar bought Seba's collection during his visit to Amsterdam.¹⁹⁹ After inspecting Seba's correspondence, the scholar came to a conclusion that Seba persuaded the tsar to purchase his collection. Among other tactics, Seba would also send gifts with some common shells and insects - the sort of *naturalia* both of his collections were abundant and praised. Seba's *Thesaurus* was comparable in size to collections of Amsterdam's collectors and dignitaries, such as to Levinus Vincent's *Wondertooneel*, although Seba's collection was even more extensive. For example, in comparison to Vincent's impressive 288 boxes of insects and 32 drawers of shells, Seba's collection contained 32 drawers full of 1000 European insects and 72 drawers of shells.²⁰⁰

Shortly after selling his first collection, Seba began to compile his second one, which is significant in many regards. The collection made an impression on the Swedish naturalist Carolus Linnaeus who visited it in 1735.²⁰¹ Soon after, Linnaeus devised the classification system and taxonomy of animals and plants in his *Systema Naturae* - a biological system that became generally accepted and is still used today.²⁰² The cabinets of Seba and Vincent display similar characteristics, both strove for visually pleasing and geometrically arranged order. But this order, as noted by Eric Jorink was based on associative logic.²⁰³ These cabinets were thus heading towards the Enlightenment, but not being there yet.

The first illustration in *Thesaurus* is of the collector himself (fig.35). Seba is portrayed in front of his collection, making a hand gesture towards shells on the table, loose sheets with plant drawings, and an open book, one page of which is illustrated with insects, primarily butterflies. He clearly alludes to the development of his collection, from compiling natural specimens to the publication of *Thesaurus*.²⁰⁴ A reader can immediately conclude that shells

¹⁹⁹ Jozien J. Driessen van het Reve, "De correspondentie van de Amsterdamse apotheker Albert Seba met Rusland" (The correspondence of the apothecary Albert Seba from Amsterdam with Russia) in *Peter de Grote en Holland*, ed. Renée Kistemaker, Natalja Kopaneva en Annemiek Overbeek (Bussum/Amsterdam 1996), 41-46.

²⁰⁰ Van de Roemer, 'Redressing the Balance', 46-59; K. van Berkel, "Citaten uit het boek der natuur", in *De Wereld Binnen Handbereik : Nederlandse Kunst- En Rariteitenverzamelingen, 1585-1735*, ed. Ellinoor Bergvelt, Kistemaker Renée, Roelof van Gelder, K. van Berkel, and Hinke Wiggers (Zwolle: Waanders, 1992), 186.

²⁰¹ Van Berkel, *Citaten uit het boek der natuur*, 186.

²⁰² Jozien J. Driessen-van het Reve, *De Kunstkamera van Peter de Grote. De Hollandse inbreng, gereconstrueerd uit brieven van Albert Seba en Johann Daniel Schumacher uit de jaren 1711-1752*, PhD dissertation, Hilversum, 19, 43-44, 272. Verloren 2006.

²⁰³ Eric Jorink, *Reading the Book of Nature in the Dutch Golden Age, 1575-1715*. Brill's Studies in Intellectual History, V. 191 (Leiden: Brill, 2010), 335.

²⁰⁴ Seba, et al., *Cabinet of Natural Curiosities*, 7.

in addition to insects and flowers, comprise a considerable part of the catalogue. In a letter Seba addressed to a potential buyer, he disclosed the content of his collection: “*exceptional sort of beautiful and rare conch, the finest and most complete butterflies from the 4 corners of the Earth*” and “*all the plants, some familiar pieces, but unfamiliar ones too*”.²⁰⁵ As he acknowledged here, his vast collection included natural specimens and rarities from all over the globe, acquired from previous Dutch colonies and from Europe. ‘Unfamiliar’ specimens dominated though.

Against the tendencies of earlier periods to collect whole flora and fauna, Seba’s collection examines species from a more specialized niche, paying close attention to idiosyncrasies of a single species or a specimen. However, Seba died before Linnaeus’ classification system was implemented (although *Systema Naturae* had been published a year earlier), unable to follow his ordering principle. Hence in *Thesaurus*, different species - which do not necessarily correspond to Linnaeus taxonomy - might appear within the same volume. This is especially true for the first volume, where specimens of reptiles, insects, and other animals follow in sequence after plants, or even merge in the same plate. Some plant illustrations are studied in isolation, they are singled out from their background and their stem cut, following their representation as in herbarium - which all indicates that these plates were meant to be used as study samples. And yet, aesthetic arrangement seem to dictate the composition, as certain animals are represented in more volumes; insects for example, feature both in the first and the fourth volume. Just as in Vincent’s *Wondertooneel*, shells and insect plates were aesthetically arranged, in strict symmetrical order that places huge emphasis on their material properties. The catalogue was initially printed in black-and-white, in order to lower the already exceptionally high costs of the project. Colourful plates have significantly contributed to the aesthetic effect of the catalogue and identification of specimens. As suggested by Irmgard Müsch, the author of the preface to the new edition of Seba’s *Thesaurus*, the catalogue was coloured at the expense of the buyers themselves.²⁰⁶ Colourful edition must have appealed more to the readers.

Of particular relevance to our inquiry is the third volume which covers marine animals such as snails, shellfish, and sea urchins, as well as an assortment of artfully illustrated shells. The molluscs showcased in this volume are obtained from across the world, amassed in great quantities, some of which are quite large in size, thus comprise a highly valuable part of the collection. Crucially, scholars have established that many illustrations in *Thesaurus* were

²⁰⁵ Ibid., 7.

²⁰⁶ Ibid., 13.

reproduced after specimens from Seba's collection.²⁰⁷ Even though Seba would occasionally copy illustrations of specimens from other drawings, nonetheless, this was most likely not the case with the two illustrations we are about to discuss. Plate LXXXIV shows undecorated *paper nautilus* and elaborately ornated nautilus shell, both depicted from different angles, frontal and sidewise (fig. 36). Unlike his predecessors, Seba distinguished between the two shells, naming the nautilus shell "*par excellence Conquille or Nacre de perle*", and *paper nautilus* "*Doekehuyl*" or "*schippertje*".²⁰⁸ The nautilus shell in question, is a fine piece of work by "C. Bellekin", a famous and praised artist ("celebris" and "laudatus Artifex"), and "experienced" nautilus shell-maker - the words reiterated by Seba himself.²⁰⁹ Decades before *Thesaurus*, Cornelis had been strongly commended by his compatriots for his artistry, already during his lifetime. In the text that accompanies the illustrations in *Thesaurus*, Seba does not only speak laudably about the artist, he also describes this nautilus shell in detail. The illustration of the shell is rendered with high precision, enabling us to easily identify a carved barred helmet and an engraved coat of arms with a double eagle. As we have seen in the first chapter of this thesis, these elements are absolute characteristics of the Bellekin workshop. Furthermore, Cornelis was extremely versed in mythological subjects, such as *The Abduction of Europa*, a theme from Ovid's *Metamorphoses*, illustrated here.²¹⁰ According to the story, Europa is being taken by Jupiter, who disguised as a white bull carries her to a distant land, or as Seba said, to the island of Crete. Cornelis had repeated the same subject matter in variations at least on two more nautilus shells that are known to us.²¹¹ The composition of a landscape scene, which is sharply divided by foliage and vine tendrils, in addition to intricate details of small plants and flowers in the foreground, are all highly reminiscent of the Bellekin style. The visual evidence suggests that the illustrator may have used a Bellekin shell as a model for his design. This is further supported in the text: Seba repeatedly mentioned this nautilus shell and *paper nautilus* as "rarest pieces" in "our Cabinet".²¹² Moreover, Seba was incredibly well acquainted with the structure of nautilus' inner chambers; he knew that shell

²⁰⁷ Lipke Holthuis, "Albertus Seba's „Locupletissimi Rerum Naturalium Thesauri.." (1734-1765) and the „planches De Seba" (1827-1831)," *Zoologische Mededelingen* 43, no. 19 (January 1969): 242.

²⁰⁸ See Albertus Seba, *Locupletissimi rerum naturalium thesauri accurata descriptio, et iconibus artificiosissimis expressio, per universam physices historiam : Opus, cui, in hoc rerum genere, nullum par extitit* (1758) vol. III, 175-176.

