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## **The finger of God : anatomical practice in 17th century Leiden**

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# The Finger of God

*Anatomical Practice in 17<sup>th</sup>-Century Leiden*

Tim Huisman



# The Finger of God

*Anatomical Practice in 17<sup>th</sup> Century Leiden*

PROEFSCHRIFT

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## Foreword

I first came across the Leiden anatomical theatre as an art history student studying the print collection of the Museum Boerhaave in 1986. When some years later the Boerhaave became my employer my fascination for this strange object of 17<sup>th</sup> century scientific culture only deepened. I therefore feel grateful to the museum for having allowed me the chance to write this book. Many people have helped me in the process of whom I specifically like to mention Ton Meijknecht for his enthusiasm, Huib Zuidervaart for his criticism and of course my colleagues for their patience. I am indebted to Dalila Wallé for her work on the index to this book.

My biggest thanks however go to Lotje, for putting up with my frequent mental excursions into the 17<sup>th</sup> century, and to our sons Sam and Job for doing everything in their power to make me *not* work on this thesis.

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## INTRODUCTION

In 1594 Leiden University had been in existence for just 18 years. From rather modest beginnings – in its first year the University counted seven professors and some 90 students – the first academic institution in the Protestant United Provinces had grown into a respectable seat of higher learning, counting internationally renowned scholars such as Justus Lipsius, Josephus Scaliger and Carolus Clusius among its professors.<sup>1</sup> The buildings and facilities of the young university had also expanded considerably in the two decades of its existence. Halfway through the 1590s Leiden offered its students learning facilities such as a botanical garden, a fencing school, a university library and – put into use at the end of 1594 – an anatomical theatre.

This anatomical theatre was a fascinating place: a circular amphitheatre with six tiers around a rotatable dissection table, adorned with human and animal skeletons, and accommodated in the apsis of a secularised church (which incidentally also housed the library and the fencing school). Public dissections in this theatre, anatomies on a human cadaver for the benefit of a wide audience (and not just medical professionals and students), were conducted with great solemnity and decorum, almost like religious ceremonies. They were attended by the burgomasters of Leiden and by the senate of the University, and all lectures and other academic activities were suspended when these anatomical demonstrations were held. As we learn from contemporary and later descriptions, these public anatomies as a rule only took place in the winter months, when low temperatures would keep the decomposition of the cadavers at an acceptable rate. The rest of the year the anatomical theatre – which was after all a permanent structure – was also open to the public; people could then admire the collection of rarities and curiosities displayed in and around the theatre.

Without exaggeration the Leiden theatrum anatomicum can be described as a 17<sup>th</sup>-century tourist attraction of the first order, depicted in several prints and drawings, described in books and celebrated in many travelogues. Although actual reports of anatomical demonstrations witnessed in the theatre are scarce, many late 16<sup>th</sup> and 17<sup>th</sup>-century travellers describe the collection of skeletons, natural curiosities and artefacts on display in and around the theatre. The passage ‘even when one had a thousand eyes, a full day would not suffice to see all the mysterious and curious objects [of the theatre],’ probably coined in 1630 to describe the theatrum anatomicum, became a figure of speech that was repeated in a great number of travelogues well into the 18<sup>th</sup> century.<sup>2</sup>

The Leiden theatrum anatomicum was built when humanism was at its peak as an intellectual movement in the Netherlands, and in many ways the theatre was an embodiment of humanist thought and ideals. An important characteristic of humanism is its belief that knowledge and understanding of Man would lead to understanding of the whole of creation and ultimately of understanding of God.<sup>3</sup> As Man and the understanding of Man were at the centre point of the humanist world view, a theatre where the fabric of the human body could be demonstrated would be an important tool in gaining this knowledge. It was no coincidence that the motto ‘Nosce te ipsum’ (know thyself) was emblazoned on one of the banners borne by the skeletons displayed in the theatre. And, also in keeping with humanist ideals, the anatomical theatre was a place of education and instruction: it was a public theatre. The anatomical and natural collections housed there could be visited and admired by anybody, just as the anatomical demonstrations were accessible to the general public and not just to the members of the university. The Leiden anatomical theatre was a place of edification, where everyone who so wished

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<sup>1</sup> Cf. Otterspeer, *Het bolwerk van de vrijheid*, chaps. 7 & 8

<sup>2</sup> The earliest instance of this phrase being used is in *Gotfr. Hegenitii itinerarium Frisio Hollandicum* [. . .] Leiden (Elzevier) 1630. Information based on an unpublished survey of travellers’ accounts of the theatrum collected by A.J.F. Gogelein, who has graciously placed it at my disposal

<sup>3</sup> Cf. Otterspeer, *op. cit.*, p. 31

could learn about himself, his world and his relationship to his Maker. And although later in the 17<sup>th</sup> century interest in and the relevance of the theatrical demonstrations of human anatomy would be waning, the theatre remained an important location among Leiden's scientific facilities, not least because the encyclopaedic and spectacular character of its collection of objects had increased in the course of the century.

Little wonder then that the memory of this academic institution, so appealing to the imagination as it conjures up associations with the anatomy lessons depicted by the great Dutch painters of the 17<sup>th</sup> century, has lived on long after its demise in 1821. At the end of the 20<sup>th</sup> century the Leiden anatomical theatre was even reconstructed in the Museum Boerhaave, the Dutch museum for the history of science and medicine. And here it forms one of the chief attractions of a visit to this museum.

### Existing literature

Little wonder also that the anatomical theatre has had its share of attention from historians from the 19<sup>th</sup> century onwards. One of the first to consider the anatomical theatre after it was taken down was the Leiden professor of medicine and medical historian G.C.B. Suringar, who published a study of the beginnings of anatomical instruction at Leiden University in 1861.<sup>4</sup> In 1911 another medical historian, J.E. Kroon, wrote a thesis, also on the early years of medical education in Leiden, which touches on the subject of the anatomical theatre. Kroon cites relevant passages from the *Dachbouc* (diary) of the University secretary Jan van Hout, offers a reproduction of the engraving after Jacques de Gheyn representing an anatomical lesson by the first professor connected to the theatre, Petrus Paaw, and the 1609 print by Johannes Woudanus depicting the anatomical theatre.<sup>5</sup> Specific study of the collection of curiosities of the *theatrum anatomicum* based on transcribed inventory lists, as well as an attempt at reconstruction of the layout of the theatre and its adjacent rooms, is provided by the Leiden professor of anatomy J.A.J. Barge in his *Oudste inventaris der oudste academische anatomie* from 1934. In the 1960s and 70s extensive archive research was carried out by H.J. Witkam, offering a real treasure-trove of information about the anatomical theatre and the practical management of anatomical affairs by Petrus Paaw and later anatomists such as Albinus and Sandifort father and son, as well as the development of the anatomical theatre collection.<sup>6</sup> In particular Witkam provides useful transcriptions of notes, diaries and reports from Jan van Hout. Witkam's archive findings however were only published in limited editions in typescript, and were never extensively incorporated into any historical study. More recent work on the Leiden anatomical theatre and on anatomical theatres in general can be found in several articles published by J.C.C. Rupp and in a book by J.A.M. Slenders.<sup>7</sup> Rupp considers the phenomenon of the anatomical theatre in a Dutch and a European context; Slenders provides a

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<sup>4</sup> G.C.B. Suringar, 'De vroegste geschiedenis van het ontleedkundig onderwijs te Leiden', in: *Nederlands Tijdschrift voor Geneeskunde*, Jg. 1861 (reprint in Museum Boerhaave Library)

<sup>5</sup> J.E. Kroon, *Bijdragen tot de geschiedenis van het geneeskundig onderwijs aan de Leidsche Universiteit 1575-1625*, dissert. Leiden 1911

<sup>6</sup> H.J. Witkam, *Iets over Petrus Pauw en zijn theatrum anatomicum en over het bouwen van de anatomieplaats en de bibliotheek*, Leiden 1967 (typescript)

H.J. Witkam, *Dagelijkse gang van zaken aan de Leidse Universiteit*, Leiden 1970-71 (typescript)

H.J. Witkam, *Catalogues Anatomy Hall Leiden University*, Leiden 1980 (typescript)

H.J. Witkam, *Over de anatomieplaats, de Albinussen en de Sandiforts*, Leiden 1968 (typescript)

<sup>7</sup> J.C.C. Rupp, 'Matters of Life and Death, the Social and Cultural Conditions of the Rise of Anatomical Theatres' in *History of Science* 28 (1990) pp. 263-287, 'Theatra anatomica: culturele centra in Nederland in de 17<sup>de</sup> eeuw', in: *De productie, distributie en consumptie van cultuur*, (z.p.) 1991, J.C.C. Rupp, 'Michel Foucault, Body Politics and the Rise and Expansion of Modern Anatomy', in: *Journal of Historical Sociology* V no.1 (1992) pp. 31-60, J.A.M. Slenders, *Het theatrum anatomicum in de Noordelijke Nederlanden*, Nijmegen 1989

concise survey of anatomical theatres in the United Provinces. Finally, an important study on the emblematic significance of the prints included in the anatomical theatre collection was written by Lunsingh Scheurleer in his 'Un Amphithéâtre d'anatomie moralisé' of 1975.<sup>8</sup>

### The themes of this investigation

My study is obviously not the first book on the subject. However, the literature I have just gone through leaves more than enough *lacunae* to justify this publication. A major point that the earlier work on the Leiden anatomical theatre does not touch upon are the significant changes in context that the anatomical theatre goes through in the course of the 17<sup>th</sup> century. The existing literature treats the theatrum anatomicum as an unchanging entity, which assumed its final shape in around 1600 and then remained frozen in time for the rest of its career. But although it was conceived in the late 16<sup>th</sup> century, as a product of humanist learning, the theatrum anatomicum plays a part in the shifting Leiden academic landscape for the next two centuries. The 17<sup>th</sup> century was above all an era in which considerable cultural and scientific change took place. The Scientific Revolution in particular – admittedly this is a label that has become less and less precise in recent years – had undeniable impact on the way anatomists and others interested in anatomy viewed their subject. These changes in science and what science in general and anatomy in particular were about must have had their effect on the business conducted in the anatomical theatre, and on the reception of the anatomical theatre by the public. My study will investigate the effects these changes in the scientific and cultural context had on the Leiden anatomical theatre throughout the 17<sup>th</sup> century.

Another aspect that to my mind deserves more attention than it has received thus far is the fact that the Leiden theatrum anatomicum was to a large extent a creation that evolved through the input of the subsequent professors of anatomy who used the theatre. The biographical element therefore has become an important thread in the history of the anatomical theatre as provided by this study. The more so because the subsequent 'performers' working in the theatre in the 17<sup>th</sup> century – Paaw, Heurnius, Van Horne, Drelincourt, Nuck and Bidloo – have hitherto remained somewhat obscure figures in the historiography of Leiden University, with the possible exception of Nuck.<sup>9</sup> Each of these scholars in their own way however shows enough characteristic and interesting biographical details to merit a somewhat wider account of their life. The function of this attention to biographical detail is also to root the different developments in the theatre in the context of their time. The professors active in the theatrum anatomicum were all men shaped by their cultural, intellectual and scientific surroundings, and as such instruments by which this context could act upon the theatre.

Closely connected to the presentation of the Leiden anatomical theatre as an institution shaped and altered by its evolving cultural context is the question of the relationship between the two functions of the theatre: anatomy place and cabinet of curiosities and rarities. In the literature thus far this relationship has never been seen as problematic. The anatomical theatre housed a collection of curiosities that could be admired by the public when no dissections were taking place. A possible conflict between these two functions, 'museum' and dissection room, does not seem to exist. A survey of contemporary source material however reveals that the coexistence of these two functions was problematic, and increasingly so in the course of the 17<sup>th</sup> century. All kinds of conflicts due to practical as well as personal incompatibles transpire through the pages of the Leiden University archives. This book will attempt to give these conflicts their place in the history of the anatomical theatre.

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<sup>8</sup> Scheurleer, 'Un Amphithéâtre d'anatomie moralisé', in: *Leiden University 400 Years*, Leiden/Amsterdam 1975

<sup>9</sup> A survey of Nuck's life and work in Luyendijk-Elshout, 'Anthony Nuck (1650-1692) the 'Mercator' of the Body Fluids, a Review of his Anatomical and Experimental Studies', in: *Circa Tiliam*, 1974

A final theme to be investigated in this study will be the relationship of the *theatrum anatomicum* with other localities in Leiden where anatomical dissections were performed, as it is clear that the theatre did not have the monopoly on anatomical activity in the 17<sup>th</sup> century. Most notable among these other anatomical localities is the dissection room of the Collegium Medico Practicum, a facility for clinical teaching organised in 1637 by Otho Heurnius at the Caecilia Hospital, Leiden's municipal hospital for the poor.<sup>10</sup> At the Caecilia Hospital a number of beds were reserved for 'interesting' patients, whose diagnosis and treatment served as practical instruction material for the medical students. If any of these patients succumbed to their afflictions, a postmortem would be performed in a special room within the hospital. During the professorship of Franciscus de le Boe, or Sylvius, in particular these postmortems were performed quite frequently, and the question arises whether these dissections in any way complemented or maybe even rivalled the activities in the public anatomical theatre.

Apart from the *theatrum anatomicum* and the dissection room of the Collegium Medico Practicum, the other major anatomical location in Leiden was the room of the surgeons' guild, put into use in 1669.<sup>11</sup> The history of the Leiden surgeons' guild is inextricably linked to that of the Leiden medical faculty, especially in the field of examinations, regulations and anatomical training. Until 1669 the Leiden surgeons were also dependent on the University for the locations where their training, as well as their examinations would take place. Although the Leiden surgeons and their guild largely fall outside the scope of my investigation, their anatomical activities and their relations with the University will be considered in a separate part at the end of this book, which I have called 'coda'.

### About this book

While filling the gaps and shortcomings that to my mind have so far hampered the historiography of the Leiden anatomical theatre, first and foremost this study seeks to be a history of this academic institution from 1589 to 1712. Furthermore, its aim is to portray the scholars, anatomists, scientists and other individuals who worked in the *theatrum anatomicum* in the first hundred or so years of its existence. This partly biographical approach also accounts for the – at first sight somewhat random – years I have chosen as the beginning and end points of my story: 1589 was the year in which Petrus Paaw took up his professorship in Leiden and 1712 was the year of the death of Govert Bidloo. The choice of Bidloo's demise as the end date of this study perhaps requires an explanation: it is my opinion – and I hope this study will prove my point – that Bidloo was the last 'performer' in the public anatomical theatre in Leiden. Admittedly, Bidloo's successor in 1713, Johann Jacob Rau, was famed for his anatomical demonstrations in his Amsterdam home and in the Amsterdam anatomical theatre before he was appointed in Leiden, but his Leiden activities were cut short by an incapacitating accident in 1716.<sup>12</sup> After his death in 1719, Rau was succeeded by his pupil Bernard Siegfried Albinus, who – even more than Rau – placed primary value on anatomical specimens instead of anatomical demonstrations in the public theatre as the best way to reveal the human fabric. Besides, Albinus was not too keen on the old anatomical theatre; he preferred to perform his dissections in his private quarters and from 1725 onwards in a smaller anatomical theatre on the ground floor of the Faliebagijnekerk.<sup>13</sup> So, after Bidloo's death, and certainly from the 1720s on, the old *theatrum* functioned mainly as a museum, or rather a cabinet of curiosities.

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<sup>10</sup> About the Collegium Medico Practicum, cf. Suringar, 'Stichting der school voor klinisch onderwijs te Leiden, onder Heurnius en Schrevelius, in 1637', in *Nederlands Tijdschrift voor Geneeskunde*, Jg. 1861

<sup>11</sup> About the Leiden surgeons' room above the city's weighing house, cf. Luyendijk-Elshout and Thiels, 'De Leidse chirurgijns en hun kamer boven de Waag', in *Nederlands Kunsthistorisch Jaarboek* 31 (1980), p. 215 ff.

<sup>12</sup> Cf. Elshout, *Het Leidse kabinet der anatomie*, p. 35 ff., Molhuysen IV, pp. 312-313

<sup>13</sup> Molhuysen V, p. 19

This study also aims to investigate the place the anatomical theatre occupied in the whole of anatomical activity in Leiden during the 17<sup>th</sup> century. It will do so by describing the relationship of the theatre to the two other major anatomical locations in the city, the dissection room of the Collegium Medico Practicum and the anatomical activities at the surgeons' guild's hall; and by describing the changing cultural and scientific context of anatomy throughout the 17<sup>th</sup> century.

I have divided my story into three parts, followed by a synthesis that will also contain the conclusions I draw from my material. The first and by far the greater part of this study concerns the history of the Leiden anatomical theatre *per se* in the 17<sup>th</sup> century. The second part describes the birth and the heyday of the Collegium Medico Practicum, as well as its somewhat precarious existence during the final decades of the 17<sup>th</sup> century. While the smaller third part, the coda, tells the story of the Leiden surgeons, their anatomical activities and their uneasy symbiosis with the University. As to the exact pigeonhole this study might fit into, my investigations have taken me from the financial journals of Leiden University, through the private and at times not altogether savoury anatomical doings of 17<sup>th</sup>-century medical students and their professors, to humanist, post-humanist and early modern scientific intellectual culture; and this book has taken something from all these fields of study. Primarily this study aims to be a piece of cultural history; with anatomical investigation in 17<sup>th</sup>-century Leiden as its focus, it sets out to investigate the cultural context of science, religion, art and scholarship in the major university of the Dutch Golden Age.



## ***PART ONE***

## THE LEIDEN THEATRUM ANATOMICUM



**Figure 1: Willem Buytewech, *A Demonstration in the Leiden Anatomy Theatre*, pen and ink c.1600 (Museum Boymans van Beuningen Rotterdam)**

### **Introduction: Changing Identity from 1590 to 1725**

This part of the book focuses on the Leiden anatomical theatre. It will describe its construction in the final decade of the 16<sup>th</sup> century and the practical course of affairs in anatomy in this period. An attempt will also be made to present the Leiden anatomical theatre as a humanist endeavour and its instigator, Petrus Paaw, the first professor of anatomy in Leiden, as a Dutch intellectual in the humanist vein.

It will be demonstrated that under the direction of Paaw's successor, Otho Heurnius (1577-1652), the anatomical theatre developed into a place of universal knowledge, a representation of the macrocosmos as opposed to the microcosmos of the human body. This concept will be explained within the specific context of Heurnius's intellectual orientation, as well as within the broader context of the culture and natural sciences of the early 17<sup>th</sup> century.

When Otho Heurnius died in 1652 his place as *professor anatomicus* and caretaker of the anatomical theatre was taken by Joannes van Horne (1621-1670). Van Horne's ambitions in the field of anatomy, as well as his views on anatomy, were quite different from those of Heurnius. The implications this had for the Theatrum Anatomicum, and for the art of anatomy as performed in public dissections, will be described. It will also be demonstrated that under Van Horne a certain emancipation of the function of the *famulus anatomicus* took place.

After Van Horne the anatomical theatre as an institution where (public) anatomy was performed suffered more and more from the scarcity of bodies to dissect. Because of this, but also for other

reasons, students stayed away, although the University undertook various initiatives to restore or at least revitalise the practice of anatomy in the theatre. Protagonists in this process were Charles Drelincourt, Antonius Nuck and Govert Bidloo. While anatomical activity in the theatre was dwindling, the business of the famulus anatomicus seemed to thrive; from 1670 onward the famulus gradually took over the practical management of the anatomical theatre from the professor of anatomy.

## I. *The construction of the Leiden anatomical theatre*

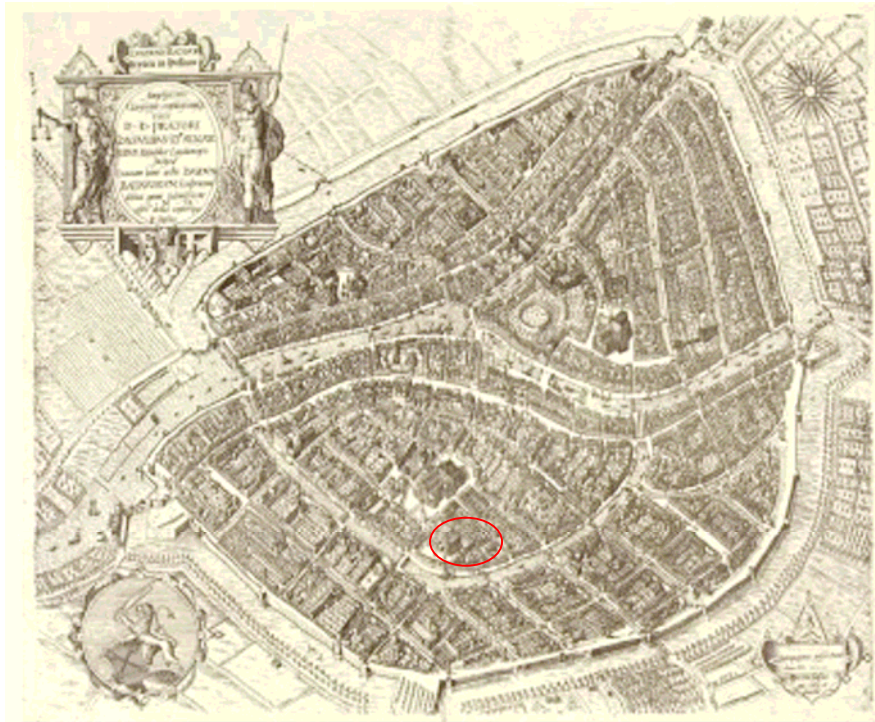


Figure 2: Leiden at the end of the 16<sup>th</sup> century, map by Pieter Bast. The Faliedebagijnkerk and the *begijnhof* surrounding it are encircled. (Regionaal Archief Leiden)

In the final decade of the 16th century, the period in which the first permanent anatomical theatre north of the Alps was conceived, built, and brought to fruition, Leiden University was still in its early infancy. It was only established on 8 February 1575, a mere 42 days after William of Orange wrote a letter to the States General of the Netherlands provinces in which he proposed the creation of a university in the rebellious northern part of the Netherlands. The hasty establishment of such an institution for higher education was caused by the expectation of many that a peace treaty with the Spaniards was imminent. Such a treaty would probably imply a clause of *status quo*, prohibiting the development of any new initiatives by the Northern Netherlands after the treaty was announced. A Protestant university therefore had to be an accomplished fact before any peace negotiations could start.

Why this Protestant university was established in Leiden is still not very clear. Other cities, Middelburg and Gouda in particular, were also interested, but Leiden had a few things going for it. By enduring a long siege by the Spaniards in 1574 the city had shown itself to be a staunch ally in the rebellious cause led by William of Orange. Designating Leiden as the location of the new university may have been a reward for the city's brave conduct. Leiden was also a very suitable candidate from a practical point of view. Before the rebellion Leiden had housed a considerable number of Catholic institutions – churches, monastic orders, etc. The accommodations of these institutions were confiscated by the city, providing it with a large amount of space, enough for instance to house a university.

From the very start Leiden University combined or tried to combine seemingly contradictory notions. The university was to be a national and protestant institute, training the administrative, judicial and religious elite that were to govern the young Dutch Republic. In the opinion of the Calvinist church leaders in particular Leiden was to be a centre of Calvinist orthodoxy, shaping the militant Reformed

clergy that were to form the moral backbone of the new Protestant Netherlands. But at the same time there was an important liberal faction, intending Leiden to be a humanist academy, where the Man-centred vision of an idealised Antiquity was to be studied and taught. For the humanists the new university was to be a sanctuary for the muses, a place where the free arts should prosper, and where the future citizens of the Republic of Letters would be formed.

These visions of the university, militant and practical as well as exalted and academic, were also represented in the allegorical pageant through the streets of Leiden announcing the birth of the new university on 8 February 1575. As for the militant and practical side, the parade was escorted by Leiden's city militia, a reminder that the city had freed itself from the Spanish siege only four months earlier. Three of the four burgomasters of Leiden took part, as well as dignitaries from the States of Holland, making the political reality of the age clearly visible in the pageant.

The most important part of the pageant, the personifications of the four faculties of the university – theology, law, medicine and the arts – showed more of these dual aspects. *Sacra Scriptura*, the personification of theology, was accompanied by *Sacra Pagina*, the orthodox exposition of the Scriptures, but also by the four Evangelists symbolising critical Bible study in a humanist vein. *Iustitia's* entourage featured emblems of the administrative jurist and the legislative jurist, practice as well as theory.<sup>14</sup> Minerva – representing the *artes liberales* – was accompanied by , personifying scholasticism and orthodoxy, but also the material and physical interests of science and philosophy. However, Minerva was also accompanied by Plato, an important figurehead to the humanists, personifying the transcendental aspects of knowledge.

*Medicina*, representing Leiden's medical faculty, also had an entourage expressing the practical as well as the theoretical side of its discipline. She was accompanied by Hippocrates, the medical practician, but also by Theophrastus, the medical sage, Dioscurides, the botanist, and Galenus, the systematic and anatomist. One could even say that these different aspects of medical science as personified by the different figures surrounding *Medicina* were embodied in Gerardus Bontius (1533-1599), Leiden's first medical professor and one of the few professors who took part in the parade and actually stayed on to teach at the university. Bontius had a large medical practice in Leiden, was well versed in Greek and Latin, and not only taught all medical subjects to the students, but astronomy and mathematics as well.<sup>15</sup>

The presence of the Leiden Burgomasters and the States officials at the parade mentioned above was also indicative of another characteristic of Leiden University: its twofold administrative identity. It was national as well as local. A university of the States of Holland and Zeeland – the most prominent provinces of the new Republic, but also the university of the city of Leiden. These two administrative entities, the States and the city, would also be represented in the governing body of the university, known as 'Curatoren en Burgemeesteren' (curators and burgomasters). The *burgemeesteren* were of course the four burgomasters of Leiden. The *curatoren* were three representatives of the political establishment (burgomasters of other major cities, state councillors, nobility), elected by the States of Holland. The third, and somewhat less powerful, party in the university administration was the senate, the body representing the professors who yearly chose a *primus inter pares* from their midst as their spokesman, the rector.<sup>16</sup>

This was the stage of the action in the period in which our story begins. It was a period in which the Dutch Republic was finding and proclaiming its own identity. And in which the city of Leiden was adapting its political, administrative and social infrastructure to the new state of affairs after shaking off the Spanish and Catholic influence with the victory of October 1574. It was also the period in which Leiden University began its ascent from modest beginnings to the status of foremost centre of learning in the Protestant regions of Europe.

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<sup>14</sup> Ibid, p. 15: Salvius Julianus and Tribonianus respectively

<sup>15</sup> Ibid, p. 105

<sup>16</sup> Otterspeer, *Het bolwerk van de vrijheid*, p. 75 ff.

## Leiden's first anatomists

In 1584 Gerard Bontius, in his ninth year as professor of medicine, asked the Curators and Burgomasters to enrich the medical curriculum at Leiden University with the 'explanation and public administration of anatomy, or the dissection of the human body'.<sup>17</sup> Three years later the university authorities consented to this request.

In this same period, towards the end of the 1580s, it seems the Leiden surgeons' guild showed signs of an administrative renewal, or establishment of a set of rules and regulations. A Gildebrief (guild manifest) dating from 1589 stipulates who may practice medicine in Leiden, describes the form and character of the surgeons' examination, as well as the theoretical material that will be examined by the guild and who will review these examinations.<sup>18</sup>

Not only was this last task, the reviewing of the examinations, to be performed by the guild authorities, it was also to be supervised by the professor of medicine, in this case Gerard Bontius. By having a professor of medicine presiding over the surgeons' examinations the faculty of medicine acquired an important role for itself in the regulation of the medical organisation of the city. On the other hand, in this way the city assured itself of the services of a professor of anatomy and prelector for the surgeon's guild. In other cities, Amsterdam for example, such an official had to be installed especially for this purpose.

On 22 March 1590 the Leiden town council also decided that the Faliebagijnekerk should be the place where the surgeons' guild should hold all its examinations and anatomical dissections, as was requested by the deacon and aldermen of that guild. The first examination was to be inspected by professor Gerard Bontius, in attendance of the deacon of the guild.<sup>19</sup>

Although Bontius was the first medical professor in Leiden to teach anatomy, he would not be the one who would develop anatomy into a major feature in the curriculum of Leiden University or in the intellectual fabric of the city. This was to be the work of his younger colleague Petrus Paaw, who joined the ranks of the professors of medicine in February 1589.

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<sup>17</sup> Witkam, *Iets over Pieter Paaw*, p. VI: 'te explicereen ende publice te administreren anatomiam ofte de ontledinghe des menschelijken lighaems'

<sup>18</sup> GAL inv. No. 307 Gildebrief Chirurgijns 1589

<sup>19</sup> Witkam, *Dag. Gang*, IV p. 40 Gerechtsdachboeck A2 fol. 272Vo. 22 mrt 1590: '[. . .]op huyden hebben die van de gerechte deser stadt Leyden, volgende opt versouck aen hemluyden ghedaen bij de Deecken ende hooftmans van de Chirurgijns geresolveert dat van nu voort aan alle prouven ende anatomisatien bij die van de chirurgy te doen ende op te nemen ghedaen ende uytgerecht sullen worden op't oxaal vande Falidebagijnekerk. Ende dat vooreerst bij D. Gerard Bontius professor in de medicinen te overstaen van de Deecken d'le prouve zal werden aengesien, opgenomen ende voor goet gekent'



Figure 3: Jan van de Velde II, *Pieter Paaw*, engraving 1625 (Museum Boerhaave Leiden)

Petrus Paaw came from Amsterdam and was a scion of a wealthy patrician family. He studied in Leiden from 1581 until 1583. In 1584 he left for Paris, where anatomy was taught by means of the dissection of human cadavers, which was not the case in Leiden. After a year in Paris, Paaw went to the German university town of Rostock where he matriculated as a student of medicine and graduated in 1587. The choice of this North German Hanseatic town was no arbitrary one for Paaw. Rostock at that time was a protestant university, in which anatomy had already been practised for a number of years.

After receiving his degree Paaw went to Padua, a university that even more than Paris or Rostock promised him new insights into and knowledge of anatomy. Padua, in the Republic of Venice, was a university that, because of its tolerant attitude to non-Catholic students, attracted many academic pilgrims from the protestant countries north of the Alps. In addition, the scholars teaching at Padua University were in the vanguard of anatomical research at the time. Andreas Vesalius had taught here, and during his stay in Padua had done most of the preparatory work for his *De Humani Corporis Fabrica*. When Petrus Paaw arrived in Padua the chair of *professor anatomicae* was occupied by Fabricius ab Aquapendente, who in 1585 instigated the erection of a theatre for anatomical demonstrations. In 1594 this theatre would be replaced by a more elaborate construction, which is still in existence today.

When Paaw returned to Leiden early in 1589 his academic travels had furnished him with the most up-to-date knowledge available in the field of anatomy. And he wanted to use this knowledge in a teaching post at his old alma mater Leiden University. To this end he was asked to do a test on 9 February by the Curators and Burgomasters, which he successfully completed.<sup>20</sup> As we learn from the request for a permanent assignment that he sent to the Curators and Burgomasters in October 1589, Paaw had in February been allowed to teach medicine in Leiden on probation for six months. As the six-month probation period was now over, Paaw offered his services for an indefinite period 'being

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<sup>20</sup> *Ibid.* No. 1188

satisfied with whatever small wages as your honours may deem reasonable to offer, as long as he [Paaw] may be allowed to continue his studies and be of service to his fatherland'.<sup>21</sup>

In October 1589, after six months of unsalaried service, Paaw was indeed installed as *extraordinarius professor* of medicine, teaching anatomy and botany. On his installation the Curators and Burgomasters decided to grant him 200 guilders for the year 1589 – including the six months from February to October – and the same amount for the following year. After that year the University would re-evaluate his salary.<sup>22</sup>

In December 1589 Paaw performed a public anatomical demonstration on a human subject, probably his first in Leiden. The subject to be dissected was one Jannetgen Jorisdochter van Deventer. This Jannetgen Jorisdochter was probably a poor woman from out of town, as the suffix 'Van Deventer' suggests. The public anatomy of Jannetgen took place in the Faliëdebagijnenkerk, as is attested by bills paid by the University to a timber merchant, a carpenter and a blacksmith for the construction of trestles, tables and benches 'totter anatomie'. Obviously, a temporary anatomical theatre was constructed for Paaw's public dissection. That the location of this theatre was in the Faliëdebagijnenkerk is certain as well; the carpenter specified in his bills that he had 'made a new trestle with two tables, and [had] put these in the Faliëdebagijnenkerk for the anatomy'.<sup>23</sup>

The fact that Paaw's first human anatomy in Leiden was performed in the Faliëdebagijnenkerk confirms the status of this building as the place in the city designated for the act of dissecting. But still the character of this anatomy place was a somewhat provisional one. The chapel was also used for other purposes, such as lectures by the faculty of Law. In 1590 this provisional status would come to an end. On 26 November of that year the Curators of Leiden University decided to relocate the university library, because its present location in the Academiegebouw (the 'academy building', the headquarters of the university since 1581) was found not to be satisfactory.<sup>24</sup> The so-called 'gewelfkamer' was too small, and from 1587 it was also used as a lecture room.<sup>25</sup>

Apparently, it did not take too much time to come up with a new location, because only two months later, on 19 February 1591, the decision was made to house the library in the 'old academy, which used to be the Faliëdebagijnenkerk'.<sup>26</sup> Later in the year 1591 we find evidence that the plans for the new library took shape very rapidly and also that somewhere between February and November that year the plans were altered to include an anatomical theatre in the Faliëdebagijnenkerk.

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<sup>21</sup> AC 39 No. 122, Witkam, *Dag. Gang IV*, No. 1189 '[. . .] aanbiedende sijnen dienst voortae om hem te laten gebruycken tot sulcx u EE hem bequaam sullen vinden, zich vernoechende met alzulcke geringhe wedden als u EE hem sullen raadsaam vinden toe te leggen, als hij vertoonder maar sijn studium magh verdienen ende sijn vaderland nut zijn.'

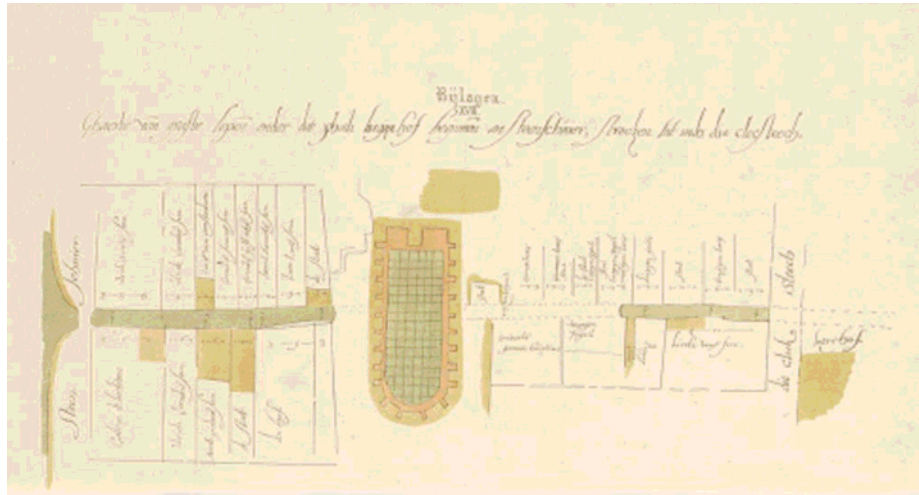
<sup>22</sup> AC 19 fol.2, oct 1589 'P. Paaw krijgt F 200 jaarlijcx als wedde vanf de tijd dat hij als extraordinarius professor is begonnen [. . .] en nog een jaar na dato van desen, om daarna sijn wedde nog eens nader te resolveren.'

<sup>23</sup> Witkam, *Iets over Pieter Paaw*, p. VIII: 'gemaect [. . .] een nieuwe scrage met twe tafelen ende die te stellen in de Faliëdebagijnenkerk voor de anatomy'

<sup>24</sup> AC 19 fol.14 Vo. Witkam, *Dag. Gang I*, no. 117 p. 75

<sup>25</sup> Witkam, *Dag Gang I*, no. 113 p. 71

<sup>26</sup> AC 19 fol.22vo. De oude academy 't welck eertijds geweest es de Faliëdebagijnen



In the Archives of the Curators we find an entry dated October 1591 entitled ‘bibliotheecq’, which describes a partition wall to be constructed in the Faliwedbagijnenkerk with the purpose of dividing the space of the nave, thus creating a place at the back of the church (achter in den Huysde) for the ‘*locus anatomicus*’. A sketch accompanies the entry by Jan van Hout giving the dimensions of the wall, and offering an estimate of the number of bricks to be used in building it.<sup>27</sup>

From this plan by the University's secretary Jan van Hout we can deduce quite precisely the dimensions of the church and of the room to be occupied by the theatre. The width of the church is given as two roods, seven feet and two inches (9.80 metres). The height from ground level in the church to the first floor measures seven feet (2.20 metres), the next floor was to be built one rood higher (3.77 metres) and the distance from this second floor to the ozing (the transition from the wall

<sup>27</sup> AC 19 fol.67 en Witkam, *Dag.Gang Dl I*, No 119 pp. 75-76

to the roof) was to be one rood and seven feet (5.97 metres). The partition wall was to be three bricks thick at the base, two bricks thick at the two subsequent storeys and one brick from the top of the second storey to the roof tree.

Van Hout's plan for the partition wall appears to have been executed almost immediately, for in his *Dachbouc* we find that a bricklayer is paid for his work at the library and 'plaetse voorde anatomye' (anatomy place) on 8 December 1591.<sup>28</sup> Also in December 1591 the University bought 12 'Noordse balken' (Nordic beams) from Jacob Frederickszoon the timber merchant.<sup>29</sup> These beams were an average of 20 feet in length and 18 by 10 inches thick. For these Jacob Frederickszoon was paid 138 guilders on 23 December 1591.<sup>30</sup> That same day one Adriaen Stevenszoon *cum sociis* was paid 7 guilders and 15 stuyvers wages for work done in the second and third weeks of that month. Adriaen and his men moved four cartloads of stones and four cartloads of sand to the worksite. They also dug the foundations of the 'de twee pilaers' (two pillars) 'onder de plaetse vande anatomy' (beneath the anatomy place). These were to act as the base on which the Nordic beams would rest. From this centre point the beams would point radially and diagonally upwards until they met the walls of the church and the apsis, where they would be fastened. Although Van Hout does not give the exact height of these pillars, it stands to reason that their height above ground was seven feet. This is the same height as the first floor is raised above the ground level according to the sketch of the partition wall in Van Hout's *Dachbouc*.

It seems safe to assume that at the beginning of 1592 at least the structural skeleton of the anatomical theatre in the Faliëdebagijnkerk was in place. The next phase of the building activities was mainly concerned with masonry; from January until June of 1592 there is a regular flow of bills to be paid for work done by bricklayers, bargemen transporting bricks, stones and chalk, and stonemasons, all for the library and the anatomy place<sup>31</sup>. In November 1592 Dirc Pieterszoon, a carpenter, was paid for the delivery of timber to be used in the anatomical theatre.<sup>32</sup>

On 2 February 1593 Joris Andrieszoon the carpenter and his men were paid for their work on the library and the anatomy place from December 1591 until January 1593. This seems quite a long building period, but still the work was not entirely completed. Some nine months later, on 12 November 1593, curator Duyck and burgomaster Hoogerbeets as representatives of the governing body of the University, and Jan van Hout their secretary inspected the building site with Joris Andrieszoon. The three university administrators still found much that was missing, especially in the anatomical theatre. They straightaway ordered the carpenter to construct the stairs leading to the gallery of the anatomical theatre at once. Joris Andrieszoon was also ordered to fit the standing room intended for the students of medicine and the surgeons with wooden panelling and with a small gate, so that these two galleries could be shut off.<sup>33</sup> That this order was indeed carried out can be seen on the famous engraving by Woudanus, in which the two inner rings of the theatre are fitted out with wooden panelling. The financial administration of the University shows that these activities were carried out in the first half of 1594.<sup>34</sup> Also on 12 November 1594 Michiel Bruynenzoon, the joiner, is paid for a 'half

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<sup>28</sup> Witkam, *Dag.Gang. Dl I*, p. 121

<sup>29</sup> *Ibid.* p. 128

<sup>30</sup> Witkam, *Dag.Gang. Dl I*, pp. 123-124

<sup>31</sup> cf. *Ibid.* p.127 – p. 133

<sup>32</sup> *Ibid.* p. 136 No 192 [Hout] verbesigt aande plaetse der anatomyen

<sup>33</sup> *Ibid.* p. 145, *DachboucA* f 471 vo. 12 nov '93 [. . .]dat hij [Joris Andriesz.] mitten eerste maecke de trap dienende tot de anatomieplaetse ende dat de plaetse voor de studenten der medicinen ende chirurgijns met wageschot werden beschoten ende met een deurtgen besloten.

<sup>34</sup> *Ibid.* p. 153: various bills paid on 3 June 1595 for work done by Joris Andriesz or his men. 7 – 12 april (1594) 'van een ront beschoten ende deurtgens, daer men in staet om de anatomy te sien', 2 january- 7 february 'de trappen diemen near de anatomye opgaat mette leunen etc etc.

round bench [. . .] for the anatomy place'.<sup>35</sup> This half round bench probably means one or more of the benches fitted in the two inner rings of the theatre. The theatre was finally completed by the end of 1594.

### Who designed the theatre

The anatomical theatre was a building of a kind never before constructed in the Netherlands, a building for which examples and precedents had to be sought abroad or in literature and architectural theory. This makes the question as to who the author of this original construction could have been an interesting one.

The *Dachbouc* of Jan van Hout shows that much of the building of the theatre (as well as the library) in the Faliëdebagijnekerk was carried out by Joris Andrieszoon, *timmerman*. That this Joris Andrieszoon was one of the main contractors is also illustrated by the fact that his role in the construction was discussed by him and Van der Wiele, the *rentmeester* of the University, over a meal at the inn 'In den Gouden Hoorn' on 17 November 1591.<sup>36</sup>

But if this Joris Andrieszoon was indeed the designer of the anatomical theatre, a question remains. The term 'timmerman' in the 16<sup>th</sup> and 17<sup>th</sup> century could imply more than the modern-day carpenter. The 'stadstimmerman' (city carpenter) at this time was a figure we should today more likely term an architect. Indeed, Joris Andrieszoon held the position of Leiden's *stadstimmerman* after his involvement with the anatomical theatre, in the period 1594-1599.<sup>37</sup> But although Joris Andrieszoon was more than a mere artisan, it remains doubtful that he had enough knowledge of classical architecture to devise a construction like the anatomical theatre, although he could have played a crucial part in its actual construction. A more likely intellectual father for the anatomical theatre seems to be Petrus Paaw, who took up the extraordinary professorship in medicine in Leiden in February 1589 and with whom it is now time to become better acquainted.<sup>38</sup>

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<sup>35</sup> Witkam, *Dag. Gang Dl I*, p. 146, *Dachbouc* A f 476 één halve ronde banck [. . .] op de plaetse voor de anatomy

<sup>36</sup> *Ibid.* p. 132, *Dachbouc* A f 251: 9 June 92 Willem Cornelisz. Waert in den Gouden Hoorn [receives] een somme van vijff ghuldens van 40 groten 't stuck ende 10 stuyvers uyt saecke ende betalinghe van een gelach dair te huyse op ten 17en novembris verteert bij de voors. Gecommitteerde [= Van der Wiele] handelende mit Joris Andrieszoon timmerman omme de bibliotheecque ende plaetse vorder anatomie te bouwen.

<sup>37</sup> P.J.M. de Baar e.a., *Architectuur- en monumentengids van Leiden*, p. 33

<sup>38</sup> AC 19 fol. 18 Vo.

## II. *Petrus Paaw: his Practice of Anatomy*

As mentioned above, Paaw spent some time at the University of Padua during his academic pilgrimage. This centre of learning in Northern Italy was famous for its innovative medical teaching. In the field of anatomy in particular great men had worked there, above all Andreas Vesalius, a Northerner like Paaw. However, when Paaw went to Padua he attended the lectures of Fabricius ab Aquapendente, then considered by many as the greatest living anatomist.



