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From *vanitas* to veneration

The embellishments in the anatomical cabinet of Frederik Ruysch

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The elaborate way in which the Dutch anatomist Frederik Ruysch (1638–1731) decorated and presented his anatomical cabinet has raised questions as to whether we should view him as a scientist or rather as an artist. The concept of the collection as 'baroque monument' or as merely 'bizarre' fails to acknowledge its complexity, as can be demonstrated by quantitative analyses of its contents. Furthermore, these analyses show how the nature of the embellishments changed through time and how the vanitas *element gradually made way for statements about the magnificence of the human body and its Creator. In his cabinet, Ruysch juxtaposed the 'divine embroidery' of the body with textiles made by human hand, thereby emphasizing the existence of an intellectual entity that was responsible for the human fabric. This way of working concurred with contemporary physico-theological discourses against atheism, in which the so-called argument from design gained dominance.*

Anatomical illustrations from the early modern period often show a delicate interplay of artistic design and anatomical finesse.[1] Bodies display their interiors in a mountainous landscape, in an architectural setting, on a gallows, in front of a curtain, or accompanied by an animal. The illustrations convey an integral message where cognitive, aesthetic and religious connotations of the human body merged. Martin Kemp and Marina Wallace state in *Spectacular Bodies*: 'The purpose of anatomical images during the period from the Renaissance to the nineteenth century had as much to do with what we would call aesthetics and theological understanding as with the narrower intentions of medical illustrations as now understood.'[2] This comment is even more applicable to the anatomical cabinets from this period, in which knowledge of the human body was presented not on paper but in *realia*. Here too, different strategies were used to present an instructive and pleasing vista.

One of the most remarkable examples of this is the anatomical cabinet of the Dutch physician and anatomist Frederik Ruysch (1638–1731). In his house, located on the Bloemgracht in Amsterdam, he had five rooms packed with phials containing specimens from different parts of the human body. The quantity of material was amazing: Ruysch confided to one of his guests that if all the body parts in his preparations were to be joined together again, it would have been possible to construct more than 200 bodies.[3] Within the cabinets a visitor could study every limb or organ in the smallest detail. As a professor of medicine and botany, Ruysch used his collection as an educational tool in his lectures for medical students and for other interested persons.[4] His preparations were also mobilized as important evidence in numerous disputes with rival anatomists.[5] The acquisition of new knowledge of the human body formed a primary focus of his cabinet, but the anatomist also expended a great deal of effort in presenting the spectator with an aesthetic experience. This study will analyse the decorative elements in Ruysch's cabinets and will consider a number of questions. What were the nature and the quantity of these embellishments? What role did they play within the collection? How did the aesthetic message relate to the anatomical information that was displayed? How should we regard Ruysch's artistic practices in relation to his search for knowledge? In other words, how did aesthetic rationales relate to the cognitive endeavour?

Ruysch used a variety of techniques to embellish his collection. Roughly, we can discern four modes. First, he combined different objects in order to make engaging scenes, such as the head of a baby resting peacefully on a placenta as a pillow, or the foot of a

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boy treading on the bowels of a girl who had committed suicide. He also used specimens from the animal and plant world to enliven the preparations: one jar held a poisonous gecko with a human foetus between its jaws; another contained a child's arm holding a passion flower between its thumb and index finger. As a second technique, Ruysch used luxurious fabrics, like lace and damask, to embellish body-parts of foetuses and infants (Fig. 1). A large number of these were included in the cabinet, since it was easy for Ruysch to obtain them in his role as an obstetrician and a lecturer to midwives. To increase the life-like quality of the heads, legs and arms, and to conceal the wounds of the dissection, Ruysch added delicate caps, collars and sleeves.[6] A third decorative technique was applied to the phials: he would at times cover the lids with beautifully patterned textiles, or place jars on wooden pedestals and cover their bases with textiles or stone (cf. Fig. 2); he also decorated some of the lids with assemblages of bones, kidney-stones, shells, corals or other preparations.[7]

The fourth and probably the most renowned method he used to add lustre to his collection consists of scenic landscapes that he created out of urinary stones, foetal skeletons and prepared vessels. He moulded these into craggy little mountains adorned with trees and figurines carrying attributes that expressed the vanity of life, such as feathers, scythes, pearls or handkerchiefs. The majority were provided with proverbial inscriptions on paper, borrowed from Latin texts and proverbs. None of these remarkable artefacts has survived, but fortunately Ruysch had three of them immortalized in print (Fig. 3). The tableau reproduced here consisted of a natural rock set with concretions removed from kidneys, bladders,

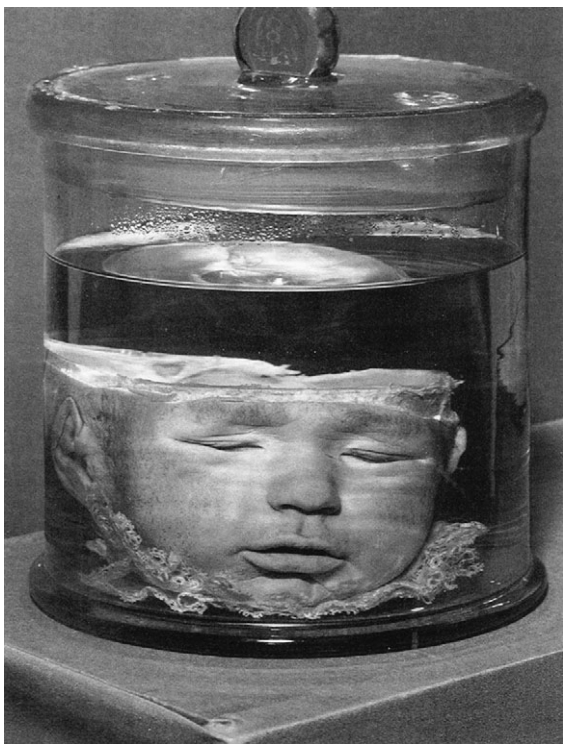

Fig. 1. Frederik Ruysch, Preparation of the head of a child. From the collection of the Peter the Great Museum of Anthropology and Ethnography (*Kunstkamera*), Russian Academy of Sciences, St Petersburg, coll. N 4070-162.

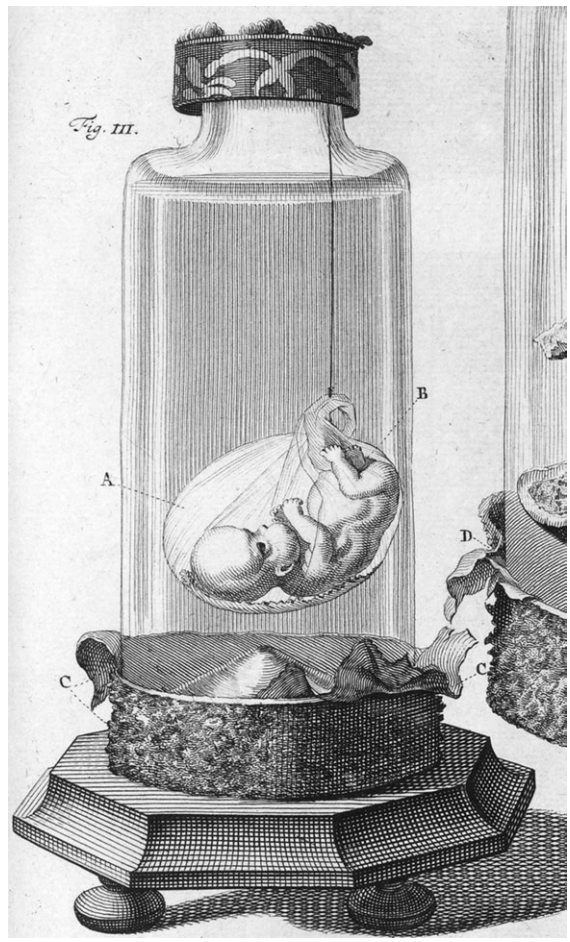

Fig. 2. Jan Mulder, Phial with prepared embryo in amniotic sac. Frederik Ruysch, *Thesaurus magnus & regius* (Amsterdam, 1716), tab. 1 (detail). Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, OG 63-56.