²⁰⁹ Seba, *Locupletissimi*, vol. III, 175-176.

²¹⁰ W. H. van Seters even argued that mythological subjects are Cornelis' "best period". Van Seters, *Oud-Nederlandse Parelmoerkunst*, 210.

²¹¹ One is presented in the article by van Seters' (ill.26). Ibid., 222, ill. 26. The other, with the same subject, was offered for bidding at Sotheby's (Lot 102):

<https://www.sothebys.com/en/auctions/ecatalogue/2017/old-master-sculpture-works-of-art-117233/lot.102.html>

²¹² Albertus Seba, *Locupletissimi*, vol. III, 176.

gradually increases in size, allowing the polypus to spread from one chamber to another - the information he might have grasped from Rumphius' account, but more likely he thoroughly inspected cross-section of a shell from his own collection.

Seba also had pearl oyster shells (*Pteria maxima Jameson*) in his cabinet (fig.37). I will only briefly bring the reader's attention to them. From the total of 23 illustrated shells, one is signed by J. B. Barckhuysen, one with initials I.B. (perhaps also by Barchkuysen), and the rest is either signed by Cornelis Bellekin, or unsigned.²¹³ These illustrations may have also been made after specimens in Seba's cabinets. Two existing originals are known to us. The Amsterdam Museum is a proud owner of one of them (ill. nr. 9), while the other one is in a private collection (ill. nr. 11).²¹⁴ But even more significantly, Seba also had Bellekin nautilus shell, which was probably one of the most unique items in the collection, as Seba regarded it "superior to most of the others [shells]" (fig.36). Müsch noted, refereeing to the plate LXXXIV, that from all the specimen illustrations in the catalogue, only the nautilus shell is elaborately adorned by the work of a human hand. She omitted the aforementioned pearl oyster shells, which contains mother-of-pearl plaques, carved and engraved with mythological subjects. But Müsch's remark is informative because it does not accentuate that Seba's preference were exclusively natural objects, but also, that he must have perceived the nautilus as *naturalia*, even though the he possessed a decorated piece, exquisitely ornamented. The cabinets reflected personal preferences and profession interests of its collectors, therefore how they perceived objects they collected, whether as natural or artificial, depended on these factors. But what was also of importance, is how these objects were used, a factor we are about to discuss next.

²¹³ About J. B. Barckhuysen's work see: Van Seters, W. H. "Parelmoerkunstenaars in de 18de eeuw: Het werk van J. B. Barckhuysen, J. C. Konsé en C. La Motte." *Nederlands Kunsthistorisch Jaarboek* (NKJ) / *Netherlands Yearbook for History of Art* 17 (1966): 247-64.

²¹⁴ Notice that the Museum Amsterdam's shell with *Rasting and bathing Nymphs* subject, slightly differs from the illustration in Seba's collection. It has never been mounted or framed, created to be hold in hand. For more information see: Amsterdams Historisch Museum Amsterdam, "Parelmoeren plaque met mythologische voorstelling," *Bulletin van de Vereniging Rembrandt*, jaargang 12 No 1, 2002, 17-19; Zeeuws Archief, Amsterdamse Notities, "Zeventiende-eeuwse schelp voor jarig museum," *Amstelodamum* 88 (2001), 27-28; C. J. H. M. Tax, "Een parelmoerrelief van Cornelis Bellekin uit de Collectie Seba," *Spirula*, nr. 329 (2002), 113-114. Van Seters revealed the owner of the second shell: Amsterdam, Coll. Jhr. P. J. Six. Van Seters, *Oud-Nederlandse Parelmoerkunst*, 219, ill. 25.

The function of nautilus shells in curiosity cabinets

The arrangement of nautilus shells in curiosity cabinets may tell us more about their function in this particular ambient. Unlike princely collections in which nautilus shells were generally used as drinking vessels, the placement of these objects in curiosity cabinets indicates a different purpose. Levinus Vincent's cabinet, for instance, shows the arrangement of shells in drawers, but some other cabinets had compartments with hooks on which nautilus shells were suspended on a thread. Nautilus shells would commonly contain a few very thin perforations through which thread was pulled: in the septum area (one above the shield and another on the coat of arms), from both sides of the coil, and sometimes even in the inner body of the shell. Hans-Ulrich Mette argued that these tiny holes were probably used to push through a metal rod during the etching process, as some metals are acid resistant.²¹⁵ This argument seems plausible because first of all, many of these shells were relatively small in size so decorating them might have been impractical for the artists. Also, these holes are placed right in the centre of gravity, a metal rod pushed through them would ease the etching process, allowing the shell to be immersed in a so-called 'acid bath', in order to be etched evenly. In the previous chapter, we mentioned an advertisement which stated that Cornelis Bellekin found an instrument with which he can drill through diamonds, pearls, and agates. He may have used this type of device for inserting these tiny holes as well. These perforations may have been subsequently reused by the collectors in the cabinets. Certain nautilus shells were initially intended to be hanged, not to be mounted on a stem, and some of them never were. These small holes are not aesthetical details; being only visible when observed from a close distance, they neither contribute nor detract to the shell's appearance. Instead, I suggest that such a display implies another practical purpose: in curiosity cabinets, a nautilus shell served for empirical enquiry.

In the first chapter, I argued that studying nautilus shells required kinaesthetic approach to learning. This approach implies the activation of senses and bodily movements in the inspection of an object. Concerning nautilus shells, these include visual and tactile senses. According to this form of empirical learning, the material properties of an object change depending on the onlooker's position in relation to the object. If the shell was displayed in a curiosity cabinet by being suspended on a thread, the onlooker would either have to move in space around the object, or hold and rotate the object in his or her hand, in order to observe how light reflects on its surface. These movements would allow the cabinet visitor to inspect

²¹⁵ Mette, *Der Nautiluspokal*, 85.

the shell from every angle, which is out of great importance for such an object. The luminous spectre of its colours is best to be seen either through tactile interaction with this object or through the bodily movement. Also, nautilus shells were in principle ornamented on both sides, with different motifs appearing on each side, so one had to rotate them to spot all these elements. For that reason, I argue that the inspection of nautilus shells in curiosity cabinets required multisensory experience.

Certain nautilus shells, for instance the Museum Prinsenhof shell (fig.25), have the opening facing upwards, which led some scholars to think these were meant to be used as drinking vessels.²¹⁶ However, this observation might be misleading; to discover the potential usage of a nautilus shell, other than having in mind the collection of which it was part, one should inspect whether the mount fits nicely with the shell. In essence, the purpose of nautilus shells displayed in curiosity cabinets was to be used for scientific inquiry as well as aesthetic indulgence.

1.5 Conclusion

This chapter focused solely on *naturalia*; it explored the extent of the interplay between art and nature, on the surface of the nautilus shell. Earlier in this chapter, I made a connection to curiosity and knowledge, attempting to show the range of seventeenth-century knowledge of nautilus shells. As this knowledge heavily relied on ancient sources which might have been misleading, it was inaccurate from our modern point of view, however, in turn, it made the nautilus even more curious to the contemporaries.

Where did the intention of decorating nautilus shells initially come from? Why were nautilus shells decorated, as the nautilus with peeled skin were presumably as attractive to contemporaries, as the ornated nautilus shells? Firstly, I suggested that Pliny's *Natural History* had much to do with it, as it was an influential source from which the nautilus' visual representation in emblem books may have drawn from. Moreover, I argued that emblem books opened mental boundaries of envisioning the nautilus in a natural environment and artificial milieu alike. In Roemer Visscher's emblems, shells were brought into connection with flowers, reflecting the craze for both in the seventeenth century. Also, Joris Hoefnagel might have influenced Joachim Camerarius' emblems of 1604, as argued by Marisa Anne

²¹⁶ Marsely Kohoe fell into this trap, regarding the Delft's shell as a drinking vessel. Van Seters offered an alternative, which sounds more plausible to me - the nautilus was not meant to be mounted, as the silver bands do not fit with the foot of the mount. See Kehoe, *The Nautilus Cup*, 277; W.H. Van Seters, "Nautilusbekers met problemen," *Oud Holland – Journal for Art of the Low Countries* 83, 1 (1968), 181.