**Figure 6: Andries Stock after Jacob de Gheyn, *An Anatomical Lesson by Petrus Paaw*, engraving 1615**

**The engraving represents the Leiden anatomical theatre with considerable artistic license. The composition seems to be influenced by the well known title page of Vesalius's *Fabrica*. Among Paaw's audience are leading lights of Leiden University such as Lipsius, Dousa and Scaliger (Museum Boerhaave, Leiden)**

But even before the time of Vesalius and his successor Ab Aquapendente, important anatomical work in the practical as well as the theoretical field was performed at Padua University by Alexander Benedictus (1450-c.1512), who in 1493 published his *Anatomia sive Historia Corporis Humani*. In this book he describes, among other things, the ideal space for anatomical demonstrations

This anatomical demonstration hall should accommodate as many people as possible to witness the dissection. The spectators should be arranged in a circular manner so they were able to have a clear

view of the anatomist at work, without however hindering him in his doings. The subject should lie on a raised platform in the centre of the anatomy space. The sort of room that suggests itself most clearly for such a purpose, Benedictus tells us, is a construction similar to the ancient Roman theatres or arenas, such as the Colosseum or the Arena in Verona, which was in the vicinity of Padua.

Petrus Paaw certainly picked up these ideas during his stay in Padua. According to a contemporary source, he witnessed one or maybe several anatomical demonstrations by Fabricius ab Aquapendente in the first Padua theatre, built between 1582 and 1584, as well as private anatomies in temporary theatres, organised by Fabricius's rival Paolo Galeotti.<sup>39</sup> At any rate he knew the *Anatomia* of Alexander Benedictus; a 1528 edition of this work in 8o. is featured in the auction catalogue of Paaw's library by Isaac Commelin in 1638.<sup>40</sup> In this same catalogue, under *miscellania*, we also find the 1584 edition of Justus Lipsius's *De Amphitheatro Liber*, a book about the use and form of Roman theatres such as the *Arena* of Verona and the *Coliseum* of Rome, as well as *Architectura* by the German Wendel Dietterlin (1550-1599), a book on classical architecture and its application in contemporary buildings.

When Paaw returned to Leiden early in 1589 he arguably possessed the most up-to-date knowledge on anatomy and on the methods of teaching anatomy available in the Northern Netherlands. With that the 25-year-old *Doctor medicinae* seems to have brought with him a youthful *élan* that ignited the Leiden faculty of medicine with several new initiatives. Paaw's enthusiasm also appears to have found approval with the university authorities, judging from the relative swiftness with which both the anatomical theatre and the hortus botanicus – another project in which Paaw played an active part – evolved from the planning stage into actual realisation.

### Public anatomy in practice

Petrus Paaw did not remain idle during the time that the anatomical theatre was under construction. The archives of the University testify to several dissections performed between 1591 and 1594. From the dissection of Jannetgen Jorisdochter in December 1589 onwards the Faliebagijnekerk appears as the place where Peter Paaw performed his anatomies. In November 1591 the expenses for the anatomy of one Simon Halewyn 'Engelsman' were paid by the Rentmeester. Paaw had dissected the body of Halewyn, an evildoer 'hanged with the rope and strangled by verdict of the highborn gentlemen of Rijnland' (the water authorities of the central part of Holland). The dissection began on 21 November and lasted until the 23<sup>rd</sup>. It was attended by the students of medicine and 'other lovers of the art' (of anatomy). The public dissection was performed in the 'old academy', meaning the Faliebagijnekerk, which had functioned as Leiden University's main building between 1577 and 1581.<sup>41</sup>

The next public dissection in the Faliebagijnekerk that we encounter in the University archives shows that it was apparently not only criminals who were used as subjects for anatomy. From 26 to 28 November 1593 one Hans, born in Antwerp, was dissected. Hans was 'affgestorven' (had perished) in the city hospital and was brought to the anatomy for dissection.<sup>42</sup> Obviously the destitute strangers without friends or family who died in the city hospital were also seen as suitable candidates as anatomical subjects.

The fate of anatomical subjects was not one that was envied by their contemporaries. It was considered a disgraceful ending, only to be suffered by the lowest elements of society. But it had one redeeming quality for public opinion in the 17<sup>th</sup> century. All the expense accounts for the public anatomies include costs of a coffin, the digging of a grave and the burial of the subject; by acting as

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<sup>39</sup> About Paaw's stay in Padua cf. Melchior Adam, *Vitae Germanorum Medicorum*, Frankfurt a. Main, 1620, about the Padua anatomical theatres and anatomists: Klestinec, 'History of Anatomical Theatres' in: *Journal of the History of Medicine* Vol 59 (July 2004) pp. 394-395

<sup>40</sup> *Catalogus Rariorum et Insignum Librorum* [. . .] Petri Paaw, bij Isaac Commelin 22 april 1638 Leiden

<sup>41</sup> Witkam, *Dag.Gang Dl I*, p. 26 no. 978

<sup>42</sup> *Ibid.* p. 27 no. 1056 '[. . .]anatomy gehadt den 26en 27en en 28en novembris voorleden, in 't affgestorven lichaem van Hans [. . .] geboren van Antwerpen die inden Gasthuys alhier was overleden'

the subject of an anatomy the criminals who were otherwise left to rot on the gallows and the strangers who died in the city hospital without money, friends or family to claim the body, earned a decent burial.<sup>43</sup>

In 1593 an 'octrooy' (decree) was issued by the States of Holland and West Vriesland stipulating the right of the Leiden medical faculty to claim the bodies of criminals put to death by the courts of justice of the cities in this province of the Republic and by the court martial of the admiralty and army of Holland and West Vriesland. This official decree was intended to help the Leiden anatomy in its search for anatomical subjects. It was prominently displayed in the anatomical theatre and renewed several times in the 17<sup>th</sup> century.

Not all Paaw's dissections were performed on human corpses. At the beginning of 1594 he dissected a calf in front of the students to demonstrate the nerves of the brain and the spinal cord.<sup>44</sup> Another calf was opened to show the glands (een calf daer hy blandulas [sic] in ghetoont heeft) and on 30 March eyes of oxen were used 'ad examen Limby Columbi decimi'.<sup>45</sup> In yet another calf he examined 'asperem arterum, pulmonem, pleuram, oesophagum, ventriculum'.<sup>46</sup>

In all probability Paaw's anatomical activities in the early 1590s all took place in the Faliebagijnekerk, although in his opinion the Theatrum Anatomicum was still not finished. On 10 October 1594 he sent a four-part request to the Curators of the University stating the facilities that were still missing to make the theatre that perfect academic institution that he had envisioned. Firstly, Paaw needed an assistant for a fixed salary, to be decided on by the Curators, to help him during the winter months. The job of this assistant or 'servant' or '*famulus anatomicus*' would be to assist the anatomist by performing chores such as fetching peat, making fire, heating water, preserving the corpse that was to be dissected, removing the 'horde' (a horde is a frame made of branches on which executed criminals were transported to the gallows outside the city walls where their corpses were to be displayed until the rotten remains fell to the ground), lighting the candles, guarding the door and removing and replacing the shroud over the anatomical subject, before and after each anatomical session.<sup>47</sup>

Secondly, Paaw wanted funds to buy a skeleton, for use as instruction material during lectures as well as in anatomical demonstrations.<sup>48</sup> He also wanted money to acquire 'supellectilen anatomicam' because at present the utensils necessary for dissection had to be hired at high prices 'because nobody readily lent his instruments for this kind of work'.<sup>49</sup> The utensils Paaw needed were kettles, buckets, pliers, a trivet, candlesticks, etc, apart from bed sheets and a black cloth to cover the body.

And, finally, Paaw asked the Curators of the University to urge the States of Holland and West Vriesland to enforce their decree or resolution of 1593, ordering the tribunals of the Holland cities around Leiden, as well as the admiralty of Holland to deliver their executed criminals to the Leiden anatomy in winter time. In Paaw's opinion the resolution was not pursued with sufficient vigour, because he still lacked bodies to dissect ('breect aen lichamen'). Paaw ended his list of requests with

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<sup>43</sup> cf. *Ibid.* pp. 25, 26, 27

<sup>44</sup> Witkam, *Dag. Gang Dl I*, p. 28 no 1072 'een calff ter anatomie dienstich daer hy de studenten in toonde textum per nervorum crebri [sic] et spinalem medullam'

<sup>45</sup> According to AC 20 fol.14 vo. Paaw read 'anatomiam Columbi (=Realdus Columbus)' in October 1595

<sup>46</sup> Witkam, *Dag. Gang Dl I*, p. 28 no 1072

<sup>47</sup> *Ibid.* p. 23 no 29, *Dachbouc B* fol 58 Vo. 10 oct 1594 '[. . .] dat in regard van verscheydene hantreykingen [. . .] wel vereysche soude een dienaer ofte famulus anatomicusde welcke geduyrende de wintermaenden voor een seeckere gesette salarys daechs [. . .] zijn werck daer aff soude maecken om hem dagelick in loco te laten vinden, den voorn. anatomicum assisterende in 'tgunt hy hem van doen soude hebben, 't sy om turff te halen, vier te maecken, water te warmen, het lichaem te houden, hordes wech te nemen, kaersen te onsteeken, de deur te bewaren, het cleedt te leggen 't selfde elcke actu aff te nemen ende diergelijcken meer.'

<sup>48</sup> *Ibid.* '[. . .]zoe in actibus anatomicis als in lectionibus publicis

<sup>49</sup> *Ibid.* 'Gelijck ook verscheyden suppelectilen anatomicam 't welck u EE een yder reyse met meerder kosten moet betalen, alsoe niemant tot dit werck gaern sijn gereetschap laat besigen'

the wish that the university authorities would see to it that the anatomical theatre would be completed 'because it was not much work any more to fix the things which were still lacking'.<sup>50</sup>

The Curators granted Paaw's wishes on all accounts. He was given permission to enlist an anatomical servant. He was allowed to look for a skeleton and to buy utensils for the anatomy, using university money as long as he delivered the specifications and the bills.<sup>51</sup> But the University Curators found Paaw's fourth demand a little harder to fulfil. They found it was not within their authority to urge the States of Holland and West Vriesland to do anything. What they would do, however, was to write letters on behalf of the faculty of medicine to the Admiralty and – if need be – to the higher officers, urging them to comply with the regulations of the resolution. These letters would be accompanied by a copy of the resolution.<sup>52</sup>

### **Paaw's *famulus anatomicus***

The position of the anatomy servant or *famulus anatomicus* was filled soon enough. On 18 November 1594 – barely a month after Paaw's request – a *famulus anatomicus* was described as 'having busied himself one day ad demonstrationem iecoris ac cordis' (liver and heart).<sup>53</sup> The next day this *famulus anatomicus* was employed delivering letters to Grotius, curator of the University, to the sheriff of Delft and to the attorney general and the bailiff of The Hague. As this same *famulus anatomicus* was also paid 14 stuyvers for copying out the resolution of the Staten of Holland and West Vriesland, we can deduce that the letters he delivered must have been the letters referred to by the Curators of the University, in their response to Paaw's request, i.e. letters urging these magistrates to hand over their executed criminals to the Leiden anatomy.

From a declaration of expenses from 8 February 1595 we learn that the *famulus anatomicus* was called Aert Pietersz. He was paid for what he earned 'in service and promotion of the anatomy according to the agreement made with him by D. Paaw [. . .] following the resolution of 10 October 1594'.<sup>54</sup> Paaw knew Aert Pietersz. from his other function at the Leiden medical faculty, that of professor of botany and, since the summer of 1592, as overseer of the new Hortus Academicus.<sup>55</sup> In May 1594 we encounter Aert Pietersz. in the archives as 'Aert den Tuynman' (Aert the gardener). Aert was the first in a long line of anatomy servants whose activities and stature would enhance as the anatomical theatre developed as an academic institution throughout the years, as we shall see below.

Initially the *famulus anatomicus* busied himself with assisting the anatomist, delivering letters to officials of the Holland and West Vriesland cities asking them to hand over their executed criminals.<sup>56</sup> A not insignificant part of the job of the anatomy servant consisted of travelling to those cities where an execution was at hand in order to claim the body for the Leiden anatomy. In a declaration of costs from May 1595 we read that Aert travelled to Haarlem on 14 February while the Bayliff of Overveen

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<sup>50</sup> *Ibid.* 'Alsoe 't gunt daer noch aen schort niet veel wercx behouft'

<sup>51</sup> *Ibid.* p. 26 no 1002, the skeleton was found in Hoorn, the trip costing 3 guilders

<sup>52</sup> *Ibid.* p. 25 No 30 '[. . .]mer dat wegen de faculteyt der medicinen zoe aan die van de admiraliteyt als alle andere hooft officiers des noot zijnde sal werden geschreven ten eynde hem nair de resolutie willen gelieven te gedraghen daar by ooc voegende copien van de resolutie'

<sup>53</sup> *Ibid.* p. 29 Nr 32 declaratie van onkosten door Paaw 21 november 1594 'de famulo anatomico den 18en november een dach gebesicht ad demonstrationem iecoris ac cordis'

<sup>54</sup> Witkam, *Dag Gang Dl I*, p. 30 nr 33 't gundt by hem in dienst ende tot vorderinghe vander anatomyen es verdient volgende de overcompste by D. Paaw [. . .] mit hem gemaict in cracht van de resolutie genomen den 10en octobris 1594'

<sup>55</sup> Witkam, *Dag Gang Dl II*, p. 29 and AC19 fol.108 8 aug 1592 'D. Paawii wedden verhoogd van 300 naar 400 pond voor zijn goede diensten als anatomieprofessor en zijn goede voorzorg voor de hortus'

<sup>56</sup> cf. Witkam, *Dag Gang Dl I*, no 33 p. 30 gives an indication of Aert Pietersz' activities in the winter months of 1594-95

did justice.<sup>57</sup> Two weeks later he journeyed to Delft ‘for a body executed there’. This trip took two days and two nights.<sup>58</sup> Usually a messenger carrying a letter from the city magistrates would notify the Leiden anatomy that a criminal was shortly to be put to death in their city, after which Aert, often accompanied by two or three students to help him, departed for the city in question.<sup>59</sup> Paaw acquired an ‘oriental box’ for ten guilders for the specific purpose of transporting the dead bodies from the surrounding cities to Leiden.

Aert Pietersz. was paid for his work on an expenses basis. In September 1599 he asked the Curators of the University for an annual allowance instead of this day-by-day payment, a request the Curators rewarded with a pay rise from 14 stuyvers to 18 stuyvers, but still on a basis of daily wages, only to be paid on the days that he was needed for the anatomy.<sup>60</sup> This situation only changed when Aert’s successor, Jan Jansz. entered service in 1604. Just like Aert, Jan was to fulfil a combined job. ‘He was to be employed the whole year in the yard (= hortus botanicus) as well as be employed in the exercise of anatomy.’ For this Jan Jansz. was to be paid 150 pounds a year to be meted out in four parts every quarter of the year.<sup>61</sup>

### Deviations from the normal procedure

Although most anatomies took place in winter, the shortage of bodies for dissection sometimes forced Paaw to perform anatomies at other times of the year if a body happened to be available. In 1596 two anatomies took place in autumn: in September from the 20<sup>th</sup> onwards and in the days following 26 October.<sup>62</sup> The anatomy in September not only strays from the usual pattern because it is organised in early autumn, but also because the anatomical subject appears not to have come from outside Leiden. For the bill for the October anatomy specifies costs of obtaining the body in Delft and transporting it to Leiden, while in the September anatomy we only find costs of paying the executioner and the Bayliff’s men ‘for the body’ (de schouts dienaers en de scharprechter voor ‘t lichaem).<sup>63</sup> Nor was this the first time that a corpse from someone deceased or put to death within Leiden was dissected, as we saw in 1593 when the body of Hans van Antwerpen was obtained from the city hospital.

These deviations notwithstanding an anatomy lesson was normally performed in the winter months, on a subject imported from outside Leiden (quite often from Delft or Amsterdam) and more often than not animals were dissected at the same session, probably to illustrate specific parts of the anatomy.<sup>64</sup> The anatomical subject was usually covered in two bed sheets when it was transported and buried, while the dissection table was covered with a black cloth, which also covered the subject when there was an interval in the dissection. The bills for an anatomy lesson usually also contain invoices for money spent on candles, not only candles to provide light during the anatomy but also scented candles to cover the smell of the decomposing body on the dissection table. The average dissection lasted three days, although a dissection in January 1595 lasted from the 6<sup>th</sup> until the 22<sup>nd</sup> of that month, a record

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<sup>57</sup> *Ibid.* p. 30 no 34 [. . .] aen Aert Pieterszoon ter saecke hy den 14en februari ten tijde de Bailliu van Overveen recht dede es geryst naer Haerlem

<sup>58</sup> *Ibid.* ‘dat hy den 7en februari es gereyst naer Delft om een lichaem aldaer geexecuteert, gevacheert hebbende twee dagen en twee nachten’

<sup>59</sup> cf. Molhuysen I Bijlagen p. 372: kosten van sectiën, d.d. feb 8 1597, for a dissection on 26 October 1596 a ‘lopende bode’ carrying ‘the letter’ is paid 2-10-0, three students travelling to Delft with the anatomy servant are paid 3-8-0

<sup>60</sup> AC 20 fol.66 Requeste overgegeven zijnde by Arent Pieters Dienaer van de anatomy ten eynde hem in plaetse van 14 stuyvers ’s daags dienende de anatomy mogte toegevoegt worden een jaarlyx pensioen [. . .]

<sup>61</sup> AC 20 fol.131 vo en fol.132: 6,7,8, aug. 1604: ‘[. . .] om zig geheelijken ’t gehele jaer deur in den voors. Hoff te laten gebruycken, mitsgaders oock geemployeert mogte werden in ’t exerceeren van de Anatomie.’

<sup>62</sup> cf. Molhuysen I, Bijlagen p. 372 R.C. 314)

<sup>63</sup> *Ibid.* cf. note 18

<sup>64</sup> cf. Molhuysen II, Bijlagen no 468 p. 75: an anatomy performed in March 1615 on a body fetched from Delft, for which costs of an oxen heart, a liver, eyes and a sheep with young are also specified

made possible by the severe winter of that year. During the winter anatomy sessions the Faliebagijnekerk was heated, to which the money spent on peat testifies, and when the dissection was completed the anatomical theatre was thoroughly cleaned, for which brooms and sand were bought and a charwoman was paid. The anatomical subject meanwhile was given a decent burial.

### III. *Reconstructing the contents of anatomy: Paaw's intellectual background*

The practicalities of a public anatomy lesson at Leiden University circa 1600 can be gathered with sufficient detail from the university archives. Matters become a lot more complicated however if one tries to reconstruct the contents of such an anatomy lesson. What did the anatomist, in this case Petrus Paaw, show his audience, what did he want to convey to his audience, and who were his audience?

The last question is probably the easiest to answer. The chronicler of Leiden at the beginning of the 17<sup>th</sup> century, Jan Jacob Orlers, gives a description of the anatomical theatre in which he specifies the order of seating when a public dissection was being performed. The first circle around the dissection table 'was the best place to see what was being dissected, and it was here that the gentlemen professors and others of rank and distinction were seated.' The next two circles, separated with locks, provided standing room for the surgeons and the medical students. The other galleries and the passageway above the theatre were for the students of other faculties and anyone else interested in the proceedings.<sup>65</sup> The entrance fee for the anatomical theatre was fixed at 15 stuyvers.<sup>66</sup> But what did this audience, of medical professionals, students and laymen, see? To answer this question – if an answer is possible – let us first try to determine what kind of anatomist Peter Paaw was.

When Paaw matriculated at Leiden University on 2 November 1581, as Petrus Pavo of Amsterdam, he did so in the faculty of arts.<sup>67</sup> When he left Leiden for Paris three years later, he had directed his studies towards medicine. An important reason for him going to Paris was that in this city there were regulations allowing the college of surgeons to dissect four human cadavers per year, provided they could lay hands on them. This of course offered better opportunities for a young anatomy student than the Leiden situation, where some form of regulation for anatomical training was only instituted in 1589/1590, as we have seen. In Paris Paaw attended lectures by Duret (Duretus) father and son and by Jean Fabre. Paaw's stay in Paris remained short however. Owing to the religious troubles between Catholics and Protestants that were raging in France at the time, Paaw left Paris for Denmark and the North German Hanseatic town of Rostock, where he arrived in 1585.

At the University of Rostock, then an important Lutheran stronghold, there was some practice of public anatomy lessons, even during Paaw's stay there.<sup>68</sup> Paaw's principal teacher was Henricus Brucaeus, professor of medicine and mathematics. Brucaeus (or Van den Brock) was a Protestant South Netherlander from Aalst, who had fled from Flanders because of the religious and political upheavals. Paaw also attended lectures by Levinus Battus, another professor of medicine originally from the Southern Netherlands and a follower of Paracelsus, who had the distinction of counting Tycho Brahe among his former students. At Rostock Paaw graduated as doctor of medicine – he defended his theses in 1585 under Levinus Battus – and became lector, reading Galen.<sup>69</sup>

Paaw ended his academic pilgrimage at Padua, then probably the most advanced centre of anatomical knowledge in Europe. The tolerant atmosphere at this university of the Republic of Venice, especially from a religious point of view, attracted many students from North of the Alps. What is more Padua could boast among its teachers such names as Alexander Benedictus, Andreas Vesalius and, at the

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<sup>65</sup> J.J. Orlers, *Beschrijvinge der stad Leyden*, 1641 (2) p. 209

<sup>66</sup> Molhuysen I, p. 287

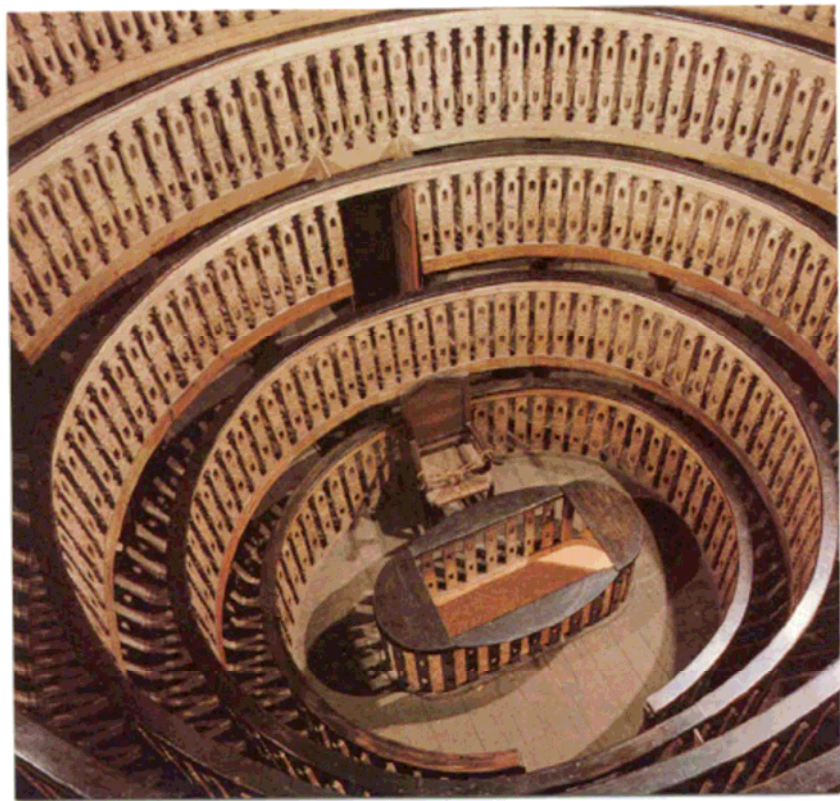
<sup>67</sup> *Album Studiosorum*, L.B.

<sup>68</sup> G.H. Schuhmacher, *Anatomie im Wandel der Jahrhunderte an der Universität Rostock*, Rostock 1968, pp. 47-50

<sup>69</sup> *De variolis et morbillis arabum propositiones de quibus [. . .] praeside Levino Batto gandavensi, artis medicae in Academia Rostochiana professore ordinario [. . .] disputabit pro licentia petendi doctorum insignia in arte medica Petrus Paaw amsteldamaeus*, 1586

time Paaw stayed there, Hieronymus Fabricius ab Aquapendente, regarded by many of his contemporaries as the greatest living anatomist.

Paaw attended at least one anatomical lesson by Fabricius while in Padua.<sup>70</sup> To what extent Paaw was influenced by Fabricius's view of anatomy is not evident. Fabricius is regarded as an anatomist who was greatly influenced by Aristotle. His conception of anatomy was shaped to a substantial degree by philosophical questions. He did not primarily dissect the human body to discover its particular structures, rather he investigated the different processes of living beings and the parts of anatomy performing those processes in individual bodies of humans as well as animals in order to reach general insights about those parts and processes in man or animals in general. On the basis of these insights he would come to a universal statement of this particular quality in all living creatures.<sup>71</sup> Paaw was probably too much of an eclectic scholar to be considered an Aristotelian anatomist in the Fabricius vein, but he was certainly influenced by this universalist approach to living beings in at least one respect, as we shall see below.



**Figure 7: The anatomy theatre of Padua University, constructed at the same time as the Leiden theatre but following an altogether different concept**

Two things of which Paaw certainly gained first-hand knowledge during his stay at Padua University were the university medical garden and ideas about a suitable place to give anatomy lessons. The development of thinking about this latter subject of course began when it was first put to paper by the Padua anatomist Benedictus, and Fabricius ab Aquapendente already had a permanent anatomical theatre, where anatomical demonstrations for students and laymen were performed. In 1594, five years after Paaw had left Padua, a theatre that was more suited to Fabricius's Aristotelian interpretation of anatomy would be constructed in the new university building in the Palazzo del Bò. In this theatre the

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<sup>70</sup> Melchior Adam, *Vitae Germanorum Medicorum*, Frankfurt a. Main 1620

<sup>71</sup> On Fabricius as an Aristotelian anatomist, see A. Cunningham, 'Fabricius, the Revival of Aristotelian Anatomy' in *The Anatomical Renaissance*, Cambridge 1997

work of dissecting and preparing the anatomical subject was done in a separate compartment, not visible to the audience. The audience only saw the dissected body while hearing Fabricius's lecture, which the sight of the dissected body was to illustrate.<sup>72</sup> Both innovations – a systematic academic garden and a purpose-built anatomical theatre (inspired by the first permanent theatre in Padua) – would also be realised in Leiden within five years. And Paaw played an important part in both innovative projects.

## Humanism

Paaw's intellectual upbringing had not been focused merely on medicine and anatomy. He came from a notable Amsterdam family, and as part of his education was thoroughly versed in classic languages and literature. Although the fact that he matriculated at the faculty of arts in Leiden must rather be seen as the usual generalistic start of an academic education than anything else, Paaw was no stranger to the literary arts. His uncle on his mother's side was Hendrick Laurensz. Spiegelhel, one of the first modern Dutch poets, and author of *Hertsspieghel*, a lengthy work in which Spiegelhel sets out his moral philosophy. This philosophy was centred on the pursuit of a virtuous life, by means of rationality, moderation and thirst for knowledge. Spiegelhel described his life philosophy in his personal motto 'Deugd verheugt' (virtue brings joy).



Figure 8: Johannes Muller, *Hendrick Laurensz. Spiegelhel*, engraving 1614 (Rijksprentenkabinet Amsterdam)

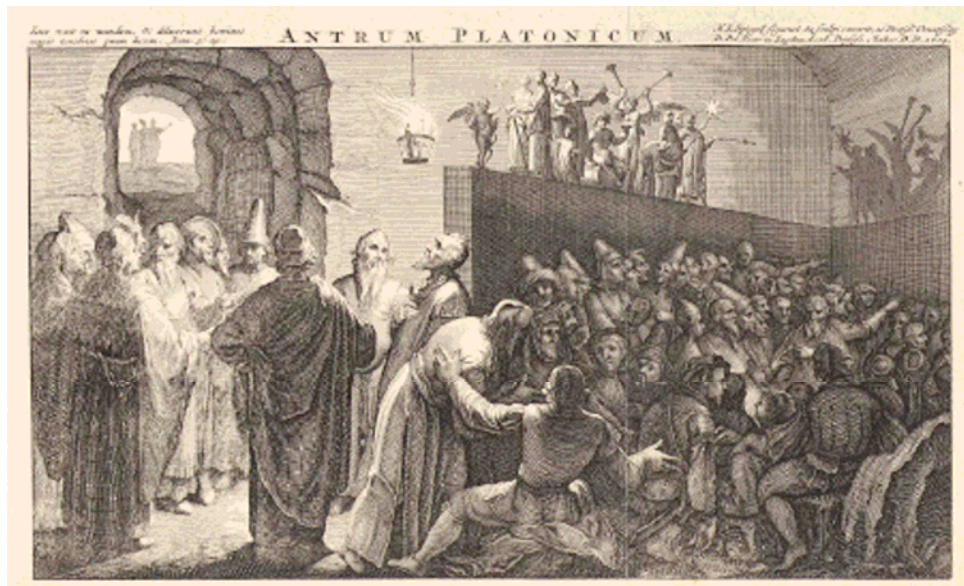
Hendrick Laurensz. Spiegelhel was a major representative of the intellectual world of Dutch humanism. As humanists these Dutch *literati* had great admiration for the ancient wisdom of antiquity. They were convinced that following or even emulating the examples set by antiquity would create a better man. The humanists found the examples of how to lead good and virtuous lives in the classical era. One of the main characteristics of humanism therefore was its great emphasis on education, on the breeding of good human beings. Human beings equipped with a good moral insight, enabling them to cope with the world. The issue of the relationship of man and the world was of great importance to the Dutch humanists, heirs to the legacy of Erasmus.

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<sup>72</sup> C. Klestinec, 'A History of Anatomical Theatres in Sixteenth Century Padua', in *Journal of the History of Science*, Vol 59 (July 2004) No. 3, p. 375 ff.

## Communicating in images

To communicate their ideas the Dutch humanists relied heavily on images, allegories or emblemata. This is in keeping with their Platonic views: allegories – images – communicate an idea as directly as possible, without the corrupting influence of language, words. One is reminded of the allegory of the cave of Plato. We are not able to perceive reality, because reality only exists in the world of ideas. What we can actually perceive are the reflections or shadows of this world of ideas. We humans are like slaves fettered in a cave, who can only see the world outside by means of the shadows it casts on the walls of the cave.



**Figure 9: Johannes Saenredam after Cornelis Cornelisz. van Haerlem, *Plato's Cave*, engraving 1604. Autor intellectualis of this print is Spieghel, who dedicated it to his nephew Petrus Paaw (Rijksprentenkabinet Amsterdam)**

Paaw's involvement in the humanist world of thinking through his uncle Spieghel was not merely passive. Uncle and nephew corresponded extensively, for instance on a representation of Plato's cave. The correspondence centred on an engraving by the Haarlem engraver Johannes Saenredam after the painter Cornelis van Haerlem, with Hendrik Spieghel as intellectual author. The engraving is an elaboration of the image of the cave of Plato, showing different stages or grades of insight into the world of ideas that we mortals can achieve.

The print shows us the cave, divided in two by a wall. Behind the wall, in darkness, the majority of the people are to be found. These people can only stare at the shadows cast on the wall of the cave by allegorical figures such as faith and hope, but also negative ones such as gluttony and vanity. They cannot see the allegories for what they really are. The people on the other side of the partition wall however can. They are standing beneath a blazing light and are able to see the true identity of the allegorical figures of virtues and vices. But they too are inhabitants of the cave, merely looking at images and not at reality. In the background three truly enlightened figures can be seen. They have left the cave and are standing in broad daylight.

The iconographic programme for this allegorical print was laid down by Spieghel in a passage in the third book of *Hertsspieghel*. From this passage we also learn that for Spieghel the cave symbolises the human heart, and that the people inside the cave are governed by their passions (*hartstochten*). Only the people outside the cave, not governed by passions or sensual stimulation, are truly free.

Spieghel dedicated the engraving of Plato's cave to his nephew Petrus Paaw, anatomy professor at Leiden University, with whom he corresponded extensively on the possibility of giving this cave the shape of a human heart. In his study *The Shape of the Heart* Vinken states that the cave in the

Saenredam print has a heart shape, suggested to Spieghel by Paaw, with the wall representing the septum of the Galenic model of the heart, with two chambers.<sup>73</sup>

### The broader scope of anatomy

The relationship between Paaw and his uncle Hendrik Spieghel shows us several things. It shows us that the anatomist Paaw certainly did not confine his interests and intellectual activities to the field of medicine. Paaw was an active participant in Dutch humanist circles circa 1600 through his uncle, who was an acquaintance of artists and thinkers such as Coornhert, Goltzius and Cornelis van Haerlem, but also through his father-in-law, Jan van Hout, not just a city and university official, but also a poet and playwright.

The Van Hout family provided Paaw with yet another useful contact for the pursuit of his broad interests: the young Jan Jacob Orlers, nephew of Jan van Hout, but more or less raised as his son. Letters dating from 1594 and 1595 from Paaw to Jan Jacob Orlers – then working as an apprentice bookseller in Amsterdam – show how Paaw uses him in the pursuit of his intellectual and cultural interests in a very practical way. The two men write to each other about prints by Goltzius and Frans Floris (a scene of the circumcision of Christ and a ‘Crucifix’ respectively), which Orlers would acquire through his contacts in the book trade and offer for sale to Paaw. Maps – especially a *mappa mundi* published in England – also take Paaw’s fancy, apart from medical interests such as anatomical books by Realdus Columbus and the works of Galenus.<sup>74</sup>

The relationships with Spieghel, Van Hout and Orlers also make clear that anatomy and interest in anatomy for the intellectuals of circa 1600 was a thing of much broader scope than the mere study of the fabric of the human body. By studying the human body the humanist intellectuals wanted to learn about themselves, about the place of man on earth, his mortality and ultimately about God, who made man as the pinnacle of creation. This made the subject of anatomy a subject of interest for a much broader public than just the medical professionals, and the attendance of the public anatomy lessons by learned men of other disciplines than medicine was not motivated by idle curiosity or sensationalism. It was of utmost importance to those who wanted to know about man: body *and* soul. A postscript in Paaw’s letter to Orlers dated 17 February 1595 stresses this point, as Paaw writes: ‘Tomorrow (Saturday) I will commence the second anatomy. Please tell Goltzius and anyone else.’<sup>75</sup> Further indication of this broad interest anatomy had for the humanist literati of Paaw’s milieu can be found in the engraving by Andries Stock after Jacob de Gheyn, representing an anatomical demonstration by Paaw. This engraving, which is almost a counterpart to the famous frontispiece of Vesalius’s *Fabrica*, indeed portraying Paaw as the Dutch Vesalius, also portrays the humanist leading lights of Leiden University among his public: Scaliger, Dousa and Lipsius.<sup>76</sup>

This broader scope of anatomy is reflected also in the objects Paaw chose to furnish the anatomical theatre. In August 1598 Paaw directed a request to the Curators of the University, asking them to construct ‘een klein luyfken’ (a small shed) in which the bones of animals, from which skeletons were to be assembled, could be aired. He also asked the University for money to pay for the framing and pasting to boards of 40 prints after Vesalius (*anatomia Vesalii*), which were bequeathed to the University by the heirs of the bookseller Raphelengius.<sup>77</sup> The prints and the skeletons were intended

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<sup>73</sup> Pierre Vinken, ‘The Heart as a Cave’ in: *The Shape of the Heart*, Amsterdam 2000 (2)

<sup>74</sup> The letters of Paaw to Orlers are published in J. Prinsen J. Lzn., ‘Eenige brieven van Professor Pieter Pauw aan Orlers’ in: *Oud Holland XXIII* (1905), pp. 168-174

<sup>75</sup> Prinsen *op. cit.* p. 173: Morghen (wesende Zaterdag) beghinne ik de tweede anatomie. Ghelieft u.e. tzelfde Goltzius ofte iemant anders te verwittighen.

<sup>76</sup> Kroon, *op. cit.* opposite p. 50, offers a reproduction of this engraving framed by an elaborate poem by Petrus Scriverius, stating the attendance of Lipsius, Scaliger and Dousa at the (imaginary) dissection portrayed by this print

<sup>77</sup> AC 20 fol.51 vo. And Witkam, *Pieter Paaw*, nr. 80 bl. 196

as functional, instructive objects, as well as ornaments for the anatomical theatre, or, in Paaw's words: 'tot dienst ende cieraet der anatomie'.

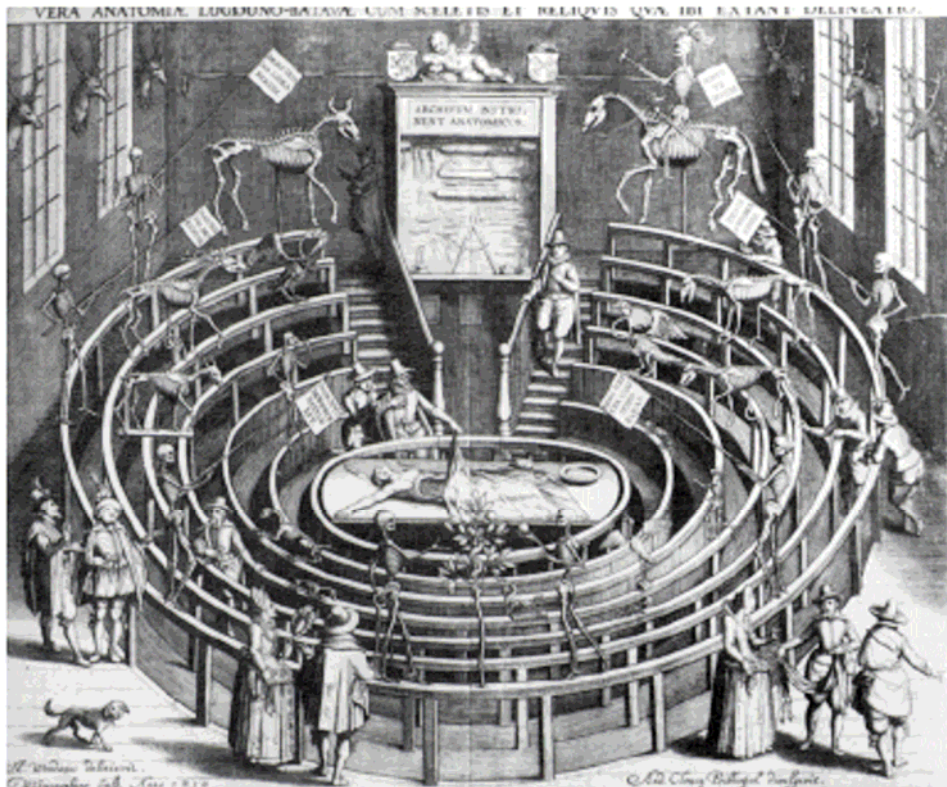
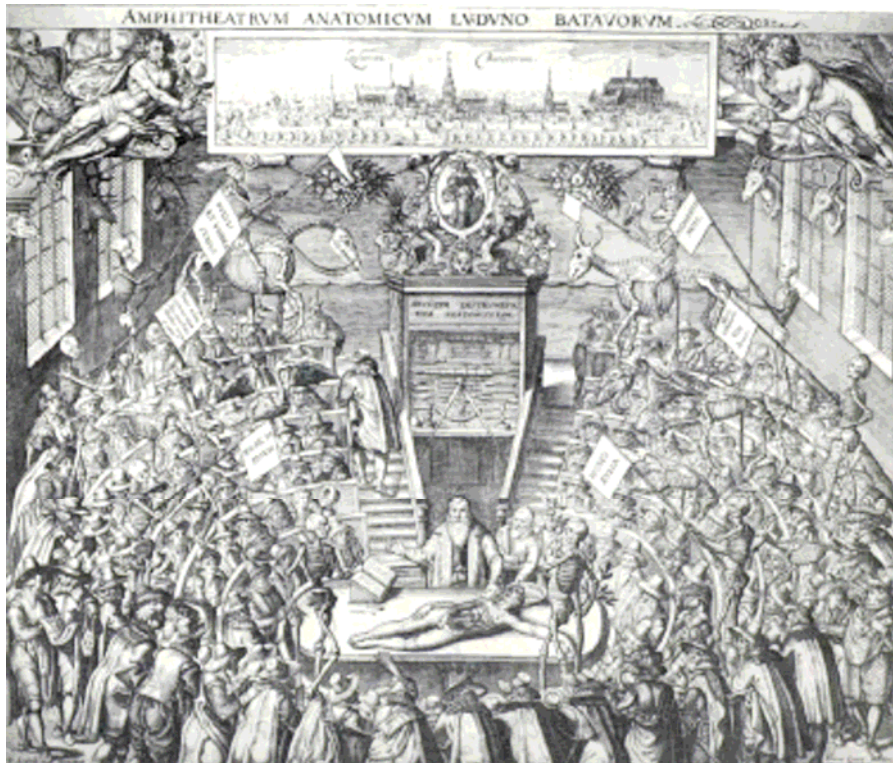


Figure 10: Willem van Swanenburgh after Jan Cornelisz. van 't Woud (Woudanus), *The Leiden Anatomical Theatre*, engraving 1610 (Museum Boerhaave, Leiden)

The role of the prints as well as the role of the skeletons is in keeping with the humanist ideal of moral education and emblematic imagery that we have previously encountered in the intellectual interchange between Paaw and Spieghel. Although the skeletons of humans and animals that Paaw collected for the anatomy were also used as instruction material for his lectures on osteology, in the context of the anatomical theatre they performed a role as emblems of *Vanitas*, of the mortality and fragility of (human) life.



**Figure 11: Bartholomeus Dolendo after Jan Cornelisz. van 't Woud (Woudanus), *The Leiden Anatomical Theatre*, engraving 1609 (Rijksprentenkabinet, Amsterdam)**

Two engravings of the interior of the theatre, both after drawings by Jan Cornelisz. Woudanus from 1609 and 1610 respectively, show us the allegorical skeleton arrangement in the anatomical theatre. The engravings were made when Paaw was professor there, and we may assume that he was the inventor of the arrangement of the skeletons. It can be clearly seen in this representation that the human skeletons, arranged on the top balustrade, all bore banners in their hands. Written on these banners were phrases such as *Mors ultima linea rerum*, *Mors sceptrum ligonibus aequat*, *Nascentes morimur*, *Pulvis et umbra sumus*, *Nosce te ipsum*, *Homo Bulla*. Although the texts on the banners are not exactly the same on the two prints, they do without exception refer to the relativity and fragility of human existence. As if this message had to be made even clearer, there were two skeletons opposite the entrance to the theatre that were meant to represent Adam and Eve, to show the mortality that man has to endure due to the sins of our first ancestors.<sup>78</sup> Adam was carrying a spade, to show that after his fall from grace he had to work by the sweat of his brow; and Eve was shown with a snake and the forbidden fruit of the tree of knowledge.

This connection between anatomy and mortality was nothing new or particular to the Leiden anatomical theatre. The prints in Vesalius's famous anatomical atlas *De Humani Corporis Fabrica* were pervaded with this atmosphere. The dead human body was not shown without a suitable emblematic allusion to mortality and judgement after death. And the skeleton with the spade is also seen among the illustrations of Vesalius's anatomical book.

But the Vanitas *tableau mort* of the Leiden anatomical theatre did not only contain human skeletons. In a theatre dedicated to the demonstration of the human anatomy there was apparently a function for the skeletons of animals as well. Maybe these animal skeletons were there to visualise the Aristotelian method that only by amassing knowledge of all animals, including humans, could one gain insight into The Animal, the abstract idea of a living creature. After all, Paaw seems to have gained much inspiration for his innovative initiatives in Leiden from his stay at Padua University, where the curriculum was strongly influenced by Aristotle.

<sup>78</sup> Orlers, *Beschrijvinge der Stadt Leyden*, 1641 (2), p. 210

## Anatomy and philosophy/theology

As mentioned above, Paaw did not just use skeletons to adorn the theatre. The 40 plates after Vesalius, inherited from Raphelengius, were also hung in the anatomy place. The presence of these prints reminds one of the situation at the University of Wittenberg, where Luther's close collaborator Melanchton included knowledge of anatomy in the curriculum for students of philosophy. Knowledge of anatomy would lead to knowledge of God, according to Melanchton, because the intricacies of the human body prove that man does not exist by coincidence but is the result of a plan of an infinitely wise mind, which has arranged all the parts of the human anatomy with subtle care, and which has instilled those parts with knowledge and mind, the mark of divinity.<sup>79</sup> In other words, knowledge of anatomy is an important means to knowledge of God. To acquire this knowledge of anatomy Melanchton strongly advocated everyone closely study the illustrations of Vesalius. Fugitive sheets based on the woodcuts of Vesalius were printed in Wittenberg by Bartholomeus Schonbrunn especially for this purpose, 'for the sake of students studying the elements of anatomical doctrine in the book of the Soul'.<sup>80</sup> 'The book of the Soul' is the treatise *De Anima* by Aristotle.