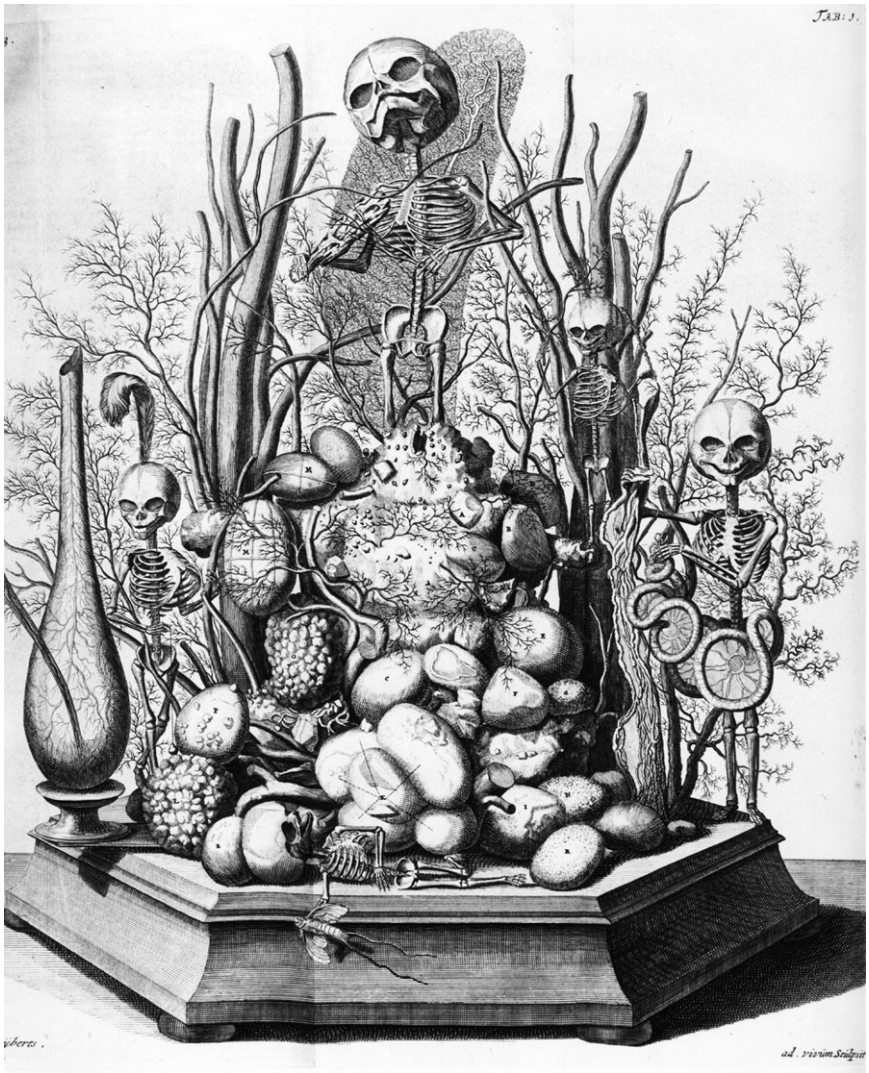

Fig. 3. Cornelis Huijberts, Tableau with stones, prepared vessels, and foetal skeletons. Frederik Ruysch, *Thesaurus Anatomicus Tertius* (Amsterdam, 1703), tab I. Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, DG 63-55.

uteruses, breasts and bones. Five skeletons of foetuses inhabited this rock.[8] One on top held a piece of corroded thighbone in his hand and was accompanied with the verse: '*Ah Fata, ah Aspera fata!*' (Ah Fate, ah bitter Fate). Another one, lying in front of the rock grasped a mayfly with the inscription: '*Quasi herba solstitialis paulisper fui, repente exortus sum, repente occidi*' (Like a summer flower I lived briefly, quickly I emerged, quickly I died). To the right a skeleton held the intestines of a foetal sheep and the seminiferous tubules of a man; to the left a skeleton held a thread with a stone coughed up from the lungs. Their inscriptions were respectively: '*Prima, quae vitam dedit, hora carpsit* ' (The first hour that gave me life, took it away) and '*O, quam dura premit miseros conditio vitae!*' (O, how miserable is the condition of mankind in this life!).[9] In this way, the visitor was invited to reflect on his own mortality, both on a visual and a textual level, while learning from the dead material.

The way in which Ruysch enlivened his collection with aesthetic devices is hard to reconcile with present-day views on the function of anatomical collections. For this reason the cabinet has often been discussed in terms of the 'baroque', the 'bizarre' or the 'sensational'.[10] In the past the decorations have been characterized as the peculiar aberrations of an esteemed anatomist.[11] With the advent of a growing interest in the cultures of collecting and dissecting, some more serious attempts

have been made to place Ruysch's allegedly frivolous practices in a broader cultural context.[12] However, the general impression of the collection is still coloured by the macabre-looking preparations and tableaux. In 2005 the scientific value of Ruysch's work formed the subject of debate in a small dispute in a Dutch newspaper: the focus here was the question of whether Ruysch should be seen as a serious scientific researcher, or rather as an inventive artist; the collection was typified as a 'baroque monument' that aimed in the first place for 'artistic effect' and which should be viewed primarily in the light of 'funeral poetry'.[13]

A more penetrating assessment was published as early as 1970 by the medical historian A. M. Luyendijk-Elshout. In her nuanced study she related the decorations to contemporary views on life, death and the human body. She interpreted them as utterances of the concept of *vanitas mundi*, which functioned for the beholder as engaging and comforting commentaries that would make the sight of death less distressing.[14] According to Luyendijk-Elshout, the famous *Theatrum Anatomicum* in the city of Leiden served Ruysch as an example. The wooden structure of this theatre was decorated in the summer – when not otherwise in use – with comparable skeletons of humans and animals. In the middle of the theatre, two skeletons and a tree portrayed the Fall of Adam and Eve, while six skeletons on the outer rim held banners with inscriptions, comparable with the devices we find in Ruysch's tableaux.[15] An alternative interpretation of Ruysch's embellishments was given in 1993 by the art historian Julie Hansen, who shifted the focus from reflective meditation to self-representation on the part of Ruysch. According to Hansen, the decorations should be seen as self-assured expressions of Ruysch's artistry: he considerably improved the technique of preparing and conserving human body parts, and he drew attention to this achievement by emphasizing the artistic quality of his preparations. In Hansen's view, they should first and foremost be seen as works of art in their own right.[16]

Typifying the collection as a 'baroque monument' or exclusively accentuating the artistic qualities, however, fails to acknowledge the important function of the collection as a place where knowledge was acquired and spread. Contemporary sources never comment on the collection in this restricted way. Even though there were rumours concerning the authenticity of Ruysch's preparative techniques and there was much rivalry between the anatomists over questions of who discovered what first, the way Ruysch decorated his collection was scarcely ever criticized; on the contrary, words of praise were customary.[17] Without doubt, a large part of the decorations did indeed function as consolatory footnotes, as suggested by Luyendijk-Elshout, but this function, as will be shown later, decreased over the course of time. The decorations might also have helped Ruysch to gain esteem, as suggested by Hansen, but to see them as markers of his artistry still presumes a discrepancy between the aim for the acquisition of knowledge on the one hand, and the wish for aesthetic pleasure on the other.

In this study the issue will be approached from another perspective. A common feature of modern collections was that art and knowledge interacted and complemented each other in many and complex ways.[18] The supposed schism between 'the artist' Ruysch and 'the anatomist' Ruysch would have been much less marked than we tend to assume from a present-day perspective. The decorations certainly played an important commentating role, but this should be seen within the perspective of the overall impression that the collection would have made. Furthermore, the execution of the decorations changed perceptibly in the course of the long period during which Ruysch was active as a collector, as did the manner in which they were perceived by visitors, with reflections on the vanity of life gradually making way for expressions of admiration at the intricacy of the human body. The last part of this study will attempt to identify common ground between Ruysch's cognitive and aesthetic motives and will propose a fresh interpretation. Firstly, however, it may be useful to analyse the decorative elements in the collection, both in greater detail and from a more empirical perspective. This is necessary, because the balanced presentation of Ruysch's cabinet, which is sometimes obscured by one-sided attention to its more 'spectacular' aspects, calls for nuance. In addition, a more differentiated view of the collection will be presented, giving due consideration to the way it developed over time.

The display of the collection

Fortunately, it is possible to study the collection in considerable detail. In the period between 1691 and 1728 Ruysch published numerous catalogues enumerating the contents of his cabinets. His descriptions

of the items are in general detailed and useful: besides anatomical and medical information, he comments on the nature and state of the preparations, with remarks like 'in a jar with liquid', 'on a small pedestal' or 'in a dry jar'. He also informs us about the nature of the adornments and consequently cites the inscriptions that accompanied the *anatomica*. Thanks to this abundance of information, it has been possible to create a database of the contents of his cabinet, with each entry representing an item in the collection. This data has enabled quantitative analyses to be carried out, resulting in an approximate view of the holdings.

Three phases can be discerned throughout the history of the cabinet.[19] The first is described in Ruysch's catalogue *Museum Anatomicum Ruyschianum* published in 1691: this document portrays the situation at that moment, which marked twenty-eight years of collecting and experimenting.[20] The second phase is described in ten catalogues published by Ruysch between 1701 and 1716, each of which describes the contents of one cupboard.[21] At this point Ruysch, aware of the monetary value of his work, sold his collection in 1716 to Tsar Peter the Great and immediately afterwards started to assemble a new cabinet. In this third phase, which lasted until his death in 1733, he published another two *Thesauri*, in 1724 and 1728: these final catalogues list the contents of only two cupboards and give a fragmented picture of the collection in its last phase.[22]

Analyses of the database show that the preparations commonly reproduced in studies and nowadays considered as typical *Ruyschiana* – the embellished preparations and the tableaux – formed a minority (see Table 1). In the first phase, more than three-quarters of the objects described by Ruysch displayed anatomical knowledge in a conventional manner, without embellishments or moralizing inscriptions. In the second and third phases, this number increased to 87 and 88 per cent respectively. The numbers also show a significant increase in wet preparations: in the second phase, 68 per cent of the preparations were known to be wet; in the first phase, this was less then 2 per cent. This fact, as will be explained below, had considerable consequences for the decorative element within the

Table 1. Analysis of the contents of Ruysch's cabinet, 1691–1728. The numbers should be read as an analysis of the detailed information given by Ruysch in his catalogue and his *Thesauri*, not as a representation of the actual situation in his collection. In the first phase the complete collection is described; in the second phase the contents of fourteen out of sixteen cabinets are described; in the third phase the contents of only two cupboards is known of an unknown total. Another reason against taking these numbers too factually is that the descriptions in the *Thesauri* indicate that Ruysch moved items constantly: sometimes the same item is named it two different *Thesauri*. In the database the items were counted as they are numbered in the catalogue: for example, a sizable tableau in the first phase, placed outside the cabinets, is counted as fifteen items, while the eight smaller tableaux in the second phase, placed between the phials in the cabinets, are each counted as one item. As will be discussed in the text, these tableaux comprised several older, dry preparations.