Bass. As I suggested, this might explain how was the mental image of perceiving shells in both environments constructed - from Hoefnagel to emblem books, and then to nautilus shells. Following Ingvar Bergström, who claimed that the combination of flowers, insects and shells “reached its zenith” in the work of Hoefnagel, I claimed that nautilus shells of seventeenth-century with floral and insect motifs were based on Hoefnagel’s work as a prime influence.

In this chapter, I drew connections between shells and flowers, and shells and insects, respectively, by exploring associations that these *naturalia* had in common. As I argued, part of the fascination with flowers and shells overlaps, because of their beauty and variety, but also their unpredictable, unsettled nature; in a way, both show liminal features. Also, I suggested that the floral design, carved on nautilus shells stems from Pliny and the contemporary descriptions of the nautilus as ‘*Little Skipper*’, or ‘*Cloth Clover*’ (Schippertje, of Doekhuifje), linking the shell to a piece of embroidery or cloth. Insects, on the other hand, also shared an affinity with shells, among others, due to being liminal creatures that confound classification. I explored how these *naturalia* - shells, flowers and insects - were displayed as a ‘coherent unity’ in the curiosity cabinets of Levinus Vincent and Albertus Seba. In this setting, collectors might have intentionally arranged them to seek the affinities between them. Perceiving shells, flowers and insects together might have also made them suitable candidates to be embodied as decorative motifs on nautilus shells. Furthermore, I argued that nautilus shells displayed in curiosity cabinets were used as scientific, as well as aesthetic objects, as its materiality, natural and artificial, suggests.

Chapter 3: Nautilus shell between *artificialia* and *naturalia*: defining the boundaries and ordering of nature

“*Luckily it is a mistake to think that what cannot be defined cannot be discussed.*”

E.H. Gombrich, *The Sense of Order* (1984)

Liminal curiosities, the nautilus shell being a prime example, are ‘conversation pieces’. Their liminal position, in ‘betwixt and between’, allowed them to mediate, or in other words, to establish communication between art and nature. Their placement in curiosity cabinets, next to other liminal curiosities, deliberately encouraged a conversation about their likeness and meaning. One might seem to think that the ambivalent attitude, inherent to all early modern liminal creatures, makes the discussion surrounding them somewhat futile. On the contrary, even though we might think of curiosities as ambiguous, unsettled, and undefined, the discourse around the two liminal arenas - art and nature - and the grey area between them, calls for a discussion. The display and arrangement of nautilus shells in curiosity cabinets were meant to draw the onlooker into the conversation regarding their material features, value, and meaning. As I argue in this thesis, cabinet visitors, many of whom became fine art connoisseurs, were fascinated with the coveted nautilus shells in particular due to being liminal.

Common to all liminal creatures, is crossing, breaking, or transgressing the conventional boundaries of the established system of classification or thought. These curiosities resist the attempt to be fitted into a conventional category, either of art, nature or sciences, and they co-opt the role previously given to them. In the first chapter of this thesis, I explained how the term liminality relates to nautilus shells in relation to boundaries. Our previous discussion has also touched upon the physical boundaries that nautilus shells crossed while being transported to the Low Countries from Asia. Now, we are about to expound on boundaries in a rather conceptual manner, commencing with how were the boundaries defined and conceived in the early modern period. In this chapter, I will pose the following question: In what manner does the nautilus shell illustrate the transgression of boundaries between the *artificialia* and the *naturalia* in seventeenth-century Netherlands?

1.1 *Boundaries and colliding systems*

The ordering of nature in the early modern period depended on the taxonomy put in place, to which boundaries are directly related. The early modern understanding of boundaries should be handled with caution, as analysing it from a modern-day perspective could bring about the risk of slipping into anachronism. In the early modern discourse, the nautilus shell was commonly referred to in Dutch as a rarity (*rarityt*) or curiosity, never as ‘liminal’, as the concept of liminality is coined in the modern era. Also, whether or not there were boundaries in this period, and if so, how strict these were, has remained to be a matter of scholarly debate. By focusing on the period between 1500 and 1630, Florike Egmond suggested that the boundaries were not so rigidly understood, as we tend to think of them today, because “boundary breaking is hard to do when divisions are not rigid in the first place”.²¹⁷ If this is indeed the case, we might then question whether we can consider the nautilus shell to be a boundary breaker at all. Egmond, convincingly argued that ambivalent creatures did not fascinate their contemporaries because they transgressed or blurred the boundaries, but because these resided in the zones in which different categories and criteria overlapped, creating value and meaning.²¹⁸ The nautilus was in a prime site of the intersection of art and nature, hence in the ‘in-between’ zone which we may characterize by our modern understanding as liminal, but what may be the rationale behind being positioned in this zone?

It is impossible to fully grasp the intellectual framework of the long seventeenth century without returning to Aristotle, who influenced the study of natural history for hundreds of years. Since the time of Aristotle’s *Historia Animalium*, the natural order consisted of three kingdoms, clearly divided into hierarchical chain on vegetables at the bottom, animals above, and finally minerals. On top of the "ladder of nature" (*scala naturae*) was man, who contained all the animal attributes and a rational mind.²¹⁹ Important for our inquiry, shellfish and molluscs were unclassified, neither as plants nor animals, although marine animals were closest to plants.²²⁰

Before Linnaeus’ classification system was in force, the classification of animals introduced by Aristotle was still pretty much active. His system of ordering nature was based

²¹⁷ Egmond, *Eye for Detail*, 72.

²¹⁸ *Ibid.*, 235-236.

²¹⁹ Susannah Gibson, *Animal, Vegetable, Mineral? : How Eighteenth-Century Science Disrupted the Natural Order*. Oxford (Oxford University Press, Incorporated, 2015), 13.

²²⁰ Gibson, *Animal, Vegetable, Mineral*, 13.

on flexible non-monotonic logic.²²¹ In brief, in this form of logic reasoning premise(s) might be valid, but they might lead to an invalid conclusion. Consequentially, in this system, curiosities of all kinds were subsumed under the same umbrella term, as liminal objects. However, it is not to say that order did not exist, nor that it lacked logic though; at the beginning of 1600, as Claudia Swan argued, a certain order was already implemented.²²² Because of multiple criteria, which Egmond reduced to ‘rarity, exoticism, and monstrosity’, all kinds of liminal creatures, real and imaginary, were placed next to each other in curiosity cabinets. From the vast number of criteria, morphology was a crucial one, especially with regard to nautilus shells. Reliance on Aristotle’s flexible system allowed collectors to organize their collections according to individual principles and to combine criteria (e.g. morphology, colour, function, origins, rarity, value). Also, it is essential to highlight that there was a subtle difference between the collections of the first and the collections of the second half of the seventeenth century, displayed in the attitude towards new sciences. Around the end of the century onwards, non-monotonic logic began to gradually decline following the development of natural sciences in the eighteenth century. The humanistic ideal of a universal scholar, which prompted the scientific inquiry, instigated all these changes. Thanks to new taxonomy and classification of nature, categories became more fixed and boundaries more rigid.²²³ Also, personal taste in organizing collections became more and more prominent, as we have already seen in the collections of Levinus Vincent and Albertus Seba. Before the final split, the ancient tradition coexisted in parallel with new sciences, fusing, contradicting and combating one another.²²⁴ But before the new order could be established, people had to rethink the old ideas; they had to distinguish between facts and fiction, and real from mythical creatures, that were present throughout the seventeenth century.²²⁵ Nautilus shell was at the heart of these occurrences, mediating in the intersection of order and disorder, art and nature, science and religion.

²²¹ Non-monotonic logic is a form of formal logic, which attempts to provide well-defined models of reasoning or inference, but its conclusions might become invalid depending on the context. For more information see: Paul Krause, and Clark, Dominic. “Non-monotonic Logic,” in *Representing Uncertain Knowledge : An Artificial Intelligence Approach* (Dordrecht: Springer Netherlands, 1993), 152-189.

²²² Claudia Swan, “From Blowfish to Flower Still Life Paintings. Classification and Its Images, circa 1600,” in *Merchants & Marvels : Commerce, Science and Art in Early Modern Europe*, ed. Pamela H. Smith, and Paula Findlen (New York: Routledge, 2002), 128.

²²³ Egmond, *Eye for Detail*, 237.