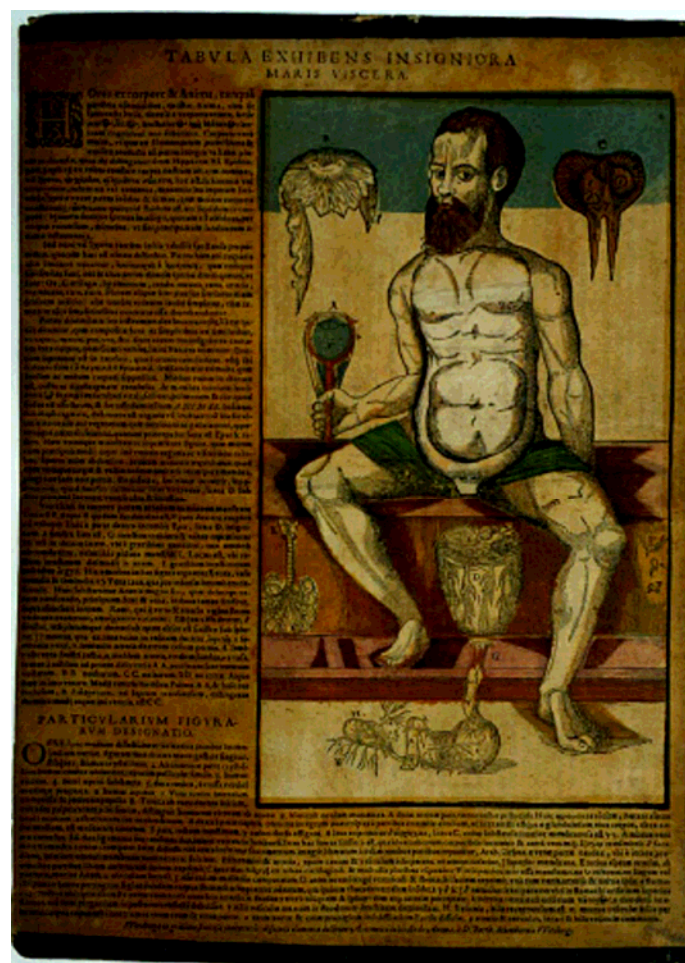


Figure 12: Anatomical figure, fugitive sheet printed by Bartholomeus Schonbrunn at Wittenberg, 1576 (Museum Boerhaave, Leiden)

This approach of including anatomy in philosophy and theology courses became common practice in other Reformed universities of the 16<sup>th</sup> century, not only in Germany but also in Scotland. It seems

<sup>79</sup> Cf Cunningham, *op. cit.* pp. 230-236

<sup>80</sup> Edita Vitteberg in gratiam studiosa iuventutis discentia elementa doctrina Anatomica in libello de Anima a D. Barth Schonborn

likely that in Leiden too this practice was looked upon favourably by the university authorities. It also seems likely that the presence of the 40 Vesalius prints in the anatomical theatre was intended not only as explanation of the human body, but served a much broader purpose. They were not just there for the medical students to look at, but for everyone searching for knowledge about man.

When Paaw died in 1617 his bequest to the anatomy showed that the collection of objects in the anatomical theatre had expanded since the early years of the 17<sup>th</sup> century. There were now 87 framed 'representations or panels, big and small, concerning and decorating the anatomy'.<sup>81</sup> There were also three 'ghetouwde' (prepared) human skins, two of adult individuals, one of a child; one of the prepared adult skins can be seen in the prints by Woudanus, as it is being inspected by the visitors to the theatrum. And there were several skeletons, human as well as animal, apart from a quite extensive collection of surgical and anatomical instruments. All these objects were directly related to anatomy, although some of them were not, as we have seen, without their broader allegorical implications. The objects amassed by Paaw were the beginning of the collection of the Leiden anatomical theatre, a collection that would be expanded extensively by Paaw's successor Otho Heurnius, as we shall presently see.

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<sup>81</sup> A.C. 228: inventaris van Sal. Dr. Paaw en Specificatie van Doctor Paaw sa.: '87 ghelijste afbeeldinghen of berdekens zoo groot als kleyn de Anatomie concernerende ende vercierende'

#### IV. *The Succession of Petrus Paaw*

When Petrus Paaw died on 1 August 1617 there were several candidates to succeed him as professor of anatomy and caretaker of the theatrum anatomicum. The first was Henricus Florentius, a medical doctor and a friend of Paaw who presented himself as a contender immediately after Paaw's death at the meeting of the Curators and Burgomasters on 8 August. Florentius is also mentioned when the curators and the family of the deceased tried to arrange Paaw's heritage.<sup>82</sup> The Curators decided to keep the decision on Paaw's succession under deliberation for the time being. But 'if time would allow and a suitable anatomical subject would present itself [Curators] would permit Florentius to do a test dissection'.<sup>83</sup>



Figure 13: Johannes Riolanus, *Encheiridion anatomicum et pathologicum*, Leiden (Adriaen Wijngaerden) 1649. The frontispice by Reinier van Persijn shows Valckenburg standing at Riolanus's left (Amsterdam University Library)

<sup>82</sup> AC 228: inventaris van Sal. D. Paaw

<sup>83</sup> AC 20, fol. 386: 'indien verstand nogtans dat zoo de tyt toeliet ende hem eenig bequaam subject presenteerde Doctor Henricus Florentius toegelaten sal weesen om daeraen proef te doen. . .'

Apart from Florentius the students Hubertus Bijlius and Adrianus Valckenburg presented themselves as candidates for the position of anatomy professor. There was also a fourth candidate, who had been professor extraordinarius since 1601 and professor ordinarius since 1611: this was Otho Heurnius, son of the medical professor Johannes Heurnius. On 27 November 1617 the Curators of the University decided to hold a form of competition to decide which candidate would be the most suitable to succeed Paaw as anatomist. This competition only involved Florentius, Bijlius and Valckenburg, Heurnius was exempted.<sup>84</sup> The three candidates were to do a test dissection on ‘such an anatomical subject as they could lay their hands on’.<sup>85</sup> For this dissection they were allowed to use the ‘publycke plaetse’ (the anatomical theatre) and the instruments that were kept there. The test anatomy however was not intended to give them ‘any hope to the aforementioned profession’ the Curators stipulated, they reserved the right for themselves to decide on the matter at a time they saw fit.

The first test dissection was done by Florentius on 23 December 1617.<sup>86</sup> He had acquired the body of a woman named Tryn van Hamburch, executed in Amsterdam and placed at his disposal by the city magistrates.<sup>87</sup> The skeleton of this anatomical subject apparently remained in the possession of the Leiden anatomy, because the catalogue of rarities on show in the anatomical theatre in 1670 mentions Tryn’s skeleton among the skeletons standing on the galleries of the theatre.<sup>88</sup> The anatomical dissections by Bylius and Valckenburg took place in January 1618. But, just as the Curators had announced, the dissections did not lead to an immediate decision. Eventually, Otho Heurnius was appointed professor of anatomy and surgery, with the additional stipulation that in case ‘he was not eager to do the dissection, on such occasions he would in alternating turns use Florentius and Valckenburg, who would earn nothing for their services, except that which the students would contribute to see the action (the dissection)’.<sup>89</sup>

To what extent Florentius occupied himself with anatomy and the anatomical theatre is not known, in any event he kept his medical practice in Leiden. Adrianus Valckenburg however – who in his student days had shown himself to be an eager pupil of Paaw – remained faithful to anatomy. He received his medical degree on 3 July 1621, after which he took over Gerard de Bont’s lectures when the latter was unable to reconcile his work as physician to Prince Maurits with his academic duties. On 12 June 1623 Bontius died, which created a vacancy in the medical faculty. Valckenburg profited from this and was made professor extraordinarius on 10 February 1624, eventually becoming ordinarius on 7 February 1630, as professor of surgery.<sup>90</sup>

From 1624 on Valckenburg was allowed to dissect in the anatomical theatre during the winter months. His appointment was explicitly intended to alleviate the duties of Heurnius.<sup>91</sup> Although Valckenburg would more or less work in the shadow of Heurnius, his contemporaries speak of him as an able and

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<sup>84</sup> Suringar: ‘De vroegste geschiedenis van het ontleedkundig onderwijs’ in: *Bijdragen tot de geschiedenis van de Leidse Hogeschool*, p. 19

<sup>85</sup> Molhuysen II, p. 79: ‘. . . in sodanige subjecten als sy sullen weten te becomen’

<sup>86</sup> Suringar, *op. cit.* p. 20

<sup>87</sup> cf. C.E. Daniels, ‘Geschiedkundige aantekeningen betreffende Henricus Florentius’ in: *Herinneringsbundel Professor Rosenstein*, Leiden 1902, p. 89

<sup>88</sup> *Catalogus van alle de principaelste rareyten die op de anatomykamer [. . .]vertoont worden*, Leiden 1670 (weduwe Daniel van der Boxe) item 23

<sup>89</sup> Molhuysen II, p. 81 ‘. . . ende hem is ooc belast dat oft gevele dat hij de sectie selfs niet soude begheeren te doen dat hij in sulcken gevalle alternatis vicibus daertoe gebruycken sal D.D. Florentium ende Valckenburgium, die daervoren niet anders genieten sullen noch profyteren dan ‘tgheene by de studenten op de actie wert gecontribueert’

<sup>90</sup> Suringar, *op. cit.* pp. 21-22

<sup>91</sup> Resolutien Curatoren deel IV p. 145, cited in Kroon ‘Daer inne [anatomy and surgery] D. Otho Heurnius ordinaries chirurgiae ende anatomiae professor seer goede devoiren ende diensten es doende, hebben om deselve devoiren te doen verminderen naer seeckere onderrichtinge van geleertheit, vromicheyt ende bequaemheyt van D. Adrianus Valckenburgius den selven aengenomen’, Also: Molhuysen II, p. 117

precise anatomist. A reason for the relatively modest stature Valckenburg seems to have had among the medical professors of Leiden University may have been his deafness, an affliction that already caused some reluctance amongst the Curators when they considered appointing him as professor ordinarius.<sup>92</sup> And even in 1623 Heurnius used Valckenburg's deafness as a reason to ask for a pay rise, for 'his substitute Valckenburgh, because of his deafness was only suitable for teaching: therefore all the [aforementioned] workload has to be dealt with by the suppliant (i.e. Heurnius)'.<sup>93</sup>

On 13 November 1625 the dispute between Heurnius and Valckenburg about who could use the anatomical theatre at what time, and about the lectures in surgery, prompted the University Curators to draw up regulations about the order of lectures and anatomical sections between the two professors.<sup>94</sup> The accounts of the Rentmeester of the University mention both Heurnius and Valckenburg as having advanced money for the public anatomy for which they have been repaid.<sup>95</sup> This indicates that both professors indeed used the anatomical theatre during winter months.

On 27 May 1638 Valckenburg asked the Curators for a grant that would enable him to describe and 'conterfeyten' (have depicted) 'the extraordinary, rare, wonderful and memorable things' that he found in the dissections of human cadavers.<sup>96</sup> To this end he also asked for permission to perform anatomical preparations in secret and private, on his own, without students and other interlopers.<sup>97</sup> He also asked permission, after he had performed his yearly public dissections and demonstrations, to examine, on his own and at his own leisure, a human subject, together with permission to use the services of the anatomy servant in this.<sup>98</sup>

The Curators of the University decided in this matter that Valckenburg would, for a trial period of one year, be allowed to dissect the first available subject privately, without an audience, and to make depictions of anything remarkable or wondrous that he found. He could then examine the second available subject in front only of those students of medicine that he considered would reap some benefit from witnessing the dissection. In this he was allowed to make use of the services of the *famulus anatomicus*, at the expense of the University, provided that he submitted breakdowns of the expenses to the Curators and Burgomasters. After a year the University administrators would decide whether or not this procedure would be continued.<sup>99</sup>

Whatever became of Valckenburg's intentions to produce a collection of anatomical observations and illustrations recording his private dissections is lost in the mists of time. When he died in 1650 he left

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<sup>92</sup> Molhuysen II, p. 145

<sup>93</sup> Molhuysen II, bijlagen p. 199, 7 feb 1623: '...ende oock sijn substituyt Valckenburg om sijn dovichkeyt alleen tot doceren bequaam is, comen daerom alle de voors. lasten op den suppliant hart aan. . .'

<sup>94</sup> Molhuysen II, p. 124

<sup>95</sup> E.g. AC 315 Boeken van de Rentmeester over 1637: '...ten belooninghe van 'tgunt by hem ten dienste van de anatomie is verschoten by drie verscheydene declaration en ordonnanties' (in Heurnius' case) and the same formula is also found with Valckenburgh '[...]volgende sijne declaratie'

<sup>96</sup> Molhuysen II, p. 224: '...vertooch in forme van requeste, ingestelt by Adrianus Falcoburgius [...] in 't welck hy [...]te kennen geeft sijne goede genegenheyt om in dissection ofte ontledinghen van der menschen doode lighamen die hij voortaan soude moghen doen, te beschrijven ende oock, tot koste der voors. Universiteyt, te doen conterfeyten ofte afteekenen alle extraordinaire, seltsame, wonderbare ende gedenckwaardighe dinghen, die hij daer in sal vinden. . .'

<sup>97</sup> *Ibid.* '...in effecte versoeckende [...]dat de heeren van dit collegie believen door hare autoriteyt tinterdiceren ende te weghe te brengen dat als hij jaerlickx sijne publicque dissection ende demonstratiën doet, de studenten niet en komen in sijne private off heymelivcke preparatiën, maer dat hy vrij ende onverhindert de selfde preparatiën doen in sijne eenigheyt, sonder yemants bijwesen.'

<sup>98</sup> *Ibid.* '... dat hem geoorlooft zij jaerlickx nae dat hij de publicque anatomie ofte dissection gedaen heeft, op d'Universiteyts kosten in 't heymelick in sijne eenigheyt sonder yemants bijwesen, te anaomiseren ende met gemak rijpelic te examineren een subjectum of eenes mensches doode lichaam, mitsgaders in dit alles den dienst van de knecht der anatomie te moghen gebruycken.'

<sup>99</sup> Molhuysen II, p. 224

no writings, nor has work of his been published posthumously. All that remains of this anatomist, who strikes one more as a private researcher than as a public anatomist, are the reports of his dealings with the university authorities, his occasional skirmishes with Heurnius and the reports about him by his contemporaries – most of them favourable.<sup>100</sup> Valckenburg did not leave any material traces in the layout or in the collections of the Leiden anatomical theatre.

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<sup>100</sup> The German student Sperling found Valckenburg ‘much better’ than Heurnius, cf. Brieger, *Otto Sperlings Studienjahre*, pp. 21-22. Johannes van Horne’s bequest included a ‘portrait of professor Valckenburgh’, cf. transcription of Van Horne’s bequest UBA 11 A 20 (Collecctie Ned. Mij. ter bevordering der Geneeskunst)

## V. *The Dawn of a New Era? Otho Heurnius*



Figure 14: Otho Heurnius, engraving, 1625 (Museum Boerhaave, Leiden)

A man who certainly left his mark on the anatomical theatre and who can be regarded as Paaw's successor in more respects than Valckenburg was Otho Heurnius. Otho was the eldest son of Johannes Heurnius, professor of medicine at Leiden University alongside Gerard Bontius from 1581. Heurnius came from a distinguished family from Utrecht, where he was born. From his fourth year on he lived in Leiden, once his father had been appointed professor there. On 2 May 1590 he entered Leiden University in the faculty of arts.<sup>101</sup> On 24 April 1599 he obtained his Masters in the *Artes Liberales* and a year later the Curators granted him permission to lecture on subjects in natural history. On 7 July 1601 he graduated as a *Doctor Medicinae*. That same year, in November, he was made extraordinary professor of medicine as successor to his father, who had died on 11 August.<sup>102</sup> Otho Heurnius shared this professorship with another professor's son, Reinier Bontius, son of Gerard. Both Heurnius and Bontius Jr. were also lecturers in the faculty of arts and philosophy.

The way that the 24-year-old Otho Heurnius acquired his extraordinary professorship did cause some grumbling among the Leiden academics. It seems that his father had made the university authorities promise him on his deathbed to appoint his son as his successor.<sup>103</sup> This way Heurnius Jr.'s academic career could make a short cut that was regarded by many as unfair and not based on his intellectual qualities. On 8 November 1607 Otho Heurnius and Reinier Bontius were admitted to the academic promotions in a kind of job-sharing arrangement. They would take turns to be members of the examination committee, for which they had to share the salary of one ordinary professor.<sup>104</sup>

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<sup>101</sup> *Album Studiosorum* p. 27

<sup>102</sup> Suringar, 'Stichting der School voor Klinisch Onderwijs' in *Bijdragen tot de Geschiedenis der Leidse Hoogeschool*, pp. 16-17

<sup>103</sup> Cf. Kroon, *Bijdrage*, p. 107

<sup>104</sup> AC 20 fol. 157

In 1611 Heurnius was appointed professor of medicine, teaching the *Institutiones* that had been composed by his father.<sup>105</sup> Seven years later, when Heurnius presented himself as a candidate for the position of professor of anatomy following the death of Petrus Paaw, the Curators of the University could not very well ignore him. And, as we have already seen, they eventually appointed Valckenburg – the refined anatomist – as lector and later extraordinary professor of anatomy and Heurnius as professor ordinarius of anatomy and surgery. Heurnius and Valckenburg were to share the anatomical theatre during the winter months.

Heurnius set to work on his new appointment as anatomy professor with some gusto. In the archives of the University we find all manner of evidence of initiatives he took to further the cause of the Leiden anatomy. In the first place, on 18 February 1619, he asked for some practical repairs to be done in the Faliëdebagijnkerk. The chimney was not functioning properly and the roof gutters were rotting, according to Heurnius, and in such a way that he feared that someone might get hurt by falling debris when the anatomy demonstrations were going on in winter.<sup>106</sup>

In February 1623 Heurnius sought permission to suggest to his students each winter that the Dutchmen among them should find out from their acquaintances in their home towns whether there were any possible anatomical subjects to be used by the Leiden anatomy. If this were the case, Heurnius would be notified in time and he could send two students and the anatomy servant to take possession of the body. For this, Heurnius proposed, the University should pay the students a daily fee or a reward for each anatomical subject.<sup>107</sup> The Curators of the University did not agree with Heurnius's suggestions, probably because they could lead to body-snatching practices. The University preferred their old, more passive approach of asking the legal authorities of the cities to notify them when an execution was at hand.

Later in his career Heurnius was again reprimanded by the Curators for his overzealous and assertive methods for securing bodies for the anatomy. On 23 May 1643 the Curators and Burgomasters sent for Heurnius and Gerrit Coerten, the anatomy servant, and admonished Heurnius, urging him to refrain from sending the anatomy servant out in search of anatomical subjects. The Curators and Burgomasters once more urged Heurnius only to write letters to the executioners of Dordrecht, Haarlem and the Court Martial, asking to be notified if any possible subjects were to be executed. For this the University would pay the executioners six guilders per year each 'so that the costs caused by the subjects would not amount to so much as they did in the most recent bill of the aforementioned professor'. The University decided to pay Heurnius's account one last time, on the understanding that from now on such high bills would be refused by them.<sup>108</sup>

For all his zeal in acquiring anatomical subjects, not all of Heurnius's contemporaries were impressed by his skills or talent as an anatomist. The German Otto Sperling, who spent the years 1619 to 1621 in Leiden as an apprentice pharmacist and medical student, attended anatomical demonstrations in the

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<sup>105</sup> Otterspeer, *Het Bolwerk van de Vrijheid*, pp. 403-404

<sup>106</sup> AC 43 Bijlagen tot de resolutien: '... dat de schoorstene op de anatomieplaetse behoorlick mach geholpen worden, dat men die bequaemlicken mach gebruycken sonder van den roock gehindert te worden [...] dat de gooten buyten aan de anatomi mogen worden behoorlick gerepareert opdat de balcken niet heel en verrotten ende daer over in de winter als men in de anatomie exercities is doende gheen deerlvk ongeluck werde gecauseert met het nederstorten der selvige balcken.'

<sup>107</sup> Molhuysen II p. 111 '... eene requeste D. Otthonis Heurnii [...] daerbij hij versoeckt autorisatie om voortaan in 't beghin des winters den studenten der medicinen in zijn lessen te moghen insinueeren ex publica autoritate dat een yeder inlants student in zijn vaderlicke stadt door sijn bekenden sal doen vernemen naer occasie van eenigh subjectum anatomicum ende dat den voorn. Professori tijdelijck aendienien opdat hij alsdan een ofte twee studenten der medicinen nevens den knecht der anatomie derwaerts mach senden om het subject te vervorderen ende dat van weghen de Universiteyt eene redelycke somme daechs off eene voor yeder subject de voors studenten mochte worden toegeleyt.'

<sup>108</sup> GAL *Zesde register rakende de Universiteit binnen Leyden* fol.373, 23 mei: 'subjecta anatomica aen Heurnius bekent te maecken, scherprechter daerover ses gulden te geven, rekeninghe over onkosten van subjecta niet meer te maken'

theatrum anatomicum both by Valckenburg and by Heurnius. And although that year only Heurnius appears to have demonstrated upon a human subject and Valckenburg had to limit himself to cats and dogs, Sperling found Valckenburg 'much better' than Heurnius.<sup>109</sup> Another indication that not everybody at Leiden University was convinced of Heurnius's qualities can be found in the fact that in 1631, the 30th year of his professorship, Heurnius had still not held the position of Rector of the University.<sup>110</sup>

### Otho Heurnius's collecting activities

Otho Heurnius's most significant contribution as far as the Leiden Theatrum Anatomicum is concerned lies not so much in his anatomical activities, but in his role as a collector of naturalia, antiquities and ethnographica. It is due to Heurnius's activities in this sphere that the Leiden anatomical theatre evolved into an academic museum, the importance of which rose above the immediate field of medicine to the more universal plane of a collection attempting to describe the world.

Expanding the collection of the anatomical theatre was clearly seen by Heurnius as a very important, if not the main priority of his new function when he was appointed professor of anatomy in May 1618. It did not take long before the University authorities noticed the effects of the new professor's collecting fervour. On 12 August 1618 they were presented with a bill by the Leiden book and print seller, Govert Basson, for a large collection of prints and some books, all bought for the anatomical theatre by Heurnius. The fact that he made this large and expensive acquisition without asking the Curators for permission, without even so much as consulting them, did not of course go down well with the university authorities. In two separate resolutions of 9 November 1619 and 8 May 1620 they urged Heurnius to buy no more books and instruments in the future without their prior knowledge.<sup>111</sup>

But more remarkable than the indignation of the university authorities about Heurnius's acquisition are the contents of this new addition to the collection of the anatomical theatre. Of the 29 items that are prints only a small portion can be characterised as having an explicitly anatomical or even medical subject matter. For instance, the prints described as *Vier Figueren van de Pracktijck der Medicinen* (*Four Figures of the Practice of Medicine*), a four-part series of prints published by Hendrick Goltzius in 1587 and better known today as *The Four Guises of the Physician*.<sup>112</sup> Or *Anatomy op Drie Groote Figueren* (*Anatomy on Three Large Figures*), three anatomical prints with volvelles by Lucas Kilian and Johann Remmelin, and their accompanying book *Pinax Microcosmographicum*, first published in Ulm in 1613.

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<sup>109</sup> Brieger, Johnsson, *Otto Sperlings Studienjahre*, pp. 20-21

<sup>110</sup> Suringar, 'Stichting der School voor Klinisch Onderwijs' nr. V in *Bijdragen tot de Geschiedenis van het Medisch Onderwijs, overdrukken uit NTG 1860-1866*, p. 18

<sup>111</sup> Barge, op. cit. pp. 23-24

<sup>112</sup> Cf. Tim Huisman, 'De vier gedaanten van de arts', in: *Vereniging Rembrandt* Jg. 2 (1992) No. 3, pp. 17-22



**Figure 15: Three anatomical figures with flaps, engraved by Lucas Kilian and devised by Johannes Remmelin, Ulm 1613 (Leiden University Library)**

The rest of the print acquisition has a much broader subject matter, ranging from the biblical – themes such as the Tower of Babylon or a Praying Christ – to the mythological – Hercules, Harpocrates and Chilo. Or the historical: great royals such as William of Orange, Henri IV of France, Rudolf II of Bohemia, or ‘the nine Roman Heroes’. There were also prints representing natural curiosities such as a sperm whale beached at Katwijk by Saenredam or the portrait of Eva Vlieghe of Meurs, a young woman who did not eat for 17 years but remained in blooming health owing to her faith in God. Finally, Heurnius’s acquisition contained topographical representations such as maps and landscapes and city views. The contents of the print collection of the anatomical theatre and its moralistic significance are described extensively by Lunsingh Scheurleer in his 1975 essay ‘Un Amphitheatre d’anatomie moralisé’.<sup>113</sup> In the next chapter I will attempt to add something more about the theoretical motivation Heurnius might have had in bringing this collection together.

Heurnius’s collecting activities did not stop with the 1618 print acquisition. In the request of 18 February 1619 we mentioned above he not only asked for certain repairs to the Faliëdebagijnkerk, but he also urged the university authorities to insist that the personnel of the East and West India Companies should collect bones of the strange peoples they met on their travels and transfer these remains to the Leiden anatomical theatre. Skulls would be especially welcome as material for ‘cieraet ende instructie’ (ornament and instruction). In particular, heads from the land of the giants, or Patagonia, or the land of the Amazons ‘where, so it is said, persons are found without heads, having their faces in their chest’. Every skeleton should be accompanied by a letter stating its place and nation of provenance.<sup>114</sup>

In that same request Heurnius asked for permission to acquire as ornaments for the anatomy half-a-dozen earthenware jars or ‘buckets in which the Romans here in days of old put the ashes of the dead burnt bodies by way of sepulture and remembrance’. These jars were to be found in the ‘campis Elysien’ near Naples. And, Heurnius added, they were cemented into a wall surrounding the aforementioned field ‘where seamen with a pickaxe could easily remove them without being bothered by anybody’.<sup>115</sup>

<sup>113</sup> Lunsingh Scheurleer, ‘Un Amphitheatre d’anatomie moralisée’ in *Leiden University in the Seventeenth Century*, Leiden 1975, the Basson bill is reproduced in Barge op. cit. pp. 28-29

<sup>114</sup> AC 43 Bijlagen tot de Resolutien 18 feb 1619 ‘[. . .] dat het de E.E. heeren ghelieve bi de Indische companien te procureren dat van alle natien uyt Oost ende West Indien de menschen ghebeenten die men becoomen kan ende besonder de hoofden tot cieraet ende instructie der Anatomi plaetse mogen overgebracht worden ende bisonder uyt het reusenlandt ofte Patagonium regione ende uyt het landt der Amasones, daermen seyt dat oock personen ghebonden worden sonder hooft dewelcke het aenghesicht in de borst hebben. Mits dat bi ider ghebeenten een briefcken ghevought werde vervattende de plaetse ende natie daer dezelve vandaen komen . . .’

<sup>115</sup> Ibid. ‘[. . .]daer de bootsghesellen met een houweel die bequamelick sullen kunnen uythalen sonder iemants verhindefinge. . .’

At about the same time – 9 February 1619 – Heurnius was given permission to have the secretary of the University write a letter in the name of the faculty of medicine to Laurentius de Croix, physician in Aleppo, to acquire through him some curiosities for the University.<sup>116</sup> It is not recorded if anything came from this particular correspondence, but in that same year Heurnius came into contact with David le Leu de Wilhem, a Leiden alumnus who worked as a merchant in Egypt and Syria. De Wilhem came from a wealthy Flemish protestant family, who at the time of his birth lived as refugees in Hamburg. David de Wilhem pursued a successful political career: his assignments included counsellor of Frederik Hendrik and to the court of Brabant in The Hague. He became the brother-in-law of Constantijn Huygens with whom he had a lively correspondence.

The letters Heurnius wrote to Le Leu de Wilhem give some insight into the methods the Leiden anatomy professor used for acquiring his collection. Heurnius wanted objects that could function as tangible representations of countries, peoples, animals and plants that were known from the Bible and classical literature. De Wilhem's stay in the Levant presented Heurnius with a perfect opportunity to fill the Egyptian department of his collection.

The first shipment of Aegyptiaca from De Wilhem reached Leiden on 14 June 1620 and included half a mummified arm and two stone shabtis or funerary figurines. A letter preceding this shipment is not known, so maybe De Wilhem's donation was a result of Heurnius's request to Laurentius de Croix in Aleppo. Later that year De Wilhem obtained a mummy in its sarcophagus, which he also sent to Leiden – it was presented to the anatomy by his brother. This mummy became known as 'de groote mumie' (the large mummy). And it became a celebrated highlight of the collection, mentioned in catalogues of the anatomical theatre and descriptions by visitors throughout the 17<sup>th</sup> and 18<sup>th</sup> centuries.

On 8 October 1621 Heurnius wrote to Le Leu de Wilhem, thanking him for the artefacts he had sent. He enthusiastically told him that the mummy was placed in its own showcase, with a description in Dutch. This description has been partially recovered and offers more insight into the aspects Heurnius found noteworthy in this *piece de resistance* of the collection.<sup>117</sup> In this broadsheet – only one sheet of a two-sheet publication remains – Heurnius praises the healing qualities of Egyptian mummies as a *simplicium* above all other species of mummified human flesh, e.g. from Tenerife or Naples or human remains dried in the African desert. Heurnius also offers explanations for the particular properties of Egyptian mummies: they were caused by the mixture of certain spices used in the embalming process with the human material, brought about by the power of the sun, the qualities of the Egyptian air and the longevity of the mummifying process.

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<sup>116</sup> Molhuysen II, p. 84

<sup>117</sup> Cf. R. Breugelmans 'Een document uit het voormalig theatrum anatomicum te Leiden' in *Oudheidkundige Mededelingen van het Rijksmuseum van Oudheden LVIII* 1977, pp. 232-234



**Figure 16: Coffin of the *grote mumie* (large mummy); one of the highlights of Heurnius's collection for the anatomical theatre (Rijksmuseum van Oudheden, Leiden)**

But the pamphlet also provides information about the strange lands from which the mummy came. It was taken from Central Egypt in 1620 by David de Wilhem, from the cellars that served the ancient pagan Egyptians as sepulchres. These cellars were carved deep beneath the earth in the living rock, on the sandiest and driest place on earth, near the pyramids, four 'hoochduytsche' miles from Al Cayre (Cairo) 'also known as Babylonia [sic]', situated on the banks of the Nile. From there it was transported to Alexandria and smuggled out to Amsterdam, concealed in a large bale of spice, cotton and camel hay (*kemelshooy*). These precautions were necessary, the pamphlet tells us, because the Turks prohibited the exportation of mummies on pain of death, because they were afraid that the Christians would use them to conjure up all kinds of magic spells against their empire. Furthermore it is the common opinion that ships carrying mummies will encounter misfortune of tempest or robbery; experience proves that these ships often fall prey to shipwreck/disaster. The mummy was presented to Otho Heurnius, so the pamphlet ends, by Paulus, the brother of David de Wilhem, as eternal ornament to the anatomy of the States of Holland and West Vriesland in the year 1621 on 2 October.

Heurnius also used his thank-you letter to De Wilhem of 8 October 1621 to notify him of his further wishes in collecting artefacts and naturalia from Egypt.<sup>118</sup> He apologised for his brazenness, but the fact that someone of De Wilhem's stature – patrician and a Leiden alumnus who knew his antiquities – was based in Egypt offered an opportunity that he as the person responsible for the collections of the anatomical theatre could not let go by. After this apology Heurnius got straight down to business: he listed a whole catalogue of artefacts that he wanted De Wilhem to acquire for him. He wanted large wooden, stone and bronze statues, particularly of humans with animal heads. He wanted a gravestone, the head and genitals of a hippopotamus, arms, feet and jaws of mummies 'that can be found in large

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<sup>118</sup> The letters from Heurnius to David de Wilhem translated by B.H. Stricker in 'De correspondentie Van Heurn-Leu de Wilhem', in: *Oudheidkundige Mededelingen van het Rijksmuseum van Oudheden Vol 29* (1948) pp. 43-54

quantities near the pyramids, near the entrance of the graves'. Heurnius also wanted animals mentioned in Classical authors' descriptions of Egypt, such as the bird Trochilos, which cleaned the teeth of crocodiles, or the bird Crex, named after its call. Both animals are described by Herodotes. Heurnius also asked De Wilhem for a dolphin with sharp crests on its back, with which it could injure crocodiles, as he had read in Seneca.

Heurnius's dealings with his man in Egypt, De Wilhem, show us how the Leiden anatomy professor went about the business of collecting. His aim was to verify the information offered in the known – mainly Classical – literature about the parts in question, and to make this verification tangible in the form of the objects amassed in the Faliebagijnekerk. These objects would function as the carriers of a wide variety of information: medical, historical, ethnographical and naturalistic.

In its contents the collection brought together by Heurnius for the Leiden anatomical theatre reflected the wide world as it was discovered, surveyed and exploited by the Dutch Republic in the early 17<sup>th</sup> century: from Japanese puppets and tea in a vessel inscribed with Japanese characters to a wide variety of Egyptian antiquities; from Russian boots and clothing to 'an animal from the West Indies resembling a big lizard'; and from *medicamenta ex Java* to Brazilian earrings.<sup>119</sup>

In several cases high-ranking officials of the Dutch Republic are mentioned as donors of certain objects to the collection. Apart from David de Wilhem we encounter Adriaen Paeuw, Curator of the University and Pensionary of the States General, who donated the beak of a rhinoceros bird.<sup>120</sup> Or Pieter de Carpentier, governor of East India, who contributed a 'pedra de porco' (a stone from the stomach of an indigenous porcupine) and a chair made from a curiously grown tree root. Even Heurnius's own family contributed to the collection: Heurnius's brother Justus, who went to Java as a clergyman in the service of the Dutch East India Company, sent him a Javanese skull in 1626. And Heurnius's father Johannes contributed posthumously: in the anatomical theatre one could admire 'seven stones, each one as big as a flat walnut and of similar shape [cut] from the bladder of the excellent and famous D. Joannes Heurnius [. . .] as he passed away in a very Christian manner in his 48<sup>th</sup> year on 11 August 1601'.<sup>121</sup> The bladder stones were sewn onto black velvet with red thread and set in a frame with an elaborate legend by Otho Heurnius.

A relatively late addition to the collection seems to be motivated by its value as a document of a remarkable feat of surgical prowess. It is a portrait painting of one Andreas Grünheide, also known as the Prussian knife swallower. Grünheide was a farm hand from East Prussia who in the year 1635, during a feast at Pentecost, had eaten so much that his stomach gave him trouble. In an attempt to relieve his aching belly he stuck the handle of his table knife in his throat, trying to cause himself to vomit. Things however went horribly wrong; the knife slipped from his fingers and slid down his oesophagus. Some ten days later Grünheide presented himself to the medical faculty of the University of Königsberg, and he was operated upon the next day.

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<sup>119</sup> The inventory list of the rarities in the anatomical theatre drawn up by Heurnius in the early 1620s is reproduced in Barge op. cit. pp. 36-74

<sup>120</sup> Barge, op. cit. p. 52

<sup>121</sup> Barge, op. cit. p. 41 These bladder stones are still kept in the Leiden anatomical museum



Figure 17: Anonymous, *Andreas Grünheide, known as the Prussian Knife Swallower*, oil on canvas, 1638 (Museum Boerhaave, Leiden)

The fact that this hazardous stomach operation was a success was regarded as such an amazing feat that the written report of Grünheide's case by Daniel Becker, the deacon of the Königsberg medical faculty, also provoked a lot of attention in Leiden.<sup>122</sup> The second edition of this report, published in Leiden, includes a letter by Otho Heurnius, also signed by the Leiden city doctors Damianus Weyssens and Joannes Werckhorst, congratulating Becker and his colleagues on their success and expressing admiration for their bravery and surgical prowess in performing the operation. The fact that the letter was also signed by the city doctors is interesting because around this time, in the summer of 1636, Heurnius had presented his plan for clinical lessons in the Leiden city hospital to the Curators of the University. One of the co-signatories of the letter to Becker, Damianus Weyssens, was proposed by Heurnius as a suitable candidate for the position of doctor in the Caecilia Hospital. Weyssens would be in charge of the daily care of the patients selected for use in the clinical lessons.

Another letter that is included in the second edition of the book is a letter by Becker to Heurnius, dated 4 November 1638. This letter seems to be a reply to a request by the Leiden anatomy professor to his Prussian colleague asking for the swallowed and recovered knife itself. The famous knife was promised to the Leiden anatomical theatre but, Becker explains, this promise could not be kept as the King of Poland claimed the knife for his own curiosities cabinet. Instead Becker sent his Leiden colleague the portrait of Andreas Grünheide together with a sealed document certifying the truthfulness of the account of Grünheide's operation and a large piece of amber – with enclosed insects.<sup>123</sup>

<sup>122</sup> Becker's report of the case of Andreas Grünheide was published in Königsberg: *Cultrivori Prussiacy Curatio Singularis*, 1636, with a second and a third extended edition published in Leiden by Joannis Maire in 1638 and 1641, respectively.

<sup>123</sup> Cf. Tim Huisman, 'Over de wonderbaarlijke genezing van de Pruisische messenslikker' in *GEWINA* Vol 26 2003 No. 26, pp. 115-118

As mentioned above, the items concerning the Prussian knife swallower were relatively late additions to the collection, and also one of the few additions made after the 1620s. Heurnius's collecting activities apparently diminished considerably after his first ten years as anatomy professor, to be replaced by other activities, especially in organising clinical lessons at the Leiden medical faculty, as we shall see below.

## VI. *Otho Heurnius: his Vision of History, Philosophy and Collecting*

The collection of the Leiden theatrum anatomicum in its more or less definitive incarnation was definitely the intellectual product of Otho Heurnius. Heurnius changed the character of the collection from Paaw's emblematic ensemble, in which the 'medium' of anatomy was used to convey a humanistic message to the public, to a much more universal affair that included examples of the three kingdoms of nature from all parts of the globe, as well as man-made objects from antiquity and exotic places. Heurnius's scope of collecting seems to embrace specimens from the whole of creation. In later generations this heterogeneity even provoked some hilarity.<sup>124</sup>

In this chapter we will be looking into the question of whether the collection of the Leiden anatomical theatre was unique. Were there precedents? Was Heurnius's enterprise typical of its era, the beginning of the 17<sup>th</sup> century? Or was the collection the idiosyncratic product of Otho Heurnius's peculiar vision of the natural sciences.

### **The Book of Nature, Dutch collections in the 17<sup>th</sup> century**

The first thing that can be said about the collection of the Leiden anatomical theatre is that it seems to fit the definition of a rather typical, albeit very early, example of the Dutch tradition of cabinets of curiosities and rarities. In the 17<sup>th</sup> century collections of curiosities were quite a widespread phenomenon in the United Provinces. Owing to the expansion of world trade by Dutch merchant enterprises such as the East India Company and the West India Company, Dutch commercial relations with the Russian empire, etc, the Netherlands was the warehouse of Europe, and strange objects from exotic places were relatively easy to come by. This certainly influenced the development of collecting in the Dutch Republic. But the availability of curiosities and rarities in itself is not enough to explain the collecting phenomenon in the United Provinces; there were also cultural factors at work that made people *want* to start a collection.

The dominant Calvinist Protestant religion in the Republic was a very important factor in this. Many of the Dutch collections were intended as 'books of nature'; they were constructed following a rationale that held a strong appeal in the Protestant United Provinces. To the great reformers of the 16<sup>th</sup> century, Philip Melanchton and John Calvin especially, nature testified to God's greatness, and the study of nature with the Bible as its interpretative key would teach man about Divine providence.

One of the fundamental doctrinal writings of the Dutch reformed religion, *De Belydenisse des Geloofs* (Confession of the Faith), first published in 1561, states: 'We know Him by two means. Firstly by the creation, maintenance and reign of the whole world, since the world is before our eyes as a wondrous book, in which all creatures big and small are as letters which give us to behold the invisible things of God, to wit: His eternal power and divinity, as the Apostle Paul says [1 Rom.:20], which things are sufficient to convince men and take away all their ignorance. Secondly, He makes himself known even clearer and more fully by His holy and divine word'.<sup>125</sup> This notion of nature as a book written by God to show mankind His greatness, even those parts of mankind who had no knowledge of the Holy Scriptures, was a constant factor in thoughts about nature in the Dutch Republic of the 16<sup>th</sup> and 17<sup>th</sup> centuries. Studying nature was a way to approach knowledge about the Supreme Being.

The earliest examples of studying nature by collecting, and the models on which the Dutch collectors oriented themselves, are not to be found in the Netherlands but rather in Italy and Germany. These early role models of the 16<sup>th</sup> century did not go about their business in a very systematic way when looked at from a modern perspective. The animal kingdom for instance was not divided into classes or families, what order there was, was based on morphological similarities. But naturalia and natural phenomena were primarily studied as incidents, as things *per se*. This method is exemplified by the extensive *bestialia* of that period, such as Conrad Gessner's or Ulysse Aldrovandi's. In these multi-

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<sup>124</sup> Barge, op. cit., p. 14

<sup>125</sup> *Belydenisse des Geloofs*, 1609 edition, cited by Jorink, *Boeck der Natuere*, p. 23

volume works each animal is described separately, and treated as a focal point in an intricate web of associations. In Gessner's *Historiae animalum*, the animals are arranged according to their morphological characteristics, which are in turn classified in larger groups amassed in four volumes: quadrupeds, birds, aquatic animals and serpents.<sup>126</sup> The name of each animal is given in Latin, Hebrew, Greek, Italian, Spanish, French and German. The description of the animal mentions the relevant quotes in the Bible and from the Classical sources such as Plinius, Herodotes, Strabo, Galenus, etc, as well as from recent authors. In this way each animal, indeed each natural object became a quotation from the Book of Nature, a quotation containing a multitude of associations, which could be applied to an endless list of subjects, very much as biblical quotations could be applied.<sup>127</sup>

The most influential model for these early natural history collections was the collection of the Bologna professor of Natural Philosophy Ulysse Aldrovandi. Aldrovandi was considered a 'second Plinius' by his contemporaries, and he had amassed a huge collection of naturalia. The collection was representative of all knowledge of nature as it existed at that time, not only in the old world but also in the newly discovered parts of the globe. The natural objects in Aldrovandi's collection could be used to compare the descriptions in the Classical authorities with the real thing. The theory of books was tested against the practice of the realia.<sup>128</sup> Aldrovandi's efforts were well-known in the Netherlands. One of his assistants was Aelius Vorstius of Roermond, later to become professor of medicine in Leiden and as such a colleague of Heurnius. And among the many visitors who came to see his collections were quite a few Dutchmen, such as the botanist Lobelius or the physician Berend ten Broecke, who called himself Bernardus Paludanus.<sup>129</sup>

Back in the United Provinces Paludanus went on to become city doctor of Enkhuizen, a port on the Zuiderzee, in 1586. Here Paludanus began to emulate Aldrovandi by laying out a botanical garden and building a collection of rarities. Judging from a catalogue from 1592, initially this collection primarily contained specimens from the three reigns of nature, especially minerals.<sup>130</sup> But his contacts in the harbour town of Enkhuizen led Paludanus to expand his collection beyond natural history into ethnography. His fellow Enkhuizer, the explorer Jan Huygen van Linschoten, in particular provided Paludanus with naturalia and artificialia from the East and West Indies.<sup>131</sup> From other seamen Paludanus obtained objects from Africa and the Arctic, and with this his collection was truly a representation of the whole known world, neatly stored in cabinets. According to an inventory list composed in 1617, Paludanus's collection had expanded to about 16,500 objects. Among other things it contained 300 ethnographic objects from East and West, 150 'writing utensils', 8,700 products of the sea, 130 antiquities, 230 parts of birds and other animals, three mummies, 250 relics and biblical naturalia, 1,900 fruits and seeds, 230 minerals, rocks and ores and some 1,300 coins.<sup>132</sup>

Even in 1591 Paludanus's collection had attracted the attention of the Curators of Leiden University. They offered him the post of organising the Leiden hortus botanicus on condition that he would take his collection of 'rarities of herbs, fruits, growths, animals, creatures, minerals, earths, poisons, stones,

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<sup>126</sup> Conrad Gessner, *Historiae animalum* [. . .], Frankfurt (Henricus Laurentius) 1620

<sup>127</sup> Cf. K. Van Berkel, 'Citaten uit het Boek der Natuur' in: *De Wereld binnen Handbereik*, pp. 190-191

<sup>128</sup> Olmi, 'Italiaanse verzamelingen' in: *Verzamelen*, pp. 106-107

<sup>129</sup> Jorink, *Boeck der Natuere*, p. 221

<sup>130</sup> Cf. Rathgeber, Schickart, *Wahrhafte Beschreybung Zweier Reysen* [. . .]Tübingen 1603

<sup>131</sup> R. Van Gelder, 'Noord Nederlandse verzamelingen in de 17<sup>de</sup> eeuw' in *De Wereld binnen handbereik*, p. 125, Jorink, *Boeck der Natuere*, pp. 232-230, Van Berkel, 'Citaten uit het boek der natuur' in *De Wereld binnen Handbereik*, pp. 171-177, F.W.T. Hunger, *Bernardus Paludanus*, 1928 (overdruk uit NTG jg 72, no.44)

<sup>132</sup> Jorink, *Boeck der Natuere*, p. 224

marble, corals, etc' with him to Leiden.<sup>133</sup> Paludanus had to decline the offer however because Enkhuizen city council did not want to let him go.<sup>134</sup>

It was clearly the naturalia of Paludanus's collection that had aroused the interest of the Leiden University Curators in 1591. But only a few years later the attraction of Paludanus's collection for the scientific world had evolved into a more encyclopaedic picture. Scaliger for instance visited Paludanus in 1593 and was especially impressed by the mummies that were then incorporated in the collection, as was Hugo de Groot. Both Leiden scholars were primarily interested in these Egyptian objects because of their biblical connotations.<sup>135</sup>

The report of a visitor to Paludanus's collection in 1639 (six years after his death), the clergyman Johannes de Mey, shows that the two parts of the collection: artificialia and naturalia, were seen as equally important. De Mey remarked on 'great rooms, in which are collected and preserved all sorts of natural objects which are only found in strange lands. Secondly, all sorts of antiquities and things which are useful for the knowledge and contemplation of the old histories'.<sup>136</sup>

Bernardus Paludanus's collection in all its diversity was a mirror image of the world, both the natural and artificial part of it. The annotation of his minerals collection in the *Wahrhafte Beschreybung* of 1603, an itinerary written for the Duke of Württemberg by Jacob Rathgeber and Heinrich Schickhart, shows that the stones, sand and earth specimens Paludanus collected came from all known regions: from Japan to England, from Italy to Egypt and from Germany to China. Every now and then these specimens were invested with explicit biblical references, such as 'Pisae ex agro Rachel via qua itur Hierosolym Bethlehemum' (Peas from the field of Rachel between Jerusalem and Bethlehem) or glass figures of Adam and Eve.<sup>137</sup> But it seems the visitors to Paludanus's collection hardly needed these explicit associations, judging from the many pious mottoes that feature beside more secular *bon mots* in Paludanus *Album Amicorum cum* visitors' book.<sup>138</sup>

The variety brought together in Paludanus's collection in Enkhuizen shows quite some similarity with the contents of the collection of the Leiden theatrum anatomicum, as recorded by Otho Heurnius in his inventory lists of 1620, 1622 and 1628. Not only did Heurnius and Paludanus share a fascination for ancient Egypt, the inventory of the Leiden collection also reflects the expansion of knowledge as new regions of the globe were explored by (Dutch) travellers, just as Paludanus's collection did after he came into contact with Jan Huygen van Linschoten and other seamen in Enkhuizen. Furthermore, Heurnius's collecting strategy of trying to acquire objects that were described by the Classical authorities such as Plinius, Herodotes and others – a strategy that can be deduced from Heurnius's letters to Le Lieu de Wilhem for instance – reminds one of Paludanus's role model Aldrovandi.