Period	1691	1701–1716	1724, 1728
cabinets	8	10 (of 14)	2
total items	403	1125	383
inscriptions	60	30	3
Nature of preparation			
unadorned	299 (74%)	979 (87%)	337 (88%)
adorned	87 (22%)	102 (9%)	43 (11%)
rarities	17 (4%)	44 (4%)	3 (3%)
Preparation technique			
dry	288	273	170
wet	7	670	206?
bone	108	36	3
unknown	0	146	4

collection. The proportions of the adorned preparations correspond roughly with the disposition of the preparations that survive today in the *Kunstkamera* in St Petersburg where, according to the conservator Anna Radziun, 64 of the 935 preparations can be described as 'embellished'.[23]

The database also made clear the manner in which the appearance of the total collection developed through time, from a visually erratic and somewhat restless store-room to a harmoniously organized spectacle. In the first phase the collection comprised ten cupboards, of which eight were filled with human and animal preparations and two with herbarium specimens. The decorative elements consisted mainly of individual skeletons of foetuses mounted on small wooden pedestals, usually provided with *vanitas* attributes and inscriptions (cf. Fig. 4). These were randomly placed between the dry, embalmed objects that differed in appearance and size; little rocky assemblages, as depicted in the prints, were absent in this phase. There was, however, a 'reconstructed tomb', but its scale was much larger. Based on the items it contained, it is likely that this construction stood in an alcove or in the corner of a room: the base was formed as a bone-yard, assembled from numerous bones and thirteen skulls;[24] in the centre of the arrangement was a reclining embalmed foetus of seven months with a floral wreath on its head and a bouquet in its hands. This was surrounded by ten skeletons of adults, children and foetuses, each holding a single emblematic attribute, such as a trumpet, a lance, a bladder, a toy or a banner with an inscription; eleven of them were accompanied by comparable devices as in the smaller tomb described above. In this early stage the tomb, with its life-size skeletons holding banners bearing mottoes, directly followed the displays of the *Theatrum Anatomicum* in Leiden, as suggested by Luyendijk-Elshout.

In the second phase, some ten years later, the visitor would have received a different impression, for the dominant preparation technique and the decorations had changed in the meantime. Ruysch experimented with a range of different methods and a breakthrough in the last years of the seventeenth century led him to replace the 'dry' technique of embalming with the 'wet' technique of preserving specimens in phials with spirits.[25] This transition required a substantial reorganization of the collection, and from this point onwards the cupboards were filled with jars set up in neat rows, replacing the heterogeneous assemblies of differently-shaped dry objects. This ordering of the phials seems to have become somewhat compulsive: even some of the older 'dry' preparations were displayed in bottles, so

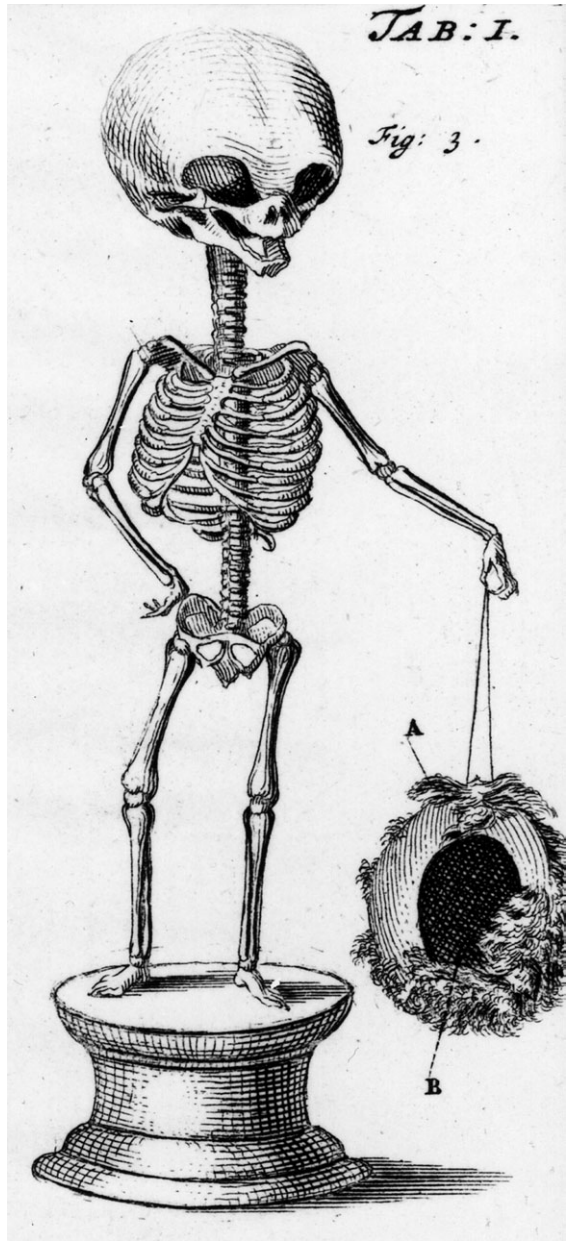

Fig. 4. Cornelis Huijberts, Pedestal with foetal skeleton holding a human egg. Frederik Ruysch, *Thesaurus Anatomicus Sextus* (Amsterdam, 1705), tab 1 (detail). Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, DG 63-65.

as to not disturb the integrity of the display within the cupboards.

During this phase Ruysch also started making his famous tableaux. The tenor of these assemblages was comparable to the sizable (but by now dismantled) group in the first phase, although their appearance was more compact and on a smaller scale. They were placed within the cupboards, integrating them into the general organization of the collection. Their genesis also had a practical purpose, for the transition to 'wet' preparations left Ruysch with an excess of 'dry' embalmed material, for which he had to find a place. A great deal of this material now found shelter in the drawers or wooden cases under the cupboards, but lack of space was always a problem. To solve this, he re-used much of the dry material of the first phase in the small compositions of the second phase.[26] Many of the *anatomica* described in the 1691 catalogue can be found in an adapted form in the tableaux described in the *Thesauri*. For instance, the aforementioned embalmed baby with its wreath of flowers and bouquet reappears in a more modest composition on one of the shelves of the eighth cabinet.[27]

Contrary to what the excessive attention towards the famous tableaux may lead us to believe, in this new phase order, symmetry, and regularity seemed to prevail in Ruysch's cabinet. This can be confirmed by taking a closer look at the status of the tableaux within the collections, and, subsequently, by briefly comparing Ruysch's cabinet with the ordering techniques used by contemporary collectors, amongst whom a similar predilection for symmetry and geometrical order can be detected. Concerning the tableaux, we should first remember that in the second phase only eight are mentioned among more than 1,100 objects. Secondly, their eye-catching function can be questioned if we consider their allotted places: four of the tableaux were placed on the lowest shelves of the cupboards and one was even placed 'behind' the jars previously described by Ruysch.[28] Thirdly, it should be noted that these objects were not valued solely for their aesthetic and moralizing significance, for they also communicated anatomical and medical information. The tableau discussed earlier illustrates amply this observation: the skeleton to the right held in his right hand a specimen of seminiferous tubules and in his left hand, the intestines and mesentery of a foetal lamb; this was partly injected with red-coloured wax representing the blood, and partly with black-coloured wax representing the first defecation. A skeleton at his side held in his right hand a delicate vessel and in his left hand a little stick, made from a diseased female bladder covered entirely with tiny stones; Ruysch elaborates on the condition of this bladder, which could be studied in greater detail in one of his jars in another cupboard.[29] The foetus pointed with the little stick to his head, illustrating the hardening of the fontanels and showing the fallacies of anatomists who stated that they consisted of cartilage. Ruysch writes:

> The aforesaid little skeleton seems to point to the condition of his head: touching with this [the little stick] the bones of the head, it seems to point out the error of the Dissectors who claim that the skull and the other bones of the head at that age are made from cartilage, while they are in fact membranes.[30]

In this way Ruysch took a position against anatomical misconceptions, and seen in this light, the differences between the remarkable creations and the unadorned preparations were graduated. Of course the artificial constructions, standing between the neatly stored phials, would have attracted considerable attention, but they should not be considered as artefacts opposing to or diverging from the *naturalia* in the cabinet; in both assemblages, as in the collection as a whole, anatomical knowledge, moralizing messages, aesthetic diversion and the practicalities of storage merged seamlessly.

Regrettably, there are no illustrations that can inform us about the overall display of the cabinet. There is a representation of a room in the frontispiece of *Thesaurus animalium primus* (Fig. 5), but this is certainly not a realistic depiction of one of the five rooms in the house on the Bloemgracht: it is much too spacious. However, the cupboards as depicted may be based on reality, and even if that should not be the case, the print certainly depicts an ideal situation. We see a distinguished, ornamental hall with seven cabinets placed symmetrically according to size; the largest cabinet in the middle is flanked by two smaller cupboards, after which the two cabinets against the side walls increase in height. The tops of the cabinets are decorated with dried specimens, like coral; only two cupboards allow a glance inside, showing well-ordered rows of jars.