²²⁴ Barbara M. Benedict, *Curiosity : A Cultural History of Early Modern Inquiry* (Chicago: University of Chicago Press, 2001), 8.

²²⁵ Van Berkel, *Citaten uit het boek der natuur*, 190.

1.2 *Micro reflecting macro cosmos*

Despite the colliding streams of thought, there was a tendency to present a coherent image of the world within curiosity cabinets. This tendency for cohesion was apparent in the paradigm of reflecting the world fitted in one room - a micro-in-macro cosmos. The arrangement in the curiosity cabinets demonstrates how collectors envisaged objects and their association with each other and the wider world. Every cabinet item was a piece of a bigger puzzle, serving to present a mirror-wise image of the man himself - as of an individual collector, so as of the Dutch Republic.²²⁶ The intention was not merely to discover, possess, and identify the whole hitherto known natural world, but also to provide meaning to the objects, according to the hierarchy of the natural order. Each object - whether *naturalia*, *artificailia*, or a 'hybrid' of both - was altogether with its display imbued with meaning: the allocated place within the cabinet, the aesthetic and symmetrical arrangement, and the hierarchical setting, all served to highlight the congruity between art and nature. By joining *naturalia* and *artificialia*, collectors tended to display harmony between the two seeming opposites.

As one of the most prized items in the cabinets, the nautilus shell was a mental projection of the world in miniature. As a symbol of seafaring, the shell represented the domestic and its maritime advances, while simultaneously alluding to the overseas, world explored by the Dutch.²²⁷ It is fair to say then, that the source of meaning in the curiosity cabinets was given from 'elsewhere', from the outer realm.²²⁸ Even when evoking domestic, nautilus was the suggestion of the Other, foreign world. Despite being appropriated by the West by becoming part of artists' studios and curiosity cabinets, the nautilus, also partly symbolised the East, as claimed by Goldgar, metaphorically describing it as "a splash of the exotic east".²²⁹ The liminality of the nautilus shell manifests itself in a criss-cross overlap between the dichotomies - foreign versus domestic - and - art versus nature: foreign as an association of its natural origins, and domestic as an association of its artistic decoration.

Curiosity cabinets are liminal themselves. Against the tendency to harmonize the relationship between art and nature, the cabinets also displayed man's ability to imitate, perfect, challenge, or conquer nature. This is evident from the organization of the cabinets on the one hand, and the ornated items within the cabinet on the other hand. As the cabinets

²²⁶ I refrained here from using the term 'nation', or 'collective identity' as Marsely L. Kehoe did, as the concept of national identity had not been defined yet in terms of belonging to a group, but rather to a place or a profession. See Marsely L Kehoe, *The Nautilus Cup*, 275-285.

²²⁷ About the nautilus shell as dichotomy between foreign-domestic see *Ibid.*, 275-285.

²²⁸ Patrick Mauriès, *Cabinets of Curiosities* (London: Thames & Hudson, 2002), 12.

²²⁹ Goldgar, *Tulipmania*, 2.

followed the hierarchical order of nature devised by Aristotle, the man (collector, artist) on top of this order showcased a tendency to intervene in nature. The collector intervenes by arranging the content within the cabinet, while the artist alters the raw, natural material by turning it into art. Ever since the Renaissance, there was a discussion about whether a man should strive to imitate or surpass nature with his design to show that it is equal to or better than nature. This tradition has much to do with antiquity. Pliny, like many of his contemporaries, believed that a work of art reaches its peak when it is so close to reality (to nature), that one becomes indistinguishable from the other.²³⁰ Carvings and engravings on nautilus shells are tools that artists used to create an illusion of reality, to break the boundaries between art and nature. Clever deceptions present in the work of Joris Hoefnagel and consequently in nautilus shells, were a way of perfecting art, in order to resemble nature. The illusion presented by the nautilus shell consisted of the seeming perception that the nautilus purported to be natural while being artificial.

In *naturalia* collections, the nautilus proved to be an extremely suitable object to address the scientific aspect of the collection. The interest of the contemporaries in mathematical symmetry, exemplified in the logarithmic structure of the shells' chambers, indicates the interest in knowledge of the laws of nature, not only for the sake of understanding but also for expanding the knowledge in order to compete with nature.²³¹ According to Mette, there was a correlation between nautilus shells and the discovery of logarithmic arithmetic.²³² In my view, Mette's hypothesis, mostly probably would not apply to ornamented nautilus shells, purely for practical reasons. In order to gain a better insight into the logarithmic structure of the nautilus shell, one would have to dissect it to make its cross-section visible. Certainly, some preserved nautilus shells were cut in that manner. In principle, nautilus shells were first carved and then engraved, not the other way around. Fragile as it is, the nautilus would probably break if cut after it had been ornamented. I therefore suggest that only unaltered nautilus might have been used for the purpose that Mette proposes. Nonetheless, this does not exclude the possibility that decorated nautilus might have represented the logarithmic arithmetic, even if only conceptually, by being appreciated for what it symbolises more than for what it literally illustrates.

Mette also argued that nautilus transcended and mediated its functional purpose in the Hegelian sense; nautilus went beyond its purely aesthetic, decorative, or practical function to

²³⁰ Ágnes Darab, "Natura, Ars, Historia. Anecdotic History of Art in Pliny The Elder's "Naturalis Historia" Part I: Natura and Ars: The Place of Art History in "Naturalis Historia"," *Hermes* 142, no. 2 (2014): 216-217.

²³¹ Mette, 44.

²³² *Ibid.*, 52.

“include nature as knowledge of the world and represents the relationship of man to it”.²³³ One might suggest that the shell reached its climax in the perfection of its form. But for Hegel, art fulfils its role when it embodies free spirit; this occurs in a fantasy world, when the truth is revealed through the illusion of reality.²³⁴ Following this definition, the nautilus shell reached its highest potential in curiosity cabinets: it opened the doors of natural history knowledge to the pre-Linnaeus world.

However, one fact should not be omitted - in the long seventeenth century, the study of nature was just beginning to become a domain of science, although it was still firmly linked to religion. Collectors in the Dutch Republic had a marked religious concern.²³⁵ Bert van Romer demonstrated that the objects in *naturalia* collections, among others, also served a theological purpose.²³⁶ From the micro perspective of the smallest creatures such as insects to molluscs, to the macro perspective of the world and universe, collections were imbued with religious contemplation. Although nature had many connotations, in this context, it equated to God, and his provision. The variety and sheer diversity of nature were seen as the Creation of the omnipotent God, and by extension, the evidence of his existence. The possibilities offered by the natural material of the shell were the reflection of harmony provided by God to humankind, nature and the universe. *Natura* versus *ars* corresponds to God versus man.

1.3 Conclusion

The metaphor of the mollusc that abandons his house, is illustrative of the liminal character of nautilus shell, which resided in both domains, but never settled in neither. This last chapter served as a reflection of the previous two chapters, attempting to synthesise the findings of the previous chapters, but also to delve deeper into the concept of liminality.

I argued that nautilus shells were conversation pieces, as for the seventeenth-century contemporaries who contemplated and interacted with them, so as for us today who are attempting to interpret their meaning in the past. Despite being deemed ambiguous, unsettled, or uncategorized, as it appeared, the nautilus has invited the onlooker into a dialogue about the conditions under which we might consider it to be liminal in the time period. The boundaries were not as rigid at the beginning of the seventeenth century, as we tend to think of them, as argued by Florike Egmond, although they gradually became more defined,

²³³ Ibid., 97.

²³⁴ Stephen Houlgate, "Hegel's Aesthetics," The Stanford Encyclopedia of Philosophy (Winter 2021 Edition), Edward N. Zalta (ed.). <https://plato.stanford.edu/archives/win2021/entries/hegel-aesthetics/>

²³⁵ Van de Roemer, *Neat Nature*, 75.

²³⁶ Ibid., 75.

especially at the dawn of the century. Another Egmond's argument is particularly convincing: liminality of the nautilus shell was in fact not in breaking boundaries, but in residing in the in-between zones. The curiosity cabinets at the turn of the century showcased a tendency to bring harmony between art and nature, which is not only reflected in their arrangement, but also in the natural and artificial features of its objects. The nautilus shell is a 'product' of its time; instead of interpreting the nautilus as a boundary breaker, perhaps our understanding of the shell as liminal should be based on its interpretation as a mediator in the overlapping area between art and nature, science and religion.