A remarkable difference between the Paludanus collection and the collection of the anatomical theatre however are the prints Heurnius included in the Leiden ensemble. Many of these prints can be characterised as representations of various moral and intellectual concepts, embodied or personified by mythical and historical heroes (as well as villains). Portraits of these personages, ranging from Hercules to Maurice of Nassau, feature prominently in the various inventory lists of the anatomical theatre.<sup>139</sup> The explicit didactic character that these prints give to the Leiden collection is not an

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<sup>133</sup> Molhuysen I, p. 180\* 'tsamenvergaerde seltsaemheden, zo van cruyden, vruchten, spruytsels, gedierten, schepselen, mineralen, aerden, veninen, gesteenten, marmeren, coralen, etc.'

<sup>134</sup> Hunger, *op. cit.*, p. 7

<sup>135</sup> Jorink, *op. cit.* p. 226

<sup>136</sup> De Mey quoted by Jorink, *op. cit.*, p. 230: '[. . .]groote kameran in welcke versamelt en bewaert worden alderley Natuerlijcken saken welcke in vremde landen alleen gevonden worden. Ten tweeden alderley outheden en dingen welcke tot kennisse en gedachtenisse van de oude geschiedenissen gediensig zijn'.

<sup>137</sup> Rathgeber, Schickhart, *Wahrhafte Beschreybung*, 'Index rerum omnium naturalium a Bernhardo Paludano [. . .]collectarum'

<sup>138</sup> Jorink, *op. cit.* p. 230. The *Album Amicorum*: hs. 133 M 63 Royal Library The Hague

<sup>139</sup> Cf. Scheurleer, 'Un Amphitheatre d'Anatomie moralisee'

element it shares with Paludanus's collection. The collection as an edifying instrument can however be encountered in a different context, somewhat earlier in history.

### Princely collections

Of course the collection of the Leiden anatomical theatre, although early in the Dutch context, was not the first scientific collection in Europe. There was a collecting tradition with an encyclopaedic or universal character dating as far back as the 14<sup>th</sup> century, when the French royal family of Valois assembled collections in their 'estudes'.<sup>140</sup> The estudes of King Charles V and his younger brother, the Duke of Berry, contained many of the characteristics that can also be found in later 16<sup>th</sup>-century collections: naturalia such as snake skins, corals, shells, minerals, wild boar tusks, etc. But also artificialia, objects made by man, often opulent art objects in which a rich variety of expensive materials was included: gold, silver, crystal, precious stones and pearls. Objects from (Roman) antiquity also featured in the collections of the Valois. The possession of such a collection attested to the quality of 'sagesse' or wisdom of the King, a quality which, beside religiosity and military capacities, was of great importance for a good monarch.<sup>141</sup>

The example set by the French king, embodying the three royal virtues of *fides*, *potestas* and *sapientia*, was followed by other ambitious rulers, especially in the developing city-states of Italy. A very clear emulation of the French role model is presented by the Florentine Medicis, beginning with Piero de Medici and the 'scrittoio' (study or writing room) of his son and successor Lorenzo il Magnifico. An important part of their collection consisted of portraits of worthy men of all historical ages. Having their features before their eyes, the Medicis wanted to elevate themselves to the moral standards set by these heroes, philosophers, emperors and dignitaries of (mainly) antiquity. In this way an element of the Renaissance, antiquity as an edifying culture, was added to the character of the universal collection as an expression of *sapientia*.

In the 16<sup>th</sup> century the French and Italian collections found continuation in the Kunst- und Wunderkammer developing at the German courts, such as that of the Prince Electors of Saxony, the Dukes of Bavaria and the Landgraves of Hessen. At the same time a body of theoretical writings was also developing about such princely collections. In these writings certain rules and criteria were formulated that a Kunst- und Wunderkammer should meet. Gabriel Kaltemarckt for instance dedicated his *Bedencken wie eine Kunstkammer aufzurichten seyn möchte* (Thoughts on how to build up a Kunstkammer) to the Dresden Prince Elect Christian I in 1587. According to this treatise, the main purpose of a princely collection was the 'remembrance' of the prince. A collection of 'books and images' was a better means for a ruler to achieve immortality than other methods, even better than acts of war and conquests.

In Kaltemarckt's opinion a Kunstkammer should contain three kinds of objects: sculptures, paintings and *mirabilia*. *Mirabilia* were strange or miraculous objects of metal, wood or stone, plants from land and sea, (parts of) animals, their skeletons, and all sorts of artefacts in which these *mirabilia* were incorporated.<sup>142</sup>

Another 16<sup>th</sup>-century treatise on Kunst- und Wunderkammer was *Inscriptiones vel tituli Theatri Amplissimi* (Munich 1565) by Samuel Quiccheberg. This treatise was written while its author was involved in the building of a great complex of collections by Albrecht V, Duke of Bavaria in the 1560s. Quiccheberg's book however describes the building of a universal 'Idealmuseum' rather than a specific princely collection.<sup>143</sup>

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<sup>140</sup> E. Scheicher, 'De vorstelijke Kunst- en Wunderkammer' in: *Verzamelen*, p. 15 ff.

<sup>141</sup> Scheicher, *op. cit.* p. 17

<sup>142</sup> Scheicher, *op. cit.* pp. 31-32

<sup>143</sup> Cf. C.J. Jansen, 'Samuel Quicchebergs 'Inscriptiones': de encyclopedische verzameling als hulpmiddel voor de wetenschap' in: *Verzamelen*, pp. 57-76

The ideal collection proposed by Quiccheberg should encompass the whole of the universe, representing nature as well as art (i.e. man-made objects). It was to be divided into five ‘classes’, subdivided in turn into ten or 11 ‘tituli’. The first class represented religion, civil and military engineering and techniques, as well as the territory and dynasty of the owner of the collection. The second class contained artificialia: works of applied arts of all kinds. The third class was formed by naturalia. The fourth was instruments and utensils of all kinds and, finally, the fifth class was dedicated to the ‘free arts’ and to representations of history.

With this scheme Quiccheberg’s ideal princely collection would be a miniature representation of the world and everything in it. It could serve a didactic purpose as a visual reference collection, not only of objects but even of ideas. Prints and copperplates, as well as portraits of famous and exemplary persons, were not only included in the collection for their aesthetic qualities, but also because they represented moral values and edifying examples. The princely collection helped the monarch to form his ideas about the world. It also helped him to form an idea about himself, about his role as a ruler by Divine right with all the moral responsibilities involved.

But just as important as the ‘inward’ purpose of the collection – helping the ruler in the different aspects of his statesmanship – there was of course also an outward message sent by the Kunst- und Wunderkammer. Its opulence showed the world that its owner was a very wealthy person. Its encyclopaedic character showed that the prince had a grasp of – and in a way owned – the world in all its variety. A princely collection underlined the status and the power, the richness and the wisdom of its owner. And as the prince and the land he ruled were inextricably linked, the importance of the Kunst- und Wunderkammer went beyond that of the personal property of the monarch; it was part of the make-up of the state.

Obviously the collection of the Leiden anatomical theatre does not have the same opulence or extravagance as its 16<sup>th</sup>-century Central European princely forerunners. But, although it was a scientific collection that was part of the first University in the first European Republic instead of some princely court, it does have certain princely characteristics. Like the princely collections the Leiden collection seems to have had the explicit function of teaching and edifying its visitors. And for this it borrowed a feature from the tradition of princely collections: portraits of virtuous, exemplary historical and mythical persons to represent certain moral standards. Together with the biblical and Classical commonplaces emblazoned on the walls of the theatre, and on the banners borne by the human skeletons, these portraits incited the public to assume a contemplative and humble mindset with which it had to be equipped before it could witness the richness of God’s creation, as well as take part in the most important activity in the anatomical theatre: the confrontation with the fundamental topic of the anatomical structure of the human body. As for the outward, representational function of the collection of the Leiden anatomy: the theatre and its collection were usually presented as the pride of the University and one of the major sights to see for travellers visiting Leiden.<sup>144</sup>

## Egypt

A very conspicuous feature of the collection of the Leiden anatomical theatre as assembled by Heurnius was formed by the objects from Ancient Egypt. Heurnius was very proud of this part of the collection, and invested quite some time and effort in acquiring these *Aegyptiaca*, as is testified by his memorandum asking the University for permission to acquire objects through a contact in Aleppo under the aegis of the Leiden medical faculty, his subsequent correspondence with Le Lieu de Wilhem, and also the broadsheet singing the praises of *de groote mumie*.

To understand the presence of these ancient Egyptian objects in the collection, and Otho Heurnius’s great enthusiasm for them, it is important to realise that Heurnius graduated in 1599 at the Leiden faculty of philosophy.<sup>145</sup> One year later he published the only major work to appear under his own

<sup>144</sup> Cf. the four prints by Woudanus and Orlers’s *Beschrijving der Stadt Leyden*

<sup>145</sup> He did two disputations, both presided over by Antonius Trutius, in 1599 *Theses logicae de genere et specie* (21 July 1599), and *Theses philosophicae de meteoris aequis et logicae de substantia* (31 July 1599) and defended *Theses philosophicae* for his degree on 24 August 1599, ULB ms. Arch 288 pp. 38-39

name – all his other publications were posthumous editions by Otho of the collected works of his father Joannes. This single autonomous work by Otho Heurnius he himself labelled an *opus historicum & philosophum*, and it bore the further title *Barbaricae philosophiae antiquitatum* (the antiquity of barbarous philosophy).<sup>146</sup>

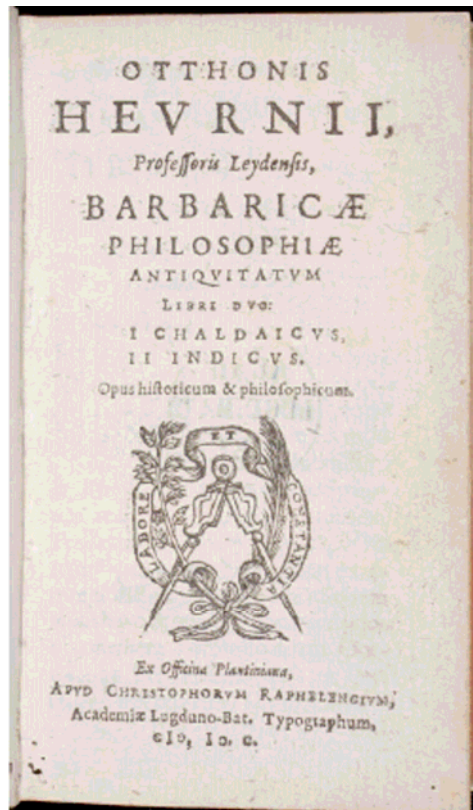


Figure 18: Title page of Otho Heurnius, *Barbaricae philosophiae antiquitatum* [. . .], Leiden (Christophorus Raphelengius) 1600 (Leiden University Library)

In this book Heurnius describes in two *libri* the philosophical systems of the Chaldeans and the Indian philosopher-king Zoroaster. He portrays these bodies of knowledge as very ancient philosophical systems, and tries to forge a link between these ‘barbaric’ philosophies and the chronology of the Bible. The aim of his book was to unravel the ‘*prisca scientia*’, the primordial wisdom of the first man, Adam, who communicated directly with God, and who, inspired by this Divine wisdom, gave all animals, plants and inanimate nature their names.

According to Heurnius, this primordial wisdom was handed down from Adam through his descendants to Noah. After the flood Noah’s sons Sem, Cham and Japhet and their descendants were the possessors of this knowledge. And it was with Kush, the son of Cham, that the *prisca scientia* entered written history. Kush had a tutor, an Egyptian priest named Hermes who, according to Heurnius, had even encountered Noah, and who wrote down the ancient wisdom in a collection of writings known as the *Corpus Hermeticum*.<sup>147</sup> This Hermes is known in history as Hermes Trismegistos, the thrice great Hermes, and his *Corpus Hermeticum* was regarded in Renaissance Neo-Platonic circles as an authentic text dating from Mosaic times. The hermetic writings formed an important element in the esoteric theories of Renaissance thinkers who wanted to renew science by returning to its very beginnings: to the *prisca scientia*. Judging from what he writes in his *Barbaricae Philosophiae*, Otho Heurnius places

<sup>146</sup> Otho Heurnius, *Barbaricae philosophiae antiquitatum* [. . .], Leiden (Christophorus Raphelengius) 1600

<sup>147</sup> Heurnius, *Barbaricae philosophiae*, p. 242: De Hermete Trismegisto Noachi auditore ac pedagogo Chusa

the figure of Hermes Trismegistos even earlier in history than most 16<sup>th</sup>-century Neo-Platonists: in the era immediately after the Flood.

As Eric Jorink states in his dissertation *Het Boeck der Natuere*, Heurnius's book is one of the very few Dutch academic studies of the period relating to the topic of Hermes Trismegistos and the Corpus Hermeticum.<sup>148</sup> This brings Otho Heurnius into association with the sphere of magic thinking and esoteric knowledge that constituted an important part of the natural sciences before the mid-17<sup>th</sup> century. In this tradition the fascination for all things Egyptian, and especially hieroglyphs, was an important feature. The enigmatic Egyptian culture and its mysterious script – not to be deciphered for another two centuries – held an alluring promise to 16<sup>th</sup>-century and early 17<sup>th</sup>-century scientists: perhaps this ancient part of history and these mysterious symbols contained the primordial wisdom of Adam, as handed down to, and recorded by the Egyptian priest and sage Hermes Trismegistos.

When Heurnius made his first important acquisitions for the Leiden theatrum anatomicum, his preoccupation with the *prisca scientia* was one of the criteria for selecting certain items for inclusion in the collection. Among the prints he bought at the Leiden printer/bookseller's shop of Goverd Basson in August 1618 are several items with subjects or themes that can be directly associated with this field of interest; for instance a print representing the building of the Tower of Babylon.<sup>149</sup> The story of the tower of Babylon can be understood as the biblical episode explaining how God prevented early man from realising his ambitions to reach into the heavens, the domain of the Divine, by creating the different languages.<sup>150</sup> In this way He thwarted human aspirations to become Godlike.

Another theme directly related to the concept of the primordial wisdom is that of the *Four Ages of the World*. This theme is represented by four prints, also acquired by Heurnius at Basson's in 1618, as *Quator aetates mundi*.<sup>151</sup> The theme of the four ages of the world stems from antiquity and shows us the gradual deterioration of the world: starting with the paradisiacal Golden Age, when man lived in harmony with his fellows and with his surroundings, as he was directly inspired by Divine knowledge. This blissful state is followed by the Silver Age: man is forced out of Paradise and must provide for his own sustenance by working the land, husbandry, etc. The memory of the Divine wisdom however is still fresh in the collective human recollection, making the Silver Age still an age of relative happiness. As the recollection of the Divine wisdom in the human mind fades through the Bronze Age, man's earthly condition worsens. Eventually, the Divine knowledge is lost, and man ends up in the Iron Age of war, pestilence, cruelty and stupidity.<sup>152</sup> Many thinkers of the late 16<sup>th</sup> century and the early 17<sup>th</sup> century interpreted this Iron Age as the present, which for many Europeans was of course a time of civil wars, plague and general adversity.

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<sup>148</sup> Eric Jorink, *Het Boeck der Natuere*, esp. Ch. V

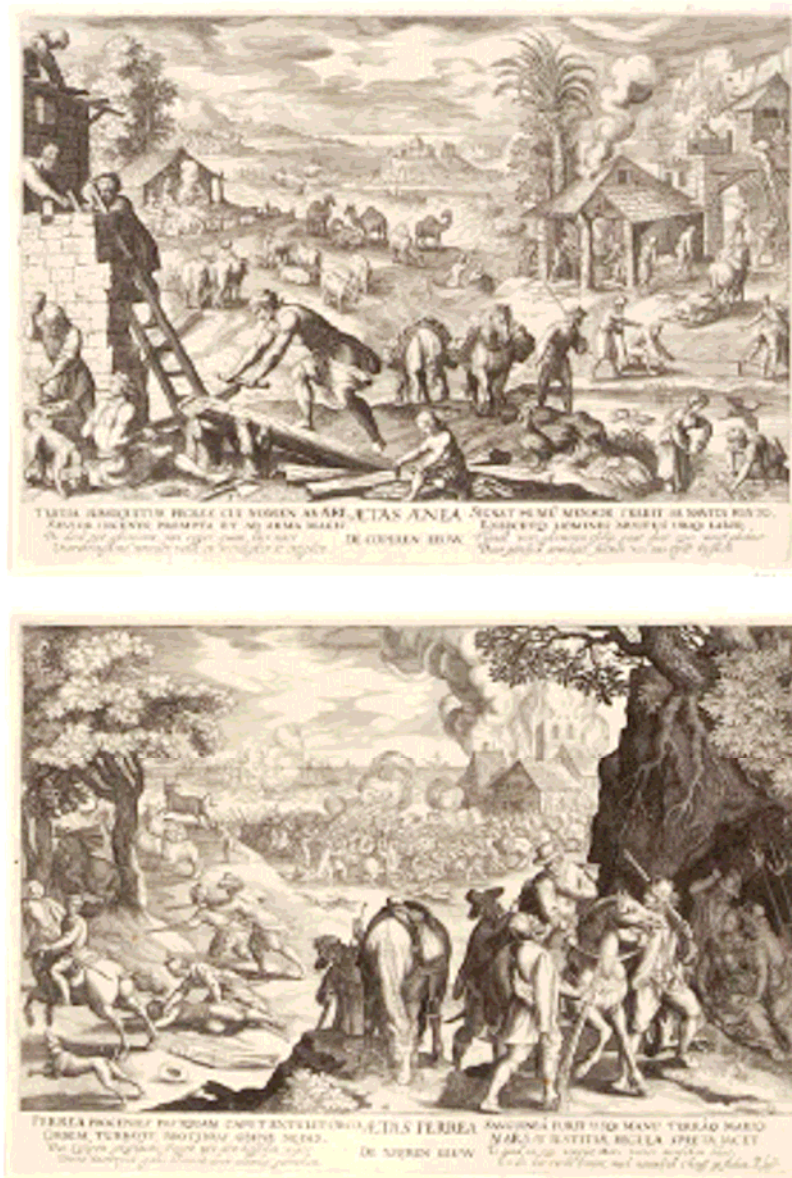
<sup>149</sup> Barge, op. cit. p. 28: 'De Toren van Babylonis'

<sup>150</sup> Gen. 11: 1-9

<sup>151</sup> Barge, op. cit. p. 28

<sup>152</sup> Cf. Scheurleer, 'Un Amphitheatre d'anatomie moralisé' in *Leiden University in the Seventeenth Century*, p. 252





**Figure 19 Anonymous after Antonio Tempesta, *The Four Ages of the World*, engravings published by Robert de Baudous ca.1600, the Golden Age and the Silver Age, the Bronze Age and the Iron Age (Rijksprentenkabinet Amsterdam)**

But the acquisition of these prints was simply a prelude to the collecting activities prompted by Heurnius's preoccupation with the primordial wisdom. Soon the collection of objects also underwent the influence of his fascination. The Egyptian mummies, funerary statuettes and vessels, some of them covered with hieroglyphs, were only partly collected because of their medical connotations. A much larger part of the fascination these objects exerted on Heurnius was the fact that to his mind they came from the era of Hermes Trismegistos and must therefore contain (for the time being incomprehensible) elements of the *prisca scientia*.

Heurnius's scientific orientation in the first two decades of the 17<sup>th</sup> century certainly showed hermetic or esoteric traits. And the fact that he published a second edition of his book on ancient philosophy in 1619, a re-issue that was unaltered except for the title, shows that Heurnius had not fundamentally revised or changed his ideas since 1600.<sup>153</sup> As one of the few Dutch academics from the early 17<sup>th</sup>

<sup>153</sup> Otho Heurnius, *Babylonia, Indica, Aegyptia etc. Philosophiae primordia*, Leiden (Joh.Maire) 1619

century, Heurnius wrote down his interest (or should we say belief) in the Corpus Hermeticum and the *prisca scientia*. Were Heurnius's convictions and activities idiosyncratic? The degree of idiosyncrasy in Heurnius's intellectual activities and convictions seems to be only limited. Interest in the primordial, antediluvian episodes in the Bible, and attempts to establish a chronology in these events, could also be found in the works of the leading light of Leiden University in around 1600, Josephus Scaliger.<sup>154</sup> Nor was the search for the *prisca scientia* or the *sapientia veterum* (the wisdom of the ancients) an enterprise particular to Heurnius. Other contemporary scholars such as Simon Stevin, Willibrord Snellius and Philip van Lansbergen wrote about the subject as well.<sup>155</sup>

In a European context the fascination for artefacts from ancient Egypt and the interest in Hermeticism and the figure of Hermes Trismegistos that was closely connected to it was also not particular to Heurnius. The great philosophers of the Renaissance, starting with Pico della Mirandola down to Giordano Bruno, saw in the Corpus Hermeticum, combined with the occult knowledge of Cabala, an important body of scientific knowledge (or maybe *the* important body of knowledge) for the reformation of the whole of human understanding of Creation.<sup>156</sup> Heurnius however seems to be one of the very few representatives of this particular intellectual tradition in the academic circles in the Dutch Republic circa 1600.

### Otho Heurnius, Govert Basson and Robert Fludd

Otho Heurnius's interest in Hermeticism in the early decades of the 17<sup>th</sup> century, his identity as a medical scientist, and his formation as a natural philosopher seem to conform to a certain type of scholar that is indeed encountered regularly in that period, but usually outside the Dutch Republic, especially in the Protestant countries of Northern Europe. These scholars, often physicians and often adherents of the teachings of Paracelsus, shared a utopian belief in the advent of a better world. Their vision of the world and of its future is maybe best characterised under the somewhat vague term of Rosicrucianism.

Rosicrucianism was a mystic intellectual movement, probably originating in the German Palatinate, proposing a complete renewal of the Natural Sciences, based on a thorough understanding of the Corpus Hermeticum and the world of natural magic associated with it. In many respects the Rosicrucian movement was a revival of the Renaissance Neo-Platonism, combined with later influences, especially the alchemist teachings of Paracelsus. The Rosicrucian phenomenon started with two manifestos published in Kassel, known in short as the *Fama Fraternitatis* (1614) and the *Confessio Fraternitatis* (1615), and an allegorical play or romance called *Die Chymische Hochzeit des Christian Rosencreutz*, published in Strasbourg in 1616.

The main character, or hero, of all three publications is a certain Christian Rosencreutz, the mysterious founder of the Brotherhood of the Rosy Cross. This Rosencreutz, an illuminated man, a traveller, philosopher and magician, was born in 1378 and lived for 106 years! After extensive travels in the Mediterranean, acquiring the ancient knowledge still present there, he returned to his native Germany and gathered other wise men around him, thus founding an order with the purpose of reforming science and renewing all arts. The reformed knowledge developed by Rosencreutz and his brethren, and based on a 'new-old philosophy, primarily alchemical and related to medicine and healing, but also concerned with number and geometry' would enlighten the whole world, an enlightenment that had so far been impeded by the authority of Aristotle and Galen.<sup>157</sup>

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<sup>154</sup> J.C.H. Lebram, 'Ein Streit um die Hebräische Bibel und die Septuaginta' in: *Leiden University 400 Years*, p. 21 and p. 23, Scaliger wrote about biblical chronology: *Opus de emendatione temporum* [ . . . ] Leiden, 1589

<sup>155</sup> Jorink, *Op. Cit.* p. 47 ff.

<sup>156</sup> For Hermes, Cabala, Magic, etc, and the Renaissance cf. the work of Frances Yates, e.g. *The Occult Philosophy in the Elizabethan Age*, London 1979, p. 17 ff. and *Giordano Bruno and the Hermetic Tradition*, Chicago 1964

<sup>157</sup> Yates, *op. cit.*, p. 75

So it was that the Rosicrucian manifestos announced the coming of an era in which the new science, or rather the rediscovery of old wisdom, would restore mankind to the state of Adam in Paradise. This era could be interpreted as the Millennium, the thousand-year period of harmony and understanding that would precede the Youngest Day.<sup>158</sup>

Although all three initial Rosicrucian treatises were published anonymously, *Die Chymische Hochzeit* can with certainty be attributed to Johann Valentin, a Lutheran pastor from Württemberg.<sup>159</sup> Andreae held liberal religious views and, although a Lutheran, was interested in the works of Calvin. The central theme of his publications was a utopian vision in which the social and religious problems and conflicts of his times would be solved. The personage of Andreae is a good indication of the circles to which the anonymous author or authors of the other Rosicrucian treatises were likely to belong. The Rosicrucian phenomenon seems to have originated from intellectual and idealistic groups in the German Protestant states, and their rallying point was the court of the elector palatine Friedrich V at Heidelberg, who was to go down in history as the Winter King. How the ideals and hopes of these esoteric mystic utopists combined with the political aspirations of the Protestant German rulers to usurp the Roman Catholic Hapsburgs as the prominent power of the Holy Roman Empire is a question beyond the reach of this study. But it is clear that the Rosicrucian ideas held a great appeal to progressive scholars, especially from the Protestant states of Europe. In the United Provinces for instance a Dutch translation of the *Fama* appeared very soon after its original publication.<sup>160</sup> And especially among medical scientists; as most Natural Philosophers in the early 17<sup>th</sup> century came from a medical background, the Paracelsist overtones in Rosicrucianism were bound to have a certain attraction to them.

The Rosicrucian phenomenon did also not go unnoticed in the university town of Leiden. The printer's and bookseller's enterprise of Goverd Basson in particular seems to have played a role in a European network around the figure of Robert Fludd. Fludd was a Paracelsist London physician who acted as one of the most outspoken advocates of the Rosicrucian movement. Fludd's first two publications, apologetic writings defending the mysterious brotherhood of the Rosy Cross, were published by Goverd Basson in Leiden in 1616 and 1617.<sup>161</sup> And Basson's interest in the Rosicrucians went beyond the printing and publishing of Fludd's two treatises. He also sold books by other writers associated with the Rosicrucian phenomenon, such as Michael Maier, another Paracelsist physician, and a copy of the *Confessio* accompanied by a *Brevis Consideratio* by a certain Philip a Gabella, probably also a Rosicrucian pseudonym or mystification.<sup>162</sup>

But even before Fludd's pamphlets were published by Basson, this publishing house had acquired something of a reputation as a firm sympathetic to the more heterodox philosophies of the turn of the century. The founder of the publishing house, Thomas Basson, was associated with the spiritualist sect of the Family of Love, whose adepts were also to be found among Leiden professors, notably Otho Heurnius's father Johannes.<sup>163</sup> The mainstay of the publications of the *Officina Bassoniana* consisted of small academic publications, theses and 'carmina', but the firm also printed and sold books with titles such as *De occulta philosophia* and *Tractatulus chemicus theosophiae palmarium dictus*, both printed in 1600 and both written by the Huguenot physician, natural philosopher and alchemist

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<sup>158</sup> Yates, *op. cit.* p. 79

<sup>159</sup> Yates, *op. cit.*, pp. 58-59

<sup>160</sup> *Fama fraternitatis, oft ontdeckinge van de broederschap des loflycken ordens des Roosen Cruyces* [. . .] Gedrukt na de copije van Jan Berner tot Franckfort (Amsterdam?) Ao. 1615 (copy in British Library)

<sup>161</sup> *Apologia Compendiaria Fraternitatem de Rosae Cruce suspicione et infamae maculis adpersam* [. . .], Leiden (Goverd Basson) 1616, and *Tractatus Apologeticus Integritatem Societatis de Rosae Cruce defendens*, Leiden (Goverd Basson) 1617

<sup>162</sup> Bögels, *Govert Basson*, p. 149, Yates, *op. cit.* p. 76

<sup>163</sup> About the Family of Love cf. H. de la Fontaine Verwey, 'Het Huis der Liefde en zijn publicaties' in: *Humanisten, dweppers en rebellen in de zestiende eeuw*, Amsterdam 1975, and H. De Waardt en J.J. Cobben, *Duivelse bezetenheid, beschreven door dokter Johannes Wier 1515-1588*, Rotterdam 2002, p. 41 ff.

Nicolaas Barnaud (1535-1601), who lived in Gouda at the time. Basson also translated and published Reginald Scot's *Discoverie of Witchcraft*, a book opposing the witch-hunting practices raging through much of Europe at that time.<sup>164</sup> In the 1610s Thomas Basson's stock shows an interest in the Arminius-Gomarus controversy, a dispute that would seriously disrupt the Dutch state at the end of the decade. Basson supported the Arminian faction, acting as a printer for Arminius's publications.<sup>165</sup> This interest in, and sympathy for, the more liberal and heterodox religious views remained a characteristic feature of the *Officina Bassoniana* when Thomas's son Goverd gradually took over the business from 1612 onwards. Goverd was also a supporter of the Arminian or Remonstrant cause, and even got into trouble because of his religious views, when the Remonstrants were repressed by the orthodox Calvinists after 1619.<sup>166</sup>

This same printing and publishing house of Basson was chosen by Otho Heurnius to be the sole supplier of prints and books to the anatomical theatre of Leiden University. In August 1618 Heurnius had bought the large collection of prints and books at Basson's with which he started his expansion of the collection of the theatre. And again in 1619 the University treasurer Van Baersdorp paid 124-12 guilders, owed by Heurnius to Basson. This time the invoice by Basson mainly mentions books, and mainly on surgery and anatomy, but also some prints, among them the *Four Falling Figures* by Goltzius, *the Five Senses*, and the *Four Temperaments (Complexien)* by Jacques de Gheyn.<sup>167</sup> The second Basson invoice was only paid reluctantly by Van Baersdorp, and Heurnius felt obliged to write an explanatory note at the bottom of the bill stating that these were 'the very last costs to be made for decent instruction in the anatomy place [. . .] for these above mentioned books supplied by Goverd Basson. They are absolutely necessary and without them the work cannot be done, nor the demonstrations of the anatomy to separate the members sufficiently and to explain their functions and illnesses; they also serve to tread to the students the judgments of all the famous anatomists and the diversity of their opinions, so that they can simultaneously see and learn which books are most necessary for the study of anatomy and medicine [. . .]'.<sup>168</sup>

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<sup>164</sup> *Ondecking der tovery [. . .] door Reinald Scot [. . .] verduyscht door Thomas Basson 1609*

<sup>165</sup> Van Dorsten, *Thomas Basson*, pp. 51-54

<sup>166</sup> T.S.J.G. Bögels, *Govert Basson*, pp. 22-24, Govert Basson was interrogated by the contraremonstrant bailiff of Leiden Gerard de Bont in January 1620, because of his Remonstrant sympathies.

<sup>167</sup> The two Basson invoices for the acquisitions by Heurnius are published in e.g. Bögels, *op. cit.* pp. 315-321

<sup>168</sup> Transcription and translation in Bögels, *op. cit.* p. 72



Figure 20: Hendrik Goltzius after Cornelis Cornelisz. Van Haerlem, *Icarus*, engraving ca. 1690. One of the four falling figures from mythology (besides Ixion, Phaeton and Tantalus), supplied to Heurnius by Basson in 1619 (Rijksprentenkabinet Amsterdam)

Heurnius could have ordered the books and prints for the anatomical theatre anywhere. They do not appear to be specialist items that only Basson could acquire. Basson probably acquired them by exchange with other booksellers, as was the custom in this trade.<sup>169</sup> Did Heurnius prefer the Basson house merely because it was located conveniently close to the Faliëdebagijne chapel, at the corner of the Rapenburg and the Kloksteeg? It is my opinion that Heurnius's preference for Govert Basson as the sole dealer of the books and prints for the theatrum anatomicum mainly has to do with the fact that there was a clear affinity between these two men. Both Basson and Heurnius came from a Familist background and both were interested in esoteric philosophy. In Heurnius's case this can be deduced from his book about the philosophies of the Chaldeans and Zoroaster, and his interest in the *Corpus Hermeticum*. Whether Heurnius was an adept of Rosicrucianism cannot be decided with any certainty, but the Leiden professor certainly knew about the Rosicrucian movement. In Basson's case his dealings with Robert Fludd and his interest in the Rosicrucian phenomenon show that he too was not adverse to these unorthodox intellectual currents. Heurnius's relationship with Govert Basson, the bookseller/printer embedded in a milieu with tolerant religious views and interests in unorthodox scholarly movements, such as Rosicrucianism, is another indication of the not altogether orthodox intellectual orientation of the Leiden anatomy professor.

Did Heurnius's knowledge of, and probable affinity with, the sphere of Rosicrucianism influence the collection of the Leiden anatomical theatre? In the writings of Robert Fludd, as an important representative of this intellectual current, there are many references to collections as instruments of investigation and speculative science. Fludd's magnum opus *De utriusque cosmi historia* (History of Two Worlds), published in three volumes in Frankfurt between 1617 and 1619 not by Govert Basson but by Theodor de Bry, pays ample attention to scientific collections, or 'theatres of wisdom' (*theatra sapientiae*) as they were often called.<sup>170</sup> The ambition of Fludd's book was to describe the whole of

<sup>169</sup> Bögels, *op. cit.*, p71

<sup>170</sup> On the connections between the houses of Basson and De Bry, cf. Bögels, *Govert Basson*, p. ??)

creation in one comprehensive system, based on the theory of macrocosmos and microcosmos, the two worlds referred to in the title of his book.

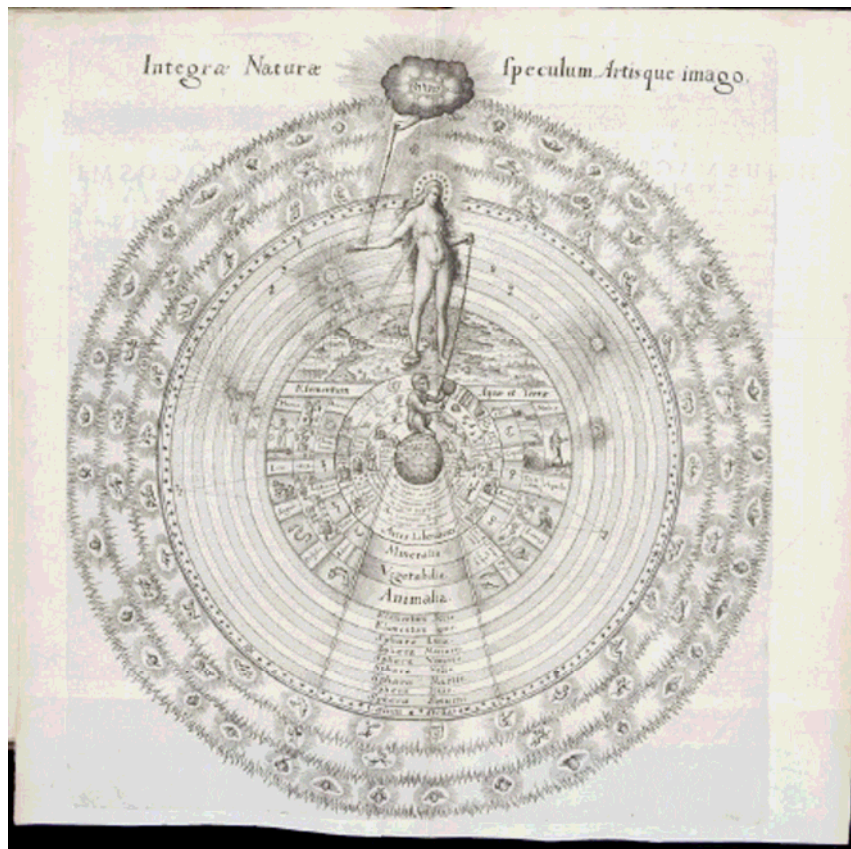


Figure 21: Matthäus Merian the Elder, *Integrae naturae speculum artisquae imago*, engraving from Robert Fludd's *De utriusque cosmi majoris historiae*, Vol. I, Oppenheim (Johann Theodor de Bry) 1617 (Leiden University Library)

In the volume on the macrocosmos, *De utriusque cosmi majoris historiae* (1617), Fludd presents an elaborate diagram showing the relationships between nature and art: *integrae naturae speculum artisquae imago* (mirror of the whole of nature and image of the arts). In this diagram *Natura* is personified by a naked woman, held on a chain by the hand of God. Man in turn is represented as the ape (= imitator) of nature, held on a chain by her. In concentric circles the domains of God, nature and man are represented; from the outer spheres of the angels and spirits, through the celestial sphere of the firmament to the spheres of the planets, to the sublunar sphere of terrestrial nature, which is divided into the vegetable, mineral and animal kingdoms. The domain of man is reserved for the *artes*, which in Fludd's interpretation means man's means of influencing nature. There are the *artes liberaliores* (the free arts) and the *artes mechanicae*. The mechanical arts are in turn divided according to the three reigns of nature: *ars naturam corrigens in regno minerali* (which is alchemy), *ars naturam corrigendo in regno vegetabili* (agriculture) and *ars naturam corrigendo in regno animali* (to which medicine belongs).<sup>171</sup>

Hierarchical cosmologies like Fludd's could serve as the structure on which a Kunst- und Wunderkammer was organised. In the part of *De utriusque cosmi historia* on the microcosm however Fludd presents these diagrams not so much as real, existing, collections but rather as memory aids, mnemotechnic devices. He writes about them as imaginary theatres in which the various phenomena of the macrocosmos can be presented to the mind's eye. In a separate chapter on this subject, *Ars memoriae*, Fludd describes how he uses two imaginary theatres as mnemonic aids: a square one to

<sup>171</sup> Scheicher, *op. cit.* p. 26

‘store’ the memories or knowledge of material subjects (*ars quadrata*) and a round one to represent spiritual, abstract concepts, such as virtues and vices personified by gods, mythological heroes, etc (*ars rotunda*).<sup>172</sup>

In a medical context – Fludd trained as a doctor of medicine at Oxford, was a member of the Royal College of Physicians and a close friend and early supporter of William Harvey – the cosmology represented in the diagrams of *De utriusque cosmi historia* could serve as a means of grasping the macrocosmos, which in turn would help to understand the microcosmos, man.<sup>173</sup> The macrocosmos with all its variety had a direct relationship to the microcosmos of man; there was nothing in man that was not also in nature, and nothing in nature that was not also in man.<sup>174</sup>

It is tempting to associate Otho Heurnius’s furnishing of the Leiden anatomical theatre with objects from nature and artefacts from man’s earliest history onwards with Fludd’s circular diagrams of the macrocosmos. The analogy can be taken even further when one takes into account the plan of the anatomical theatre as a meaningful architectural construction: circular with seven concentric rings or spheres, like a representation of the planetary system. In the centre of this model of the macrocosmos is the dissecting table, the place where the microcosmos, the inner fabric of man, would be displayed.

As argued above, Otho Heurnius was probably familiar with the ideas associated with Rosicrucianism, through his Hermetic interests and his relationship with Goverd Basson. As people with a medical background were certainly among the anonymi developing the Rosicrucian ideas, and the reform of medical science was one of the key points of the Rosicrucian agenda, it is conceivable that Heurnius gained inspiration from the work of Robert Fludd or Michael Maier for his programme for the collection of the anatomical theatre.<sup>175</sup>

However, if one compares the neat cosmological diagrams in Fludd’s *De utriusque cosmi historia* with the inventory lists of the collection of the Leiden theatrum anatomicum of 1620, 1622 and 1628, one is immediately struck by the difference.<sup>176</sup> Fludd’s separate categories of the three reigns of nature and of the *artes* by which man seeks to influence nature leads one to expect a collection whose arrangement reflects these neat categories. Heurnius’s inventory list however, arranged according to the different rooms of the theatre, gives a much more haphazard impression. A showcase with a child’s skeleton and a child’s skull for instance also shows skeletons of mice and a stag beetle. And the showcase containing Heurnius’s prize object, ‘the large mummy’, also exhibits a ‘fungus’ and ‘statuettes from Japan’.<sup>177</sup> Naturalia and artificialia are mixed together, apparently at random. Although the collection obviously contains specimens from all the variety of the macrocosmos – there even is a *lapis aстероites* (an asteroid) referring to heavenly phenomena with preternatural causes – its haphazard arrangement does not explicitly bear out the view of the cosmos as a hierarchically arranged, orderly system. Cosmological theory and the practice of the collector do not go together very well, it seems.

After the 1620s Otho Heurnius by all appearances lost interest in the *prisca scientia*, Hermeticism, natural history, and even the collection of the Leiden anatomical theatre as such. From 1635 onwards he invested his energies in the teaching of medical practice in the Collegium Medico Practicum, as we shall see below.

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<sup>172</sup> Yates, *Theatre of the World*, p. 140 ff.

<sup>173</sup> Sherman, Lukehart, *Writing on Hands*, pp. 208-209

<sup>174</sup> Yates, *Rosicrucian Enlightenment*, pp. 113-114, Also: Debus, *The English Paracelsians*, p. 18 ff.

<sup>175</sup> Yates, *Rosicrucian Enlightenment*, p. 74

<sup>176</sup> Cf. Barge, *op. cit.* p. 34 ff.