Ruysch's technical improvement made it possible to present a more organized view, but in this he also followed contemporary tendencies. Ordering

techniques as practised by contemporary collectors like Levinus Vincent, Albertus Seba and Simon Schijnvoet also strove for a visually pleasing and geometrically-ordered spectacle. Ruysch's frontispiece has many similarities with the room depicted in the catalogue of Vincent, a damask merchant. This print also pictures an imaginary hall with several cupboards ordered symmetrically according to height (Fig. 6).[31] In this depiction the importance of good, geometrical order is stressed by the sculpture in the middle: it depicts a 'lively nymph' whose task it is to place all the objects in good order; the beehive in her hands expresses that her busy activities can be compared with the work of the bees, constantly storing honey in the 'remarkable structure' of the wax cells.[32] This orderly method of arrangement coincides with the guidelines presented in a number of contemporary manuals for the collector.[33] Presentations emphasizing order and regularity were characteristic of collections from the late seventeenth and early eighteenth centuries and differed considerably from their predecessors in the sixteenth and early seventeenth centuries, which aimed in their presentation to express profusion, abundance and variety.[34] This consideration

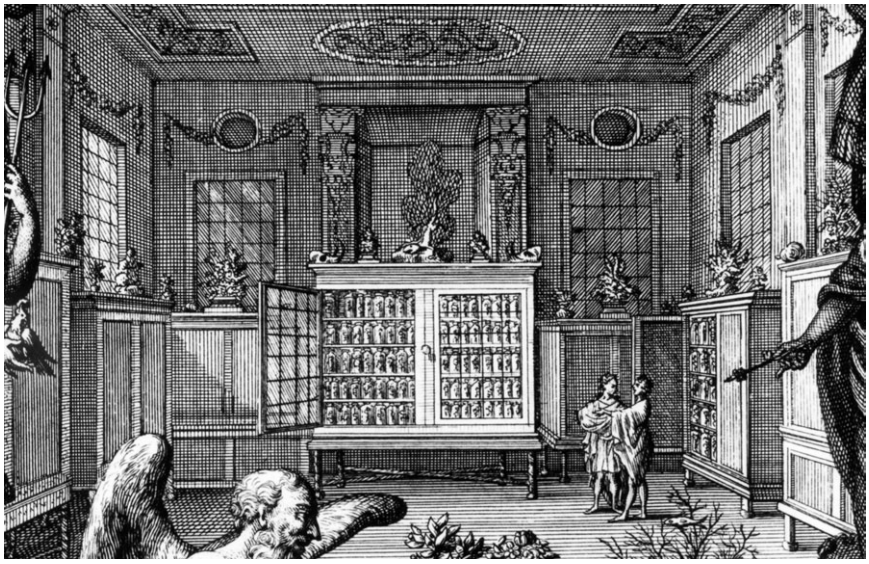

Fig. 5. Cornelis Huijberts, Room with anatomical cabinets. Frederik Ruysch, *Thesaurus Animalium Primus* (Amsterdam, 1710), frontispiece (detail). Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, DG 63-6781.

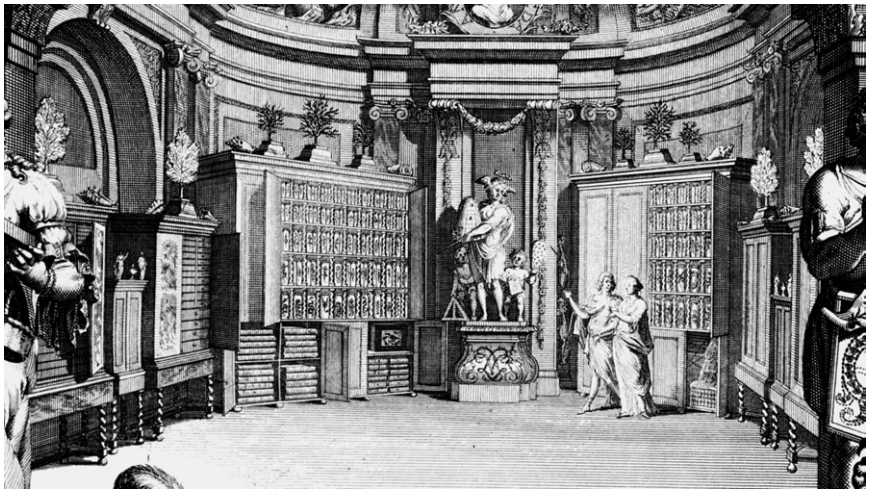

Fig. 6. Jan van Vianen after Romein de Hooghe, Room with cupboards with naturalia and books. Levinus Vincent, *Wondertooneel der Nature* (Amsterdam, 1706), frontispiece (detail). Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, OG 63-7032.

could possibly be applied to the first phase of Ruysch's cabinet, with its life-size assemblage and a comparatively small number of embalmed objects lying in isolation on the shelves. In the second phase, however, a greater emphasis on the total display can be detected and a picture begins to appear of a vast collection ordered neatly in a series of cupboards, enlivened on occasion by embellished preparations. Of course the tableaux communicated on a different level and their 'radiance' was probably stronger than the 'plain' objects, but we should place them in the correct perspective. In the second phase the collection was less baroque or bizarre in its appearance than formerly, and within the visually harmonious display, Ruysch strove for variation.[35] He made a deliberate choice not to order his collection systemically, so as to please the eye, but instead sought to present the intricacy and diversity of the human body as a visually well-ordered spectacle. After the reorganization, the first impression visitors would have gained would have been of the collection's harmony and regularity.

From *vanitas* to veneration

As already stressed, the embellished objects continued to play an important role as commentators on the total collection, but this role was more ambiguous than is sometimes suggested. Quantitative analyses of the collection have shown that not only did the nature and organization of the decorative elements in the collection change over time, but so too did the reflective connotations they evoked. The prevailing element of *vanitas*, so dominant in the first phase, gradually made way for statements of wonderment at the construction of the human body. The changes were slight and subtle, however, and the element of *vanitas* was not completely discarded in later times; nor were words of praise totally absent in earlier periods, but a shift of emphasis is certainly discernable. Table 1 shows a significant decrease of *vanitas* inscriptions through time: in the first phase, 60 inscriptions commented on 403 items; in the second phase, 30 inscriptions on 1,125, and in the last phase, only 3 inscriptions commented on 383 items. Utterances of praise and wonderment are absent from the catalogue of 1691 and from the first *Thesauri,* but they seem to become more standard around 1710. Furthermore, they were, in contrast, not committed to small labels accompanying the objects, but appeared instead in Ruysch's writings and in poems composed by visitors.

For example, in the eighth *Thesaurus* from 1709, Ruysch states that confronted by a dissected sheep testicle, no one could properly behold the quantity and subtlety of the vessels 'without admiration for God's potence'. In the same catalogue, he assures the reader that everyone who observes the minute ramifications of the pulmonary artery will be 'stupefied by the wondrous works of God'.[36] In the ninth *Thesaurus* of 1714 he recalls how, after discovering the fine structure of the liver, he proclaimed: 'Dear God, how wondrous are your ways, in that which you show me, even in the smallest of your works'.[37] In the tenth *Thesaurus* of 1716, he reflects on a small piece of the cerebral cortex and membrane on the floor of a jar, 'so delicate that it eludes human understanding and extols the omnipotence of the Lord'.[38] According his own words, Ruysch spent many days and nights gaining understanding of that machinery with which God constructed us (*hanc nobis construxit machinam Deus*).[39] Subtle changes are also discernable in the decorative strategies he deployed: for instance, the skeleton on top of the tableau described earlier, is noted in 1703 as looking woefully upwards to express the miserable state of mankind. A comparable figurine, holding an artery of the lung, is described in the *Thesaurus* of 1714: it also looks upwards, but this time not to lament the state of man, but to show the wondrous works of God.[40] Evidently, the specimens continued to prompt religious reflection, but instead of seeking reconciliation for the sorrows of life and anticipating eternity, they conjured thoughts of God's wonderful creation.

It might be possible to assign the rise of these reflections on the glory of God to Ruysch's old age, but in reality, thoughts on life's vanity would be more appropriate. These utterances could also be regarded as commonplace, but this still does not account for the significant shift. An explanation for them might rather be found in the larger developments in the field of natural philosophy in the Dutch Republic of the late seventeenth and early eighteenth centuries.[41] The attitude corresponds with the rise of the popular physico-theological movement. Elsewhere I have argued that the *naturalia* in the cabinets in this period were seen as an effective tool to arouse awe and elicit praise to the Creator, and they functioned as an antidote to atheism.[42] After the spread of Cartesianism and Spinozism in the seventeenth century, the *philosophia experimentalis*

propagated by naturalists like Robert Boyle and John Ray was hailed as a remedy against atheism and gained significant ground in Holland. This attitude towards nature corresponded with the Calvinistic premise, as laid down in the second article of the doctrinally official Belgic Confession, that one could gain knowledge of God by reading the Bible and reading 'the book of nature'.[43] The physico-theologicial movement in Holland culminated in 1715 with the publications of *Het regt gebruik der wereltbeschouwingen ter overtuiginge van ongodisten en ongelovigen* (The Correct Use of World Views for convincing Atheists and Unbelievers), by Bernard Nieuwentijt. In this book, the author discusses all aspects of nature, including the human body, to show the erroneous interpretations of followers of Descartes and Spinoza, and to prove that only natural research based on direct observations can lead to real knowledge and devotion. Nieuwentijt regarded collections as faithful allies in the battle against atheism.[44] Standing before the cabinets, face-to-face with manifestations of the Creation, the spectator could convince himself of the wisdom of the Creator.

Ruysch was also influenced by these beliefs. It is known that he was not a great theorist, and that he even boasted about his limited knowledge of books – especially anatomical and medical literature.[45] His object was to correct these treatises, not to be influenced by their inaccuracies. He also evaded the larger philosophical disputes that marked his time, although he held no strong opinions about the right way to acquire knowledge about nature and the human body. At a very old age, in answering a friend's letter, he recalls the battle in his student years between adherents of the New Philosophy of Descartes and the defenders of the old Aristotelian doctrines. With great approval, he recounts the answer given by Johannes Hoornbeek, a professor of theology, when he was asked which of the two schools he followed: the professor answered – 'The Holy Scripture'. Like Hoornbeek, Ruysch claimed the ambition to answer similar questions with his 'philosophy' of *Veni & Vide* (Come and see) – 'a few words, but a great proof'.[46] The claim is a telling one, since it places Ruysch firmly in the empirical tradition that formed the basis of physico-theology. Many times he expresses the importance of sensory observations. In his numerous debates, he summons opponents to look with the eyes of the body, not the eyes of reason. He frequently invites them into his rooms to convince them of their erroneous insights by using their own eyes. His sight and his preparation technique, which made unseen things visible, were his weapons. In the same way that soldiers in the army shout 'To arms, to arms!', Ruysch calls 'To sight, to sight!'.[47] But Ruysch's answer shows something beyond his reliance on sight: by comparing it to the reaction of Hoornbeek, he parallels knowledge by direct observation with knowledge gained by reading the Bible.