General conclusion

I set out to explore the range of fascination with the nautilus shell as a liminal object between art and nature, by its contemporaries (artists, collectors, and anyone who handled them), in seventeenth-century Amsterdam.

The first chapter, concentrated on *artificialia* alone, pondered the question related to the techniques and practices employed by the Bellekin family and their workshop - the most proficient mother-of-pearl artisans in the city at the time. Moreover, it also aimed to show how these techniques and practices relate to those of (regular) engravers (of etchings and woodblock prints). With regard to Bellekin nautilus shells, I strongly opposed the view that techniques of decorating these shells came from Asia. In order to prove that, I traced the origins of the progenitor of the family, Jérémie Belquin, from Metz to Amsterdam. The nautilus shells produced by the family workshop showcase exceptional craftsmanship, which, as I showed, stems from Jeremy's expertise in fire-arms industry, and the print industry. While in Metz, Jérémie assembled, engraved and inlaid gun-stocks with mother-of-pearl, and was perhaps a cabinet maker. He must have also been acquainted with both the material characteristics of mother-of-pearl, as well as its technique of decorating - a knowledge and skills he transferred to the other members of the Bellekin family - his son Jean, and his children Claes, Johannes (Jan), and Cornelis, a son or nephew, and to the other, less-known members of the workshop. Later in the chapter, I examined the techniques of removing the external layer described by Georg Eberhard Rumphius, and Jan Swammerdam's method of producing relief, in order to show that the Bellekins must have been aware of these methods, and thus I eliminated the possibility of Asian influences, at least in this regard.

After Van Seters published his article about the Bellekin family, there has been no serious scholarly attempt neither to deal with the family history nor with the techniques they

employed in decorating nautilus shells. I questioned some of Van Seters premises, regarding certain biographical details of the family. My contribution focuses on the material properties of mother-of-pearl, not only to learn more about nautilus shells, but also to broaden our knowledge about the family, and their workshop practices. In addition, I shed light on the process of artistic invention: the decorative details applied on the surface of the Bellekin nautilus shells are clear markers of the family trade; in addition, the tools Cornelis used, based on the advertisement of *Amsterdamse Donderdagse Courant*, were multifunctional and innovative. Undoubtedly, the Bellekins strived hard not to be anonymous mother-of-pearl and nautilus shell makers, but the best in the ‘business’ in Amsterdam.

The second chapter focused on *naturalia*, and aimed to answer the question of the extent to which shells’ artistic features confirm/question/articulate/mediate the dichotomy between art and nature. I explored the incised motifs of flowers and insects as case studies, which “enact the representation of nature upon nature itself”, as Marisa Brass delicately put it.²³⁷ Even when decorated with most embellished man’s design, placed in curiosity cabinets according to man’s idea, and used for man’s purpose, the nautilus shell still evoked the natural, which shows the extent of its liminality. As I suggested, floral and insect motifs were not randomly chosen to be depicted on the nautilus shell. The artisans opted for these motifs deliberately, and their affinities go beyond aesthetics. I argued that it was due to their shared history as foreign objects and fascination with curiosities, but also because they were placed next to one another, for aesthetic and scientific purposes in curiosity cabinets, as well as for practical reasons such as transportation. Also, all three had certain liminal features, all defied categorisation in one way or the other. Furthermore, I argued that the idea of perceiving them together stems from Joris Hoefnagel, whence it entered emblem books and consequently these motifs were applied on nautilus shells. Drawing on Ingvar Bergström, who studied Hoefnagel’s influence in still-life painting, I explored this idea further, showing concrete examples of how Hoefnagel’s work and emblem books might have inspired the decorative scheme applied on nautilus shells.

Nautilus shells were examined in the second chapter in relation to flowers and insects as collector’s items. After examining their arrangement in the cabinets of Levinus Vincent and Albertus Seba, I concluded that collectors intentionally arranged them to seek affinities between them. I also discussed the function of the nautilus shell in curiosity cabinets. I proposed kinaesthetic approach which has not yet been applied in the analysis of nautilus

²³⁷ Bass, *Insect Artifice*, 229.

shells. This approach might explain how the contemporaries handled nautilus shells, primarily in curiosity cabinets, which also reveals how the nautilus fulfilled its function in this specific context. Nautilus shells were not only aesthetic objects but also mirrored the scientific pursuit of the collectors who studied them in natural history collections. Even though I in general agree with Mette's hypothesis that nautilus shell shows a connection to mathematical logarithms, I argued that this would not apply to decorated nautilus shells for practical reasons, simply because these would need to be cut to be studied as such. This does not, however, mean that the ornated nautilus shells did not evoke the logarithmic algorithms symbolically.

The third chapter questioned in what manner the nautilus shell illustrates the transgression of boundaries between *artificialia* and *naturalia* in seventeenth-century Netherlands. There is a noticeable difference, however, whether we are taking into account the first or the second half of the seventeenth century, or the beginning of the eighteenth century. It seems that one cannot consider the nautilus a boundary breaker if the boundaries are not rigid after all, as convincingly argued by Egmond. The nautilus was liminal in terms of the overlapping zones, in which it employed a mediative role between art and nature, which went hand in hand with the arrangement of the late seventeenth-century and early-eighteenth-century cabinets, that tended to harmonize their relationship.

To return to our main question, nautilus was a liminal object to a great extent in my opinion, regardless of whether the contemporaries perceived it as 'liminal' or not. This is on the one hand because the artisans explored the possibilities of the material to the fullest, its properties and constraints, enabling the transition from the natural to the artificial form. On the other hand, even when altered, the nautilus still recalled its natural origins, and by doing so, mediated/articulated/questioned the mental boundaries of its contemporaries. The fascination with the nautilus as being liminal depended on the onlooker's underlying knowledge and preferences, but also, importantly, his or her sensory perception. The activation of sight and touch was essential to allow one to contemplate the nautilus shell simultaneously as an artefact of the present moment, and of its natural origins - as a testament of its time and also a reminiscence of its past.

Appendix: List of nautilus shells with flower and insect motifs

- Fig. 1. Attributed to Cornelis Bellekin, Nautilus shell, c. 1670. National Museum of Denmark, Copenhagen.
- Fig. 2. Family tree of the Bellekin family.
- Fig. 3. Jacob de Later, after Paul August Rumphius. Portrait of Georg Everhard Rumphius. Engraving, from Georg Everhard Rumphius, *D'Amboinsche Rariteitkamer* (Amsterdam, François Halma: 1705). Rijksmuseum, Amsterdam.
- Fig. 4. Attributed to Bellekin family (email correspondence with the museum), Nautilus shell, 1650 – 1700. Kunstgewerbemuseum SMBPK, Berlin.
- Fig. 5. Cornelis Bellekin, Nautilus shell and coat of arms (detail, right), 1650 – 1700. Rijksmuseum, Amsterdam.
- Fig. 6. Jan/Johannes Bellekin, Nautilus shell and helmet detail, late 1600s. Courtesy of Natural History Museum, London.
- Fig. 7. Unknown/Netherlandish artist, possibly Johannes Bellekin, Nautilus shell, c. 1620. V&A, London.
- Fig. 8. Unknown/Netherlandish artist, possibly Johannes Bellekin, Nautilus shell (detail, fig. 7), c. 1620. V&A, London.
- Fig. 9. Cornelis Bellekin, Nautilus shell (working photo), 1650-1700. Rijksmuseum, Amsterdam
- Fig. 10. Pierre Belon, *L'histoire naturelle des estrange poissons* [...], 1551, p. 384.
- Fig. 11. Ulisse Aldrovandi, *De reliquis animalibus*, 1606, pl. 260
- Fig. 12. Jan Jonston, *Historiae naturalis de piscibus et cetis libri 5*, 1657-1663, pl. Tab. X.
- Fig. 13. Georg Eberhard Rumphius, *D'Amboinsche rariteitkamer*, Amsterdam 1705, pl. XVIII.
- Fig. 14. Joachim Camerarius, *Symbolorum et emblematum ex aquatilibus et reptilibus desumptorum centuria quarta*, Nautilus emblem. Nürnberg 1604, pl. LVI.