<sup>177</sup> Barge, *op. cit.*, pp. 50-52

## VII. *The New Anatomy: Joannes van Horne*

The middle period of the 17<sup>th</sup> century was an exciting era in anatomy. The descriptive anatomy of the previous era, which was influenced by great observers of the human body such as Vesalius and Fabricius ab Aquapendente, but also depended heavily on classical sources such as Galenus, gave way to a more physiological way of looking at the human body. Harvey postulated the double circulation of the blood – *en passant* comparing the heart to a pump – and in the wake of Descartes' mechanistic view of nature anatomists became interested in all kinds of physiological processes within the body. The digestion of food became a major theme of interest, just as the newly discovered lymphatic veins, the chyle ducts and the glands of the digestive system. Researching these new phenomena of physiology required experiments – often in living organisms, i.e. vivisection – new scientific apparatus such as the microscope, and a range of artifices such as vascular injections with coloured fluids, wax and mercury to make these minute systems visible. No wonder the development of anatomical preparation techniques proliferated in these decades.



Figure 22: Anonymous, *Joannes van Horne*, oil on panel ca. 1650  
(Amsterdams Historisch Museum)

In this important era of anatomy and physiology the chair of anatomy and surgery at Leiden was held by Joannes van Horne, who could today be considered rather an obscure figure when compared to his Leiden contemporaries Sylvius or Van der Linden. Nevertheless, Van Horne's teaching was not without influence in the Dutch medical world. An interesting aspect of Van Horne's professorial activities was the important role he ascribed to *privatissima*, private lectures at the professor's quarters, and paid for by his students. As we shall see, these small gatherings of the anatomist and a handful of his more promising students could be most fruitful in combination with the new experimental way of studying life. With Van Horne and some of his students these *privatissima* went

far beyond mere anatomical demonstrations, into attempts to unravel the secrets of how living organisms work. Concentration and deliberation between initiates were what was necessary in these experimental quests, without the distractions posed by a larger audience at a public demonstration.

Among Van Horne's students were important and famous scientists such as Jan Swammerdam, Reinier de Graaf, Frederik Ruysch, Cornelis Bontekoe and Nicolaus Steno, of whom Swammerdam and Ruysch in particular distinguished themselves by their abilities as anatomical researchers and craftsmen. These abilities – or at least a significant part of them – must have been shaped by the teaching of their Leiden professor, Joannes van Horne. So who was this man, who may not be so well-known for his own scientific work, but who at least deserves recognition for helping to educate some of the brilliant anatomists and researchers of the Dutch 17<sup>th</sup> century?

### Van Horne and Leiden

Joannes van Horne was born in Amsterdam in September 1621. He came from Flemish stock, his grandfather being Pieter van Horne, a wealthy Antwerp trader. Joannes van Horne's father moved from Antwerp to Amsterdam, trading in his Catholic faith for the Dutch reformed religion. In Amsterdam he became 'bewindhebber' (director) of the Dutch East India Company, and a very wealthy man.<sup>178</sup>

Joannes van Horne, following his father's wishes, went to study law and *litteris* at Leiden University. In his student years however he witnessed several public dissections, which fascinated him so much that he decided to switch from his former studies to the study of medicine, specialising in anatomy. His main teachers at that time must have been Otho Heurnius and Adrianus Valckenburg. After his studies in Leiden, Van Horne embarked on an academic pilgrimage *cum* grand tour, which took him to Italy: Padua, Naples and Milan, via Sicily and Malta to France and the old university of Montpellier and eventually to England. In the course of this *peregrinatio* he gained his title of *Doctor Medicinae* in Padua, and another title of *Doctor Medicinae honoris causa* in Basle.<sup>179</sup>

Back in Holland at some point in 1650 Van Horne sent a request to the Curators of his old University, asking them if he would be allowed that winter to exercise publicly his art of anatomy on any subjects occurring in service of the University.<sup>180</sup> A decision was postponed by the Curators, but in February 1651 Van Horne was appointed professor extraordinarius in anatomy. He was expected to exercise 'his profession to the further glory of the academy and the benefit of the students, who frequent the same.'<sup>181</sup> Van Horne would give public lectures, demonstrations of anatomy, and he was to hold disputations, meetings 'and otherwise'. In short, Van Horne was expected to restore the practice of anatomy, for which the university had been famous since the late 16<sup>th</sup> century, but which had been in decay due to the death of Valckenburg and the old age of Heurnius.

But although the professor extraordinarius Van Horne was entrusted with the important task of restoring the fame of anatomy in Leiden, his wages were rather modest: 400 guilders. His colleague Kyperus for example, made 1,400 guilders a year. On 9 February 1652 Van Horne put in a request to the Curators of the University for a grant to 'lighten the burden of the excessive expenses he suffered, and would have to suffer for quite some time in the matter of certain anatomical drawings he was having made'. This anatomical project was intended for the 'perfection of the study of anatomy, the honour of the academy and the benefit of the students of medicine.'<sup>182</sup> Van Horne was indeed granted a subsidy of 200 guilders extra for this project, to 'encourage him in his function.' We will return to

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<sup>178</sup> G.C.B. Suringar, 'De ontleedkundige school van Joannes van Horne', in: *NTG reprint 1860*, p. 20

<sup>179</sup> Data found in typoscript *Leidse Hoogleraren* (S.L., S.A.) of the werkgroep Leidse elites (UBL)

<sup>180</sup> AC 24, fol.203: '...om deese aanstaande winter op de voorkomende subjecten publycquelyck ten dienste van deze universiteyt syne kunste in anatomiseren te mogen excerceren'

<sup>181</sup> AC 24, fol. 216 Vo. 'ter meerdere eere van de academie ende voordeel van der studenten dieselve frequenteerende'

<sup>182</sup> AC 24, fol.250 Vo.

this anatomical enterprise shortly. The same year Van Horne also dedicated his treatise *Novus ductus chyliferus* to the Curators of the University, for which he was rewarded with 40 guilders.

In January 1653 Van Horne was made professor ordinarius in anatomy and surgery for the salary of 600 guilders.<sup>183</sup> He probably was given this promotion because the Amsterdam Athenaeum Illustre also offered him the position of professor of anatomy. A request to be allowed to keep his subsidy of 200 guilders for the work on his anatomical drawings was postponed by the Curators throughout 1653. Only on 17 August 1654 were his wages increased by 200 guilders to a salary of 800 guilders per annum. His pay rise also meant an increase in duties for the anatomy professor, as he was held from then on by the Curators to give lectures four times a week.<sup>184</sup> Van Horne remained on a salary of 800 guilders a year – which was considerably less than his colleagues Vorstius, Van der Linden and especially Sylvius – until 1667, when his wages were increased to 1,000 guilders. Incidentally, the fact that Van Horne's wages were relatively low does not mean that he was in any way indigent. As a scion of a very wealthy family he was not dependent on his professorial wages, as my reports of his living circumstances testify.

In the Leiden city archives we find several documents relating to Van Horne, the earliest being a mention in the graves register of the Pieterskerk, in which church he bought a grave in February 1656. On November 11<sup>th</sup> 1662 Joannes van Horne 'prof. med. en dokter' living at the Papegracht went into betrothal to Anna van Ulst, widow to Van Horne's landlord Benjamin de Wannemaeker, who lived at a wealthier part of Leiden: the Rapenburg. This betrothal was indeed succeeded by a marriage, as in a letter dated March 1<sup>st</sup> 1663 Olaus Borrichius, the Danish scientist staying in Leiden, reported to his fellow Dane the famous anatomist Thomas Bartholin about Van Hornes wedding to the widow Van Ulst.<sup>185</sup> In 1662 Van Horne also moved in with the widow Van Ulft at the Rapenburg.<sup>186</sup>

On June the 4<sup>th</sup> 1664 Van Horne bought a house at the Noord Rapenburg or Noord Eynde, which he sold again in 1668. The Noordeinde was a respectable part of town, but not quite as respectable as the nearby Rapenburg, and Van Horne probably bought and sold the property as an investment. Entered in a municipal tax register from 1666 we find 'Johannes ab Horn professor anatomicae' for a tax assessment of ten guilders on his capital gains. Because this tax was calculated as the '1000ste penning', his assets at that time would have amounted to 10,000 guilders.<sup>187</sup>

In the archives of the Curators of the Leiden University we find references to Van Horne only sporadically, apart from his requests for a payment more in proportion to the wages of his colleagues in the medical faculty. He was involved more or less as a bystander in the Cartesian troubles of 1658-59 concerning the professor of philosophy Johannes de Raey. De Raey took over from Van Horne as the professor teaching the *institutiones medicinae* (introductory lectures in medicine), lectures that Van Horne had given since 1656, after the death of Kyperus. De Raey instilled a certain degree of Cartesianism in these lectures, thereby raising the suspicion of the Curators of the University. The professors of medicine were quick to play on this suspicion to have the *institutiones* returned to their faculty, outraged as they were that this medical subject was being taught by a non-medical professor. The *institutiones* were not returned to Van Horne however. In 1659 Johannes Antonides van der Linden – the most conservative of the four medical professors – took over the *Institutiones*, stating that 'medicine should not be based on philosophical speculations but on [medical] experience'.<sup>188</sup>

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<sup>183</sup> AC 440 Rekening over 1653 fol. 465 Vo.

<sup>184</sup> AC 25, fol. 29 Vo.

<sup>185</sup> Th. Bartholin, *Epist. Med.* Cent. IV p.281

<sup>186</sup> *Het Rapenburg IV*, pp. 536-538

<sup>187</sup> RAL Kohier 1000° 200° and 100° penning, and Bonboeken 1642-1811

<sup>188</sup> Molhuysen IV, p. 154: '... dat de medicine niet op filosofische speculatie maer op d'ervarenheyt moet worden gefundeerd.'

In May 1669 Van Horne is mentioned once more in the ‘resolutien’ of the Curators. He is allowed 30 guilders for ‘a certain treatise of his’ (voor seecker zijn tractaet).<sup>189</sup> This treatise was his study on the sexual organs *Prodromus observationum circa partes genitales in utroque sexu* (1668), on which occasion he collaborated with his brilliant pupil Jan Swammerdam.

At the end of 1669 Van Horne fell ill. He died on 5 January 1670 and was buried on the 13<sup>th</sup> of the same month, probably a victim of the plague that was ravaging the city at that time. So ends the survey of Van Horne’s public and private life as can be distilled from the documents in the university and city archives. But such a survey still leaves many questions unanswered. What about his work as an anatomist? And what about his activities connected to the theatrum anatomicum? And finally, what about the famous anatomists Ruysch, Swammerdam and Steno, among others, who were all students of this man? For answers to some of these questions we will have to look beyond the official documents, and into more personal and private communications by Van Horne’s contemporaries.

### Van Horne’s anatomical atlas

As mentioned above, Van Horne put in a request to the Curators for a subsidy almost immediately after he was engaged by the University. He asked them for an allowance to lighten the costs he was suffering on account of anatomical drawings he was having made. And he referred to this project again in 1653, when he wanted to retain the allowance of 200 guilders on top of his new, somewhat higher salary as professor ordinarius. On that occasion it was decided by the Curators that someone should look into these drawings, and form some judgement on Van Horne’s anatomical project, in order to deal adequately with his request.<sup>190</sup> Eventually, on 17 August 1654, Van Horne received his pay rise of 200 guilders, maybe partly on account of his anatomical work, which seems to have been intended to result in an anatomical atlas.

Van Horne did not work on this project alone, but engaged an artist to do the drawings, following his instructions. This artist was Martin Sagemolen, a German painter and engraver from Oldenburg, who worked in Leiden from 1640, and later in Amsterdam. Statements by Sagemolen concerning his work on the anatomical plates have been transcribed by Herman Boerhaave, who owned this material at the beginning of the 18<sup>th</sup> century.<sup>191</sup> Sagemolen’s statements were written *in margine* of the drawings. The earliest statement dates from 1654 and accompanies drawings of the thighs, feet and legs. ‘The anatomy of the thighs, legs and feet have I, Marten Sagemolen, drawn with God’s help, anatomised with my own hands and chalked (*onderkrijt*).’ Further on we read: ‘the anatomy of the arms have I, Martin Sagemolen, examined and anatomised from various individuals, with great expenses and troubles, but that is the way it must go.’ (*Doch dat moet so gaan*). This statement is also from 1654.

Another comment reads: ‘I Marten Sagemolen of Oldenburg have drawn these human aspects (*aengesichten*) and inspected them after life (*nae het leven*) with great industriousness. I have anatomised with God’s help and without the help of men, the whole human body from the head to under the feet. I have agreed to do this and indeed completed it, for the honourable gentleman Joannes van Hooren, professor in Leiden.’

The work was not confined to the year 1654; there are also drawings by Sagemolen signed and dated 1656 and drawings signed and dated 1660. Herman Boerhaave also transcribed a kind of dedication by the German artist stating: ‘With this anatomy I have tried to satisfy by the best of my abilities three sorts of artists. First and foremost the very learned gentleman Joannes van Hooren, after that also the anatomical artists and amateurs of this same art. After those the dull and stupid (*botte en stompe*) painters, who are eager for knowledge, but reluctant to take the matter in hand themselves. And finally and thirdly the [. . .] carvers of images (*beeldsnijderen*) and hewers of stone’ (*steenhouweren*) (i.e. engravers and sculptors).

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<sup>189</sup> AC no 26, fol. 335

<sup>190</sup> AC 24, fol. 290 Vo. ‘. . . sal worden geïnformeerd ende naer die genomene informatie op ’t versoeck van derselve requeste gedisponeerd.’

<sup>191</sup> GAL 7000/79 pf fotocopy of an original document kept in the Kirow Institute, Petersburg

For Sagemolen this large-scale anatomical project must have been a way to emancipate himself from the artisan milieu with which he and his colleague painters and engravers were associated, and gain acceptance in the loftier social and intellectual strata as a man of science. It is probably no coincidence that Martin Sagemolen was involved in the organisation of the new Leiden painters' guild, which split off from the original guild of 'kladschilderen' (housepainters) in 1648.<sup>192</sup> This would also account somewhat for the way the artist stresses time and again that he himself did the anatomising and examining of the corpses. Statements, by the way, that make one wonder about the exact character of the cooperation of an artist and a scientist on such scientific work as an anatomical atlas.<sup>193</sup>

Whatever their working arrangements, the anatomical project undertaken by both men was certainly no mean feat. In the archives of the Museum Boerhaave there is a document concerning Van Horne and Sagemolen's anatomical atlas, a description of the contents of the plates, again made by Boerhaave, who owned them.<sup>194</sup>

The whole atlas seems to have consisted of six books or *tomi*. Three of them were of quarto size, bound in tortoise covers with gilded imprint. The first *tomus* held 25 plates, showing frontal and dorsal views of the body. The second showed all the muscles of the different parts of the body, in 54 icons. While the third *tomus* showed muscles, tendons and bones, as well as the brain, the feet, the tongue, the salivary ducts and the ear, and the pelvis, the penis, etc.

A fourth book showed 'beautiful pictures of the muscles' (*pulchrae icones musculorum*) with their names inserted. The fifth *tomus*, in a black cover, showed the anatomy of the head: facial muscles, the larynx, etc., as well as the feet and the sexual organs. The sixth book showed muscles of the thorax, the abdomen and the pelvis. The main focus of Van Horne's anatomical work evidently lay on the musculature of the human body. Finally, there was a volume with plates 31 Rhineland inches high, showing the skeleton, and its different parts in detail.

Reports of these anatomical plates can also be found in the journals of Olaus Borrichius. The Dane visited Joannes van Horne on 8 April 1661. He saw representations 'of all the muscles of the human body painted in their natural colours' and a skeleton 'in which of all parts it was marked accurately the beginning and end of all the muscles'.<sup>195</sup> Borrichius also wrote to his Danish colleague Bartholin about his visit. He reported enthusiastically about the plates of the muscles: they were 'very elaborate' and done in 'wonderful natural colours'. This was never done by anyone before, Borrichius added. He also gives some additional information about the plates of the skeleton. The representations were about the same height as a four-year-old child. They were done in black ink and had numbers corresponding to the locations of the muscles. The collection of illustrations as a whole was estimated to be worth 1,200 guilders.<sup>196</sup>

Joannes van Horne never published this anatomical work. At the beginning of the 18<sup>th</sup> century it was in the library of Herman Boerhaave, as we have seen. In 1738 it was auctioned together with the rest of Boerhaave's library, and sold to an unknown buyer at the price of 390 guilders. Since then the plates have been considered lost.

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<sup>192</sup> Thieme Becker Kunsler Lexicon XXIX p. 278

<sup>193</sup> The working arrangement of Van Horne and Sagemolen, as reported by the latter, reminds us of the co-operation between Bidloo and De Lairese: the anatomist preparing the subjects and then leaving them to the artist to examine and draw them without too much interference by the anatomist. Cf. Dumaitre, *La Curieuse destinée*,

<sup>194</sup> Arch 388 Museum Boerhaave photocopy of a description by Herman Boerhaave of the anatomical plates by Martin Sagemolen for Van Horne, original in Kirow Institute, Petersburg

<sup>195</sup> *Borrichii Itinerarium* I, p. 97

<sup>196</sup> Th. Bartholin *Epist. Med.* Cent III, p. 390

## A private collection

From Borrichius's account of his visit to Joannes van Horne we can also learn that the anatomy professor had quite a collection at home, apart from the anatomical plates. This private collection included anatomical preparations of various organs examined by Van Horne: a human lung, with all the flesh removed, thus showing 'that which Highmore had indicated'. Also preparations of the liver and the spleen stripped of their flesh in the same way, as well as specimens of the kidneys, genitals, even dissected testes. From Borrichius's descriptions of preparations of organs in which the flesh was removed to make the veins and arteries visible one gets the idea that Van Horne experimented with the preparation technique of injections of wax or mercury into the vessels of the specimen.

But there was more besides the preparations. Borrichius was duly impressed by a model of the human skeleton, made from iron wire of various diameters, showing the arteries in red and the veins in blue. The skeleton even showed the nervous system in white, and the lymphatic system as small beads of glass to suggest the transparency of the vessels of this system as well as the membranes and the 'plexus choroides', a vascular plexus in the brain. This skeleton was made for Van Horne by the Swedish craftsman (*faber*) Hoffwen and was worth 1,000 guilders. That this Hoffwen was not merely a craftsman transpires from a mention of him as a student of medicine, part of the company with whom Van Horne visited the anatomist Louis de Bils – on which I shall report below.<sup>197</sup>

The absolute pride of the collection – at least as far as Borrichius was concerned – was what the Dane called 'the Hoornian mummy': a preparation of the human arm 'in which all the muscles, arteries, veins, nerves, tendons that the dissector's knife can reveal are clearly discernible'. The arm had even kept its natural flexibility, according to Borrichius, and a natural enough coloration. It had been absolutely dry for a long time, without spots of decay or strange odours.<sup>198</sup>

Borrichius's report of his visit to Van Horne's quarters certainly gives the impression that a lot of the anatomical activity by the professor was done in a more or less private atmosphere, as opposed to his public anatomical duties for the University. A later visit by Borrichius in November 1661 shows that Van Horne also collected zoological specimens: a 'polypus' or squid recently caught near Katwijk five feet long, and a recently deceased chameleon.<sup>199</sup> Van Horne's collection, the anatomical plates, the models, the zoological and anatomical preparations, was probably also used in his *privatissima*.

## Van Horne and the anatomical theatre

Apart from his private anatomical research and collecting, Joannes van Horne was of course supposed to do anatomical work for Leiden University, and he was in charge of the anatomical theatre and its collections. Something of these official duties can be gleaned from reports from various sources, some official, some otherwise.

The first thing that had to be arranged when Van Horne became anatomy professor in Leiden was the transfer of the responsibility for the collections of the theatre from his predecessor. Shortly after his engagement as professor extraordinarius, in August 1652, a written memorandum of the children and heirs of the recently deceased Otho Heurnius moved the Curators of the University to 'order and authorise [Van Horne] to take over for the benefit of the University all the rarities and instruments, kept in the public anatomical theatre according to the inventory list made to the indications of Gerrit Courten, servant of said anatomy'.<sup>200</sup>

This inventory list still exists, bearing the signature of both Gerrit Courten and Joannes van Horne, dated 1652.<sup>201</sup> It can be interpreted as a report of the state of affairs of the collection, as it was handed

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<sup>197</sup> Hoffwen later became professor of medicine in Uppsala

<sup>198</sup> *Borrichii Itinerarium* I, p. 96 ff. This last remark is possibly prompted by Ruysch's criticism of the same mummified arm, Ruysch, *Alle de Werken*, p. 1099

<sup>199</sup> *Borrichii Itinerarium* II, p. 18

<sup>200</sup> AC 24, fol. 271

<sup>201</sup> AC 228

over from the care of Heurnius to that of Van Horne. There are however some items on the list that suggest that the transition of responsibility from one professor to the other was not as clean-cut as it may seem. These items consist of a wooden panel bearing ‘de donatieven van Jhr. De Bils’ (the donations of squire De Bils) and the anatomical specimens and preparations done by that same anatomist/entrepreneur Louis de Bils. These objects were given to the Leiden anatomical theatre by De Bils through the care of Joannes van Horne in 1651, as is stated in the text on the panel. This fact suggests that Van Horne was already busying himself with the theatre before he officially took over the management of the collection. After 1651 Van Horne does not appear to have spent much of his time expanding the collection.

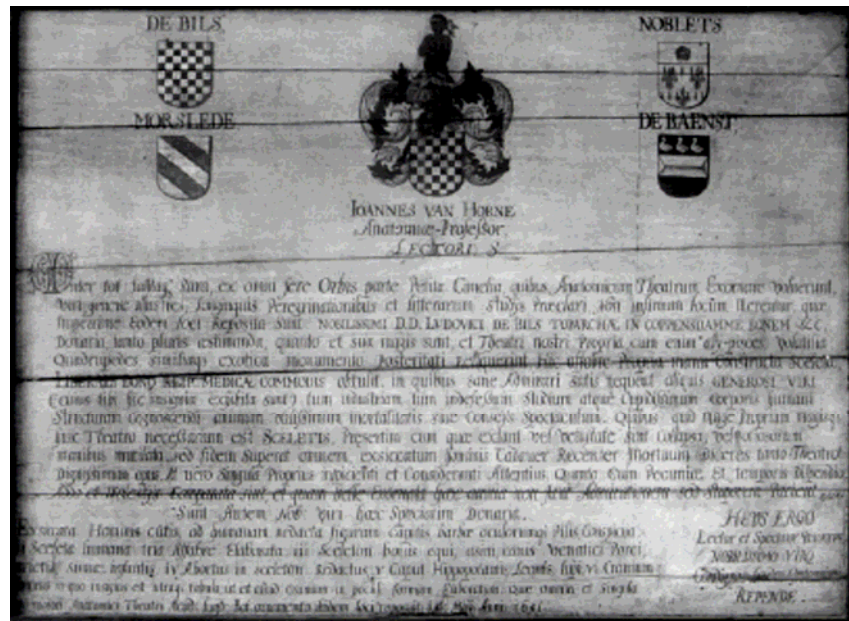


Figure 23: Wooden panel with the coat of arms of Louis de Bils and an account by Van Horne of his donations to the Leiden anatomical theatre (Anatomisch Museum, Leiden University Medical Centre)

### Louis de Bils: an anatomical entrepreneur and his dealings with Van Horne

The relationship between Van Horne and squire Louis de Bils, lord of Coppensdamme and Boonem, is worth elaborating upon, because it allows certain insights into the anatomical science and indeed anatomical ‘commerce’ of the mid-17<sup>th</sup> century. Louis de Bils was a nobleman of Flemish descent, probably born in Amsterdam in 1623 or 1624. He spent his youth in Rouen but returned to Amsterdam in 1646.<sup>202</sup> According to his own words, he had been actively involved in anatomy from his 13th year onwards.<sup>203</sup> In the course of his anatomical work he claimed to have found a way of embalming the body up to its finest details, and that a body embalmed using this process could be preserved indefinitely.<sup>204</sup> Even more extraordinarily, De Bils claimed to be able to dissect without any loss of blood from his subject, which would enable him to show all the finest vessels of the human anatomy as if the anatomical subject were still alive.<sup>205</sup>

<sup>202</sup> Biographical information about De Bils, cf. J.R. Jansma, *Louis de Bils en de Anatomie van zijn Tijd*, diss Utrecht, 1919

<sup>203</sup> Louis de Bils, *Vertooch van verscheyde eyghene anatomische stucken*, Amsterdam (Nic. Van Ravensteyn) 1655, preface

<sup>204</sup> Jansma op. cit. p. 2 ff.

<sup>205</sup> Jansma op. cit. p. 12 ff.

Again according to his own words, De Bils's anatomical feats attracted the attention of the scientific world, as well as rich patrons. 'Professors, predecessors of the aforementioned Mr. Van Horne, have many times asked me for my anatomical pieces, but to no avail'.<sup>206</sup> In around 1650 De Bils had almost made up his mind to sell his anatomical preparations for a large sum of money, as recommended by his friends. But at the last moment he reconsidered. As the professors whom De Bils had refused his anatomical specimens had died by that time – presumably these professors were Heurnius and Valckenburg – and because De Bils was aware that the old skeletons in the anatomical theatre were in a deplorable state, and because 'the anatomy was once more provided with a man of intellect and erudition' (i.e. Van Horne), he decided to make his anatomical specimens into a gift to the Leiden anatomical theatre, out of love for the Republic and the common wealth of Holland.<sup>207</sup>

This happened in April 1651, just a few months after Joannes van Horne had been appointed professor extraordinarius of anatomy. Being instrumental in acquiring such an important donation of anatomical specimens for the anatomical theatre would of course do no harm to Van Horne's position and career prospects within the University.

Van Horne and De Bils agreed to commemorate the generous gift with an attestation written by Van Horne, singing the praises of De Bils, his anatomical prowess, and the preparations themselves. The most important of these preparations were three human skeletons, and skeletons of various animals: an ox, a horse, a donkey, a dog, a boar, a ram, an ape and even a human child. These new skeletons should replace the old ones, which were 'dilapidated by old age, or demolished by inconsiderate hands'.<sup>208</sup> But the part of the gift that rises above all else, Van Horne exclaims in his attestation, 'is a dried human body, of which one would say it had only recently died, the worthiest piece of work for such a theatre'.<sup>209</sup> This stuffed skin of a human being was preserved complete with beard, scalp and eyes.

Van Horne's praises for De Bils's gift were calligraphed in Latin on a wooden board, decorated with the coats of arms of De Bils and his noble forebears. This board was hung at the entrance to the anatomical theatre. The original Latin text of the attestation was also translated into Dutch, and at least De Bils was of the opinion that he could use Van Horne's recommendation freely when promoting his own business ventures, as we shall see below.

Quite soon it turned out that De Bils's gift was not as free and unconditional as it had at first seemed. Because, as Van Horne stated in a book in which he later disassociated himself from De Bils, the nobleman aspired to an aldermanship of the Free Lands of Flanders – the region in the far south west of the Republic where he had lived since the late 1640s. It was his expectation that in return for his generous gift the Curators of the University would recommend him to the States General of the Republic to give him this position. De Bils began badgering Van Horne with requests to further his cause with the University authorities and indeed in September 1655 Van Horne presented a request by De Bils to the Curators of the University, asking them to address themselves to the States General on behalf of De Bils. Of course the University authorities declined to have anything to do with this affair.<sup>210</sup> So De Bils's stratagem for securing a well-paid function – fitting for a nobleman – faltered, and feelings between him and Van Horne began to take a bad turn. De Bils found that Van Horne had

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<sup>206</sup> De Bils, *Vertooch*, pp. 2-3, de professoren, voorsaten van de meergemelten heer Van Horne, hebben my oock menich malen om de gheseyde stucken aengheweest, maer gheen gehoor by my kunnen krijgen.

<sup>207</sup> De Bils, *Vertooch*, p. 3

<sup>208</sup> 'Attestatie' published in *Vertooch* (a.o.): '... zoo wanneer die hier noch zijn, ofte door ouderdom vervallen, ofte door onachtzame handen gebrooken zijn'

<sup>209</sup> *ibid.* '... Maar dat al te boven gaat is een uitghedroogt dood menschen lichaem, datmen segghen sou maar vers dood te wesen, het waardigste stuck werk voor zulk een toneel'

<sup>210</sup> Molhuysen III, p. 110 (8 Sept 1655)

not exerted himself enough on his behalf, and called him ungrateful. Van Horne in turn played down the importance of De Bils's gift.

Meanwhile the need for De Bils to make money became urgent. His brothers prevented him from obtaining his share of his father's bequest and the magistrate function of bailiff of the small town of Aardenburg that he obtained in 1656 did not earn him enough money. Eventually, De Bils decided to restore his fortune with his anatomical skills. In 1659 he published a notarial act entitled *Ampele Akte* [. . .] *rakende de wetenschap van de oprechte anatomie des menselijken lichaams* (Act concerning the science of the true anatomy of the human body), announcing that people could enter into a joint venture with him by paying 25 guilders. The goal of this enterprise would be to amass a capital of 20,000 pounds, allowing De Bils to dissect and embalm 'not much less than fifty bodies'. These dissections would also lead to the production of a series of illustrated books to divulge the results of De Bils's anatomical researches. As a compensation for their donation of 25 guilders De Bils would allow his business partners to witness him performing his secret arts of dissecting without blood loss and embalming. And as a kind of advance token of good faith the prospective business partners could, for an entry fee of 2.50 guilders, admire four bodies De Bils had dissected and embalmed, each showing a particular aspect of anatomy: veins and arteries, nerves, membranes, and muscles. These four full-size prepared bodies were shown in Rotterdam, in an anatomical theatre erected in the erstwhile English courthouse.<sup>211</sup>

A year before De Bils had published a book on his discoveries concerning the thoracic duct. In this book he claimed that all other anatomists had been wrong about the function and identity of this vessel.<sup>212</sup> De Bils regarded the thoracic duct as the vessel that provided the body with liquids and nourishment, as well as cleansing it of its waste products. The 'dew' that was transported by the thoracic duct (which he called 'dew duct' (*dou-voerder*)) was, according to De Bils and his followers, a bodily fluid of the same importance as the blood. This interpretation of the thoracic duct brought De Bils and his adherents into direct opposition with the 'modern' anatomists, such as Pecquet, Van Horne, Bartholin, Rudbeck and Sylvius, which resulted in a heated exchange of libels and counter libels from both parties.

What is strange about the conduct of Van Horne in this affair is the fact that initially he did not disassociate himself from De Bils. Van Horne even writes that he helped distribute copies of De Bils's *Ampele Akte*, by ordering the Leiden anatomy servant to post the pamphlet in the most important inns of the Leiden region.<sup>213</sup> Moreover, Van Horne stated that he translated De Bils's publication about the thoracic duct into Latin, although he adds that his translation was later tampered with.<sup>214</sup> In 1660 Van Horne finally disassociated himself from Louis de Bils, with the pamphlet *Waerschouwinge aen alle lieff-hebbers der anatomie, teegens de gepretendeerde wetenschap van Jhr. Louys de Bils* (A Warning to all lovers of anatomy, against the pretence science of Louis de Bils, Esq.). Why did the Leiden professor of anatomy put up with so much from the Flemish nobleman? De Bils's efforts to extort Van Horne's endorsement to gain a position in political life, his appropriation of Van Horne's attestation for his own commercial uses, and even – for a short while – his misguided ideas about the thoracic duct.

The reason for Van Horne's perseverance in his relationship with Louis de Bils lies mainly in his admiration for and curiosity about De Bils's preparation and embalming techniques. Even in his repudiation of De Bils, Van Horne's high regard for him as an anatomical technician shines through. In his *Waerschouwinge* Van Horne remembers how De Bils, when he presented his gift to the anatomical theatre in 1651, talked to him about a project to dissect five complete human bodies: as a

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<sup>211</sup> Cf. Louys de Bils, *Kopie van zekere ampele akte* [. . .], Rotterdam (Joh. Naeranus) 1659

<sup>212</sup> Louys de Bils, *Waerachtig gebruyk der tot noch toe gemeenden Gylbuis*, Rotterdam (Joh. Naeranus) 1658

<sup>213</sup> Joannes van Horne, *Waerschouwinge* [. . .] *tegens de gepretendeerde wetenschap* [. . .] *van Louis de Bils*, Leiden (D.&A. Gaesbeek) 1660

<sup>214</sup> Jansma, op. cit. p. 20

skeleton, as a stuffed skin, as a preparation of the skeleton with muscles and nerves, as a preparation with its intestines and organs preserved and as a wholly mummified human body.<sup>215</sup>

Van Horne did not think that De Bils was bragging, he had seen convincing examples of these anatomical tours de force: the skeletons and the stuffed human skin De Bils had donated to the Leiden anatomical theatre, and 'yes, shortly afterwards, to the amazement of many in The Hague, he laid open a prepared body, dressed with its nerves and muscles. What is more, I and others have seen at the squire's in Rotterdam another body prepared with its innards.'<sup>216</sup>

As we have learned from Olaus Borrichius's report of his visit to Van Horne's private anatomical collection, the Leiden anatomy professor was obsessed with developing techniques for preparing and preserving anatomical material. This search is very likely to have been prompted by the continuous shortage of fresh anatomical material to dissect in the anatomical theatre. Also, it seems that Van Horne was searching for preparation techniques that could preserve and demonstrate the finer structures, which were just then being discovered and were the topic of heated discussions, in dead material. With De Bils Van Horne hoped to find such techniques, and he tried to extract as much as he could from the nobleman. 'All this time our discussions were mostly about the bones and the embalming of bodies'.<sup>217</sup> De Bils however was reluctant to share any information with Van Horne, as he wanted to use his anatomical skills to gain fortune and fame.

In the end Van Horne became disenchanted with De Bils's pretensions of his anatomical skills. He found that the De Bils's specimens were useless for teaching anatomy; 'specimens made afterwards by me (Van Horne), and which are still preserved surpass [those by De Bils] to a great extent'.<sup>218</sup> This disenchantment became complete on the two occasions that Van Horne visited De Bils's theatre in Rotterdam. On these occasions, once in the company of Sylvius, Gronovius, a Dr Ferreris and the Swedish student Petrus Houffwenius (or Hoffwen) and once with the Rotterdam doctor Van Nydeck and Hendrick Courten, the anatomy servant, Van Horne was treated with so much evasiveness and secrecy that he gained the impression that 'one did not want us to see and regard everything carefully' and he branded De Bils as a 'light flier'.<sup>219</sup> This disenchantment with De Bils's anatomical skills, together with the suspicion held by many that De Bils's anatomical enterprise was a fraudulent operation, and the fact that De Bils's ideas about the thoracic duct made him a champion of a reactionary school of anatomy, as opposed to the 'new, curious' anatomy as represented by Van Horne among others, made the rift complete.<sup>220</sup>

### Van Horne and the anatomy servant

The fact that Van Horne was not very interested in the collection of the anatomical theatre did not mean it fell into neglect. The disinterest of the professor rather created opportunities for the anatomy servant. In 1663 Gerrit Courten died and the vacant post of servant of the anatomy was filled by Stoffel Stoffelsz. van Carthagen, who already occupied the post of servant of the hortus botanicus.

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<sup>215</sup> De Bils, *Vertooch*, p. 3 . . .maer het soude noch meer verwonderinghe veroorsaecken te sien des menschen lichaem op vijfderley manieren opghestelt: te weten eerst op de maniere als de momien sonder opninghe aent hooft, ende teenenmael sijn forme ende ghedaente te behouden sonder te balsemen, ten tweede met sijne spieren ende senuwen omhangende, ten derde in sijn inghewant, ten vierde in sijn ghebeente ten vijfden in sijn huylt. . .

<sup>216</sup> Van Horne, *Waerschouwinge*, p. 13: Jae oock korts daernaer tot veeler verwonderinghe [ . . . ] in Den Haeghe heeft oopen ghelegt een bereyt lichaem met sijn senuen ende spieren omvangen. Daer en booven hebbe ick ende meer andere tot Rotterdam bij sijn Ed. ghesien een ander lichaem met sijn inghewand bereit.

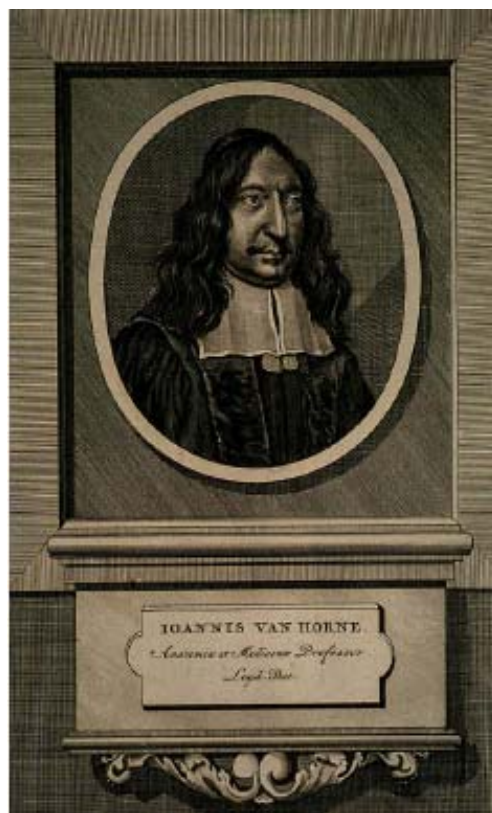
<sup>217</sup> Van Horne, *Waerschouwinge*, p. 12 In al desen tijt sijn onse discoursen meest ghevallen over de beenderen ende balsemen der lichaemen. . .

<sup>218</sup> Van Horne, *Waerschouwinge*, p. 12. . .want die naderhand door mij ghemaect sijn ende noch bewaert werden, deselve grootelijckx overtreffen. . .

<sup>219</sup> Van Horne, *Waerschouwinge*, p. 22 ff.

<sup>220</sup> Van Horne about Hoffwenius in *Waerschouwinge* p. 22: 'he is not raised in the old anatomy but in the new, curious one' [hij en is niet opgebracht in de oude anatomie, maer in de nieuwe curieuse]

Probably because of this Stoffel did not receive any wages for his occupation as anatomy servant.<sup>221</sup> The reason for Van Carthagen to take on the job of anatomy servant, even without pay, must have been the attraction of the extra income provided by receiving paying visitors in the anatomical theatre. Evidently Van Horne had also reaped profits from this, at least during the service of Gerrit Courten, because shortly after Van Carthagen took over the anatomy servant and the professor fell into a dispute about the division of the profits generated by the theatre. This conflict was brought before the Curators of the University, who decided that ‘all the profits and benefits from the showing of the anatomy (i.e. the anatomical theatre) not taking place during anatomical demonstrations should go to Van Carthagen only. But Professor Van Horne in turn shall enjoy all profits issuing forth at times from the demonstrations of (anatomical) subjects.’<sup>222</sup> Both men were issued with the necessary keys to perform their different duties. This arrangement continued after Van Carthagen died and was replaced by Hendrik Cramer (8 May 1667), except that Cramer was also paid wages, probably because he did not perform the dual function of serving the anatomical theatre as well as the botanical garden, but only the former.



**Figure 24: Johannes van Horne as anatomy professor, engraving ca. 1660 (Museum Boerhaave Leiden)**

So the care and the exploitation of the collections of the anatomical theatre were in the hands of the servant of the anatomy, at least from the middle of the 17<sup>th</sup> century. The role of the theatre as a place for the demonstration of the (human) anatomy was still managed by the professor of anatomy. But the servant of the anatomy also played an important part in this area. From the accounts of the

<sup>221</sup> AC 26, fol. 66: 12 nov 1663 ‘mits dat denselven [= Stoffel Stoffelsz.] daervoor geen tractement genieten sal’

<sup>222</sup> AC 26 fol.71 Vo. 15 jan 1664: ‘soo heeft deze vergaderinghe [. . .] goetgevonden dat alle de profijten ende voordelen over het sien van de voors. Anatomie vallende , en dat buyten de tijdt op dewelcke eenige subjecten aldaer mochten worden gedemonstreerd alleen by denselven Carthagennsullen getrocken worden. Doch dat de professor Van Hoorn wederom genieten sal alle de voordelen die ten tijde van de demonstratie van eengige subjecten sullen komen te vallen’

‘rentmeester’ of the University we can deduce that the servant of the anatomy was responsible for providing the subject and the paraphernalia to be used during the dissection (probably such items as bedsheets, scented candles and arrangements for the burial of the cadaver afterwards). Gerrit Courten for instance was paid a salary of 152 guilders per annum from 1653 until 1656. But besides that he was paid a sum in these years varying from 83 guilders and 19 shillings to 32 guilders and six ‘deniers’. This sum was paid in recompense for the money advanced by the servant from his own pocket for acquiring and anatomising the subjects.<sup>223</sup>

In the accounts for the year 1652 things were noted down differently. In this instance the advanced sum was restituted to Joannes van Horne, then professor extraordinarius, who had in turn himself advanced 132 guilders and two shillings to Gerrit Courten. The public anatomy in that winter (1651-1652) was probably done as a private initiative by Van Horne as a means of making himself known in Leiden as a skilful anatomist, suited to taking over the chair of anatomy professor from Heurnius and Valckenburg.

The accounts of the ‘rentmeester’ of the University can give some additional insight into the affairs of the anatomical theatre, and especially the role of the anatomy servant, during the years of Van Horne’s professorship (1652-1670). As we have already seen, Gerrit Courten, anatomy servant until his death in 1663, was supposed to hand over a yearly account of his expenses. To acquire subjects for anatomy he advanced money from his own pocket. The entry in the accounts of the payments of these sums advanced by the University can be found in all the years in which Courten performed the duty of anatomy servant, and in every instance it is stated that he was compensated for the expenses he had made for acquiring ‘seeckere subjecten’, i.e. plural, more than one subject. Except in 1660 and 1661, when there is only mention of ‘subject’ in the singular. Strangely enough the amount of Courten’s expenses does not seem to be influenced by the fact that he acquires one or more subjects. In 1655 he was paid 32 – 1 – 6 for acquiring ‘seeckere subjecten’.<sup>224</sup> And in 1660 he was paid 58 – 20 – 0 for acquiring ‘seecker subject’ (singular).<sup>225</sup> In 1661 he even received 84 – 60 – 0 in recompense for his expenses in providing one subject.<sup>226</sup> While a year later he is paid 44 – 11 – 0 for providing ‘seeckere subjecten’.

So it seems likely that the amount of the expenses incurred to acquire the corpses to be dissected was not so much determined by the number of subjects as by other factors. For this one could think of facts such as: was the journey to fetch the corpse a long and difficult one? And how many assistants had to be hired to help move the body from one of the cities of West Friesland and Holland to Leiden? Maybe even city officials had to be paid before the body was released to Leiden University. These things remain to be researched.

But it seems safe to say that during Courten’s years as anatomy assistant every year one or more subjects were available for dissection by Van Horne. Things become less transparent when Courten is succeeded by Stoffel Stoffelsz. van Carthagen in 1663. Van Carthagen already occupied the post of servant of the hortus botanicus and as such did not receive a yearly salary for his work as anatomy servant. He does however receive recompense for expenses made on behalf of the public anatomy.

In 1665 he is paid 38 – 8 – 6 ‘over ’t geene hij ten dienste ende behoud van denselve (= anatomy) hadde verschooten seedert den seevenden januarij 1665 tot den 17 januarij daeraenvolgende’.<sup>227</sup> This wording ‘ten dienst en behoud’ (in the service and keeping) of the anatomy, allows more than one interpretation and does not necessarily imply the obtaining of anatomical subjects. The dates from 7

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<sup>223</sup> In AC 440-443 Rekeningen over de jaren 1653 - 1656, we find the entry: ‘Betaelt [. . .] voor ’t geen hij verschoten en verdient heeft ter saecke van eenige onkosten soo in ’t vercrijgen als ten dienste van ’t anatomizeren van seeckere subjecten.’