Ruysch's credo seems almost like a direct phrasing of the frontispiece of Nieuwentijt's comprehensive (but extremely popular) book (Fig. 7). The engraving expresses how only experience-based natural research can lead to knowledge about God and his creation. The personification of *Physica* stands prominently on a base; the hem of her garment is decorated with the words 'rerum magistra', referring to the old dictum *Experientia rerum magistra*; divine rays illuminate her. She takes the blindfold from the eyes of a 'righteous' researcher showing him the way to naked Truth. To his left, an 'erroneous' researcher turns his head from the divine

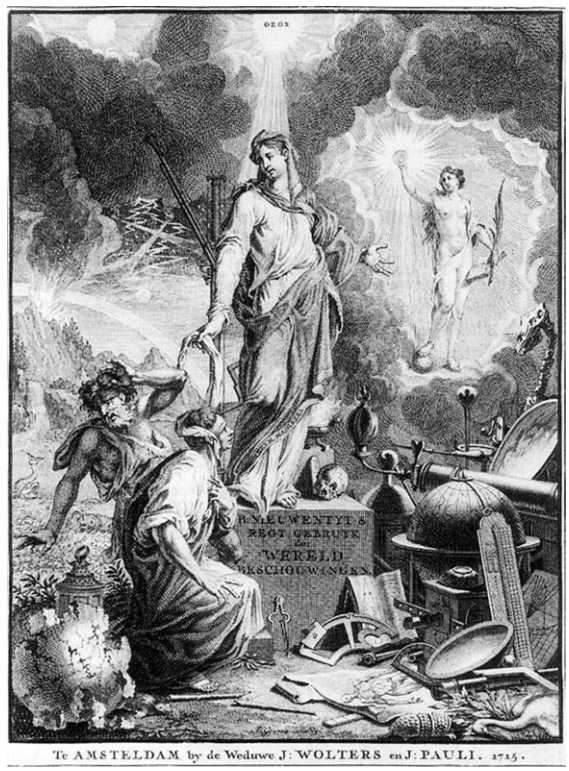

Fig. 7. Jan Goeree, Physica leading the righteous naturalist to Truth. Bernard Nieuwentijt, *Het regt gebruik der wereltbeschouwingen ter overtuiginge van ongodisten en ongelovigen* (Amsterdam, 1715), frontispiece. Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, OG 63-5655.

light; his world shatters under him, his lantern offers no light and a barely distinguishable mole expresses his spiritual blindness. According to the explanation of the print, this scholar is governed by his 'flattering intellect, naked perception and reason' instead of experience, a direct reference to the convictions of the followers of Descartes and Spinoza.[48] The good researcher is helped by the objects to the right. Among the instruments, animals, and plants on the ground, an anatomical drawing of the human body lies prominently.

The displays in Ruysch's cabinet also supported the battle against atheistic tendencies. In his tenth *Thesaurus* the anatomist discusses a beautiful preparation of a human kidney in which the very fine branches of the veins can be observed. Ruysch does not consider it possible to express in words the wondrous structure of this object, nor would a printmaker be able to catch it in drawing, '. . . and even though I possess thousands of anatomical objects that could combat the neglect of God, this object alone would be sufficient'.[49]

Visitors to the collection expressed more pungently some of the beneficial effects of the objects. The physician Regnerus de Lover wrote a poem on Ruysch's cabinet in which he asks the studious visitor to step forward to behold God's wonders respectfully; the atheist is summoned to do the same and acknowledge his errors. Another visitor, the physician and Presbyterian preacher Hermanus Schijn, wrote a poem on one of the cupboards containing Ruysch's animals, in which he admonishes those who neglect God to look at all the wonders that will make them acknowledge God's presence. With ardour he writes:

> Stop wandering Soul, stop running aimlessly,
> To endless destruction! Stand still before this cupboard;
> Every animal, even the smallest, points to the Creator.
> It teaches you to look up to its origin, that Being,
> Whose Mighty Divinity can be read in its construction.[50]

The physico-theological discourse not only influenced the religious connotations induced by the preparations, but it also coloured the way in which the relation between the products of nature and products of art were experienced. This resonated in the embellishment of Ruysch's preparations, as will be shown below.

The body as embroidery

As mentioned above, interpretations of Ruysch's cabinet tend to presume a discrepancy between the aesthetic and cognitive motives of the collector, but this tension would have been wholly alien to Ruysch and his visitors. Or, to be more accurate, the relation between the bodily displays and the artful embellishments, like the lace and damask cuffs used to enhance the dissected body parts, was perceived in a different way. In fact, both were seen as the products of creating entities. The human body was not taken as an autonomous natural entity, but as a manufactured product – the masterpiece of Creation. The idea of nature wrought by divine will was based on a long tradition leading back to the Biblical texts and to the writings of Augustine and Plato. Physico-theologians took it up with new ardour and used the construct of nature continuously as proof for the existence of a sovereign creator – the so-called 'argument from design'.[51] Nieuwentijt, for instance, tried to convince the atheists by comparing the world with a globe, animals with automata, the human heart with a pump, the lungs with bellows, and the vessel system with fountains. Just as the viewer of an artwork or artefact cannot deny the existence of the artist or artisan, so too it was impossible for those who diligently study nature to deny the existence of God. Ideas like these also influenced perceptions of the relationship between art and nature.

Katherine Park and Lorraine Daston argue that as a result of mechanistic natural philosophy, nature increasingly obtained the status of a work of art, replacing the older notion of nature as an artist and a creator. From the Aristotelian tradition, nature was considered God's servant, completely dependent on her Creator but still to some extent autonomous and able to do things on her own: she was allowed to play, draw or err. With the rise of mechanism, and the Christian adaptation of it in the work of Boyle and his followers, nature was denied all autonomy and begot more and more the status of God's artwork; grand, incomprehensible and astonishing, but in the end inert and – for all her movement – totally dependent on divine Providence. Park and Daston write: 'The ancient opposition of nature and art had been transformed into an opposition between the works of God and the works of man. Nature had become the "Art of God", no longer able to create art of her own.'[52]

Traces of this new attitude are also discernible in Ruysch's cabinet. The more narrative and textual decorations of the earlier periods made way for subtle interactions between the 'works of man' and 'the works of God'. In line with the physico-theological argumentation, Ruysch tried to express the complex

design of the body by comparing it with human manufacture. One art-form functioned as a particularly efficient metaphor to express the elaborate structure of human tissue – that of embroidery. Because of its costly and labour-intensive work, it was esteemed as an old and virtuous craft. Not only were the materials used to create embroidery expensive – silk, gold thread and pearls – but the elaborate nature of the work also contributed to its value and appreciation. The aura of virtue and industry made embroidery an applicable form to add lustre to a collection and so it was used by Ruysch and other collectors.[53] It also informed the observations of the anatomist. As he travelled deeper into the microcosm of the human body, he became more aware of the textile-like structure of its components. In particular, the course and delicacy of the vessel system led him to believe that the whole human body was ultimately constructed of vessels. In return, this conviction made him see (not always justly) only vessels, and brought him to deny the existence of glands.[54] '*Omne Organon ex Vasibus*' was Ruysch's motto; the human body as a divine woven cloth.

This way of seeing was reflected in the decorations. More and more the tissue *in* man was used in analogy with the tissue *by* man. As early as the 1691 catalogue, Ruysch describes fibres made from the epidermis and a piece of the *omentum*, resembling threads and the fabric of silk.[55] With the improvement of his techniques, he used the metaphor more elaborately: in the first *Thesaurus* he describes an assemblage of two foetal skeletons representing the Greek philosophers Heraclitus and Democritus, still expressing thoughts of vanitas.[56] The laughing Democritus showed his state of mind through his gestures, while the crying Heraclitus was equipped with a handkerchief to dry his tears. Ruysch 'artfully' prepared this handkerchief from a 'very thin membrane, saturated with countless tiny, red-coloured arteries, of which the serpentine course amusingly represents an actual embroidery' (Fig. 8).[57] Crying foetuses with handkerchiefs figured several times in the cabinets described in the *Thesauri*.[58] Human and animal tissues were also used to replace garments: a foetus in a tomb wore a nightgown made from the membrane of a sheep 'through which many red filled arteries run, replacing a silk embroidered spread'.[59] Diligently prepared membranes and skins were also used to replace the cloths that were used to cover the phials (Fig. 9). In his descriptions Ruysch stresses the combination of usefulness and pleasure:

> All these covers appear to us very red and elegant, in which the blood vessels, filled with a red kind of wax, are countless; this is not only pleasing to see, but is also useful for one who likes to verify accurately the course of the arteries.[60]

Some of the exquisite figures that accompany the *Thesauri* show a comparable interaction between art and nature. Fig. 10 depicts a jar containing a child's arm, a slice of an infected testicle and a fragment of an ulcerated

Fig. 8. Cornelis Huijberts, Foetal skeleton with handkerchief made of a human membrane. Frederik Ruysch, *Thesaurus Anatomicus Octavus* (Amsterdam, 1709), tab. I (detail). Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, DG 63-55.