- Fig. 15. Joachim Camerarius, *Symbolorum et emblematum ex aquatilibus et reptilibus desumptorum centuria quarta*, Nautilus emblem. Nürnberg 1604, pl. XLIX.
- Fig. 16. Roemer Visscher, *Sinnepoppen van Roemer Visscher*, Amsterdam 1614. Part One, emblem IV, Shells.
- Fig. 17. Roemer Visscher, *Sinnepoppen van Roemer Visscher*, Amsterdam 1614. Part One, emblem V, Tulips.
- Fig. 18. Nautilus shell, attributed to Cornelis Bellekin, 1650 – 1700. North Carolina Museum of Art, Raleigh, North Carolina.
- Fig. 19. Netherlandish artist, Nautilus shell, around 1650. Grünen Gewölbe, Dresden.
- Fig. 20. Cornelis Bellekin, Nautilus shell, 1650 -1700. Rijksmuseum, Amsterdam.
- Fig. 21. Jan Bellekin, Nautilus shell, late 1600s. Courtesy of Natural History Museum, London.
- Fig. 22. Joris Hoefnagel, Plate LI: Murex Mollusks, Shells, Hermit Crabs, a Slug, Insects, and Other Sea Life, c. 1575/1580
- Fig. 23. Joris Hoefnagel, Plate LII: An Argonaut, Squid, Hermit Crabs, Shells, and a Crab, c. 1575/1580.
- Fig. 24. Anonymous, North Netherlandish. Turboshell, 1650 – 1699. Amsterdam Museum.
- Fig. 25. Attributed to Jan Bellekin, Nautilus shell, cup mounted in silver by Willem Claesz Brugman, 1651. Museum Prinsenhof Delft. Photo creditline: Museum Prinsenhof Delft (Albertine Dijkema)
- Fig. 26. Insect (detail fig. 7.)
- Fig. 27. Insect (detail fig. 25.)
- Fig. 28. Insect (detail fig. 25.)
- Fig. 29. Jan van Vianen, after Romeyn de Hooghe. Frontispice L. Vincent, *Wondertooneel der Nature*, 1706. Rijksmuseum, Amsterdam.
- Fig. 30. Visitors in the natural history cabinet of Levinus Vincent, *Wondertoneel der Nature*, vol.2. Rijksmuseum, Amsterdam.

Fig. 31. Plate II from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706.

Fig. 32. Plate I from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706.

Fig. 33. Plate IV from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706.

Fig. 34. Plate 6 from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706.

Fig. 35. Portrait of Albertus Seba, Jacob Houbraken after a painting by Jan Maurits Quinkhard. *Locupletissimi rerum naturalium thesauri* (1734-1765), ill. p. 2.

Fig. 36. Albertus Seba, *Locupletissimi rerum naturalium thesauri* (1734–1765), vol. III, plate LXXXIV.

Fig. 37. Albertus Seba, *Locupletissimi rerum naturalium thesauri* (1734–1765), vol. III, plate LXXV.



Fig. 1. Attributed to Cornelis Bellekin,
Nautilus shell, c. 1670.
National Museum of Denmark, Copenhagen

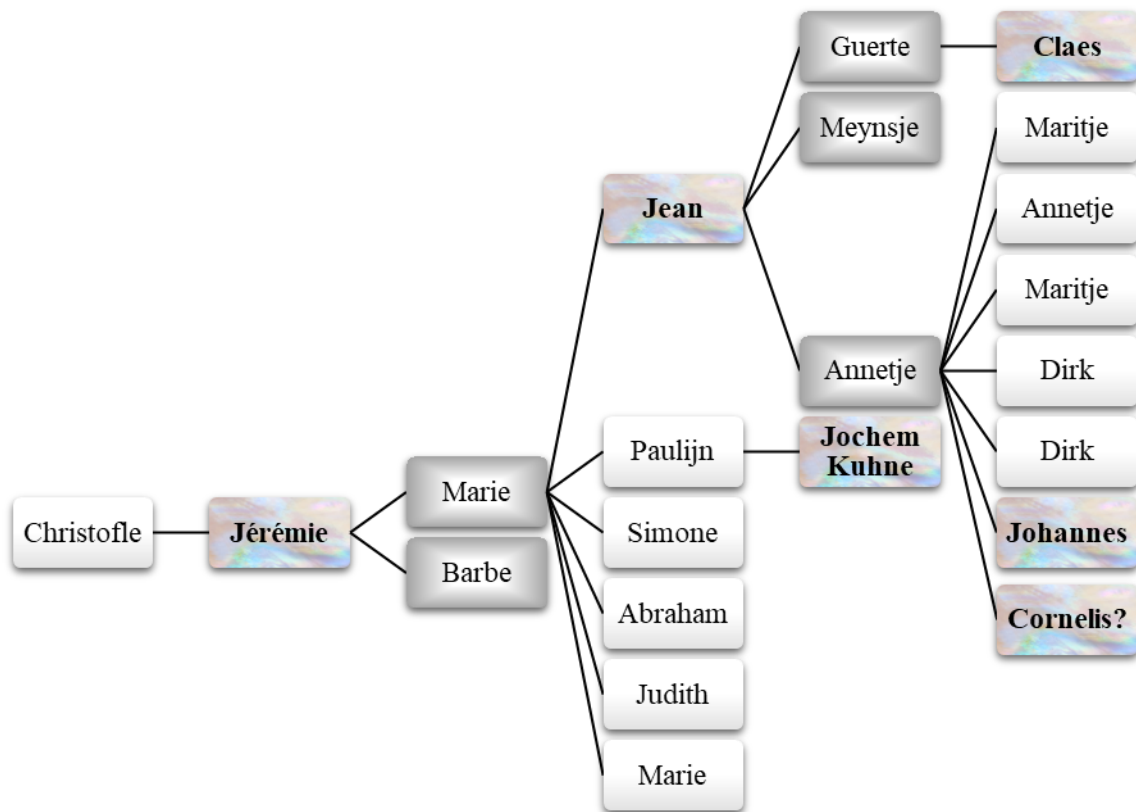


Fig. 2. Family tree of the Bellekin family



Fig. 3. Jacob de Later, after Paul August Rumphius. Portrait of Georg Everhard Rumphius. Engraving, from Georg Everhard Rumphius, *D'Amboinsche Rariteitkamer* (Amsterdam, François Halma: 1705). Rijksmuseum, Amsterdam



Fig. 4. Attributed to Bellekin family (email correspondence with the museum), Nautilus shell, 1650 – 1700.
Kunstgewerbemuseum SMBPK, Berlin



Fig. 5. Cornelis Bellekin, Nautilus shell and coat of arms (detail, right), 1650 – 1700. Rijksmuseum, Amsterdam.



Fig. 6. Jan/Johannes Bellekin,
Nautilus shell and helmet detail, late 1600s.
Courtesy of Natural History Museum, London



Fig. 7. Unknown/Netherlandish artist, possibly Johannes Bellekin, Nautilus shell, c. 1620.
V&A, London



Fig. 8. Unknown/Netherlandish artist, possibly Johannes Bellekim, Nautilus shell (detail, fig. 7), c. 1620.
V&A, London



Fig. 9. Cornelis Bellekin, Nautilus shell,
1650-1700. Rijksmuseum, Amsterdam



Fig. 10. Pierre Belon, *L'histoire naturelle des estrange poissons* [...], 1551, p. 384



Fig. 11. Ulisse Aldrovandi, *De reliquis animalibus*, 1606, pl. 260.



Fig. 12. Jan Jonston, *Historiae naturalis de piscibus et cetis libri 5*, 1657-1663, pl. Tab. X.



Fig. 13. Georg Eberhard Rumphius, *D'Amboinsche rariteitkamer*, Amsterdam 1705, pl. XVIII.