<sup>224</sup> AC 342 fol. 467

<sup>225</sup> AC 347 fol. 463

<sup>226</sup> AC 348 fol. 489

<sup>227</sup> AC 352 fol.514 Vo

January until 17 January however (two weeks in winter) suggest that the expenses were indeed made for a public anatomy. The entry for the following year, 1666, is even more puzzling. Carthagen is paid two sums of money as restitution for the expenses advanced by him in the service of the anatomy. He is paid 17 – 6 – 0 for the expenses made from 28 July 1665 until 2 January 1666. And another 20 – 18 – 0 for the expenses made from 20 February until 23 July 1666.<sup>228</sup> This suggests that he is paid for services rendered during a whole year (from July 1665 to July 1666). What these services were remains a question. A clue may be provided by other accounts in the books of the rentmeester of that period. It seems that in the mid-1660s there was much building, restoration, repair work and renovation going on at the University. Carpenters, bricklayers, locksmiths, plumbers, etc., were paid for work performed in the year 1665-1666 on the 'academy' but also on the anatomy.<sup>229</sup>

In 1667 Van Carthagen dies, and he is succeeded by Hendrick Cramer. Cramer was again an anatomy assistant proper and was paid yearly wages of 152 pounds. Besides that he was paid restitutions for money advanced by him 'ten behoeve van voors. Anatomia' (on behalf of said anatomy). These restitutions were paid for services and costs incurred over a whole year, from 8 May 1667 to 8 February 1668 and 8 February until 8 August 1668 respectively.<sup>230</sup> So whatever the services and costs were, they did not only occur in winter, but throughout the year. And one may conclude that they did not only concern the practice of anatomy in winter, i.e. the provision of anatomical subjects, but a host of other activities as well. Some indications about the nature of these activities can be found in the reports of the meeting of the Curators of the University on 22 May 1668.<sup>231</sup> At this meeting Van Horne presented the Curators with an inventory list of the objects and furniture belonging to the anatomical theatre (*Seeckere inventaris van de stucken ende meublen behorende tot de anatomy der Academie binnen de Stadt Leyden*). Cramer was also involved in making this list and counted these services among the activities for the anatomy for which he wished to be compensated.

At the same meeting of the Curators there were complaints that Cramer's bills were too high. The Curators were of the opinion that the anatomy servant was calculating expenses for activities that were actually part of his job, and for which he already received a fixed salary. It was decided that in future he would leave 'cleaning up' and the 'vacatie van sijnen dienst' out of his expenses.<sup>232</sup>

From the way the expense accounts of the anatomy servant are put into words from 1663 onwards it is very hard to extrapolate if any (and how many) dissections were performed in the anatomical theatre during these years. The expenses were incurred throughout the year and not only in the winter months, and so cannot all be caused by anatomical dissections. Furthermore, it remains unclear what precisely was meant by the regularly used sentence 'schoonmaken ende vacatie van sijnen dienst', 'cleaning up the premises of the anatomical theatre and performing his services as anatomy servant', or more particularly 'cleaning up after an anatomical dissection and performing his services during the dissection'?

At least in the year 1670 we can be certain that an anatomy was performed, because Cramer was paid 12 pounds for the expenses advanced by him in paying the executioner.<sup>233</sup>

### **Accounts of anatomical practice under Van Horne**

Accounts of what went on during public dissections are fairly scarce. Again we can turn to the journals of Borrichius, who reports of such a dissection that took place in the last week of December 1661. The

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<sup>228</sup> AC 353 fol.513 & 513Vo

<sup>229</sup> AC 353 fol.525 ff

<sup>230</sup> AC 355 fol. 220

<sup>231</sup> AC 26 fol. 273

<sup>232</sup> Ibid. 'Soo is goetgevonden dat denselven (= Cramer) sijne overgheleverde rekeningen in dier voege sal dressereren dat hij daerin niet over schoonmaken ende over vacatie van sijnen dienst als daertoe verbonden sijnde en sal mogen declareren'

<sup>233</sup> AC 357 fol.288Vo: 'Twaalf ponden by hem verschoten en aan de scherprechter betaelt'

subject was a ‘typographicus’ who had hanged himself.<sup>234</sup> The dissection started with an inaugural oration by Van Horne, quoting from Fernelius, who compares dissecting the human body to Geography, having three *cavitates* and finally a fourth part which is formed by the extremities: the limbs and the joints. Borrichius attended this inaugural speech and the beginning of the anatomy on 23 December and then left the public dissection, to return on the 28<sup>th</sup>, on which day the anatomy was still in full swing. In the course of the public anatomy lesson much biographical information about the subject was evidently also divulged to the audience. We learn from Borrichius that the printer was called ‘Marten den Slaper’ by his colleagues, because he often slept during the daytime. We hear about his unsocial behaviour, being grim-faced and irritable to his workmates, and we learn about the mental disorders which eventually led to his suicide. The printer had a very hairy body (*hirsutissimus* Borrichius calls him), almost like an ape, and he had black strawberry marks on his skin. The conclusion was that the subject was a melancholic, and that melancholia is seated in the spleen. After this conclusion is reached Vorstius is quoted as saying that this opinion could also be found with Hippocrates and in the letters of Scaliger.

More circumstantial evidence concerning anatomical practice can be found in a short treatise by Reinier de Graaf about the use of syringes in anatomy.<sup>235</sup> Reinier de Graaf, a famous physician of Delft, studied medicine in Leiden with De Le Boe Sylvius and Van Horne, among others. Even as a student he had a certain renown for his skills in dissecting and in demonstrating anatomy. He probably acquired these skills from his professor of anatomy, Joannes van Horne; just like other members of his student generation at the Leiden medical faculty in around 1660, such as Jan Swammerdam, Frederik Ruysch and Niels Steno.

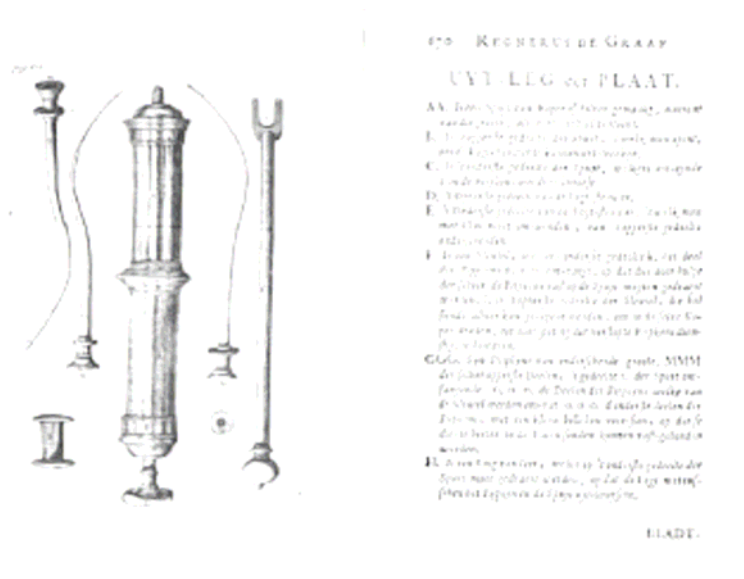


Figure 25: Syringe as depicted in De Graaf's *Korte beschrijving van 't gebruyk der spuyt in d'ontleedkunde*

A lot of experimenting went on in Leiden in the early 1660s in order to investigate the nature of newly discovered physiological phenomena in the body, such as the lymphatic system and the chyle ducts. Many of these experiments were done with the help of syringes. Coloured fluids were injected into organs in order to determine the course of blood vessels and veins. Similar techniques were used to inject coloured wax into the veins and vessels of anatomical specimens preserved in alcohol. As we

<sup>234</sup> *Borrichii Itinerarium* II, p 32 ff.

<sup>235</sup> *Korte beschrijving van 't gebruyk der Spuyt in d'ontleedkunst door Regnerus de Graaf med doc tot Delft*, facsim. Delft 1989 intr. H.L. Houtzager

have already seen in Olaus Borrichius's accounts of his visits to Van Horne, the Leiden professor owned several of these preparations, which he had probably made himself.

Van Horne's students Swammerdam, De Graaf and Ruysch were also adepts in the use of syringes in anatomy and physiology. Ruysch perfected the technique of injecting wax into anatomical preparations up to a very high level. His cabinet of anatomical preparations was famous all over Europe. But the syringe is also a prominent feature in the work of Swammerdam and De Graaf. It figures quite conspicuously in Swammerdam's *De respiratione* (1667). The frontispiece of this book, published by the Leiden firm of Gaesbeeck, shows syringes that Swammerdam used in his physiological experiments on dogs.<sup>236</sup> In the posthumously published *Bijbel der Nature* of 1737 syringes also feature in the illustrations.<sup>237</sup>

In *Korte beschryving van 't gebruyk der spuyt* [. . .] Reinier de Graaf presents his version of the syringe to the public: a copper tube with a piston, onto the front of which tubes of different shapes could be screwed. De Graaf's treatise – in singing the praises of the syringe – also hints at the effects that were most sought after and most admired in anatomical demonstrations, effects that could be realised with the syringe. In its description of demonstration techniques the treatise allows us some insight into the practice of anatomy in the second half of the 17<sup>th</sup> century.

De Graaf explains how professors of anatomy can use the syringe to demonstrate to their students in a clear and instructive manner the intricate webs of veins and blood vessels supplying the organs of the body. He gives recipes for preparing coloured liquids which, once injected into the vessels, show clearly the way that the blood is distributed through particular organs. Green liquid from copper oxides especially offers very instructive effects. For example, such a green liquid injected into the veins supplying the brain with blood shows in a very 'vermakelijk' (amusing) way the branches of the arteries into the different parts of the brain, almost like trees.<sup>238</sup> Another useful effect of the injection technique is to show which parts are supplied with blood by which artery. By injecting one artery, say in the stomach, [*buyckslagader*] with green liquid and another near the mesenterium with yellow liquid, it is clearly shown which intestines are supplied by which arteries.<sup>239</sup>

De Graaf's syringe could also be put to good use in dissecting live animals without spilling blood (*sonder bloedt te storten*). This is done by blocking the artery in the thigh and the neck of a dog and injecting it with lukewarm water until all the blood is driven out. If the anatomist then closes the incision from the injection so that it can no longer be detected, it is time for him to beckon his curious audience into the dissecting room.<sup>240</sup> The audience will be greatly surprised to behold that from severed muscles not a drop of blood will flow. They will be even more surprised when the anatomist, unobserved by the audience, (*soo handig dat het niemant bemercke*) removes the blockage from the artery, after which the blood will flow copiously from the severed muscles. When this is done with a certain slight of hand, De Graaf adds, it will seem to many like magic.<sup>241</sup> Further on De Graaf also describes how injections with water in the 'onderbuycksche slag-ader' can make the penis in dead bodies stand up.<sup>242</sup>

The practice of anatomy that transpires from De Graaf's treatise on syringes is on the one hand a practice that seeks to discover the working of the body by means of physiological experiments. The syringe is presented as a handy instrument that allows the anatomist to demonstrate the workings of

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<sup>236</sup> Joh. Swammerdam, *De Respiratione*, Leiden (Gaesbeek) 1667

<sup>237</sup> cf. Houtzager's introduction to *Korte Beschrijving* pp. 16, 17, 18

<sup>238</sup> De Graaf op. cit. p. 661

<sup>239</sup> Ibid. p. 662

<sup>240</sup> ' . . . roepe men de Nieuwsgierige binnen om d'Ontleeding aan te sien', De Graaf op. cit. p. 667

<sup>241</sup> 'Als men dit proef-stuck met een seeckere handigheyt volvoert, sal het veelen een tooverwerck toeschijnen'

<sup>242</sup> 'Om de Roede in doode Rompen te doen op-staan is dit Wercktuig ook seer bequaam', De Graaf op. cit. p. 668

systems of veins and ducts by forcing fluids through them. On the other hand however the treatise shows us that these scientific demonstrations of the second half of the 17<sup>th</sup> century seem to have been performed with a certain amount of what could be called ‘showmanship’. De Graaf’s description of a bloodless anatomical demonstration involving the blockage of an artery is as much concerned with ‘tricks’ involving slight of hand, astounding the audience, even giving the impression of magic being performed, as it is concerned with demonstrating certain physiological principles. The trick of making the penis of a dead person stand up with water injections also primarily gives the impression of a theatrical feat, meant to astonish an audience. The question arises of for whom the anatomical demonstrations were performed. Who were the audience of these demonstrations, and with which intentions and expectations did they attend the anatomies?

In order to form some further impression of the anatomical and physiological practice of the 1660s and its participants we should once more return to Olaus Borrichius’s diary of his stay in Leiden from January 1661 to the summer of 1663. The stay of the Danish polihistor coincided with one of the most exciting episodes of anatomical science at Leiden University; Sylvius and Van Horne, as well as their students De Graaf, Swammerdam and Steno, conducted their investigations in anatomy and physiology, and Borrichius moved among them quite extensively. The Dane kept frequent records of his anatomical encounters in Leiden and as such offers us an insider’s account of what went on.



**Figure 26: Frontispice of Jan Swammerdam’s *De respiratione*, Leiden (Gaesbeeck) 1667 (Leiden University Library)**

One of the first things that strikes us when we study these diary entries is the impression that the municipal hospital – the Caecilia Gasthuis – where the University organised its bedside teaching, had replaced the theatrum anatomicum as the primary anatomical location of the medical faculty. The hospital had a special room where postmortems on the deceased patients of the Collegium Medico Practicum were performed (we shall go into this more extensively in the second part of this book) and from Borrichius’s itinerary we learn that these postmortems took place rather often in the 1660s when Sylvius was professor of medical practice. In the two-and-a-half years of his stay in Leiden Borrichius attended 12 dissections ‘in Nosocomio’ against only two (or maybe three) public dissections in the

anatomical theatre.<sup>243</sup> The dissections in the Caecilia Hospital were mostly performed by Sylvius, some by his colleague Johannes Antonides van der Linden. Occasionally these dissections were also attended by Van Horne.<sup>244</sup> Other persons attending the postmortems in the room of the Collegium Medico Practicum were medical students. To all appearances the character of these dissections went beyond that of mere postmortems; they regularly lasted more than a day, and usually examined more parts of the cadaver than just the parts affected by disease.

Far more numerous than the human anatomies performed by university professors in University locations were the private anatomies, of which Borrichius attended some 37. Only once did Borrichius report on a private anatomy that was performed on human material: on 4 January 1662 he examined 'two feet of a cadaver'.<sup>245</sup> All other dissections were performed on animals, many of them alive. The object of the major part of these anatomies and experiments involving vivisection was to investigate the newly discovered vascular systems such as the lymph, the thoracic duct and chyle vessels, etc, and physiological processes such as respiration and the oxygenation of the blood. The workings of these vascular systems and physiological processes could best be studied in live organisms, hence the often cruel operations performed on dogs, rabbits, frogs and cats that we encounter so frequently in Borrichius's diary.

A good example of these private anatomies is the vivisection performed on a dog by Jan Swammerdam, witnessed by Borrichius at Swammerdam's lodgings on 3 May 1663. The object of this operation was to examine the interaction between the inhalation of air and the oxygenation of blood. A bellows-like implement was inserted in a hole in the dog's windpipe contracting and expanding as the dog breathed in and out. Subsequently the emptying of 'the vena cava below the diaphragm as well as the jugular vein [. . .] with every inspiration' was observed. Afterwards the air in the bellows was pressed into the dog's lungs by Swammerdam, 'until it could be seen how it penetrated even into the vessels of the heart'.<sup>246</sup> The bellows in the dog's windpipe also blocked its vocal chords so that the animal could not utter a sound. A precaution which was probably taken because this vivisection took place at Swammerdam's private quarters. Whether anyone other than Borrichius attended the vivisection is not clear from the diary notes, but any company witnessing the operation must have been small considering its location.

These anatomical and physiological investigations did not only take place in students' rooms. In early 1667 Swammerdam was invited by Joannes van Horne to assist in the dissection of a female subject at the professor's private quarters. This dissection was part of Van Horne's investigations into the reproductive parts, which had been going on in private at Van Horne's house since at least 1665, often with the assistance of Swammerdam.<sup>247</sup>

The picture of the anatomical goings-on in Leiden in the 1660s that we can distil from the diary notes of Olaus Borrichius and other sources – intense investigation into the workings of the human body supported by much anatomical and vivisection activity in private quarters – is not peculiar to this university town. It concurs for instance with more or less contemporary activity in Amsterdam by the so-called Collegium Privatum Amstelodamensis. This was an informal group of medical investigators active between 1664 and 1673, consisting of the doctors and anatomists Gerard Blasius and Matthew Sladus, Egbert Veen, doctor of the Amsterdam Admiralty, and the medical doctors Marcus Ruysch, Abraham Quina and Joachim Cordes. There were also two students involved with the Collegium:

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<sup>243</sup> Public anatomies witnessed by Borrichius: *Itinerarium II*, p. 32 ff. (23 Dec. 1661) and p. 249 ff. (18 Dec. 1662), and maybe *Itinerarium I*, p. 74 'sectus homicidus decollatus' (24 Feb. 1661)

<sup>244</sup> E.g. *Itinerarium I*, p. 69, 'Cadavere Helenae' (27 Jan 1661)

<sup>245</sup> *Itinerarium II*, p. 38: '... cum privatim apererentur pedes cadaveris.'

<sup>246</sup> Report of this experiment: cf. Johan Nordström, 'Swammerdamiana', in *Lychnos 1954-55*, pp. 26-27 and in *Itinerarium II*, p. 297

<sup>247</sup> Cf. M. Cobb, *De ei & spermarace*, p. 122. Later on this investigation would lead to a priority conflict about the ovaries between Swammerdam and De Graaf

David Godtke from Dantzic and Jan Swammerdam.<sup>248</sup> At a later stage of its existence the medical doctor Herman van Friessem joined their ranks.

The Collegium worked independently of the Amsterdam surgeons' guild: the guild's *praelectors* Johan Deiman and Frederik Ruysch were not involved in its investigations, nor did the Collegium use the Amsterdam theatrum anatomicum. The Collegium Privatum probably convened in the private quarters of its participants, as in 1668 when they met in the house of Van Friessem, a session that was also attended by Joannes van Horne.<sup>249</sup> The investigations of the Collegium were done on various animals and involved comparative anatomical research of the brain, the eye, inflations of vessels, and the preparation of anatomical specimens with mercury injections. Later enquiries mainly involved the nature of the pancreatic juice, a line of investigation that was motivated by Swammerdam's difference of opinion about this subject with Sylvius and De Graaf.<sup>250</sup>

The Collegium Privatum Amstelodamensis seems to be in keeping with a development taking place in the second half of the 17<sup>th</sup> century, in which small informal research groups emerge in many areas of the natural sciences. Examples of such groups abroad are the Invisible College in England (so-called because it had no fixed meeting place), and the group of 'curieux de la nature' meeting in the house of their Maecenas Melchisedec Thevenot in France.<sup>251</sup> But also the private anatomies and vivisections reported on by Olaus Borrichius in Leiden belong to this development. The activities of these groups all share the same characteristics: they were small-scale, performed as well as witnessed by men with practical anatomical experience – medical insiders, doctors, students – and conducted in an atmosphere of participation and interactivity. In other words: this new mode of performing anatomy was different in many, if not every respect from the anatomy performed in the theatrum anatomicum. This new anatomy had little need of any theatrical performance or metaphysical and emblematic connotations, and it certainly diminished the relevance to anatomical science of the public anatomies performed in anatomical theatres. Any theatricals that were involved during the experiments of the new anatomists – such as the 'tricks' described by De Graaf while singing the praises of his syringe – seem to have been intended to drive home certain points in anatomical theories, to convince other participants of experiments, instead of astounding an audience of laymen, as would be the case in a public performance in an anatomical theatre.

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<sup>248</sup> About the Collegium Privatum cf. G.A. Lindeboom, 'Introduction', in: *Observationes Anatomicae Collegii Amstelodamensis*, Nieuwkoop 1975 (Facsimile of original Amsterdam editions of 1667 and 1673)

<sup>249</sup> Lindeboom, 'Introduction', pp. 10-11. Incidentally, Van Friessem became Van Horne's *exécuteur testamentaire*. Cf. UBA II A 20 Transcription of Van Horne's bequest

<sup>250</sup> *Observationum Anatomicarum Collegii Privati Amstelodamensis (pars altera)*, Amsterdam 1673, pp. 17-18

<sup>251</sup> Lindeboom, 'Introduction', pp. 7-8

## VIII. *Carolus Drelincourt*

Following Joannes van Horne's death during the plague epidemic of the winter of 1669-1670, Leiden University was confronted with a vacancy for the post of professor of anatomy. Unlike previous occasions when such a vacancy occurred, this time a candidate was not selected by means of an anatomical competition, as had been the case when a successor for Petrus Paaw was sought. Neither did a candidate present himself from outside the University. The successor to Joannes van Horne was to come from within the ranks of the Leiden medical faculty.



Figure 27: L. Visscher after L. Vaillant, *Carolus Drelincourt*, engraving 1665 (Museum Boerhaave Leiden)

The curators first asked Sylvius if he would be willing to fill the post of anatomy professor. When Sylvius declined they decided in November 1670 to ask Drelincourt.<sup>252</sup> Charles (or Carolus) Drelincourt had become professor of medicine in Leiden only in February 1669, as the replacement for Johannes Antonides van der Linden. Drelincourt came from Paris; he was born on 1 February 1633, the son of a prominent theologian and preacher in the French Reformed Church. Initially he was destined to follow in the clerical footsteps of his father. However, he showed more inclination towards medicine and anatomy. In this latter subject he was taught by Riolan, the famous French anatomist.

In 1650 Drelincourt became Master of the liberal arts and Doctor in philosophy in Saumur. Four years later he graduated as doctor of medicine in Montpellier. Even at this point in his career Drelincourt's renown was great enough for the Prince of Turenne to make him his personal physician, while Louis XIV appointed him inspector of the medical services of the French armies in Flanders, and of the hospitals in those regions. When Drelincourt returned from the army in 1658 he became court

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<sup>252</sup> Molhuysen III, p. 245

physician, besides running a medical practice in Paris, occupations he held for ten years, until he was appointed professor of medicine in Leiden.<sup>253</sup>

The procedure to replace Van Horne by Drelincourt did not take long, considering it took the Curators of the University five years to fill in the gap among the professors of medicine left by the death of Johannes Antonides van der Linden. Obviously, having a fully functioning anatomical theatre at Leiden University was important to the authorities. The Curators assigned the job of professor of anatomy to Drelincourt on 3 December 1670. He was to teach anatomy ‘during the winter months of November, December, January and February in the Academy [. . .]’ by way of lectures ‘and in the anatomical theatre when [. . .] any subjects were to be had, by way of public sections and demonstrations . . .’.<sup>254</sup> Drelincourt was to receive 400 guilders for his services as anatomy professor besides his wages as professor of medical practice.

### Counteracting decline

It is clear that the University authorities placed great value on having the anatomical theatre in Leiden function properly, not only from the swiftness with which they replaced Van Horne with Drelincourt, but also from measures they took to ensure student attendance at the public demonstrations. They instructed Drelincourt to hold a public speech exhorting the students to attend the anatomical lessons. This speech is published as *Praeludium anatomicum* in Boerhaave’s edition of Drelincourt’s writings, *Opuscula medica* (1727).

Another indication of the value the Curators placed on the well-being of the anatomical theatre was their decision of 8 November 1674 that all ‘professors in the medical faculty will be excused from exercising their lessons during public anatomical sections, in order not to divert the students from attending the aforementioned anatomical exercises [. . .]’.<sup>255</sup>

The senate of the University also made efforts to secure the supply of anatomical subjects. Among a list of recommendations they made to the Curators in December 1678 to counteract ‘a certain decline in the studies’ they requested that the Curators urge the envoys of the city of Leiden in the assembly of the States of Holland and West Vriesland to ask for a renewal of the Charter of 1592, commanding all the Holland and West Vriesland cities to deliver their executed criminals to the Leiden anatomy in winter time. The explicit reason for this request was ‘a great defect of the anatomy, because the professors are not or rarely able to acquire a cadaver’.<sup>256</sup> The charter was eventually renewed by the States of Holland and West Vriesland on 12 December 1681.

But even the renewal of the charter to obtain anatomical subjects did not have the desired effect on all occasions. On 28 August 1684 Drelincourt complained to the Curators of the University that the magistrates of Leiden had made ‘difficulties’ some time ago about giving up a body – punished by the rope – to the public anatomy and that this refusal was motivated by no other reason than the fact that the request for the body was conveyed by the anatomy servant. The magistrates were of the opinion that this request should only be made by Drelincourt in person.

The Curators agreed with Drelincourt that as the magistrates of the other cities of Holland and West Vriesland used to give up the subjects to the anatomy servant without any problems, the Leiden magistrates should do the same. ‘Disputes like these would cause neglect of the service of the

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<sup>253</sup> Cf. Suringar, *De medische faculteit te Leiden op het einde der 17<sup>de</sup> eeuw en in het begin der 18<sup>de</sup> eeuw* [. . .], p. 26-27 (overdruk NTvG 1864)

<sup>254</sup> AC 26, fol. 448 Vo. ‘geduyrende de wintermaanden van november, december january ende february sal besighen omme inde academy de studien anatomicum publice te doceren ende in theatrum anatomicum soo [. . .] eenighe subjecten te becoomen sijn by publike section ende demonstratien de studenten in de anatomie te onderwijsen.’

<sup>255</sup> Molhuysen III, p. 296 [dat alle] professoren in de faculteyt van de medicine geduyrende de publicque anatomische section sullen wesen geexcuseert op dat de studenten door deselve lessen van de voors. Anatomische exercitien niet gediverteert [. . .] mogen werden’

<sup>256</sup> Molhuysen III, bijlagen pp. 265-266

anatomy.’ For this reason the Curators and Burgomasters proposed that the magistrates would in future hand over the subjects to the anatomy when the anatomy professor requested this by letter.<sup>257</sup>

The Curators even drew up the literal text of the letter that the anatomy servant should present to the magistrates when he came to demand and collect the body of an executed criminal. In so doing the Curators hoped to put an end to the disputes between the magistrates and the anatomy professor about the formalities of handling such demands. Disputes which – the University authorities feared – formed a serious threat to the well-being of the anatomy, or could even end its existence.<sup>258</sup> This letter (in the archives of the University it is also called a ‘form’) reads:

Because now is the season, in which one can take in hand the anatomical exercises most fruitfully, and because by your honours’ verdict a body is about to be executed, I the undersigned request that your honours hand over the aforementioned subject to the carrier of this letter in the service of the anatomy.<sup>259</sup>

The anatomy servant, or if he was absent a replacement, was to hand over this letter in a sealed envelope to the president of the magistrates, either at his house or in the magistrates room.

The fact that the Curators of the University drew up this letter or form with the explicit purpose of facilitating the transfer of executed bodies from the Leiden magistrates to the anatomy suggests that the shortage of anatomical subjects that had plagued the Leiden anatomy from the moment it was established was now becoming so critical that even criminals put to death by order of the Leiden magistrates were considered to be acceptable as subjects for public dissections. This practice had of course existed since Paaw’s days, but only unofficially and sporadically. Now the Leiden magistrates were confronted by an official request, the words of which were dictated *ad verbatim* by the Curators and Burgomasters, administrators of the University.

### **Drelincourt’s practice of anatomy**

Although the supply of bodies – especially for public dissection – was constantly running short, the daily practice of anatomy posed enough exertions on Drelincourt for him to complain to the Curators on 29 May 1684 that his health and his eyesight were being seriously threatened by the handling of the cadavers and the frequent use of microscopes. These threats to his health were serious enough to endanger his ability to function as an anatomist. But should his bad health ‘make it necessary for him to abandon the exercise of anatomy he would have to do without the profits of the amphitheatre and the most considerable income of his private lectures’.<sup>260</sup> This loss of income would be all the more unwelcome for Drelincourt because his possessions in France had been confiscated (probably as a consequence of the revocation of the Edict of Nantes) and because taxes in Holland had been raised because of the war with France.

Apart from Drelincourt’s financial predicaments, this complaint by the anatomy professor also tells us something about his daily work as an anatomist. He obviously dissected more corpses than the two or so subjects that were used yearly in the public dissections. Probably not all of these corpses were human. Another thing we learn from Drelincourt’s complaint (and request for a pay rise) is that he used microscopes to examine anatomical structures. A later statement in the University archives of 5

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<sup>257</sup> Molhuysen IV, p. 29

<sup>258</sup> Molhuysen IV, p. 44 ‘...geconsidereert dese ende diergelijcke disputeren over de formaliteyten van ’t voors. Versoek capabel waren omme de anatomische exercitien voor altyt te stremmen.’

<sup>259</sup> Molhuysen, *ibid.* ‘Alsoo tegenwoordigh het saysoen is, dat men met de meeste vrucht de exercitia anatomica can bij de hant nemen, ende bij U Ed. Agtb. vonnisse een lighaem staet geexecuteert te werden, soo versoek ik onderschreven, dat U Ed. Agtb. ten dienste an de anatomie het voors. subject aen de brenger deses gelieven te laten volgen.’

<sup>260</sup> Molhuysen, IV, p. 28 ‘... dat hij door het gebruyck van veel microscopes ende het handelen van doode subjecten sijn oogen ende gesontheit seer hadde gekrenckt, ende indien hij genootsaecht mogte werden de exercitia anatomica te abandonneren, dat hij alsdan bij gevolge soude moeten missen de profyten van het amphitheatrum ende de coniderabelste incomste van sijn private collegien’

June 1687 gives further details: the microscope was used to investigate ‘the most subtle parts’ of the subjects.<sup>261</sup> It seems unlikely that these investigations into the most subtle parts of anatomy took place during the public demonstrations in the theatrum anatomicum. The public character of these events is more suited to grand gestures than to subtle work on minute structures viewed through a microscope.

So, if not during public dissections, where and when did this anatomical research take place? Drelincourt was also professor of medical practice, but this meant he gave lectures on the theory of medical practice. He was not one of the two professors who gave clinical lessons at the patient’s bedside at the Caecilia Hospital. Therefore it is unlikely he used the small dissection room in the hospital for his more detailed anatomical work. Most probably Drelincourt’s more subtle anatomical investigations were conducted in the course of the private lectures he mentioned in his complaint to the Curators. This also explains why he feared that the loss of his abilities as an anatomist, caused by the deterioration of his health, would threaten the most profitable part of his private lectures, i.e. the private dissections for a select audience, in which the use of a microscope was feasible. Most likely these dissections took place in Drelincourt’s private quarters.

### **The anatomical theatre as a source of income**

Another interesting detail we can glean from Drelincourt’s health complaints is his dependence on ‘the profits of the amphitheatre’. The arrangement established in 1664 between the anatomy servant Stoffel van Carthagen and professor Joannes van Horne was obviously still in force: the anatomy professor was entitled to the benefits of the entrance fees of the spectators of the public anatomical demonstrations. The anatomy servant in turn was allowed to reap the benefits of the entrance fees of the visitors who came to see the curiosities and rarities in the anatomical theatre when there were no dissections going on.<sup>262</sup>

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<sup>261</sup> Molhuysen IV, p. 52 . . .het ondersoeck van de subtylste deelen in [de doode lighamen]

<sup>262</sup> AC 26 fol.71 Vo. . . .dat allede profyten van het sien van de voors. anatomie vallende ende dat buyten de tijt op dewelcke eenige subjecten aldaer mochten worden gedemonsteert alleen bij denselven Carthagen sulle getrocken worden, doch dat de professor Van Hoorn wederom genieten sal alle de voordelen die ten tijde van de demonstratie van eenige subjecten sullen komen te vallen. . .

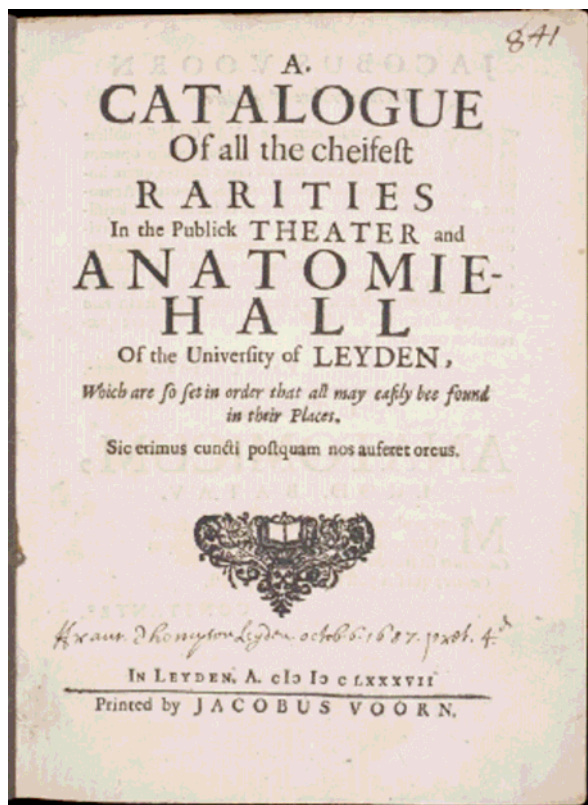


Figure 28: Title page of the English version of the catalogue describing the collection of curiosities of the Leiden anatomy theatre, 1687 edition (Leiden University Library)

The relations between the anatomy professor and the servant of the anatomy, which had already caused problems in Van Horne's day, remained problematical during Drelincourt's professorship as well. On 8 February 1674 it was brought to the attention of the Curators that the anatomy servant Hendrik Cramer – who had occupied this post since 1667 – did not fulfil his duties in an orderly manner. His main fault was that on several occasions he let substitutes perform his job for him.<sup>263</sup>

The Curators of the University found it high time that Drelincourt put on paper a concept for rules and regulations to manage the affairs of the anatomical theatre, stamping out this kind of arbitrary conduct by the anatomy servant. These regulations for the servant to comply with were presented at the meeting of the Curators on 15 May 1675. They urged the servant to perform obediently all the 'exercises' and preparations required of him by the professor, and for him to be present during the anatomies and the preparation of the subjects, as well as seeing everyone in who wished to attend the anatomies. Finally, the regulations dictated that all the emoluments from the public anatomical demonstrations were to be collected by the anatomy professor, without any rights for the servant to lay claim to these benefits or part thereof. The only exception was where the professor voluntarily wanted to reward the anatomy servant for his diligence.<sup>264</sup>

The reason for the difficult relations between the anatomy servant and the anatomy professor probably lay in the fact that both depended on the anatomical theatre as a lucrative source of extra income. But when the professor staged a public anatomy the source of income for the servant (i.e. showing visitors round the theatre) was temporarily unavailable. Several requests by the anatomy servant to the Curators corroborate this supposition. On 5 February 1677 Cramer's request for some financial compensation during the anatomy season is turned down. And in August 1677 another request by Cramer 'to enjoy some emoluments and (financial) advantages, to replace other (emoluments and

<sup>263</sup> AC 26 fol.611 . . . ende specialijk dat hij in verscheyde voorvallen het voors. ampt niet persoonlijk waergenomen maer hij andere daervoor gesubstitueert hadde

<sup>264</sup> AC 27 fol. 28-29 Reglement voor de dienaar van de anatomie

advantages) which he would miss in the periods of public dissections' was remitted by the Curators to Drelincourt, who had obviously seen no reason in the past few years to reward the servant for any diligence during the public dissections. Developing from a conflict of interests that already existed in Van Horne's day, the growing disharmony between the two functions of the *theatrum anatomicum* – anatomy place and 'museum' – became ever clearer in the 1670s, leading to disputes between the servant and the professor, disputes that had to be resolved by the University authorities. We shall deal with this question more explicitly in Chapter 10 of this book.

### Reading the Book of Nature at University

As mentioned above, on accepting the position of professor of anatomy in December 1670, Drelincourt was asked by the University authorities to deliver a speech to the students pointing out to them the necessity of attending anatomical demonstrations. As this speech is preserved as 'Praeludium Anatomicum' in Drelincourt's *Opuscula Medica*, it offers us a glimpse into the motivation to go and see a (public) anatomical demonstration in the latter part of the 17<sup>th</sup> century.<sup>265</sup> The contents of this speech also enable us to indicate the position this Leiden professor occupied in the contemporary field of investigations in Natural History.

The *praeludium anatomicum* comes across as a programmatic declaration by Drelincourt about the higher usefulness of anatomy. Anatomy is of course of the utmost importance for the sons of Apollo (i.e. those studying and practising medicine), but even more importantly it leads to knowledge of oneself and of God. The dissected body – according to Drelincourt – is 'the true eye, the faithful key and guiding compass' to reach this knowledge.

The purpose of anatomy is twofold: in dissecting the human body the anatomist demonstrates the particular, separate parts of the individual human anatomy. But the dissection should also reveal what is universal, that which all human bodies have in common. Together these two purposes of anatomy reveal the admirable work of the Creator: the body 'which is the tabernacle, the temple and the workhouse, in which a particle of the Divine aura is active'.

In the creation – the body – the greatness of the Creator can be known. The innumerable details we discern in the cadaver are all imprinted with a godly character, all bear traces of the finger of God. As examples of this Drelincourt points to the systematic numerology of the bones of the skeleton, the beautiful construction of the eye, with its wonderful crystal-like transparency and its perfect globe form, or the wondrous and intricate build of the ear, with the labyrinth, cochlea, etc. All these aspects of anatomy are praised by Drelincourt for their beauty and functionality as so many examples of God's wisdom and providence.

The *Praeludium Anatomicum* is also annotated with various citations from the Bible, especially the Psalms. For instance, the lecture is preceded by Psalm 139:14 'I will praise thee; for I am fearfully and wonderfully made: marvellous are thy works; and that my soul knoweth right well'. Besides more specific medical quotations from the works of Galen and Hippocrates these citations from the Scriptures all have to do with the providence and wisdom of God, manifested in the human anatomy. Drelincourt finished his speech with the remark that he wanted to address himself not just to the merely curious, but to an audience studying the wonders of God.

Although it can of course never be totally clear to what extent this speech demonstrated Drelincourt's personal views on anatomy and to what extent it reflects what the University authorities wanted to hear, the fact that he was instructed to deliver this oration with the purpose of enticing people to visit the anatomical theatre makes it reasonable to assume that the theological (or metaphysical) aspects of anatomy were considered to be strong arguments for students and other learned people in the later 17<sup>th</sup> century to attend anatomical demonstrations.

This notion of studying anatomy – human as well as animal – as a way to reach better knowledge of the Creator was not particular to Drelincourt. It was shared by many scientists and those interested in

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<sup>265</sup> Carolus Drelincourt, 'Praeludium anatomicum' in: *Opuscula Medica*, Den Haag (Gosse & Neaulme), 1727, p. 167 ff.

science in the later decades of the 17<sup>th</sup> century. Among those actively doing scientific research Jan Swammerdam was one of the most outspoken adherents of this idea of studying nature as a way to pay reverence to God. As Marian Fournier remarks in her thesis about 17<sup>th</sup>-century microscopists: 'nearly every second page in [Swammerdam's] *Biblia Naturae* testifies to his belief that God's omnipotence is nowhere more visible than in the intricate structure of minute living beings'.<sup>266</sup>

But it was not only Jan Swammerdam – whose personal story perhaps testifies to a particularly extreme religious view of natural history – who regarded the structures of human and animal anatomy as so many pieces of evidence of Divine providence. An anonymous 'illustrious person' visiting Antony van Leeuwenhoek is reported to have exclaimed after looking through one of the Delft microscopist's instruments: 'O! Depth of wisdom. How unfathomable are your works. Is it now still possible to find people who claim there is no God?'<sup>267</sup>

As Drelincourt's *Praeludium Anatomicum* shows, the Leiden anatomy professor also regarded the reverence and admiration for God's work as the true fruit of anatomy. He sought to uncover these wonders in various ways, especially in studying the minute and intricate structures and the workings of the various physiological systems within the body.

As physiological mechanisms such as the lymphatic and chyle vessels or the blood supply to various organs are hard to investigate in dead bodies, Drelincourt performed numerous vivisections. These experiments were published in 1682 as *Experimenta Anatomia*, with the subtitle *ex vivorum sectionibus petita* (sought in sections of living creatures). This book consists of 16 systematic reports of vivisections on dogs – all ominously titled *canicidium* – in which the various operations, such as ligatures of veins to block the blood supply to certain organs, are explained to the reader step by step. The purpose of these experiments was to demonstrate the various physiological processes within the living organism.

Drelincourt's use of microscopes, to which he refers in his complaints about occupational hardships to the Curators of the University, also suits the characterisation of this Leiden anatomy professor as an investigator of the small structures and physiological processes. The least you can say about his scientific activities is that he was in touch with the practices of innovative investigators outside the University such as Reinier de Graaf and Jan Swammerdam. And although it is unlikely that the study of small structures through the microscope was performed in the anatomical theatre, the principles for his work in the theatre that Drelincourt set forth in his *Praeludium Anatomicum* – the beauty of the body directs our mind to God – are perfectly reconcilable with his experimental activities.

With his investigations into physiological processes by means of vivisections, by the use of microscopes in studying the minute structures, and by his notion of the human body as a manifestation of God's omniscience and providence, Drelincourt shows that in the field of anatomy at least, Leiden University was in touch with what was going on among the innovative investigators of nature. And what is more: the fact that the university professor Drelincourt incorporated these notions in his lectures and publications indicates that the university authorities did not regard them as anathema.

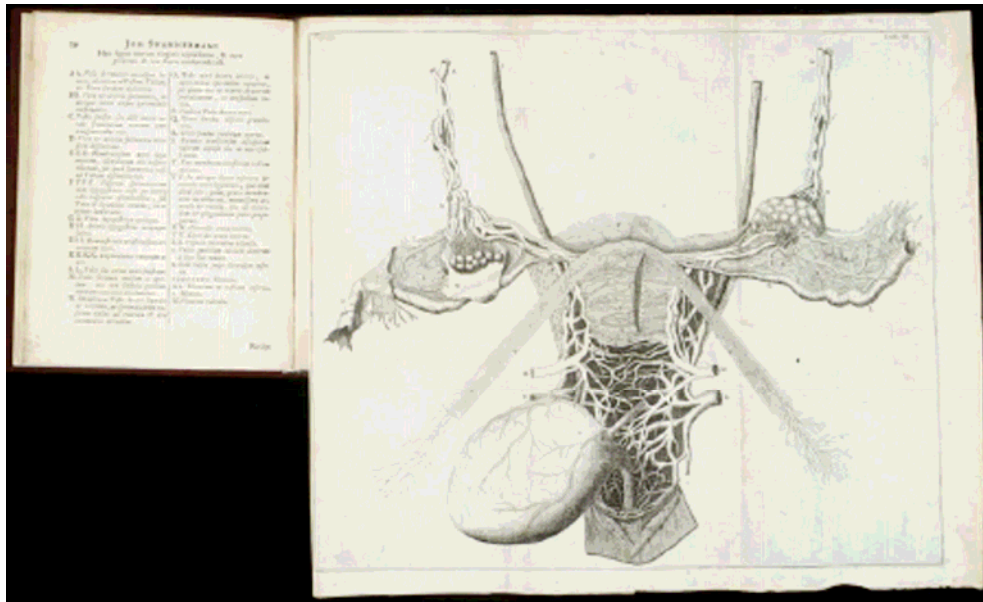
### **A shift in the message of anatomy**

This view of nature – whether its small structures seen through a microscope or the details of anatomy revealed through dissection – as a manifestation of the divine, seems to appear as a result of a shift in natural history and anatomy from merely describing structures toward attempts to unveil the mechanisms which make physiological processes work. At the same time the metaphysical interpretation of nature and of anatomy in particular shifts from an emblematic or allegorical way of looking at nature to the notion that the intricate beauty and ingenuity of nature *in itself* is a manifestation of the Divine. This shift in the concept of 'the Book of Nature' seems to be a reconciliation of the metaphysical and theological notions of life with the mechanistic way of thinking about nature.

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<sup>266</sup> Fournier, *The Fabric of Life*, p. 83

<sup>267</sup> v. Leeuwenhoek, *Send-brieven Vijfde vervolg*, Delft (H. Van Krooneveld) 1696, 88ste missive p. 62



**Figure 29: Subtle anatomical structures, an illustration drawn by Jan Swammerdam for his and Johannes van Horne's *Observationum [. . .] circa partes generationis*, Leiden (Gaesbeek) 1668 (Museum Boerhaave Leiden)**

Drelincourt's predecessor Joannes van Horne was predominantly occupied with discovering the subtle structures of anatomy, with making them visible to the eye by preparation techniques and so delivering tangible proof of the mechanistic ideas about the physiology of the body. Hardly any theological considerations seem to enter his work. It is almost as if at this stage the sheer magnitude and multitude of the discoveries of the 'anatomia nova' ran far ahead of any philosophical interpretation or metaphysical implication of these same discoveries. Drelincourt's *Praeludium Anatomicum* is representative of the manner in which some ten years later the metaphysical implications of the new discoveries are put into words in a renewed concept of 'the Book of Nature'.