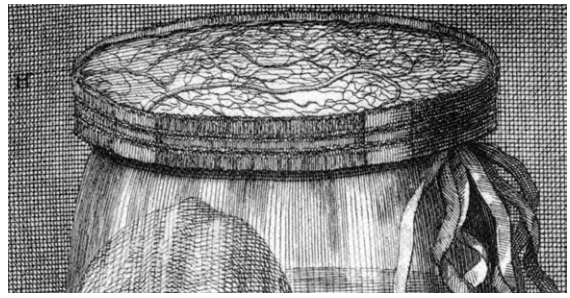

Fig. 9. Cornelis Huijberts, Lid of phial. Frederik Ruysch, *Thesaurus Anatomicus Primus* (Amsterdam, 1701), tab. II (detail). Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, DG 63-55.

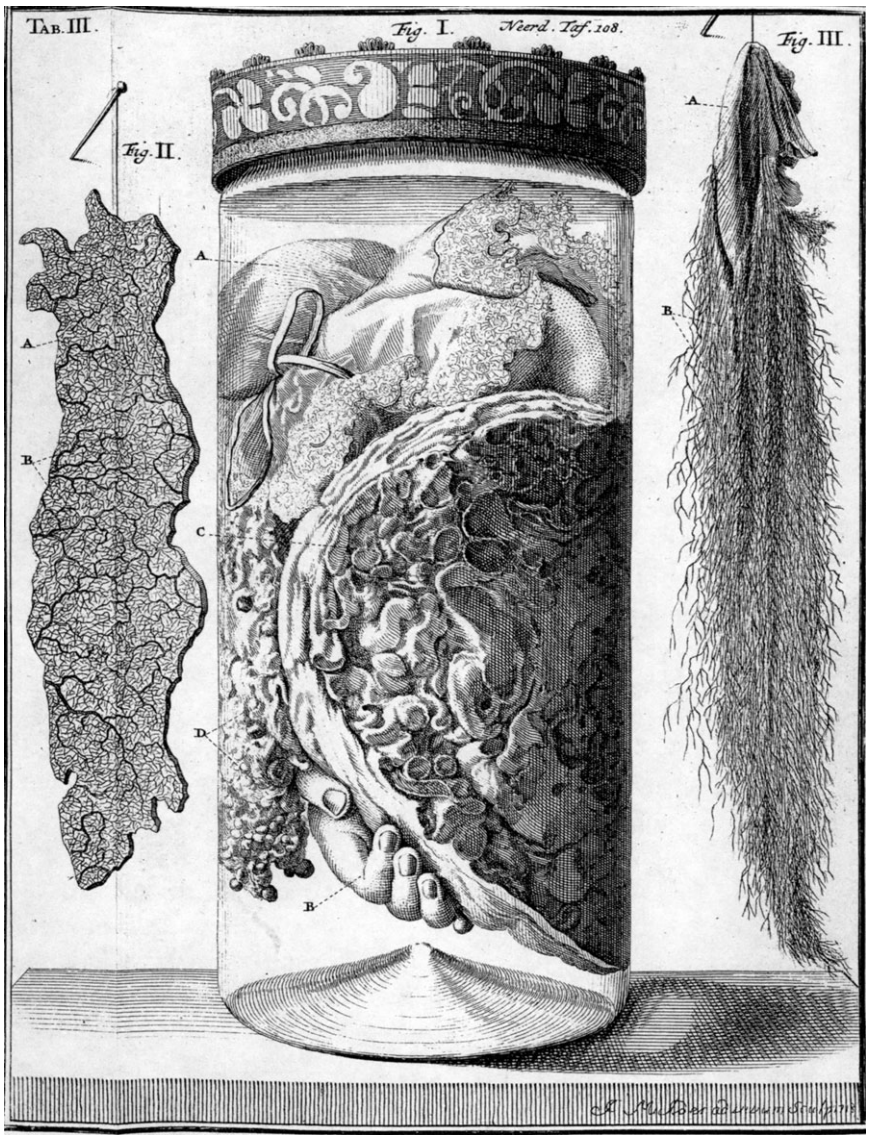

Fig. 10. Jan Mulder, Phial containing a child's arm, a piece of uterus and a piece of testicle, flanked by prepared foot skin and prepared seminiferous tubules. Frederik Ruysch, *Thesaurus Anatomicus Nonus* (Amsterdam, 1714), tab. III. Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, DG 62-9053.

uterus. The phial is flanked by skin from the foot to the left and by a bunch of seminiferous tubules to the right. With a keen eye for detail and refinement, the printmaker made every effort to express the complexity of both fabrics. The cloth of the cover and the lace of the sleeve are rendered as meticulously as the anatomical texture. They form an awkward contrast with the somewhat inept renderings of the fingers. In the left half of the phial the borderline between the artificial tissue of the cuff and the natural tissue of the uterus seems to blur. In this way, the beholder was frequently encouraged to shift between fabrications of men and the construct of God.

The importance of these cross-references between art and nature has already been suggested by Hansen. She discusses a print of a prepared foetus, holding a set of pulmonary bronchioles, sitting on an abundantly adorned cushion (Fig. 11) and writes: 'Both the rich texture of the cushion and the delicacy of the prepared vessels served as visual references to Ruysch's skill in preparing such fragile objects for display.'[61] Without a doubt, visual associations will have been made between the texture of the cushion and the refined branches in the human lungs, but I wonder if Ruysch used these to stress his own artistry.

Fig. 11. Cornelis Huijberts, Preparation of foetus on cushion holding a human bronchus. Frederik Ruysch, *Thesaurus Anatomicus*, vol. III (Amsterdam, 1703), tab. II. Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, DG 63-55.

The dichotomy set up between creating a collection for study and accomplishing a pleasurable scene dates from later times. Seen through the physico-theological discourse, it seems that other connotations played a substantial role. The juxtaposition between fabric *by* man and fabric *in* man formed a visual pendant of the argument from design. They invited the beholder to build visual bridges between *artificialia* and *naturalia* in order to stimulate awareness of the immense elaborateness and magnificence of the human body. They stimulated reflections on the wisdom that was required to make a structure and design like the human body. In this way, the artistry of Ruysch did not rival the artistry of the Creator, but mirrored it.

These playful analogies were not arbitrarily chosen; their basis could be found in Holy Scripture itself. The handkerchief in Heraclitus's hand made Ruysch think of Psalm 139. Apparently it was sufficient only to mention the psalm for his public, without quoting it. In the official translation of the Bible used by the Dutch protestant church, the *Statenvertaling* first published in 1637, the aforementioned psalm uses the embroidery metaphor to praise the total dependence of man on his Creator and to dwell on the incomprehensible way in which the human body was created:

> My bones were not hidden from you, when I was made in hidden places,
> and was wrought as embroidery in the depths of the earth.[62]

For visitors, familiar with this Biblical text, the parallel would easily come to mind. A friend wrote in a poem on Ruysch's seventy-fifth birthday of how God wove together as embroidery the bones and the flesh. Another visitor harkened back to it in his ode to the tenth *Thesaurus*:

> A piece of your Omnipotence, purely art,
> Like embroidery neatly entwined,
> With art and life blended together.[63]

These analogies functioned not merely as frivolous *topoi* to enliven the discourse or ornament the collection. They formed a substantial part of the mental set from which anatomists, like Ruysch, and their public approached the human body. To further elucidate this, a comparison can be made with Nieuwentijt's text. He also refers to Psalm 139 when discussing human muscle. He invites the atheistic doubter to look upon a drawing of the muscular system and to ask himself if it is not like the most beautiful piece of embroidery. One who will study it carefully, he writes, will notice that the muscle consists of many parallel threads of different lengths; all these threads are exactly the right length and are organized in orderly courses in relation to the bones, allowing the body to move. He emphasizes that knowledge of human muscle was for many years enclosed in the Bible in the aforementioned psalm. That Nieuwentijt takes the analogy between the muscle tissue and embroidery quite literally, shows from his digression on the Hebrew word *rakam*, which means 'pulled with the needle'. According to him, we should read the sentence in the psalm as: 'I was made with a needle like embroidery'.[64]

In their *Nachleben*, Ruysch's preparations were used even more poignantly to exemplify the human body as a divine construct. In the year of Ruysch's death, the image of the crying foetus was used again in *Physica Sacra* (1731–5), the monumental collection of lavish prints published by the Swiss physician and naturalist Johan Jakob Scheuchzer (Fig. 12). Here

Fig. 12. I. A. Friedrich after Johan Melchior Füssli and Johann Daniel Preisler, The Creation of Adam. J. Scheuchzer, *Physica Sacra* (Augsburg and Ulm, 1731–5), tab. XXIII. Universiteitsbibliotheek Amsterdam (UvA) Bijzondere Collecties, KF 62-2086.

Scheuchzer paralleled scriptural truths with new data from current natural research, by framing biblical scenes with illustrations from modern scientific treatises.[65] The twenty-third print shows the creation of Adam, as described in Genesis 1:26–27. The inscription 'Homo ex Humo' stresses the creative act of God, who moulded Adam's body from the soil. The biblical story is framed by preparations by Ruysch, juxtaposing the natural process of generation from egg to foetus to the Divine act of will. On the console to the right stands one of Ruysch's crying foetuses, detached from its original vanitas setting. His significance in this print is two-fold: his gesture prefigures the future Fall of Man, but in this constellation the reference made by Ruysch himself seems more applicable – the body 'wrought as embroidery in the depths of the earth'. In the centre is shown the moment of the formation of men, while in the border the cloth gives proof of the wondrous result of this act of Creation. Scheuchzer's print visualizes one of the connotations that came easily to mind when beholding the creations in Ruysch's cabinet and shows the ambiguity with which the objects communicated with the spectator.