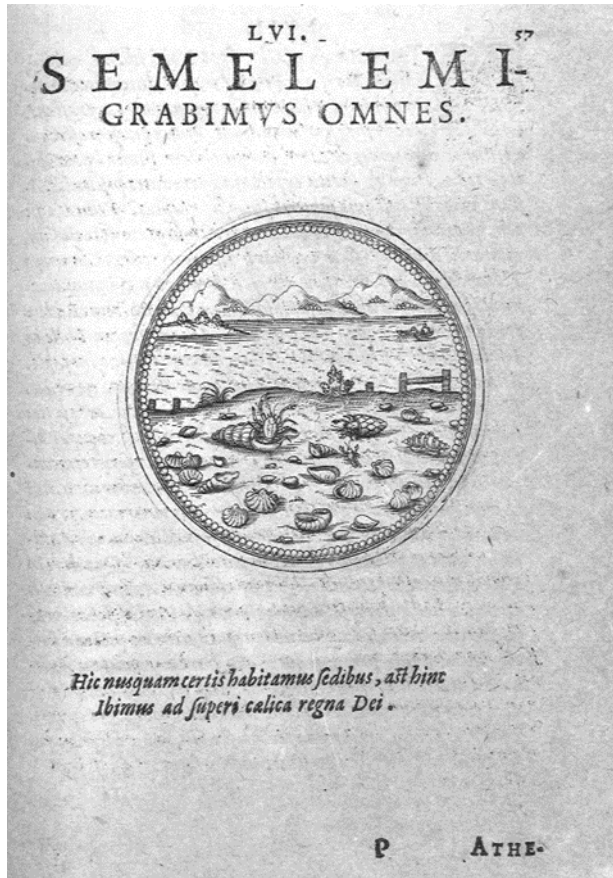


Fig. 14. Joachim Camerarius,
*Symbolorum et emblematum ex
aquatilibus et reptilibus desumptorum
centuria quarta*, Nautilus emblem.
Nürnberg 1604, pl. LVI.

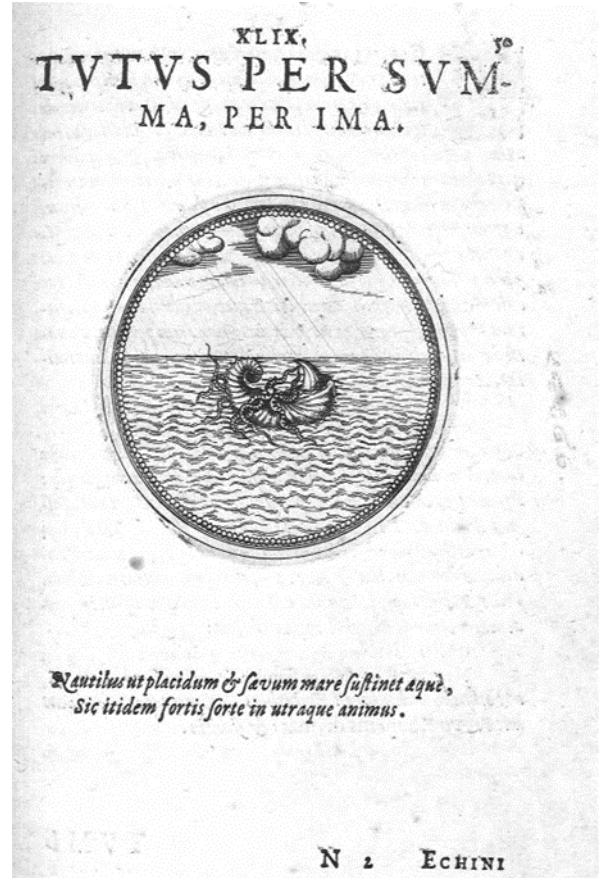


Fig. 15. Joachim Camerarius,
*Symbolorum et emblematum ex
aquatilibus et reptilibus desumptorum
centuria quarta*, Nautilus emblem.
Nürnberg 1604, pl. XLIX.



Fig. 16. Roemer Visscher,
Sinnepoppen van Roemer Visscher,
Amsterdam 1614.
Part One, emblem IV, Shells.



Fig. 17. Roemer Visscher,
Sinnepoppen van Roemer Visscher,
Amsterdam 1614.
Part One, emblem V, Tulips.



Fig. 18. Attributed to Cornelis Bellekin, Nautilus shell,
1650 – 1700.
North Carolina Museum of Art, Raleigh, North Carolina



Fig. 19. Netherlandish artist, Nautilus shell, around 1650.
Grünen Gewölbe, Dresden.



Fig. 20. Cornelis Bellekin, Nautilus shell,
1650 -1700. Rijksmuseum, Amsterdam.



Fig. 21. Jan Bellekin, Nautilus shell, late 1600s.
Courtesy of Natural History Museum, London.



Fig. 22. Joris Hoefnagel, Plate LI: Murex Mollusks, Shells, Hermit Crabs, a Slug, Insects, and Other Sea Life, c. 1575/1580



Fig. 23. Joris Hoefnagel, Plate LII: An Argonaut, Squid, Hermit Crabs, Shells, and a Crab, c. 1575/1580.



Fig. 24. Anonymous, North Netherlandish. Turboshell, 1650 – 1699. Amsterdam Museum.





Fig. 25. Attributed to Jan Bellekin, Nautilus shell,
cup mounted in silver by Willem Claesz Brugman, 1651.
Museum Prinsenhof Delft.

Photo creditline: Museum Prinsenhof Delft (Albertine Dijkema)



Fig. 26. Insect (detail fig. 7.)



Fig. 27. Insect (detail fig. 25.)



Fig. 28. Insect (detail fig. 25.)



Fig. 29. Jan van Vianen, after Romeyn de Hooghe. Frontispice L. Vincent, *Wondertooneel der Nature*, 1706. Rijksmuseum, Amsterdam.



Fig. 30. Visitors in the natural history cabinet of Levinus Vincent, *Wondertoneel der Nature*, vol.2. Rijksmuseum, Amsterdam.

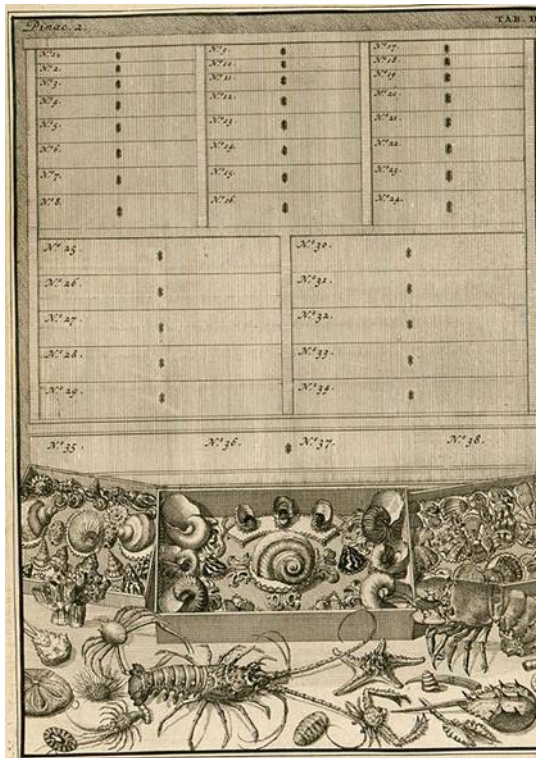


Fig. 31. Plate II from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706.