All in all the notion of the late 17<sup>th</sup> century of nature as a second revelation besides the Scriptures is clearly different from the earlier emblematic vision of nature and anatomy we encountered with Pieter Paaw and his humanistic milieu. In the late 16<sup>th</sup> and early 17<sup>th</sup> centuries nature and anatomy were presented as allegorical or emblematic, as a language of signs pointing towards moralistic lessons about the human condition, or about being a good human being. As an example of this we have seen the skeletons mounted in the anatomical theatre with their banners with mottos pointing to the vanity of this earthly existence, or the skeletons decked out as Adam and Eve to remind us of the Original Sin, or the skeletons bearing scythes, spades or hour glasses from the woodcuts of Vesalius's *Fabrica*.

In the late 17<sup>th</sup> century these emblemata, or allegories, were no longer needed. It was nature itself, the intricate structure of human anatomy, the ingenious mechanics of all kinds of physiological processes, and the wondrous phenomena viewed through the microscope that pointed all those who studied these things towards the metaphysical, religious and moral dimensions of the visible world.

## IX. Govard Bidloo



Figure 30: Portrait of Govard Bidloo, oil on zinc by A. van Halen after G. de Lairese (Rijksmuseum Amsterdam)

In 1694 Govard Bidloo was elected to the position of professor of anatomy, a post that had been vacant for almost two years following the death of Antonius Nuck on 5 August 1692. Just like Nuck before him Bidloo had been praelector of the Hague College of Surgeons since 1688.

Govard Bidloo (1649-1713) was born in Amsterdam and came from a Baptist background. Initially he trained as a surgeon, but in 1682 he also graduated as a doctor medicinae at Franeker University in the North of the Dutch Republic. Bidloo had not begun his medical studies there; according to Suringar he studied medicine in Leiden, although his name is not found in the *Album Studiosorum*.<sup>268</sup>

Even in his early days Bidloo showed himself to be ambitious as well as something of a socialite. He wrote plays and poetry and was a frequent visitor, and in 1686 even co-director, of the Amsterdam stadsschouwburg (city theatre). In this milieu the young surgeon Bidloo met Gerard de Lairese, an artist from Liège, who was trying to make a name for himself in Amsterdam. With De Lairese Bidloo took up the plan to publish an anatomical atlas, a new revolutionary project that would render all the contemporary anatomical atlases (mainly bad derivations of Vesalius's *Fabrica*, according to Bidloo) obsolete.

Work on the atlas was begun in 1676. In his preface to the Dutch translation of the atlas published in 1690, Bidloo complained about the difficulties he encountered in obtaining subjects for the dissections on which De Lairese based his drawings. 'Truly it is deplorable that we are denied the benefit of cadavers, which are of use to no one but the worms'.<sup>269</sup> Still, Bidloo acquired enough subjects –

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<sup>268</sup> Suringar, 'De Medische Faculteit te Leiden op het einde der zeventiende en in het begin der achttiende eeuw', overdruk uit NTG Jg.1864, p. 46

<sup>269</sup> Govard Bidloo, *Ontleding des Menschelijken Lichaams*, Amsterdam (Wed. Van Someren) 1690, p. 4: 'Waarlijk het is te beklagen dat men ons het gebruyck der lijken ontzeid, waarvan niemand dan de wormen nut hebben.'

mainly from the Amsterdam city hospital through its doctor Bonaventura van Dortmond – to complete the atlas, to be published as *Anatomia humani corporis* in 1685.

The product of the artistic talent of De Lairese as well as the anatomical talent of Bidloo, *Anatomia humani corporis* sets out to convey the reality of an anatomical dissection. The stark realism of De Lairese's drawings allows the reader to sit at the edge of the dissecting table, following the subsequent stages of the anatomy. The presence of the anatomist is sensed throughout the book; his utensils – naturalistically depicted hooks, clamps, pieces of string and pins stretching the dissected parts on wooden boards – figure in almost every illustration. At the same time, conspicuous details such as the faces of the subjects, or their elegantly rendered hands, or the contrast between the dissected parts of their bodies and the parts that are still intact, cannot but force us to sympathise or even identify with these nameless dead. With a minimum of emblematic paraphernalia – only the osteological final part of the book offers skeletons bearing hour glasses or stepping into graves – De Lairese confronts us with the existential issues that the subject of anatomy raises in the minds of the spectators.



**Figure 31: Anonymous (Abraham Blooteling?) after Gerard de Lairese, *Preparation of the Vertebral Column*, plate from *Anatomia humani corporis*, Amsterdam 1685 (Museum Boerhaave Leiden)**

From the anatomical point of view the atlas met with a more mixed reception. Many anatomical details were not rendered clearly, and as some detractors – such as the Amsterdam praelector and anatomist of the surgeons' guild Frederik Ruysch – would have it, other details were depicted incorrectly. Besides, the book was too expensive to be used as a general handbook for surgeons. For these reasons it never became the successor to Vesalius's *De Fabrica* its makers had envisaged.

Nevertheless, the anatomical atlas certainly gave Bidloo's career a push in the right direction, as it must have helped him acquire his position as praelector of the Hague surgeons' guild in 1688. It was his job to instruct the Hague surgeons in the subject of anatomy, and – when a cadaver was at hand – to give a public anatomical demonstration in the Hague anatomical theatre in the Juffrouw Idastraat.

The preface to the 1690 Dutch translation of his anatomical atlas includes an oration by Bidloo, which he probably gave on the occasion of his inauguration as praelector in 1688.<sup>270</sup> In the opening words of this speech Bidloo reveals to us the people who were present at this occasion and probably also at the public anatomical demonstrations: 'counsellors of the courts and cities, rulers of this city, honourable servants of the Divine word, accomplished doctors of law, experienced medical men, artful surgeons, and all those who are led here by an appetite for useful sciences or curiosity'.<sup>271</sup> The oration offers a short history of the science of anatomy from antiquity to the 17<sup>th</sup> century and it points out its usefulness for doctors and surgeons, but also for artists. Bidloo tells his audience that the 'small world' (of anatomy) is just as exciting as the large world that is explored by seafarers and geographers. He promises them that he will 'show you and myself, as often as the occasion occurs or is given to me, this artful yet perishable frame, wherein we carry the immortal being, so that we are guided to higher attention and may see, with humbled thoughts the wondrous works of the almighty architect and know and worship them for all eternity'.<sup>272</sup>

In his occupation as praelector of the Hague surgeons' guild Bidloo came into contact with the Stadholder William III of Orange. This acquaintance, made in 1688, would prove to be of enormous importance for Bidloo's career. Bidloo became a favourite of the Stadholder-King, who asked him to accompany him on a military campaign. In 1692 William even made Bidloo superintendent of the medical staffs of the Dutch and British armies.<sup>273</sup>

### **Bidloo appointed in Leiden**

The endorsement of William of Orange must have contributed greatly to the decision of the University Curators in 1694 to elect Govard Bidloo as professor of anatomy. But this being said it must also be stated clearly that Bidloo was certainly one of the distinguished anatomists of his day. His anatomical atlas had made him famous, especially when the Dutch translation of the book appeared, even if it did not sell well among the surgeons. With or without the favour of William III, Bidloo was a very promising choice for the University to appoint to this position.

Within a month of his inauguration on 29 March 1694 Bidloo showed that he wanted to take the affairs of the anatomical theatre well in hand. As he had not found the secretary of the University Van den Bergh or the Burgomaster Van der Maets at home to tell them personally of his urgent wishes regarding the theatre, he wrote them a letter, the contents of which remain in the University archives. In this letter Bidloo reported that during his inspection of the theatrum anatomicum he had noticed that various items necessary for anatomy were missing, such as linen and a covering cloth for the cadavers, dishes, etc. He had drawn up a list of the items he needed, and wanted to discuss it with the curators at

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<sup>270</sup> 'Inleyding tot de ontledingskunst, Gedaan den 11den van lentemaand 1688 in de Engelsche Kerk binnen 's Gravenhage', in *Ontleding des Menschelijken Lichaams*

<sup>271</sup> Ibid: 'raaden der hoove en steden, achtbare regeerders dezer plaats, eerwaardige bedieners des Godfdelijken woords, welgeoefende rechtgeleerden, ervaarene geneesheeren, konstrijke heelmeesteren en verder gij alle wien of lust tot nutte wetenschappen of nieuwsgierigheid herwaarts mag geleid hebben. . .'

<sup>272</sup> Ibid: 'ik zal u en mij, zoo dikmael mij daer gelegenheid voorkomt of van andere gegeven werd, het kunstige doch verderfelijke gestel doen zien, waar in wij het onsterfelijke weezen omdraagen op dat wij uit deeze tot hooge opmerking koomende de wonderwerken der almagtigen bouwheer met vernederde gedachten moogen zien kennen en verheerlijken in alle eeuwigheid.'

<sup>273</sup> Cf. Govard Bidloo, *Verhaal der laatste Ziekte van Koning Willem de Derde*, Leiden (Samuel Luchtmans) 1702

their next meeting.<sup>274</sup> The curators however did not deem a personal appearance by Bidloo necessary; they granted him his wishes anyway.

Later that year Bidloo once again took steps to restore the anatomical theatre to a more florid state of affairs, because 'in examining the objects which were to be found on the public anatomy he had noticed that a large portion of these had decayed over the years, and one had to be careful that the remainder would not suffer the same fate, unless measures were taken very soon'.<sup>275</sup> Bidloo also found it 'ten uysterste nootsakelijk' (of the utmost importance) to keep the light out of the theatre with curtains or shutters, presumably because the sunlight damaged the organic objects of the collection of the theatrum anatomicum. Apart from that, the anatomy professor still needed linen, black cloth and other necessities for the business of performing dissections. The University authorities had apparently still not provided these things since his last complaint in March.

Bidloo ended his letter with a complaint about 'the scantiness of his salary, with regards to the difficulties and expenses he had to undertake in exercising his profession, and which had to be dealt with immediately'.<sup>276</sup> For these inconveniences he asked for a pay rise, which was indeed granted to him in the amount of 600 guilders. Furthermore, the University authorities asked him to take stock of what had to be done about the state of the objects and to come up with a proposal for this.

At about the same time Bidloo was also appointed professor of the Collegium Medico-Practicum, at a salary of 200 guilders per year. He had already been giving the clinical lessons at the Caecilia Hospital for some time after the Scottish professor Archibald Pitcairne had suddenly left his post, and this sense of duty pleased the University authorities enough to 'retain and appoint' Bidloo.<sup>277</sup>

## Complaints

Nevertheless, Govard Bidloo's professorship was not without its difficulties, and these difficulties would become worse over the years. An important source of the trouble Bidloo had in fulfilling his academic duties in Leiden was the loyalty he owed to his endorser and patron William of Orange; a loyalty that also transpired in the oration Bidloo held when he became rector magnificus on 22 June 1696. On this occasion Bidloo was 'requested to hold his oration on the subject of the treason which was discovered in England'. This 'treason' was a plot to assassinate William of Orange.<sup>278</sup>

But Bidloo's allegiance to William went beyond the delivery of speeches honouring the Stadholder-King. William of Orange trusted Bidloo's medical abilities and consulted him with increasing frequency, as he became older and his condition more fragile. As Bidloo himself wrote in 1702, in the 14 years prior to the year 1702 he was several times called to William's sickbed 'sometimes alone, sometimes with two English doctors'.<sup>279</sup>

These services rendered to the Stadholder-King did not go unnoticed in Leiden. In February 1697 students complained about the haphazard way in which the clinical teaching in the Collegium Medico-Practicum was being performed. Professor Paulus Hermann had died and the other man filling this alternating professorship, Professor Bidloo, was frequently absent. Frederik Dekkers – appointed that

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<sup>274</sup> AC 28 fol.230 '...dat ick besiente het Theatrum Anatomicum hebbe bevonden datt er de nodige toestel tot de ontledinghe niet is als lijnwaad, dekkleed, schotels en diergelijke.'

<sup>275</sup> AC 28 fol. 240 Vo en fol. 241 '... dat hij in 't examineeren van de goederen die op de publicque anatomie werden gevonden, hadde gesoien dat een groot gedeelte van dien door lanckheid van tijden was vergaan ende dat men [...] hadde te waecken dat 't resteerende insgelijckx soude gevaer lopen , ten zij daer inne spoedigleijk werde voorsien.'

<sup>276</sup> Ibid: '...de geringheyt van deszelfs tractement ten opsigte van de moeylijckheyt en oncosten die bij hem in 't exerceren van sijn professie moesten worden ondergaan en onmiddelijck gesuppoorteert genesesserieerd te wesen'

<sup>277</sup> AC 28 fol. 242

<sup>278</sup> AC 29 fol. 20 Vo. 'Verraet ende conspiratie die sommige quade en detestabele intusschen eenige tijt geleeden in Englant tegen t leeven van Sijne Majestijt van Groot Brittanien hebben gesmeect'

<sup>279</sup> Bidloo, *Verhaal der laatste Ziekte*, p. 2

year as *professor collegii practico medici* – was asked to stand in for Bidloo and Hermann. In 1699 Bidloo was absent once again, and Frederik Dekkers was once more asked to take his place. And in November of that year William wrote a letter to the University authorities asking them to allow Bidloo to leave the University for ‘as long as necessary’ to take care of Mw. Van Voorst, the mother of the Earl of Albemarle, a court favourite of William III; the request was granted ‘provisionally’.<sup>280</sup> In October 1701 Bidloo was once more called to the sickbed of William of Orange, and at that point he was appointed one of William’s personal physicians, accompanying him to England in the autumn of 1701 and staying by his side until his death in April 1702.

Bidloo’s absence left its traces in the University archives. Several times Frederik Dekkers was asked to stand in for Bidloo in his clinical teaching capacity.<sup>281</sup> In most cases Bidloo’s absence took place during the winter months, thereby interrupting the anatomical demonstrations. But apart from Bidloo’s absence during wintertime, anatomical teaching was also plagued by the same shortage of cadavers that had been problematic in the days of Paaw. Judging from the archives one even gets the impression that the shortage in Bidloo’s day was even more pressing than in the past, at least the mention of incidents connected to the trouble (or failure) in obtaining anatomical subjects is more frequent than before.

In the winter of 1694-1695 public anatomical demonstrations were certainly performed by Bidloo; this is confirmed by an ensuing dispute between Bidloo and the anatomy servant Gerrit Blancken, who felt he was not being paid his due by the professor.<sup>282</sup> In 1697 however Bidloo found himself in conflict with the bailiff and magistrates of Amsterdam, who refused to comply with the resolution of the States of Holland and West Vriesland and did not ‘want to cede to the servant of the anatomy the bodies of two criminals sentenced to death. Said gentlemen [= bailiff and magistrates] had in a letter of 25 January absolutely declined to do such a thing, on the pretext that they had for some time not determined whether the bodies of the criminals were to be buried or exposed in a public place as an example for others. And what is more: they declared that they could not comply with the wishes of the Leiden University because the collegium anatomicum of the city of Amsterdam had been given the privilege (to executed bodies) in 1555 by Philip II of Spain’. Bidloo thought it important to inform the Curators of the University of this state of affairs, especially because the claim of the Amsterdammers was of ‘very great consequence and a notorious infringement of the privileges of the University’.<sup>283</sup>

On 6 December 1702 Bidloo again complained to the Curators of the University about his trouble in finding subjects for anatomy, because ‘the resolution (of the States) of 12 December 1681 whereby the bodies of vile and infamous persons [. . .] who were punished by death in the winter within the province of Holland were to be transported to Leiden to be used for the anatomy, was respected by none of the cities of the province, nor by the other criminal courts’. This prevented Bidloo from ‘doing as many dissections as the interest of the University would demand’.<sup>284</sup> The Curators decided once

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<sup>280</sup> AC 29, fol. 160

<sup>281</sup> E.g. AC 29, fol. 29 (8 feb 1697), fol. 256 (11 dec 1701)

<sup>282</sup> AC 29 fol. 253 Vo. ‘Den professor Bidlo gelast aen den dienaar van de anatomie voor yder publicque sectie als in vooriger tijden uyt te schencken een somme van 25 guldens’

<sup>283</sup> AC 29 fol. 27-28: ‘dat schout ende schepenen der Stadt Amsterdam ernstige instantie hadden gedaen ten eynde sy ten dienste va de universiteyt alhier [. . .] aen den knecht van de anatomie souden willen laten volgen de lijken van twee ter dood verwesene misdadigers, maer dat de gemelde heeren by missive van de 25. January jongstleden sulx absolutelijck hadden gelieven af te slaen, onder prentexten dat sij alsnog niet hadden gearresteert off de lichamen van de vs. misdadigers de aarde souden worden vergunt, off noch ter exempel van andere ter publicque plaetse te toon gehangen en dat nog daer en boven hadde verklaart aan ‘t voors. [. . .] niet tekunen voldoen om redenen dat de Stadt Amsterdam selve al in den jare 1555 door Coninck Philips [. . .] inne het oprigten van een Collegium Anatomicum was geprivilegeert, van welcke saecke dan, als sijnde van een groote consequentie en een notoire infractie in de privileges van de universiteyt, hij heer Bidloo aen de heeren Curatoren en Burgemeesteren hadde willen kennisse geven’

<sup>284</sup> AC 29, fol. 303: ‘klagten van de professor Bidloo dat de resolutie van haar Ed. Gro. Mo. Van de 12. December 1681 waarby aan de Universiteyt ende speciaelijck ten behoeve van de faculteit der medicijnen werd toegestaan dat de lichamen van vile ende infame personen die [. . .] binnen de provintie van Holland des Winters

again to impress upon the States of Holland and West Vriesland, in the person of the Raadspensionaris, the importance of the punctual observation of the resolution.

Maybe the difficulty Bidloo experienced in maintaining any continuity in the activity in the theatrum anatomicum was the reason why the University authorities did not hesitate very long when the Amsterdam doctor and city lithotomist Johann Jacob Rau offered to give a ‘complete course of anatomy’ in the winter months of 1705-1706; especially as Rau was prepared to do so without any ‘title, wages or any further engagement’.<sup>285</sup> Furthermore, he would provide the necessary corpses to demonstrate upon at his own expense. Rau left it ‘to the discretion of the gentlemen Curators & Burgomasters, what recognition they would bestow on him after he had rendered his services.’<sup>286</sup>

The University authorities did not see too many problems in letting Rau use the anatomical theatre when the professor of anatomy Govard Bidloo was not doing any sections.<sup>287</sup> After some further ‘sounding out’ of Rau about ‘these affairs’, a decision was reached two weeks later, on 25 November 1705, to let Rau use the anatomical theatre at times when Bidloo was not using it. They even found a precedent for this in ‘the case of Professor Otho Heurnius and Adrianus Valckenburg’ in 1625.<sup>288</sup>

With a concurrence of circumstances that was so blatant as almost certainly not to be an accident, things came to a head in early December 1705. Bidloo angrily notified the University authorities that he had made arrangements for an anatomical demonstration on a subject shortly to be sent to him from Rotterdam. But to his utter surprise he found a bill posted on the door of the Faliebagijnekerk by Dr Rau ‘inviting everybody to attend his anatomical demonstration coming Saturday’. As he saw himself prevented by this course of events from exercising his profession in a proper manner, Bidloo felt obliged to ask the Curators to order Rau to leave the anatomical theatre at the sole disposition of himself (Bidloo), and to go and perform his demonstrations elsewhere: in the surgeons’ room or in ‘the usual place at the hospital’.<sup>289</sup> The University authorities however did not see things Bidloo’s way. Rau had the right to perform his anatomical demonstrations in the anatomical theatre, as decided in their resolution of 25 November, and Bidloo, or anyone else, was prohibited from interfering with these sections in any way.

Bidloo also claimed that he was entitled to (compensation for) the earnings that were normally collected during demonstrations such as these, on which the University authorities decided that any earnings collected would be kept by the anatomy servant, until they had reached a decision on to whom the aforementioned money would be given.<sup>290</sup>

In January 1706 the body from Rotterdam that was to have been dissected by Bidloo the previous month also became the cause of a letter by the bailiff and magistrates of Rotterdam, stating that they had ceded the body of this executed criminal to the Leiden medical faculty not as a result of the resolution of the States of Holland and West Vriesland of 1681, but out of courtesy to the University of Leiden. The city of Rotterdam held the resolution of the States to be inactive, as long as the States

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met de dood worden gestraft na Leiden sullen worden getransporteert om tot de anatomie gebruyckt te worden by geen van de steden van de provintie ende andere crimineele regtbanken wierde gerespecteert ende gemelte professor Bidloo alsoo de occasie benoemen om in Theatro Publico soo frequente sectie te doen als het interest van de universiteyt komt te vereyschen’

<sup>285</sup> AC 29 fol. 389 9 nov 1705 ‘...zonder character, tractement ofte eenig verder arrangement’

<sup>286</sup> Ibid. ‘...ende te zijnen kosten te besorghen de noodige lichamen, stellende het aen de discretye van de heeren Curatoren en Burgemeesteren hoedanige recognitie aen hem namaels voor sijne dienstensoude gelieven toe te voegen.’

<sup>287</sup> Ibid: ‘aen den gemelten Raui op dien voet toegestaen het gebruyck van voors. Theatrum publicum op tijde dat de professor anatomiae daer inne geen sectien doet.’

<sup>288</sup> AC 29 fol. 391 ‘blijckende uyt ’t geval van de professor Otho Heurnius ende Adrianus Valckenburgius breder te vinden in de notulen van de vergadering gehouden den 13. November 1625’

<sup>289</sup> Molhuysen IV, p. 222

<sup>290</sup> AC 29 fol. 395

had not reached a decision on the proposition of the city of Leiden made on 28 July 1703 to renew or prolong the resolution. That decision had been postponed because the representatives of the city of Amsterdam refused to vote in favour of such a renewal. The Curators decided that Van den Honert – one of their number – should once more apply all his influence to move the representatives of Amsterdam to change their minds.<sup>291</sup>

At the same meeting of the Curators of the University another detail of the methods used to obtain subjects for the Leiden anatomy was mentioned. The anatomy servant paid a yearly sum of six guilders to the executioner. In return for this the executioner would give notice to the anatomy servant if someone were to be put to death in the province of Holland during the winter months.<sup>292</sup>

Owing to a conflict about payments between the anatomy servant, Gerrit Blancken, and Govard Bidloo, we also know that in the early months of 1706 Bidloo succeeded in obtaining several subjects for anatomical demonstrations. Blancken complained about not being paid for his assistance at the ‘public demonstrations of one large and four small bodies and several animals [performed] since 27 January and 4 March 1706’.<sup>293</sup>

The last mention of Bidloo’s anatomical activities – or lack thereof – we find on 17 December 1712, when the Curators urged him seriously to do his ‘utmost, especially now as the time for such demonstrations [i.e. anatomical sections] was at hand, to acquire an anatomical subject in one way or another.’ Furthermore, they asked the Burgomasters of Leiden to ‘hold and beseech as much as possible her City doctors and surgeons to take care to notify Professor Bidloo promptly and timely at the first occasion of the passing away of a suitable subject.’<sup>294</sup>

This implies that the shortage of anatomical subjects and the ensuing scarcity of anatomical demonstrations had become so problematic that the usual preference for bodies of executed criminals for public sections was put aside. Now the bodies of poor people who had died in the city hospitals or in the poor quarters of the city were also regarded as suitable subjects for anatomy, for these poor patients were the charges of the city doctors and surgeons. Bidloo was not allowed much time to implement these measures: he died in the early months of 1713, to be replaced by his one-time rival of the winter of 1705, Johann Jacob Rau.

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<sup>291</sup> AC 29 fol. 403-406

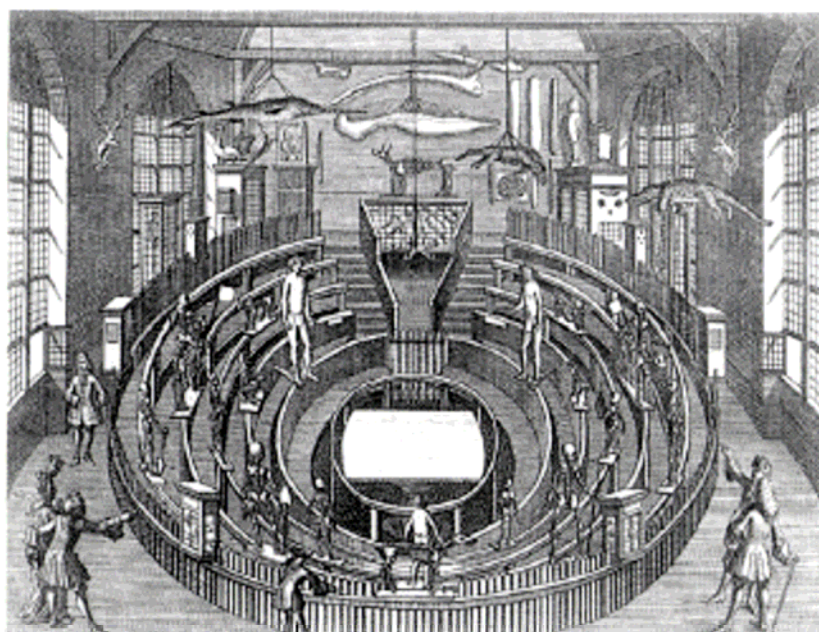
<sup>292</sup> AC 29 fol. 406: ‘. . . een somme van ses guldens dewelcke jaerlyckx aen den scherprechter wordt betaalt voor dat hij aen den gemelte dienaar van de Anatomie kennisse geeft wanneer gedurende de wintermaanden eenig halsrecht binnen de provintie van Holland word gedaan.’

<sup>293</sup> AC 29, fol. 435 ‘. . . publicque demonstrationen over een groot en vier kleyne lighamen ende eenige beesten sedert den 27. january tot den 4. maart 1706.’

<sup>294</sup> AC 30, fol. 68 ‘goedgevonden ende geresolveert de heer professor Bidloo te doen aensegghen en ernstigh te versoecken dan den selve sijn uyterste best geliefde aen te wenden en wel insonderheyt nu, dewijl de bequame tijt tot sulcke en diergelycke demonstratien voorhanden is, om opdéén of dándere wijze een lighaem te becoomen alsmede de heeren Burgemeesteren te versoecken [. . .]omme soo veel doenlyck haare Stadsdoctoren en Chirurghijns daertoe te houden & aan te segghen dat sij sorg gelieven te dragen dat bij de eerste gelegentheyt van het afsterven van een bequaam subject daarvan aenstonts & in tijde kennisse aen Professor Bidloo werd gegeven.’

## X. *The Anatomy Servant*

As we have seen on several occasions in our account of the professorship of Govard Bidloo, his occupation brought him into regular contact with the servant of the anatomical theatre, a position filled from 1692 by Gerrit Blancken. With his job as anatomy servant Blancken earned yearly wages of 200 guilders plus ‘such emoluments and freedom from taxes as existed in connection with this office’.<sup>295</sup> These emoluments consisted chiefly of the fees paid by visitors to the collection of curiosities of the theatre, and of such money as the anatomy professor saw fit to pay him out of the benefits collected during anatomical demonstrations. This was laid down in the regulations drawn up by Drelincourt in 1675.<sup>296</sup>



**Figure 32: The Leiden anatomical theatre around 1710. The expansion of the collection of rarities is quite noticeable in this illustration from Petrus van der Aa's *Les Delices de Leide*, Leiden (Petrus van der Aa) 1712 (Museum Boerhaave Leiden)**

That these regulations left ample room for disagreements between the anatomy servant and the anatomy professor became clear in the winter of 1694-1695, when the Curators of the University ordered Bidloo to pay Blancken 25 guilders ‘for every section, like in previous times’.<sup>297</sup> Bidloo obeyed these orders only very reluctantly, as he was of the opinion that the anatomy servant ‘often did very small service with regard to the shortness of time (of the anatomical demonstrations)’. Furthermore, Bidloo regarded it as ‘not proper for the professor anatomiae to share the emoluments of the theatrum anatomicum with the servant, the servant should be content with two guilders a day during the time of the demonstrations or else with such a sum as the curators and burgomasters would deem fit to give him for every day (of the demonstrations)’.<sup>298</sup>

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<sup>295</sup> AC 28 fol. 187 ‘... op soodanige emolumenten en vrijdom van ‘s lands imposities als tot ‘t voors. Ampt zijn existerende...’

<sup>296</sup> Cf. AC 27 fol. 28-29

<sup>297</sup> AC 28 fol. 253Vo. ‘Den professor Bidloo gelast aen de dienaar van de anatomie voor ieder publicque sectie als in vooriger tijden uyt te schencken een some van f.25,-’

<sup>298</sup> AC 28 ibid. ‘... dat de dienaar vande anatomie voor iedere sectie dewelcke in theatro publico werde gedaen hem quam af te vorderen de somme van f.25,- niettegenstaende hij daervoor dikmael seer weinig dienst dede ten

The curators referred to their resolution of 8 May 1688 when, on the occasion of a similar conflict between Bidloo's predecessor Nuck and Blancken's predecessor Jacob Voorn, they had ordained the sum of 25 guilders to be paid to the anatomy servant for every section.<sup>299</sup> To their minds the question was settled by this decision.

But it was not long before another conflict arose between the professor and the anatomy servant. In May 1695 Gerrit Blancken complained to the University authorities that Bidloo had some weeks previously taken two skeletons and several surgical instruments, belonging to the bequest of Cornelis Solingen, from the anatomical theatre to his own home, without bringing anything of it back, thus bringing the theatre into disorder. On top of that Blancken was convinced that 'said Mr. Bidloo had acquired a prejudice against his (Blancken's) conduct and seemed to have nothing else in mind but to cause all sorts of trouble for him and to injure him in his emoluments'.<sup>300</sup> The burgomasters Eldman and Van Alphen were delegated by the University authorities to speak with Bidloo, after which the matter was to be decided upon 'as the exigencies of the affair and the best interests of the University would demand'.<sup>301</sup>

Ten years later relations between Bidloo and Blancken were still strained. Bidloo refused to pay Blancken for his services in assisting during public demonstrations, performed on an adult and four children's corpses from 27 January to 4 March 1706. The anatomy professor had collected all the revenues of the demonstrations and 'under some pretexts [refused] to give him the usual payments'.<sup>302</sup> Again Blancken found the University authorities on his side to quite a large degree, as they ordered Bidloo to pay the servant 25 guilders for the adult cadaver that was dissected during those winter months and to give Blancken 'a reasonable compensation [. . .] for his further trouble at the time of the dissection of the four children'.<sup>303</sup>

Almost a year later the matter still was not completely resolved. Bidloo had indeed paid the 25 guilders for the dissection of the adult subject. But he had refused to offer Blancken any further compensation as he maintained 'that he had on several occasions presented numerous advantages to the servant of the anatomy, more than was reasonably due, for which reasons he was of the opinion that the complaints (of Blancken) should be dismissed as outright unfounded'.<sup>304</sup> The University

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opsichte van de korthed des tijds, sustineerende wijders dat het niet gevoeglijk was dat de professor anatomiae met de dienaar van 't voors. Theatrum anatomicum van haer emolumenten soude delen, maer dat deselve behoorde contentement te nemen met twee guldens daags geduyrende de tijt van de demonstratie ofte anders met soodanighe somme als de heren Curatoren en Burgemeesteren nae discretie aen hem voor iederdage soude gelieven toe te voegen.'

<sup>299</sup> AC 28, fol. 65

<sup>300</sup> AC 28 fol. 263 Vo.: 'Alsoo Gerrit Blancken [. . .] heeft voorgedragen dat de professor Bidloo voor eenige weeken van de voors. Anatomie nae desselvs huys hadde laten brengen twee skeletten ende verwscheyde anatomische instrumenten dewelcke door de Chirurgijn Van Solingen aan de Universiteit sijn gelegaterd sonder dat iets van 't selve alsnog was te rugge gekoomen waar door dan gemelte anatomie tweemaal wierde in desordre gebracht. Wijders dat de voors. Hr. Bidloo een vooroordeel tegens sijne conduite hebbende opgevat niet anders scheen voor te hebben als om hem allerley moeite te maken ende in desselvs emolumenten te benadeelen. . .'

<sup>301</sup> AC 28 *ibid.*

<sup>302</sup> AC 29 fol. 435 (8 mei 1706) ' . . .refuseerende den Prof. Bidloo die al 't [. . .] getrocken had, onder eengige prentexten aen hem de gewoonlijke belooninghe te doen.'

<sup>303</sup> AC 29 *ibid.* 'dat den gemelten heer Bidloo aen de voors. Gerrit Blancken voor sijne adsistentie in de anatomie van 't groot lighaem als van outs sal betalen de somme van 25 guldens & voor sijne verdere moeyten ten tijde van de sectie van de vier kinderen een redelijke recompense aen hem sal geven...'

<sup>304</sup> AC 29 fol. 440 (12 mrt 1707) 'alsoo den gemelte Prof. Bidloo sustineerende in verscheyde occasien aan de dienaar van de voors. Onatomie ongelijk meerdere voordeelen te hebben toegebracht als aen deselven nae redelijkheid waren competerende ende dat oversulckx de voors. Klachten als 't eenmaal ongefundeerd behoorden van de hand te worden geweesen.'

authorities decided that ‘to end this difference once and for all’ Bidloo should pay the servant 25 guilders, and the latter had to be content with this.<sup>305</sup>

In February 1710 a new bone of contention emerged between the professor and the anatomy servant. Bidloo wanted to remove a pair of cupboards with curiosities that he had previously brought to the *Theatrum Anatomicum* and he ‘asked to know from the *custos* how he should behave in this matter.’

The University authorities decided that Bidloo should compose a list of the items he thought belonged to him, and following inspection of this list the authorities would decide which items he could take with him.<sup>306</sup> At the next meeting of the Curators of the University Bidloo was given permission to take his two cupboards with him.<sup>307</sup>

Two years later however it appeared Bidloo had not bothered to take the cupboards with him, as Blancken complained about ‘some cupboards with curiosities belonging to him that Bidloo had standing in the anatomical theatre and from which he now and then took several curiosities home with him, without returning them, which would make it impossible for him, Gerard Blancken, to answer for said curiosities, should they be asked back’.<sup>308</sup> The University authorities decided that Blancken – in their name – should notify Bidloo that he should either take all his possessions remaining in the anatomical theatre home with him, or that the anatomy servant would no longer be held accountable for any compensation or delivery for these curiosities in any inventory list that should be made afterwards.<sup>309</sup>

Quite an impressive list of conflicts, differences of opinions and bad feelings to have developed in the 20 years or so that Govard Bidloo and Gerard Blancken worked together in the anatomical theatre. Should all of these quarrels be ascribed to the incompatibility of character that most probably existed between the professor and the anatomy servant?

I think any incompatibility of character certainly brought the conflicts that existed between the professor and the anatomy servant to the surface in a clear manner, but the nature of the conflicts also points to a rivalry over who should really determine the daily business of the Leiden anatomical theatre: the anatomist or the *custos*. Essentially this rivalry was about determining the true function of the theatre: was it a place for anatomical instruction, a theatre in which to witness demonstrations of the structure of the human body? Or was it a place to gaze in wonder at the diversity of creation, a museum encompassing the whole of nature? These two functions of the theatre had existed side by side from the moment of its inauguration in 1594. But their co-existence grew ever more uneasy during the second half of the 17<sup>th</sup> century.

When Otho Heurnius dramatically expanded the collection of curiosities, artificialia and naturalia of the anatomical theatre in the 1620s, he also drastically altered the character of the function of *famulus anatomicus*. Besides his wintertime job of procuring anatomical subjects and assisting with the sections, the anatomy servant gained a potentially lucrative job as caretaker of the collection and tour guide for the visitors to the theatre during the time that there were no public demonstrations going on, which was quite often.

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<sup>305</sup> AC29 Ibid.

<sup>306</sup> AC 30 fol. 536-537 (8 feb 1710) ‘. . .den gemelten her Bidloo sal worden aangesegt dat hij een lijste sal opleveren van ’t geene hij oordeelt aen hem toe te behooren om, t se;ve gesien seijnde, nader te resolveren’

<sup>307</sup> AC 34 fol. 539 (24 mrt 1710) ‘. . . is goetgevonden en verstaen dat de gemelte Prof. Bidloo de voors. Kasten met rariteyten sal vermogen te transporteren’

<sup>308</sup> AC 30 fol. 65 (8 nov 1712) ‘. . .dat Gerard Blancken, dienaer van de anatomie [. . .] hadde geklaegt dat den heer professor Bidloo eenige kassen met rariteyten hem toebehorende op de Anatomie hadde staen waer uyt hij heer Bidloo soo nu en dan verscheyde rariteyten nae sigh nam sonder deselve of andere daer wederom inne te brengen, invoegen dat het hem Gerard Blancken in tijd en wijle onmogelijk soude wesen omme bij weder op eyssinghe van de voors. Rariteyten te kunnen voldoen aen den inventaris daer van door hem gemaekt’

<sup>309</sup> AC 30 ibid.

This part of the function of the anatomy servant was not mentioned in the ‘instruction of the service of the servant of the anatomy’, written by Heurnius in February 1619. But it was certainly recognised as an important part of the function by the time Stoffel van Carthagen was appointed servant of the anatomy in 1663.<sup>310</sup> Van Carthagen was given the appointment on condition that he would not enjoy a salary, because he was already paid fixed wages for his job as servant of the botanical garden.<sup>311</sup>

For his additional income Van Carthagen relied largely on the fees he received from visitors to the anatomical theatre. As we saw earlier, this state of affairs was explicitly regulated a year later by a resolution of the University curators on 15 January 1664. It was actuated by a dispute between the professor of anatomy Joannes van Horne and Carthagen about who should enjoy which benefits from the exploitation of the anatomical theatre: ‘Because some dispute has arisen between professor Van Horne as anatomist and Stoffel Stoffelsz. Van Carthagen, recently appointed servant of the anatomy, about the enjoyment of the profits from the viewing of the anatomy, this meeting has, as a further explanation of earlier resolutions accorded that all profits and benefits from the viewing of said anatomy, and this outside the time when some subject might be demonstrated there, will be enjoyed by the same Carthagen only. But that the professor Van Horne in turn shall enjoy all profits resulting from the demonstration of any subjects and that for mutual convenience the said professor and the said Carthagen will each keep the necessary keys.’<sup>312</sup> In 1667 Hendrik Cramer took over the job of anatomy servant from the deceased Carthagen, on the same conditions, except that he received a salary of 152 pounds, besides the profits he received from visitors to the theatre.<sup>313</sup>

The business of collecting the bodies for anatomical demonstrations during the winter months also belonged to the chores of the anatomy servant. But one gets the impression that this part of the job was not performed with great relish. One of the reasons Charles Drelincourt was asked in May 1675 to draw up a new set of regulations ‘to which the servant of the anatomy had to behave himself’ was that the servant did not show enough zeal in ‘performing the exercises and preparations the professor instructed him to do’. The anatomy servant also had to be specifically commanded by this regulation to be present during the public dissections and the preparations therefor. And, finally, it was stipulated that all the benefits for the anatomy would go to the professor, who was free to give some of the revenues to the servant if he was of the opinion that the servant had performed in such a way as to merit any reward.<sup>314</sup>

That the anatomy servant Hendrick Cramer regarded the public anatomical demonstrations as bothersome infringements on his lucrative business of guiding visitors round the theatre becomes clear from the two requests he made in February and August 1677 respectively. In them he asked the University authorities for some compensation for loss of income during the dissection season. In his request to the Curators of the University of August 1677 he asked for ‘some emolument and advantage

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<sup>310</sup> AC 43 bijlagen tot de resolutien: instructie van den dienst der knecht der anatomie

<sup>311</sup> AC 26 fol. 66 ‘De wijl door het overlyden van Gerrit Coerten de bedieninghe van knecht der anatomie was komen te vaceren, soo is goetgevonden met desselvs bedieninghe te mogen begiftigen Stoffel Stoffelsz. van Carthagen mits dat denselven daarvoor geen tractement genieten sal’

<sup>312</sup> AC 26 fol. 71 Vo. ‘Dewijl tusschen de professor Van Horn als anatomicus ende Stoffel Stoffelsz. van Carthagen iongst tot dienaer der anatomie aangenomen nopende het genot der profijten van’t besigtigen der voors. Anatomie [. . .] eenige disputeren geresen waren; soo heeft dese vergaderinge tot nader verclaringe vabn vorige resolutien goetgevonden dat alle de profijten ende voordelen over het sien van voors. Anatomie vallende ende dat buyten de tijt op dewelcke enige subjecten aldaer mochten worden gedemonstreert alleen bij denselven Carthagen sullen getrocken worden, doch dat de professor Van Hoorn wederom genieten sal alle de voordelen die ten tijde vannde demonstratie van eenige subjecten sulle komen te vallen, ende dat tot wedersijds gemack de professor voors. Ende denselven Carthagen ieder de vereyschte sleutels bewaren sullen.’

<sup>313</sup> AC 26 fol. 183 (8 mei 1667) ‘. . .soo is tot dienaer derselve anatomie gekozen Hendrick Cramer ende dat op soodanige wedden, voordeel ende profijten als uyt deselve bedieninghe voor dese zijn getrocken.’

<sup>314</sup> cf. AC 27 fol. 28-29

[. . .] instead of others, which he missed in times of anatomical sections or explanations'. Cramer's request was put in the hands of Drelincourt, who had to advise the Curators on the matter.<sup>315</sup>

Drelincourt did not show himself to be very receptive to Cramer's problem; the matter was still not resolved in 1688. In that year Jacob Voorn – Cramer's successor – again complained about emoluments that he was missing while anatomical demonstrations were being held in the theatre. Like Cramer, Voorn demanded a share of the 'emoluments that were received and enjoyed from the students and the other viewers of public sections'.<sup>316</sup> Once more the Curators transferred the request to Drelincourt, and two months later the same request was put in the hands of Drelincourt's colleague Antonius Nuck.

Nuck had a conflict with Jacob Voorn about the rewards of the anatomy servant. Nuck was of the opinion that he was acting in the spirit of the resolution of 15 May 1675. 'He considered that therein [in the resolution] the dispute raised by the aforementioned Voorn was settled once and for all, and that when he presented aforementioned Voorn with a voluntary gift of 7 ducats, he was of the opinion that should suffice.'<sup>317</sup> Eventually, the University authorities ruled that the compensation for the anatomy servant would no longer be left to the consideration of the professor, but that the servant should receive from the professor a fixed sum of 25 guilders from the benefits of the section.<sup>318</sup>

Carthagen, Cramer and Voorn: three successive anatomy servants with similar complaints and conflicts between their source of income – guiding visitors round the anatomical theatre – and the activities of the professor of anatomy, whose temporary use of the theatrum anatomicum in the winter months was seen as an infringement on their activities. For this infringement they at least expected to be compensated. It is in the context of this conflict between the two functions of the anatomical theatre, cabinet of curiosities or anatomy place, that the frequent clashes between Gerrit Blancken and Govard Bidloo should be regarded.

The conditions under which Gerrit Blancken was hired also hint at the fact that the University authorities more or less accepted that the role of guiding people through the theatre was a major advantage of the job of anatomy servant. Blancken was permitted to 'let his duties be temporarily performed by a third person who was to be rewarded with the extraordinary emoluments that were to be paid during his absence.'<sup>319</sup> In other words, the anatomy servant could employ someone to man the theatre for him – judging from contemporary reports this was usually his wife and children – when he was away on other business. This allowed the servant of the anatomy to exploit the collection of rarities in the theatre even better. In this light it is illustrative that in 1710 Bidloo called Blancken 'custos' instead of servant of the anatomy.<sup>320</sup>

Another symptom of the growing importance of the exploitation of the collection in the activities of the servant or custos of the anatomy as a whole is the emergence from 1671 onwards of catalogues of the rarities to be seen in the anatomical theatre. Most of these booklets were printed by the printers'

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<sup>315</sup> AC 27 fol. 94 (5 feb 1677) 'Het versoec van de dienaar van Anatomie om [. . .] eenige vergoeding te hebben afgeslaghen.' AC 27 fol. 99 'Is geleesen de requeste van Hendrick Cramer dienaar van de anatomye [. . .] om eenigh emolument en voordelen te mogen genieten in plaetse van andere die hij ten tijde van de publicque sectien en explicaties komt te missen. Is goed gevonden dat deselve requeste gestelt sal worden in handen van Carolus Drelincourt [. . .]'