The art of embroidery was not the only metaphor used to express the complexity of the human body.[66] Here, I use it as an example to gain insight into the correlations between Ruysch's activities as 'scientist' and as 'artist'. For Ruysch and his contemporaries these activities were seen not as divergent, but rather as forming two modes of a single practice, in which the gracefulness of the human arts gradually took over to embellish the godly artwork. When speaking of the 'art' in Ruysch's cabinet, modern interpreters usually indicate the rich tableaux and the embellished preparations, but in this limited way it was hardly used by Ruysch and his visitors. When they spoke of his 'art' they referred to his preparation technique, and the embellishments were smooth continuations of that activity. In this way the Dutch word *kunstkamer* was still appropriately applied to the rooms presented by Ruysch.[67] Here the word 'art' still meant 'a skill, in the sense of a science that made man able to intervene in nature in an ordering or correcting way'.[68] Yet, it was not only the art of Ruysch that could be admired in his rooms; it was also the art of the Creator. Within the collection the works wrought by human ingenuity stood in a significant relation to the works of godly wisdom.

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Notes and references

1 For an overview of anatomical illustrations see K. B. Roberts and J. D. W. Tomlinson, *The Fabric of the Body. European Traditions in Anatomical Illustration* (Oxford, 1992), and

B. A. Rifkin and M. J. Ackerman, *Human Anatomy. From the Renaissance to Digital Age* (New York, 2006).

2 M. Kemp and M. Wallace, *Spectacular Bodies. The Art and Science of the Human Body from Leonardo to Now* (London, 2000), p. 12.

3 Z. C. von Uffenbach, *Merkwürdige Reisen durch Niedersachsen, Holland und Engelland*, vol. III (Ulm and Memmingen, 1754), pp. 639–41.

4 Von Uffenbach, op. cit. (note 3). F. Ruysch, *Thesaurus anatomicus sextus* (Amsterdam, 1705). In the preface, Ruysch announces that he will give daily private lessons in his cabinet.

5 See, for instance, R. Knoeff, 'Chemistry, mechanics and the making of anatomical knowledge: Boerhaave vs. Ruysch on the nature of glands', *Ambix* 53 (2007), pp. 201–19.

6 Ruysch uses the concealing of the amputated flesh as an argument several times. See, for example, F. Ruysch, *Thesaurus magnus & regius qui est decimus thesaurorum anatomicorum* (Amsterdam, 1716). fol. * 2v.

7 The phials containing animals, which will be left out of consideration in this study, were decorated by adding bouquets of dried material on top of the lid. Ruysch possessed a considerable quantity of animal and floral specimens. Our knowledge of this collection is limited, since he published only one catalogue, describing the holdings of one cupboard: F. Ruysch, *Thesaurus animalium primus* (Amsterdam, 1710).

8 Of this group it is often said that the figurines represent musicians, but this is a misinterpretation. If Ruysch had meant to create a musical group, he definitely would have said so in his description in the *Thesaurus*, but this is not the case. See, for example, A. M. Luyendijk-Elshout, '"An der Klaue erkennt man den Löwen". Aus den Sammlungen von Frederik Ruysch (1638–1731)', in A. Grote (ed.), *Macrocosmos in Microcosmo. Die Welt in der Stube; zur Geschichte des Sammelns 1450 bis 1800* (Opladen, 1994), p. 648.

9 F. Ruysch, *Thesaurus anatomicus tertius* (Amsterdam, 1703), pp. 1–9.

10 The term 'baroque' is used by several authors. Anthony Anemone places the collection in the context of 'the Baroque world view': A. Anemone, 'The monsters of Peter the Great: the culture of the St. Petersburg Kunstkamera in the eighteenth century', *Slavic and East European Journal* 44 (2000), pp. 583–602. Stephen Jay Gould calls Ruysch 'the consummate baroque artist': R. Purcell and S. J. Gould, *Finders, Keepers. Eight Collectors* (New York 1992), p. 30. See also: F. Gonzales-Crussi, *Suspended Animation. Six Essays on the Preservation of Bodily Parts* (San Diego, New York and London, 1995).

11 Roberts and Tomlinson, op. cit. (note 1), p. 298: 'However, it is pointless to comment on the anatomical content of this illustration. The whole production is an extravaganza, which has to be considered as the expression of a curious trait in the character of a most knowledgeable and experienced anatomist.'

12 Examples of cultural studies on early modern anatomy include: J. Sawday, *The Body Emblazoned. Dissection and the Human Body in Renaissance Culture* (London, 2006); Andrew Cunningham, *The Anatomical Renaissance. The Resurrection of the Anatomical Projects of the Ancients* (Aldershot, 1997), and B. Stafford, *Body Criticism. Imaging the Unseen in Enlightenment Art and Medicine* (Cambridge MA, 1991).

13 R. Vermij, 'Versierd met een takje van bloedvaten. Frederik Ruysch (1638–1731) was meer kunstenaar dan anatoom', *NRC handelsblad* 11 March 2005, p. 27; Jozien Driessen-van het Reve, 'Doodskunstenaar', *NRC handelsblad* 25 March 2005, p. 26. Rienk Vermij, a historian of science, discussed the new biography of Ruysch: L. Kooijmans, *De doodskunstenaar. De anatomische lessen van Frederik Ruysch* (Amsterdam, 2004).

14 A. M. Luyendijk-Elshout, 'Death enlightened: a study of Frederik Ruysch', *Journal of the American Medical Association* 212 (1970), pp. 121–6. She repeated her argument in Luyendijk-Elshout, op. cit. (note 8).

15 E. Jorink, *Het Boeck der Natuere. Nederlandse geleerden en de wonderen van Gods Schepping 1575–1715* (Zeist, 2006), pp. 292–4; Th. H. Lunsingh Scheurleer, 'Un amphithéatre d'anatomie moralisée', in Th. H. Lunsingh Scheurleer and G. H. M. Posthumus Meyjes (eds.), *Leiden University in the Seventeenth Century. An Exchange of Learning* (Leiden, 1975), pp. 218–77; A. MacGregor, *Curiosity and Enlightenment. Collectors and Collections from the Sixteenth to the Nineteenth Century* (New Haven and London, 2007), pp. 160–61.

16 J. Hansen, 'Resurrecting death: anatomical art in the cabinet of Dr. Frederik Ruysch', *Art Bulletin* 78 (1996), pp. 663–80.

17 An exception is found in Godefridi Bidloo, *Vindiciae quarumdam* (Leiden, 1697). Bidloo criticizes Ruysch for using minium to realize the lifelike colour. In addition he criticizes the embellishments even though he still admits that they are 'pleasing to see'. By way of an answer, Ruysch blames Bidloo for decorating his auditorium as a play stage: see Y. G. Arlebout (ed.), F. Ruysch, *Alle de ontleed-, genees- en heelkundige werken* (Amsterdam, 1744), p. 439.

18 See, for example, H. Bredekamp, *Antikensehnsucht und Maschinenglauben. Die Geschichte der Kunstkammer und die Zukunft der Kunstgeschichte* (Berlin, 1993); E. Scheicher, *Die Kunst- und Wunderkammern der Habsburger* (Vienna, Munich and Zürich, 1979). See also, E. W. Tayler, *Nature and Art in Renaissance Literature* (New York and London, 1966).

19 Compare Luyendijk-Elshout, op. cit. (note 8).

20 The catalogue, *Museum Anatomicum Ruyschianum sive Catalogus Rariorum*, was published as an appendix of F. Ruysch, *Observationum anatomico-chirurgicarum centuria* (Amsterdam, 1691). Ruysch mentions his preparation technique for the first time in F. Ruysch, *Dilucidatio valvularum in vasis lymphaticis . . .* ('s-Gravenhage, 1665).

21 F. Ruysch, *Thesaurus anatomicus primus* (Amsterdam, 1701); F. Ruysch, *Thesaurus anatomicus secundus* (Amsterdam, 1702); F. Ruysch, *Thesaurus anatomicus tertius* (Amsterdam, 1703); F. Ruysch, *Thesaurus anatomicus quartus* (Amsterdam, 1704); F. Ruysch, *Thesaurus anatomicus quintus* (Amsterdam, 1705); F. Ruysch, *Thesaurus anatomicus sextus* (Amsterdam, 1705); F. Ruysch, *Thesaurus anatomicus septimus* (Amsterdam, 1707); F. Ruysch, *Thesaurus anatomicus octavus* (Amsterdam, 1709); F. Ruysch, *Thesaurus anatomicus nonus* (Amsterdam, 1714); F. Ruysch, *Thesaurus magnus & regius qui est decimus thesaurorum anatomicorum* (Amsterdam, 1716). Henceforth the catalogues are referred to with the abbreviation *TA* followed by the appropriate Roman number. The content of four cupboards with *anatomica* remained unpublished. This follows from the preface of *Thesaurus animalium primus*, op. cit. (note 7) where Ruysch mentions that six cabinets have yet to be published. Later he published only two catalogues. See also: 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 (Hilversum, 2006), p. 142.

22 F. Ruysch, *Curae posteriores, seu Thesaurus anatomicus omnium praecedentium maximus* (Amsterdam, 1724) and F. Ruysch, *Curae renovatae, seu, Thesaurus anatomicus, post curas posteriores, novus* (Amsterdam, 1728).

23 Information kindly received by e-mail from Anna Radziun, curator, Anatomical Department, Museum of Anthropology and Ethnography, St Petersburg, 27 February 2007.