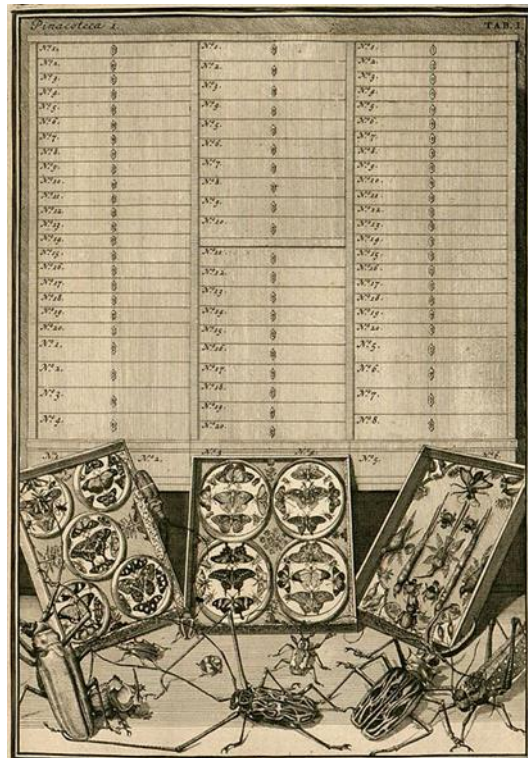


Fig. 32. Plate I from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706

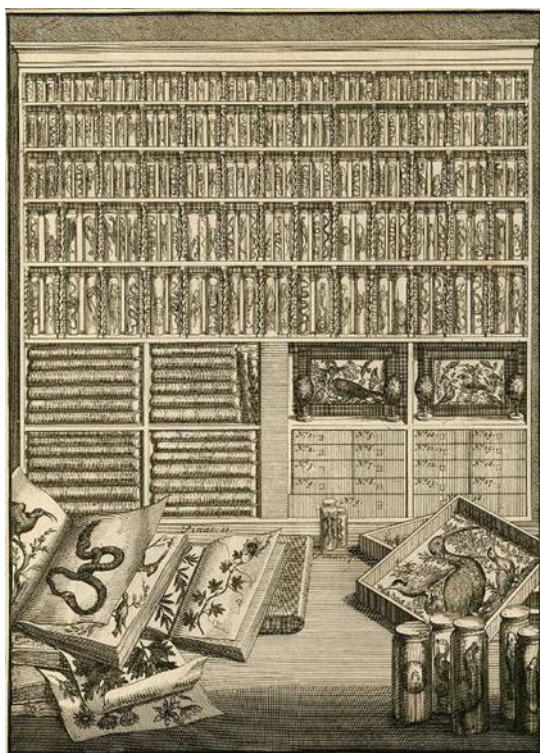


Fig. 33. Plate IV from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706.

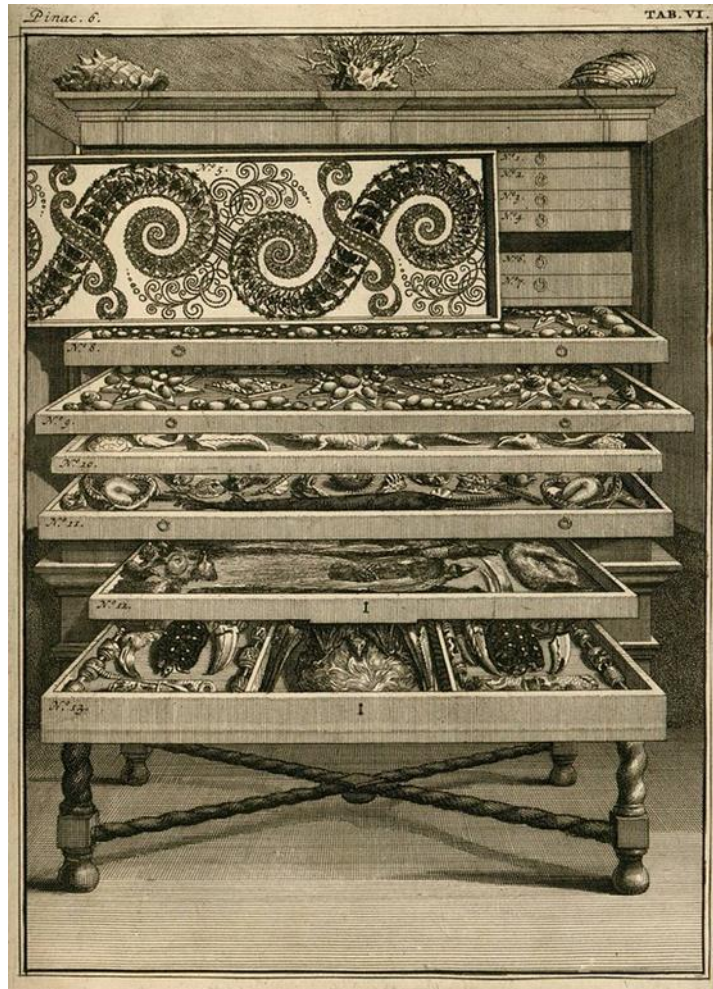


Fig. 34. Plate 6 from Levinus Vincent, *Wondertoneel der Nature*, vol. 2, Amsterdam, 1706.

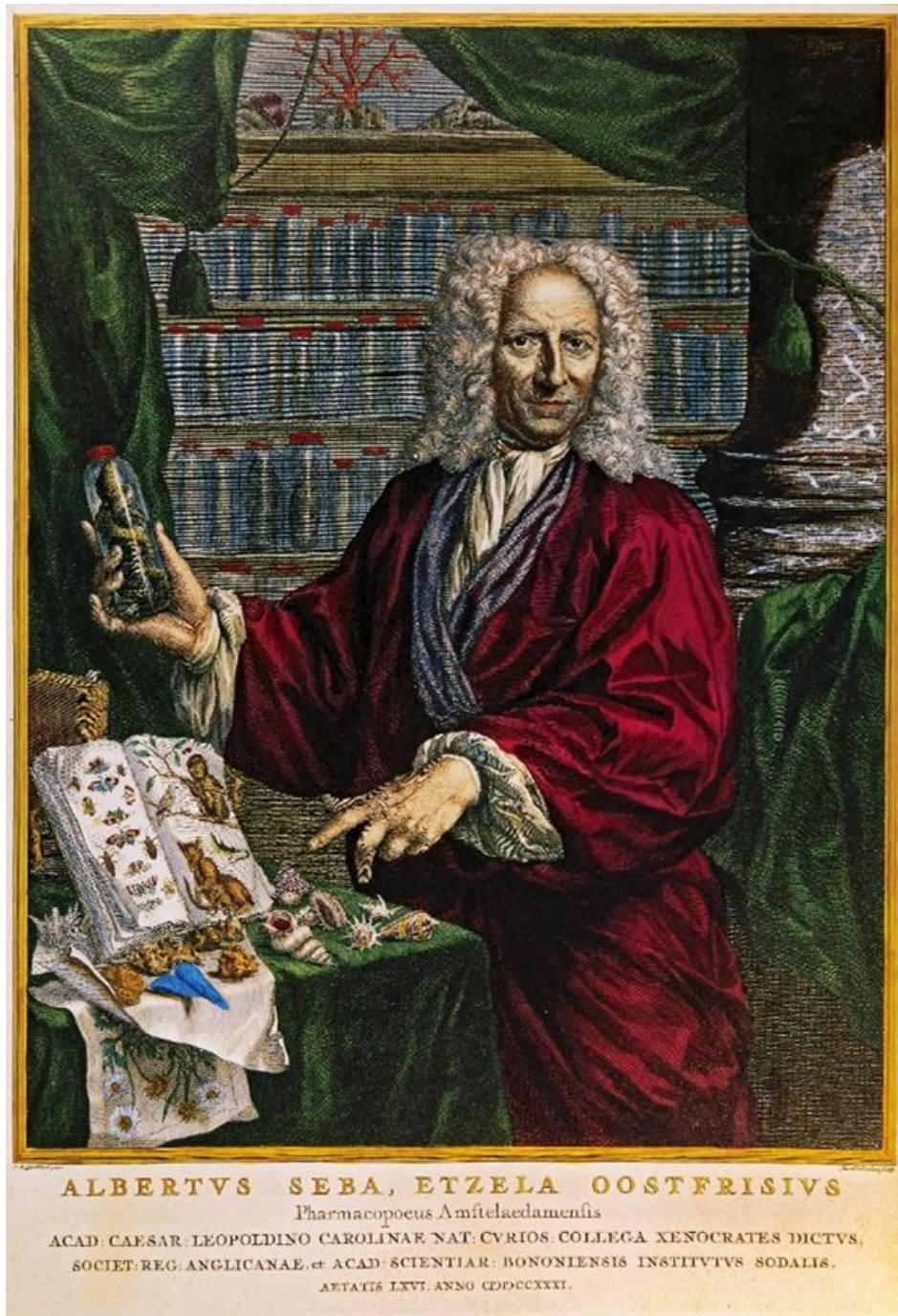


Fig. 35. Portrait of Albertus Seba, Jacob Houbraken after a painting by Jan Maurits Quinkhard. *Locupletissimi rerum naturalium thesauri* (1734-1765), ill. p. 2.



Fig. 36. Albertus Seba, *Locupletissimi rerum naturalium thesauri* (1734–1765), vol. III, plate LXXXIV



Fig. 37. Albertus Seba, *Locupletissimi rerum naturalium thesauri* (1734–1765), vol. III, plate LXXV

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