24 See *Museum Anatomicum*, op. cit. (note 20), pp. 3–19.

25 See the preface of *TA* VI, op. cit. (note 21).

26 In the preface of *Thesaurus animalium primus*, op. cit. (note 7), Ruysch gives a comparable explanation for the bouquet decorations on the lids of the phials with animal preparations. The same argument is given in *TA* IX, op. cit. (note 21), p. 20.

27 Compare *Museum Anatomicum*, op. cit. (note 20), p. 8 with *TA* VIII, op. cit. (note 21), p. 35.

28 *TA* I, op. cit (note 21), p. 1, 5; *TA* III, p. 1; *TA* VII, p. 1; *TA* VIII, p. 34.

29 *TA* II, op. cit (note 21), p. 20 and fig. 2 on tab. II.

30 *TA* III, op. cit (note 21), pp. 3–4. Also the numerous stones had interesting things to tell. They are all marked with letters, which refers to Ruysch's descriptions in his catalogues. Generally he discusses comprehensively their state and provenance. For instance, the stone marked with the letter A harbours another little stone inside its cavity. This leads him to elaborate on the state of stones that are found in the human body. Their many-layered structure is often scaly. In addition, Ruysch defends surgeons who were often accused of malpractice and careless behaviour when stones broke during surgery. This should not be blamed on the surgeons, writes Ruysch, but only on the composition of the stones, as can be studied in the tableaux.

31 Only details from the frontispieces of Ruysch's and Vincent's catalogues are reproduced here to give an impression of the cabinets. Both prints show in the foreground imaginative scenes with allegorical figures surrounded by objects. I believe, as suggested by Emma Spary, that these randomly placed objects in the foreground deliberately juxtapose and emphasize the harmonic order shown in the background which was imposed by the collectors on the objects. See Spary's excellent discussion of the prints of Levinus Vincent's cabinets in E. Spary, 'Scientific symmetries', *History of Science* 42 (2004), pp. 1–46.

32 See L. Vincent, *Wondertooneel der Nature* (Amsterdam, 1706), pp. 7–10. The nymph is assisted by two putti, named 'Pattern' and 'Adornment'. The first is holding a compass and takes care of the harmonious ordering of the ground-plans (horizontal field), the second holds a peacock's tail and sees to it that everything is presented with splendour and magnificence (vertical field). See on the relation between the aesthetic and systematic order in the collection of Simon Schijnvoet's cabinet, B. van de Roemer, 'Neat nature. The relation between art and nature in a Dutch cabinet of curiosities from the early eighteenth century', *History of Science* 42 (2004), pp. 47–84.

33 See for example J. D. Major, *Unvorgreiffliches Bedencken von Kunst- und Naturalien-Kammern ins gemein* (Kiel, 1674), § 7.6, § 8.4–8.6; Anonymous (L. C. Sturm), *Die geöffnete Raritäten- und Naturalien-kammer* (Hamburg, 1707), p. 20.

34 See for instance the famous prints of the collections of Ole Worm, Ferrante Imperato and Francesco Calzolari.

35 Ruysch announces a varied presentation in the preface of *TA* II, op. cit. (note 21). In the preface of *TA* I the cupboards were still ordered according to content: hearts, lungs, uteruses, intestines, etc.

36 *TA* VIII, op. cit. (note 21), p. 16 and 43.

37 *TA* III, op. cit. (note 21), p. 48.

38 *TA* X, op. cit. (note 21), p. 6.

39 *TA* X, op. cit. (note 21), fol. * 2r.

40 Compare *TA* III, op. cit. (note 21), p. 3 and *TA* IX, p. 20.

41 Compare Kooijmans, op. cit. (note 13), p. 305.

42 G. M. van de Roemer, 'God en het rariteitenkabinet. Het religieuzemotiefvanNoord-Nederlandserariteitenverzamelaars eind zeventiende en begin achttiende eeuw', *Theoretische Geschiedenis* 25 (1998), 242–55. See also G. M. van de Roemer, 'De geschikte natuur. Theorieën over natuur en kunst in de verzameling van Simon Schijnvoet (1652–1727)', unpublished dissertation, Universiteit van Amsterdam, 2005, pp. 67–99; Van de Roemer, op. cit. (note 32), pp. 75–6.

43 For the metaphor of the Book of Nature in the Dutch Republic, see E. Jorink, *Het Boeck der Natuere. Nederlandse geleerden en de wonderen van Gods Schepping, 1575–1715* (Leiden, 2006). An English translation by Peter Mason, titled *Reading the Book of Nature in the Dutch Golden Age*, will be published by Brill Studies in 2010. On the Belgic confession see also J. Platt, *Reformed Thought and Scholasticism. The Argument for the Existence of God in Dutch Theology, 1575–1650* (Leiden, 1982), pp. 104–18.

44 B. Nieuwentijt, *Het regt gebruik der wereltbeschouwingen ter overtuiginge van ongodisten en ongelovigen* (Amsterdam, 1715), p. 561. See on Nieuwentijt, R. Vermij, *Secularisering en natuurwetenschap in de zeventiende en achttiende eeuw: Bernard Nieuwentijt* (Amsterdam, 1991); J. Bots, *Tussen Descartes en Darwin. Geloof en natuurwetenschap in de achttiende eeuw in Nederland* (Assen, 1972). Nieuwentijt's book was translated into English in 1718 by John Chamberlayne as *The Religious Philosopher: or, the Right Way of Contemplating the Works of the Creator.*

45 Arlebout, op. cit. (note 17), p. 1211.

46 Kooijmans op. cit. (note 13), p. 39; Arlebout, op. cit. (note 17), p. 1095, 1243–1244.

47 Arlebout, op. cit. (note 17), p. 448, 1241, 1244, 1251.

48 Nieuwentijt, op. cit. (note 44), 'Verklaring der tytel-prent'.

49 *TA* X, p. 36.

50 *Thesaurus Animalium Primus*, op. cit. (note 7), fol. ***** 1v.

51 C. J. Glacken, *Traces on the Rhodian Shore. Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* (Berkeley, 1967).

52 L. Daston and K. Park, *Wonders and the Order of Nature, 1150–1750* (New York and Cambridge MA, 1998), p. 301.

53 See on the art of embroidery, L. A. Stone-Ferrier, *Images of Textiles. The Weave of Seventeenth-Century Dutch Art and Society* (Ann Arbor, 1985); S. de Bodt, *'. . . op de Raempte off mette Brodse. . .' Nederlands borduurwerk uit de zeventiende eeuw* (Haarlem, 1987). Other collectors also used embroidery as a metaphor. Levinus Vincent's wife, Johanna van Breda, 'embroidered' *naturalia*, such as butterflies, shells and coral, as elegant garlands in the drawers. In Vincent's frontispiece, discussed earlier, the personification of Embroidery stands on the left side. In the same print, the personification of Nature

sits in the foreground, expressing her richness by a lavishly embroidered garment on her lap. See frontispiece of Vincent, op. cit. (note 32). Another example can be found in Georg Everhard Rumphius, *d'Amboinsche Rariteitkamer* (Amsterdam, 1705), fol. *** 2 recto. In the preface of this book the publisher, Francois Halma, describes the face of the earth as 'a deliciously embroidered carpet'.

54 Knoeff, op. cit. (note 5); Luyendijk-Elshout, op. cit. (note 8), p. 651.

55 *Museum Anatomicum*, op. cit. (note 20), pp. 48 and 109.

56 The philosopher couple Heraclitus and Democritus formed a popular theme in Dutch art. See, A. Blankert, 'Heraclitus en Democritus', *Nederlands Kunsthistorisch Jaarboek* 18 (1967), pp. 31–124.

57 *TA* I, op. cit. (note 21), p. 6.

58 *TA* VII, op. cit. (note 21), p. 27; *TA* VIII, pp. 36–7.

59 *TA* IV, op. cit. (note 21), p. 22.

60 *TA* I, op. cit. (note 21), p. 15. See also: *TA* V, pp. 14, 23.

61 Hansen, op. cit. (note 16), p. 672.

62 This is my translation. The original Dutch text in the *Statenvertaling* reads: 'Mijn gebeente was voor U niet verholen, als ik in het verborgene gemaakt ben, en als een borduursel gewrocht ben.' This was the text Ruysch knew and used. In some translations the word 'wrought' or 'woven' is used instead of 'embroidery'. For instance, the King James Bible reads: 'My substance was not hid from thee, when I was made in secret: and curiously wrought in the lowest parts of the earth.'

63 N. van Leeuwarden, 'Aan den Hooggeleerde zeer beroemde Heere de heer Fredrick Ruysch' in *TA* IX, op. cit. (note 21), fol. ** 3r and D. Willink, 'Op het Voortreffelyk Anatomsich Konstkabinet . . .', in *TA* X, op. cit. (note 21), fol. ** 2v.

64 Nieuwentijt, op. cit. (note 44), pp. 161–2.

65 J. J. Scheuchzer, *Physica sacra* (Augsburg and Ulm, 1731–1735). See on this publication R. Felfe, *Naturgeschichte als kunstvolle Synthese. Physikotheologie und Bildpraxis bei Johann Jakob Scheuchzer* (Berlin, 2000); Irmgard Müsch, *Geheiligte Naturwissenschaft. Die Kupfer-Bibel des Johann Jakob Scheuchzer* (Göttingen, 2000).

66 Authors of poems on Ruysch's cabinet also used the biblical metaphor mentioned in the book of Job 10:10: ' Have you not poured me out like milk, and curdled me like cheese?'

67 See for example the poem of François Halma in Ruysch's Album Amicorum: *Album F. Ruysch*, Universiteitsbibliotheek, Universiteit van Amsterdam, Hs. I E 20, 21.

68 Scheicher, op.cit. (note 18), p. 12.