<sup>316</sup> AC 28 fol. 62 (16 feb 1688) ' . . .emolumenten die van de studenten ende andere spectateurs van publiecke sectien ontfangen ande genoten werden'

<sup>317</sup> AC 28 fol. 65: Nuck 'geoordeelt [. . .] hadde dat daer inne het dispuut by den voorn. Jacob Voorn gemaect, geheel en al was gedetermineert en dat hy aan de voorn. Voorn als een vrijwillige gifte gepresenteert hebbende 7 ducats gemeynt hadde daer mede te moghen volstaen'

<sup>318</sup> AC 28 *ibid.*

<sup>319</sup> AC 28 fol. 187 Vo. (26 april 1692) '[. . .] en ander meergemelten Gerrit Blancken gepermitteerd sijn desselvs dienst dor een derde voor een geruyme tyt te laten waernemen op de extra ordinariis emolumenten die geduyrende sijn absentie sullen komen te vallen'

<sup>320</sup> Cf. AC 30, fol. 536

dynasty of Van der Boxe, who printed other academic work (theses, dissertations), and were probably paid for by the anatomy servant out of his own pocket. The catalogues in Dutch, French, English and Latin could be bought from the servant.

It seems that the University authorities condoned the commercial activities of the servants of the anatomy. There are no reports of the Curators taking measures to curb the activities of the subsequent anatomy servants. On the contrary, by allowing Blancken to employ third persons to guide visitors through the theatre they actively stimulated the commercial exploitation of the collection of the anatomical theatre by the anatomy servant. A commercial exploitation that they had already acknowledged and condoned early in 1664, when they ruled that the anatomy servant was entitled to all the benefits from the visitors that came to see the collection.

After the death of Govard Bidloo the anatomical activity in the theatre – which was already not very frequent during the last years of his professorship – soon stopped. The character of anatomy had changed greatly in the second half of the 17<sup>th</sup> century. More and more the themes that were topical in medical science had become too subtle to be adequately demonstrated in public dissections. Anatomical preparations, with injected wax, mercury or dried or embalmed pieces of anatomy had in many cases replaced the public dissection of anatomical subjects as a means of instruction.

Bidloo's successor, his one-time rival Johann Jacob Rau, was above all praised for the legacy he left the Leiden anatomical theatre after his death in 1719: an extensive collection of anatomical preparations. Rau's successor and pupil Bernard Siegfried Albinus initially gave many of his lectures at home and in 1725 was granted a new auditorium in the refectory of the 'Engelse Kerk', or the ground floor of the Faliebagijnekerk. Here he exhibited Rau's anatomical specimens as well as his own preparations: the Leiden anatomical cabinet was born. The spectacle of the public anatomical demonstration in the old theatre had died in Leiden together with Govard Bidloo. The theatrum anatomicum at the beginning of the 18<sup>th</sup> century was the domain of the anatomy servants or custodes showing visitors its curiosity collection; and this would remain so until the theatre's demise in 1821.

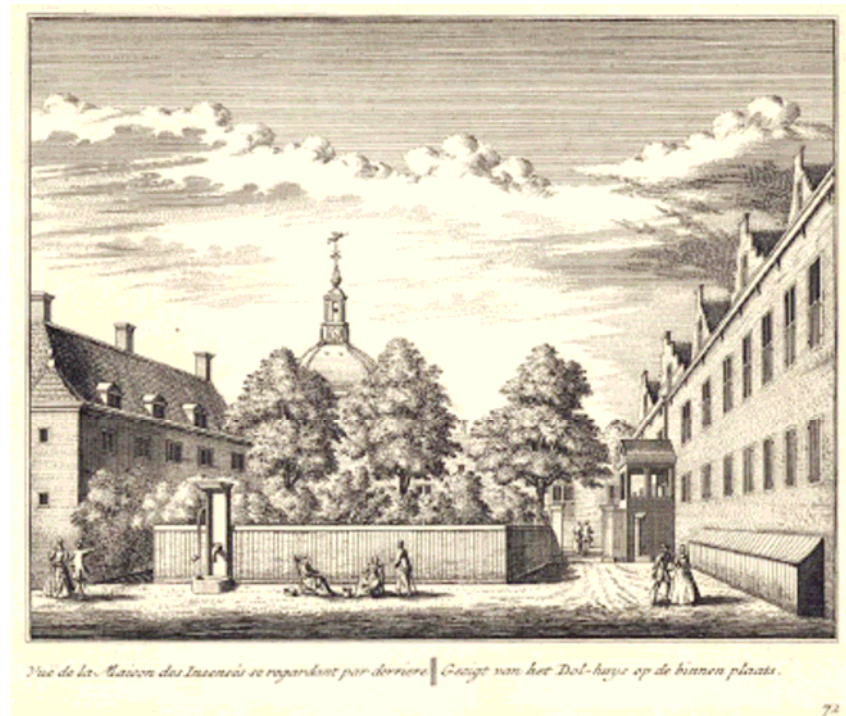
## ***PART TWO***

# ***THE COLLEGIUM MEDICO PRACTICUM AT THE CAECILIA***

## ***HOSPITAL***

### **Introduction**

This part focuses on another locality in Leiden where human bodies were dissected, also connected with Leiden University. This locality is the Caecilia Hospital, a municipal hospital for the poor, where from 1636 onwards the Leiden medical faculty organised its clinical teaching.



**Figure 33: A view of the courtyard of the Caecilia gasthuis in Leiden, ca. 1725 (Regionaal Archief Leiden)**

Although clinical teaching is not the same as anatomical demonstration, there are overlaps. In cases where the subjects of the clinical department of the hospital died during treatment, their bodies underwent a postmortem; they were dissected to establish the seat of the disease and the pathological changes it caused. In this way the Caecilia Hospital provided the Leiden medical faculty with human material for the dissection table. These dissections took place in a separate room in the hospital complex, which the University used from 1636 onwards.

But even before 1636 a kind of relationship had existed between the University and the Leiden municipal hospitals where anatomy was concerned. Deceased patients from the Catharina Hospital – and from 1600 probably also from its annexe, the Caecilia Hospital – were on several occasions used as subjects for anatomical demonstrations in the Leiden theatrum anatomicum. This link between the two institutions, however informal, existed from the beginning of the anatomical theatre in 1594. But apart from its occasional role as a source of subjects for the anatomical theatre, this part of my investigations will show that there is a fair amount of evidence to suggest that the youngest of the major municipal hospitals of Leiden, the Caecilia Hospital, and especially the dissection room located there since 1636, functioned as a centre of anatomical activity in its own right in the 17<sup>th</sup> century. To my knowledge the following pages, describing the activities that took place in the dissection room of

the Caecilia Hospital, form the first comprehensive study of this important centre of anatomy in 17<sup>th</sup>-century Leiden.

But let's begin with a short history of the institution in which this anatomical activity took place, the Caecilia Hospital, and the academic institution generating this activity, the Collegium Medico Practicum.

## ***I. Caecilia Hospital***

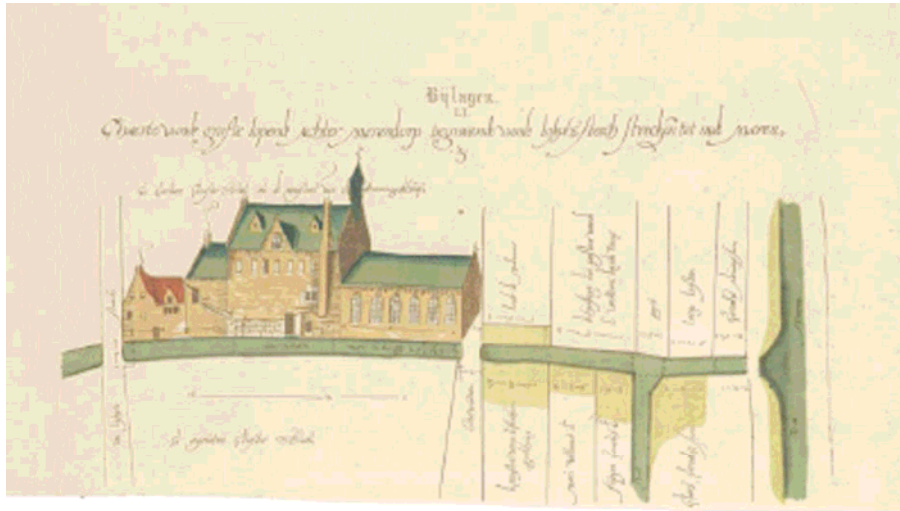
As a result of the city of Leiden taking sides with the forces of William of Orange in 1572 and clearly confirming this choice by successfully enduring two sieges by the Spanish in 1573 and 1574, the organisation of many social structures within the city had to be changed to conform to the new Protestant government. In particular, the institutions providing social welfare and care for the sick had to be reorganised in the decades following the Spanish defeat.

Traditionally, these institutions were often run by the Catholic ecclesiastical orders and centred round the many monasteries and convents within the city, although a certain amount of control by the city administration already existed. Once Leiden took sides with the protestant party, the monastic congregations could no longer play their part in daily life and their buildings were taken over by the city. But this also meant that their humanitarian duties had to be taken over by new, often secular, institutions. The monasteries of certain orders also functioned as hospitals for the lower social classes who could not afford medical care in their own homes. The inmates of these hospitals were not only sick people but also elderly people without a family to take care of them. After the transfer of power many of the hospitals formerly connected to monasteries were turned into hospitals run by a board of trustees, nominated by the city government. Some hospitals stayed more or less the same; others were enlarged and came to fulfil a wider range of humanitarian functions.

The most important ‘multi-functional’ humanitarian institution was to be the new city hospital or Gasthuis, in which the sick would be cared for. This city hospital was to be housed in the Catharina Gasthuis, an institution that had served as a municipal hostel for poor travellers, mendicant friars and the like before the Reformation. In times of pestilence the city hospital was also to have a separate plague hospital annexed to it. This annexe would furthermore serve as the city ‘dolphuis’ or lunatic asylum. And it would take its share of old people. The annexe would come under the governors of the Catharina Hospital. The location of the annexe was to be one of the convents taken over by the city: the Caecilia Convent, originally occupied by the Augustine Sisters and founded in 1414. The Caecilia Convent was located in the *Camp*, a site within the city walls that still had a more or less agricultural character and on which several other monasteries were situated (the Sint Elizabetsklooster, the Sint Ursulaklooster, Sint Michiels and the Sint Agnietenklooster), along with one of Leiden’s larger churches, the Onze Lieve Vrouwen church.<sup>321</sup> The Caecilia Convent consisted of a central building mass, two or three storeys high, with a lower chapel of six tiers attached to it, as well as some smaller buildings. Next to the central buildings of the convent there was an open space, surrounded by smaller houses that were also owned by the congregation.

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<sup>321</sup> The somewhat agricultural character of this part of the city is expressed by its name: *Camp* means field



**Figure 34: The Caecilia convent before it was altered into a hospital. Illustration from Salomon van Dulmanshorst, *Caertboek Stadswateren*, Leiden 1586 (Regionaal Archief Leiden)**

For the reconstruction of the building the city council approached the recently founded Leiden University for advice. The professors of the faculty of medicine, Joannes Heurnius, Gerardus Bontius and Petrus Paaw, studied this question and sent the city council a report in 1598, which is kept in the city archives.<sup>322</sup> Funds for the conversion of the convent into a city hospital were raised by a lottery, organised by the city council. The driving force behind this lottery was Jan van Hout, secretary of Leiden University, as well as secretary of the town council and very active in Dutch humanist circles. Lotteries to raise money for projects planned by the city administration, especially in the humanitarian sphere, were not unusual in the Low Countries. The practice originated in Bruges in around 1440 and was soon taken over by other cities. The Reformation did not change this. Amsterdam organised a lottery in 1591 to raise funds for its city lunatic asylum and the Leiden lottery was preceded by similar initiatives by Rotterdam and Enkhuizen.<sup>323</sup>

Although plans for the lottery had already existed in Leiden in 1577, the project was not taken up in earnest until 1593. It was in that year that permission was granted by the States of Holland and West Friesland. The lottery was eventually organised between May and August 1596. Reasons for this delay may be found in the lotteries organised in Rotterdam and Enkhuizen. Middelburg, by the way, had obtained permission from the States of Zeeland to organise a lottery at about the same time as Leiden.<sup>324</sup> Although the Middelburg initiative loomed as a constant threat over the Leiden lottery, the fundraising proved a success and enough money was raised to start converting the Caecilia monastery into a city hospital-cum-lunatic asylum and plague hospital.

Work on the alterations to the building was probably begun in or shortly after 1598. The main building mass of the monastery was converted into a building consisting of two large galleries divided by a wall. Also at this intersection was the staircase leading to the first floor. The building consisted of a ground floor and a first floor. The ground floor consisted of a long corridor running alongside the courtyard of the complex. Onto this corridor led the doors of the small dark cells in which the insane were held, the ‘dolcellen’.

<sup>322</sup> GAL Jan van Hout Armboeken 1574-1582 manusc. 2296 fol. 13,14, cf. Typescript Luyendijk *Het Caeciliagasthuis te Leiden*, 1972 (MB Arch 247)

<sup>323</sup> Koppenol, *Leids Heelal* p. 61 e.v.

<sup>324</sup> R.E.O. Ekkart, ‘Een Leidse loterijkaart uit de 16<sup>de</sup> eeuw’, in: *Leids Jaarboekje* 1974, pp. 113-116)

The first floor was made up of two high rooms with large high windows, which were to be opened to let in as much fresh air as possible. Orlers's *Beschrijvinge der Stadt Leiden* gives a description of the rooms in the city hospital. In 1614 the hospital had a 'boven mannen saal' (upper room for men) with 21 beds, a 'mannen beter saal' (convalescence room for men) with 11 beds, a 'boven vrouwen saal' (room for women) with 23 beds, a 'kleine (small) vrouwen saal' with seven beds and a 'vrouwen beter saal' with 11 beds. Finally, the hospital also had a 'pest saal' (plague room) with 13 beds. This pest saal was specifically meant for people struck by contagious diseases.<sup>325</sup> A list of people cared for in the Caecilia Gasthuis dating from 1622 shows that the hospital served as a home for the elderly at least as much as a place where the sick were taken care of.<sup>326</sup> In the year 1622 the inmates of the hospital were ten sick men, 14 sick and miserable (ellendige) women, eight old persons (old and 'innocent' (senile) women), 15 miserable old women (including one innocent and one insane) and 20 miserable old men (including one 'innocent'). This adds up to 24 patients who were listed only as 'sick' and 43 inmates who were also listed as 'old'.

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<sup>325</sup> Description of the hospital rooms quoted in: *onderzoek naar de bouwgeschiedenis van het Caeciliagasthuis* GAL LB28669/10 p. 67

<sup>326</sup> GAL archieven gasthuizen inv no 286

## II. *Clinical Teaching*

In 1636 the curators of Leiden University heard news of secret plans to convert the Athenaeum Illustre of Utrecht into a new, fully-fledged university. This new university, just 50 kilometres or so away, was immediately seen as a threat to student numbers in Leiden. Everything had to be done to make studying in Leiden as attractive as possible. One of the plans fostered in Utrecht for their new university was to include clinical teaching in the teaching curriculum of the faculty of medicine; students would be taken by a professor to visit and examine sick people in their hospital beds, thereby learning to recognise symptoms, establish diagnoses and prescribe cures. This plan was proposed and realised by Guilielmus Stratanus, who happened to be city doctor as well as professor of medicine in Utrecht.

Establishing a system of clinical teaching at the bedside had been a long-fostered wish of teachers of medicine in the Northern Netherlands. Clinical teaching was developed at the Italian medical schools, especially at the University of Padua, where it was propagated by Giambattista da Monte (professor between 1539 and 1551). Da Monte took his students to the hospital of San Francesco, which was regarded as the University hospital, and made them observe the face of the patient, talk to the patient about his symptoms, feel his pulse and generally be watchful for anything else that could be an indication of his disease. After Da Monte's death the clinical lessons were continued by his successors. Padua University, owing to its liberal stance regarding students of non-catholic persuasion, was also the place at which many medical men from the Low Countries received at least part of their education. Among them were future professors of medicine at Leiden University: Pieter Paaw and Joannes Heurnius.<sup>327</sup> Heurnius in particular was a strong advocate of clinical teaching and on several occasions tried to persuade the curators of Leiden University to include clinical lessons in the curriculum. Without success.

In 1636 his son Otho Heurnius resurrected the plan to include clinical teaching in the curriculum of the medical faculty. One of the main arguments in persuading the curators to do so was the fear that otherwise medical students would prefer the new university in Utrecht, which was going to offer its students clinical teaching. In his proposal to the curators of the University, received by them on 13 May 1636, Heurnius wrote: 'Because of the founding of an Academy in Utrecht it must be feared that a decline in student numbers [in Leiden] will arise'. He therefore deemed it necessary to come up with measures that would 'conserve the faculty of medicine and stabilise it with further glory: to wit that students of medicine, after they have laid the foundations to understand medical practice, will be led and taught in this practice [. . .] This could be done by the aforementioned professor (Heurnius himself) and the two city doctors Damianus Weyssens and Joannes Moerbergius'.<sup>328</sup> The two doctors were well known to Heurnius as they were committed by the magistrature of the city to take the examinations of the surgeons and midwives. Heurnius was praeses of the exam committee, the two doctors were his assessors.

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<sup>327</sup> Cf. O'Malley e.a., *History of Medical Education*, 1970 pp. 95-96

<sup>328</sup> Molhuysen II, bijlage 620, pp. 312-313



its own plan for clinical teaching, if necessary without consulting Heurnius, who would apparently stick to his own ideas.<sup>331</sup> If the curators wished to resolve the matter straightaway, Vorstius continued, he would like to recommend that Ewald Screvelius, colleague of Heurnius, be employed besides the latter, each of the professors taking turns. This would prevent discord between them, being brothers-in-law! Furthermore, Vorstius recommended that the city doctors Weyssens and Moerbergius be employed in the teaching, just as Heurnius had. The curators however insisted on receiving advice from the medical faculty, including, if he wished to take part, Professor Heurnius and the professor of anatomy and surgery Falcoburgius, who was not exactly on friendly terms with his colleague Heurnius. Eventually, on 16 October, the written advice of the Leiden medical faculty was presented to the curators of the University. It was signed by Adolphus Vorstius (rector), Otho Heurnius and Ewald Screvelius (professors of medicine) and Adrianus Falcoburgius (professor of surgery and anatomy).<sup>332</sup>

In their advice to the curators of the University and the Burgomasters of the city the professors of medicine stressed the importance of the exercise of bedside teaching for the students at the faculty of medicine. They also pointed out that at universities in France and Italy clinical teaching was a long-established tradition and that the absence of clinical teaching at Leiden had led to the departure of many students to those foreign universities. The medical faculty advised curators and burgomasters to give permission to ‘one or more of ‘de oudste practisijs onser facultyt’ (the oldest practitioners of the faculty) to take students into the public hospitals on Wednesdays and Saturdays to briefly exercise the students at the sickbed, in the knowledge of diseases, the causes of the same and their signs, especially those that are taken from their water and their pulse and exercise them in the necessary cures consisting of indications and remedies’.<sup>333</sup> If any surgical operations were to occur at the hospital that did not take place on the normal days of visits by the professor and students, the professor would be free to bring his students to the hospital on any other day, providing this did not interfere with the public lectures on medicine (at the University).<sup>334</sup>

Day-to-day care for the patients was left to two ‘stads doctoren’ (city doctors) appointed by the city council. The city doctors were also charged with referring special and interesting cases to the professors and they were expected to keep written reports on the cases selected for the clinical lessons. These reports were to be written down in books and had to mention the name of the patient, his disease and the date when certain treatments were carried out or prescribed. By inspecting these books the students could learn about remedies and ways to prescribe cures.<sup>335</sup>

Furthermore, the city doctors were ordered to allow the students free access to the patients on days other than Wednesdays and Saturdays and to help with giving instruction, as long as this did not interfere with the lectures at University. Finally, if any of the patients of what became known as the ‘Collegium Medico Practicum’ should die, the professors would find it ‘seer nut ende nodigh’ (very useful and necessary) if the bodies of those who succumbed to any inner disease were to be opened up by a surgeon in the presence of the professors and the city doctors for the benefit of the students. This

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<sup>331</sup> Molhuysen II, bijlage 623, pp. 314-315: ‘...dat echter by de faculteyt wel een advys soude kunnen werden geformeert, oock buyten den professor Heurnius, die apparentelick by ’t project van sijne voors. memorie sal blijven.’

<sup>332</sup> Ibid.

<sup>333</sup> Ibid.: ‘...omme de studenten aldaer by de siecken kortelick te oefenen soo in de kennisse der sieckten, der selvige oorsaecken ende teykenen besonderlycken die uyt het water ende de pols genomen werden, alsmede in de curatie tot deselvige noodig bestaende in indicaties en remedies.’

<sup>334</sup> Ibid.: ‘... dat wanneer daer eenige rarus casus ofte extraordinaire chirurgische operatien voorvalle, dewelcke kan en niet nae de ordinarische dagen wachten sal vrij staen aan proffessor op andere dagen int Gasthuis te convoeeren doch op soodanige uyre dat de publycke lessen in de medicinen daerdoor niet geincommodeerd werden.’

<sup>335</sup> Ibid.: ‘...voorts sullen de voors. Doctoren van tijt tot tijt de siecken ordonneren in een ofte meer boeken [. . .] onder de naam van siecken ende sieckten met dach ende datum inschrijven opdat de studenten by inspectie hebbende mogen de remedien ende maniere van proscriberen daar uyt leeren.’

would enable them to gain knowledge of how certain diseases affect certain parts of the human body. The surgeon performing these postmortems would have to be able to speak Latin so that the foreign students could understand the goings-on.<sup>336</sup>

The medical faculty's proposal had also been referred to Leiden city council on 29 September 1636.<sup>337</sup> After all, the city hospital, as well as the two city doctors and the surgeon, fell under the jurisdiction of the magistrate. But, as the payment for the professors and for the services of the doctors and surgeon rendered to the Collegium Medico Practicum were taken care of by the University, the city council did not have any major objections. On 3 November 1636 curators and burgomasters – the government of the University – consented to the advice of the medical faculty and included clinical teaching in the curriculum.

The lessons were arranged in such a manner that the two medical professors Heurnius and Screvelius took turns in visiting the hospital, alternating each quarter of the year. They were to make their visits twice a week, and if any extraordinary cases or surgical operations should occur, three times a week. The professors were to be paid two guilders per visit.<sup>338</sup> The doctors Weyssens and Moerbergius, assigned to the collegium, were to receive 100 guilders each per annum. The surgeon Camphuysen received a salary of 80 guilders a year. These salaries were paid by the university.

With a staff of two university professors, two city doctors and a surgeon the Leiden Collegium Medico Practicum was a much more institutionalised affair than its Utrecht rival. The Utrecht initiative depended mainly on the fact that Guglielmus Stratanus happened to combine the functions of medical professor and city doctor. When in 1646 this was no longer the case, clinical teaching in Utrecht entered a long period of neglect, from which it only recovered in 1791 when Matthias van Geuns once more combined the two functions in his person.<sup>339</sup>

### Collegium Medico Practicum

The creation of facilities for the clinical lessons in Leiden required few alterations to the Caecilia Hospital, with one exception: a special room had to be created in which the postmortems could be performed. The monastery's former porters' quarters, north of the entrance, were designated for this. It was a square space of about six by six metres. The only way to enter this space was through a door in the cross-vaulted hallway that led from the entrance to the courtyard. The frame of this door had an arch in sandstone decorated with an angel's head, while the door itself was sculpted and marked COLLEGIUM PRACTICUM on the outside. The following text was inscribed on the inside: 'Inchoatum est collegium practicum sub d(omine) Othone Heurnius et d(omine) Ewaldo Screvelius medicinae practicae professoribus anno 11-11-1636'.<sup>340</sup> The alterations to the porters' lodge were apparently either done at no cost or, as seems more likely, the inscription was made at a later date. The first mention of any money being spent on the Collegium Medico Practicum is on 27 May 1638, when Heurnius asked the curators if it would be possible to reserve funds for cleaning up the room for the 'exercitium medicum practicum' and for painting its interior. Hendrick Cornelisz. Bilderbeeck, master bricklayer of the city, was asked to make a prognosis of the costs of these works. On the basis of which the curators would reach a decision.<sup>341</sup>

On 15 August 1638 it was decided to move the 'portiers huysken' (porters' lodge) and to clear out a room in these quarters in which the 'practique' of medicine was to be exercised. A carpenter and a

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<sup>336</sup> Ibid. '...om de uytheemsche studenten, onse tael niet verstaende so beter contentement te mogen doen'

<sup>337</sup> GAL Stadsarchief 3273, 5de register rakende de Universiteyt binnen Leijden, 30 aug. 1628-14 nov. 1637, entry 17 nov 1636

<sup>338</sup> This never happened. Even in the first year of the Collegium the professors were paid f. 200 per annum. Cf. Suringar, 'Stichting der school voor klinisch onderwijs te Leiden', Overdruk *NTvG*, p. 12 note 23

<sup>339</sup> Cf. Otterspeer, *Het bolwerk van de vrijheid*, p. 203 and Suringar, *Op. Cit.*, pp. 7-9

<sup>340</sup> Both the arch and the door are kept in the Lakenhal municipal museum in Leiden

<sup>341</sup> Molhuysen II p. 226.

bricklayer would be hired for this work at the expense of the University.<sup>342</sup> From all appearances it seems that between 1636 and 1638 a room in the porters' quarters was confiscated by Heurnius and Screvelius, and only in August 1638 at the earliest did work begin on modifying this room for the express purpose of doing dissections.

### Maps and bills

Several plans of the Caecilia Hospital are preserved in the Leiden city archive. Two of them shed some light on the extent of the alterations that had to be carried out to accommodate the Collegium Practicum: the 'Groot Caerte van 't Pest en Dulhuys' made by city surveyor Jan Pietersz. Dou on 18 March 1604 and a plan of the Caecilia Hospital dating from 1672 – 1675.<sup>343</sup> The map by Dou shows the layout of the hospital when it had just been taken into service, i.e. before the University organised its clinical teaching, while the other map shows the state of affairs later on in the 17<sup>th</sup> century, when clinical teaching had experienced a vigorous period under the professorship of Franciscus Deleboe Sylvius and, to a lesser degree, under his successor Schacht.

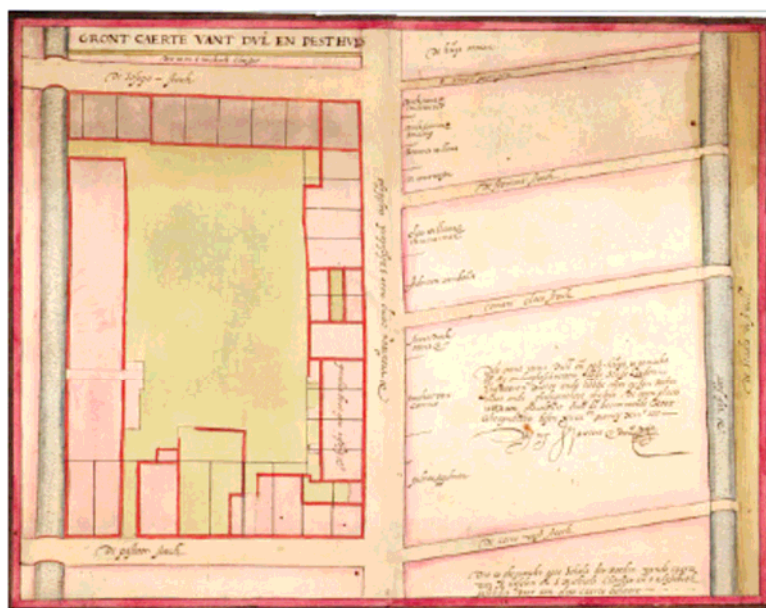


Figure 36: Jan Pietersz. Dou, *Groot Caerte van 't Pest en Pethuys* (Ground map of the plague and madhouse), 1604 (Regionaal Archief Leiden)

The 1604 map by Dou shows us that apart from the main buildings of the hospital, many of the premises of the Caecilia complex were in a somewhat decrepit state. The legend of the map tells us that open spaces are designated with green colouring, and places that have woodwork are tinted red (*de open plaes [is] groen ghecoleurt ende de betimmerde root*). The walls are also rendered in two ways: a double line with red colouring – walls of masonry – and single lines in ink – indicating less sturdy or permanent walls or partitioning. The two newly built large hospital rooms were isolated from the rest of the building mass by two alleyways, one at right angles to the *pastoorsteech* and one at right angles to the *dulhuysgracht*. Both alleyways led to the hospital courtyard.

The situation along the *Pastoorsteech* (nowadays *Vrouwenkerksteeg*) shows us that the buildings north of the entrance gate of the former monastery are all coloured red and divided up with partition walls. These buildings were probably in use as houses. South of the entrance is a walled space coloured green, probably a house whose roof has caved in. The entrance hallway is flanked by two rather shallow spaces, both of them suitable as porters' lodges, which makes it difficult to determine which

<sup>342</sup> Molhuysen II, p. 227

<sup>343</sup> General map of the plague hospital and lunatic asylum GAL 28377 and map GAL28381 respectively

of them is the 'portiershuysken' that had to be moved to make room for the Collegium Medico Practicum in 1638.

The map of 1672 – 75 shows us that there had been a great deal of construction work since the map of 1604 was made. The alleyway leading from the pastoorsteech to the courtyard has disappeared, the buildings along the pastoorsteech, which were of various sizes according to the 1604 map, have been reorganised in such a way that there are now four square compartments along the *steech*, three south of the entrance and one to the north. These compartments all have a ground area of approximately six by six metres. Further north along the *steech* there are three smaller compartments. All these compartments were 'proveniershuisjes', houses for elderly people who had paid a certain amount of money to the hospital in return for which they were fed by the hospital kitchen and housed within the grounds of the hospital.

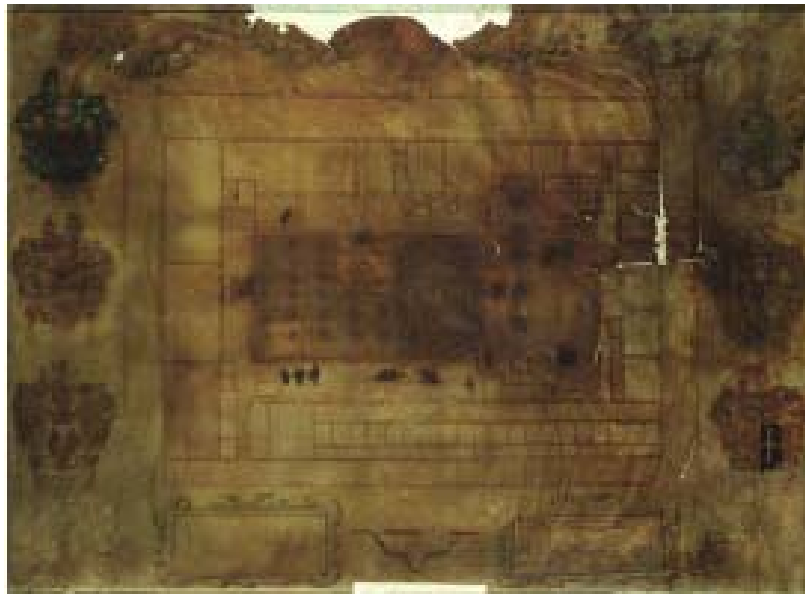


Figure 37: Plan of the Caecilia hospital, 1661 (Regionaal Archief Leiden)

One of these compartments however has to be the room of the Collegium Medico Practicum. And because, according to the resolution adopted by the curators of the University in August 1638, a porters' lodge had to be moved to make room for the Collegium Practicum, the location of the Collegium must have been the place either immediately to the north or the south of the entrance corridor. The room south of the entrance has a small square compartment, directly adjacent to the door: this was probably the porters' lodge, after it was altered. Comparison with the 1604 map shows the same compartment, only larger. This may indicate what was meant by moving the 'portiershuysken'.

However, this does not necessarily mean that the Collegium Practicum was situated in the room south of the entrance. On a map made in or around 1848 the square room north of the entrance hall is called the 'anatomie'.<sup>344</sup> As it does not seem likely that the location of the dissection room was changed after its installation, this square space must have been the Collegium Medico Practicum. The 'versetten' of the porters' lodge probably meant that it was moved from the compartment north of the vaulted entrance corridor to the compartment south of it.

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<sup>344</sup> GAL 28384, Beneden grondtekening van het Caeciliagasthuis te Leyden (c. 1848)



Figure 38: Plan of the ground floor of the Caecilia hospital, ca. 1848

This plan was drawn in the mid 19<sup>th</sup> century when the Leiden city administration was desperately looking for extra hospital space after its earlier failure to cope with a cholera epidemic. The dissection room is still at the right hand side of the entrance (Regionaal Archief Leiden)

Among the work done to alter the site to accommodate the collegium there must also have been quite an extensive masonry job. The wall at right angles to the Vrouwencamp and parallel to the Pastoorsteek was extended, thereby altering the rectangular space north of the entrance, which – according to the 1604 map – was divided in two by a partition wall, into an almost square space for the dissection room. The fact that this section of the Caecilia complex was occupied by the professors of the University and so could not be used as a ‘proveniershuisje’ and the loss of revenue this caused, remained something of a sour point for the administrators of the hospital, as we shall see below.

Evidence of the building activities at the Caecilia Hospital can also be found in the accounts of Clement van Baersdorp, *rentmeester* (treasurer) of Leiden University. In the account book for 1639 we find two declarations for the work done at the Collegium Practicum. The carpenter Jan Pietersz. Banheyning was paid 54 guilders and 11 stuyvers ‘for that which he earned from the room of the exercitium practicum medicum’ in two separate declarations.<sup>345</sup> Stonemason Harm Jansz. received 52

<sup>345</sup> AC 317 fol. 263 verso and fol. 264: ‘. . . over ’t gunt by hem aen de camere van het exercitium practicum medicum is verdyent by twee verscheyden declaratie[n] [van 8 sept 1639]’

guilders in satisfaction ‘for that which was required by him for the masonry of a certain porters’ lodge which had to be moved and which now has been applied to the Collegium Medico Practicum’.<sup>346</sup>

### The interior of the Collegium

The contents of the dissection room at the Caecilia Hospital, the second academic anatomy location in Leiden, are known to us from an inventory list made and signed in August 1639 by master Jan Camphuysen, the city surgeon assigned to the Collegium Medico Practicum. The list was inspected, approved and countersigned by Otho Heurnius.<sup>347</sup> Some of the items in this inventory are instruments, tools and utensils necessary for the work of dissecting the bodies, such as a razor, a wooden mallet, a chisel, pliers, sponges and ‘een lang eyser instrument om in de dode lighamen die geopent werden de partijen te demonstreren’ (a long iron instrument to demonstrate the parts inside the dead bodies that are opened). Other items can be seen as educational objects, such as an iron trough with human bones and a block of oak for setting up a skeleton.

Then there is the furniture to be used during the dissection: three deal benches ‘als stellagie gemaect’ (made like scaffoldings) and three other deal benches to accommodate the students, a bench of the same wood with a pulpit and a deal table on an oak support upon which to lay the bodies that were to be opened. The list also includes a large deal table, painted green with black sides and flanked by deal benches fixed to the wall, and with deal wainscoting at its back. Of course there are many candlesticks and a lantern, so ample illumination could be provided during the dissections. The inventory included a two-hour hour glass for keeping time. There was a ‘walnut chair with red Prussian leather’ to seat the professor, a black ‘Spanish chair [. . .] om de ordinaire doctor der Stadt bij de praeses in de consultaties te sitten’ (for the city doctor to sit in during ‘the consultations’) and three green matted chairs.

All these are objects that one might expect in such an institution. However, the first 60 items on the inventory list are prints, glued on panels and put in black frames. These prints include portraits of the whole house of Burgundy, starting with Henry IV and ending with Charles of England (*Carolo Angliae rege*). Furthermore, there are portraits of Charles V, William of Orange, his son and successor Maurits and a portrait of Erasmus of Rotterdam – in smaller format. The collection included three anatomical tables on oak panels and in oak frames, a ‘catalogus pharmacopeae pauperum’, (pharmacopoeia for the poor), a list of drugs from which the medicine to be prescribed in the Collegium Practicum should be composed and the ordo *Lectio-num Academiae Pataviae* (the lecture programme of Padua University). There was also a ‘Reipublicae Leidensis in an oak frame’ i.e. a view of the city, and the skin of a large snake, nailed to one of the beams of the ceiling.

But the print collection of the Collegio Medico Practicum was much larger, both in size and in thematic scope which – just like the prints Heurnius collected for the Theatrum Anatomicum – went beyond the strictly medical. For instance, it included prints made from paintings by Rubens: *Battle of the Amazons*, *The Fall of Lucifer*, *St Peter finding a Coin in the Mouth of a Fish* and the *Temptation of St Jerome* by Jacques Callot and an historical print showing the capture of Damiate in Egypt by a warship from Haerlem in the service of the Counts of Holland, a feat that occurred during the crusades in 1218.<sup>348</sup> There also was a view of the Capitolinum in Rome. And a biblical and a mythical scene: *Solomon in adoration before the Idols* and the *Death of King Cyrus*. All these prints were neatly placed in oak or black frames. Clearly the room of the Collegium Medico Practicum was also furnished with representational purposes in mind. The impressive walnut chair with Prussian leather and the ‘Spanish chair’, for the professor and the city doctor respectively, plus the three matted chairs

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<sup>346</sup> AC 317 fol. 263 vo. ‘Aan Herman Jansz, aert en stoff metscher [...] in voldoeninge van ’t gunt by hem was bedongen voor het mestselwerk van seecker portiershuysken te versetten nu tot het Collegium Medico Practicum geappliceert, volgens syne declaratie LII £). To which is added ‘according to a certain specification decreed on October the 8<sup>th</sup> 1639’

<sup>347</sup> AC I no 230 Inventaris van alle de meubelen die de Academie toekomen welcke in het Gasthuis ofte Dulhuis sijn in de Camer van de Practijcke ofte elders

<sup>348</sup> Muller Historieprenten nr 152

that are also mentioned, were included in the inventory because the room of the Collegium also served a purpose in the activities of the Leiden surgeons' guild, as we shall see in the third part of this book.

### Moral education in prints

The part of the inventory list of the Collegium Medico Practicum mentioning the various prints strongly resembles the inventory of the Theatrum Anatomicum, the other academic institution on which Otho Heurnius exerted great influence. Just as in the print collection of the anatomical theatre, the prints selected by Heurnius for the section room of the Caecilia Hospital must have been brought together according to some didactic programme. In both cases Heurnius used images to convey certain moral values and examples. But as the section room at the Caecilia Hospital was meant only for medical students, their professors, the city surgeon and the city doctors and surgeons and those wishing to become surgeons – in short: medical professionals – the contents of this didactic programme may have been of a more specific character than the more universal didactic intentions of the print collection of the older anatomical theatre. After all, the anatomical theatre was generally described as the 'publycque anatomie'.

Although they were (aspiring) medical professionals, the students witnessing the postmortems in the Collegium Medico Practicum, and the aspiring surgeons facing the examination committee, could not do so without seeing constant reminders of the moral and philosophical implications of their work, and of the responsibilities that one had as a medical man, dealing with patients or their bodily remains in the case of an autopsy. These reminders came from the prints that could be seen in the section room. The subject matter of these prints should therefore give some indication as to the nature of the moral values and examples that were deemed appropriate for medical students of the 17<sup>th</sup> century.

The first category of prints constituting the collection of the Collegium Practicum is a large group of portraits, all of royalty and nobility, with the exception of Erasmus of Rotterdam. Collections of portraits of illustrious persons was in keeping with a humanist tradition, which in turn had its origin in antiquity; learned men exchanged portraits of writers, thinkers and rulers who were thought of as worthy examples and role models. Such portraits were as much a part of the world of learning concentrated in the humanist libraries as classical texts.

In the second half of the 16<sup>th</sup> century this tradition was also adopted by public libraries from private libraries. In 1597 the Leiden University librarian Paulus Merula wrote about the desirability of a book containing 'effigies of small size engraved in copper' of men of learning. Just such a book was published by J. Verheyden in 1602 as *Effigies praestantium aliquot theologorum*. It was used as one of the sources of a frieze of portraits of scholars in the Bodleian library in Oxford and the Leiden library too had plans to use portraits from Verheijden's effigy book as a source for oil paintings to be hung on the library walls, beside the portraits of William of Orange and Prince Maurits.<sup>349</sup>

But the librarian Merula was not the only one within Leiden University interested in portraits. When Otho Heurnius succeeded Petrus Paaw as professor of anatomy and also took over responsibility for the anatomical theatre, one of his first projects was to build up a collection of books and prints for the institution. Within this collection there was also a substantial number of portraits. Inventory lists show a certain preference for portraits of crowned heads and nobility: Rudolf II of Bohemia, Henry of Navarre-Bourbon, William of Orange and Charles V of Hapsburg amongst others.<sup>350</sup>

The same preference for portraits of persons of high birth applies to the print collection Heurnius selected for the Collegium Medico Practicum. Again he chose portraits of Charles V and William the Silent, *pater patriae* and founder of Leiden University, and his son Maurits. But the house of Burgundy was also represented in prints, 'starting with the late Henry IV and ending with Charles the King of England, comprising the whole house of Burgundy'.<sup>351</sup>

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<sup>349</sup> L. Berkvens – Stevelinck, *Magna Commoditas*, Leiden 2001, pp. 55-58

<sup>350</sup> Cf. Witkam, *Catalogues Anatomy Hall*, Barge, *De Oudste Inventaris*...p. 34 e.v.

<sup>351</sup> AC 230 fol. 2 'ordentlyck beginnende van Henrico IV sal. [. . .] ende eyndighende met Carolo Angliae Rege, comprehenderende het heele huys van Burgundien.'

In general all these high and mighty persons were presented as examples of people who were by birth placed in a position that gave them as much power as it gave them responsibilities. The rulers of the first half of the 17<sup>th</sup> century – just like their Renaissance forebears – were obliged to live an exemplary life, as a necessary result of their high birth. But apart from this general reason why crowned heads figured so prominently in the portrait collection of the Collegium Medico Practicum, some persons were included for more specific reasons.



Figure 39: Henry IV, King of France (Rijksprentenkabinet Amsterdam)

The presence of Henry IV of France in the collection, for instance, is not surprising. This pragmatic, non-dogmatic and popular ruler, friends with Montaigne and protector of the arts, was well loved among scholars and men of learning of the early 17<sup>th</sup> century. He had a special, warm place in the hearts of the scholars connected with the protestant University of Leiden, because of the edict of Nantes, which granted the Huguenots freedom of religion, because of his cooperation in convincing Scaliger to take up a professorship at Leiden, and because of his decree that in France people who had graduated in Leiden should be granted the same rights as graduates of other universities.<sup>352</sup>

Another substantial cluster within the print collection of the Collegium Practicum are the prints after paintings by Pieter Paul Rubens, the Antwerp diplomat and painter whose work was much loved by clerical and secular rulers of Europe. In his list Camphuysen mentions a print representing Rubens's *The Battle of the Amazons*. This print was conspicuous enough, as it consisted of six separate plates brought together, each measuring 42 x 43 cm.<sup>353</sup> A reason why this large engraving was included by Heurnius may be found in a memorandum he sent to the curators of the University in February 1619, pressing them – among other things – to instruct the administrators of the Dutch East and West India Companies to collect all kinds of interesting human bones, heads especially, as ornaments and instructive objects for the anatomical theatre. Notably Patagonia and the land of the Amazonias should be searched for naturalia, mainly because it was said that in these parts could be found 'persons

<sup>352</sup> Otterspeer, *Bolwerk van de vrijheid*, pp. 177-178

<sup>353</sup> Hollstein XLIII no 100

without heads, whose faces were in their chests'.<sup>354</sup> Otho Heurnius's interest in the Amazon region may to some extent account for the presence of the print of Rubens's *Battle of the Amazons* in the collection of the dissection room.

Another print after Rubens is *The Fall of Lucifer*, which reminds one of the series of four 'falling heroes' (*vier vellers*) made by Hendrick Goltzius, which Heurnius had bought for the adornment of the *Theatrum Anatomicum* in 1619. These prints, representing the Greek mythological figures Phaeton, Icarus, Ixion and Tantalus, were represented in the emblematic context of the anatomical theatre as icons of human sins, punished by the gods.<sup>355</sup> The story of Lucifer, leader of the angels who rebelled against God and were chased out of heaven to become devils, while their leader became Satan, can also be interpreted as a warning against presumptuousness and over-ambitiousness. And, in the context of the dissection room of the Caecilia Hospital, it could serve as a warning that not all secrets worked by the Creator in the fabric of the human body can or should be unravelled by mortal men.

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<sup>354</sup> AC 43 bijlagen tot de resolutien, 18 feb 1619: '... ende bisonder uyt het rieusen landt ofte Patagonium regione ende uyt het landt der Amasones, daermen seyt dat oock personen ghevonden worden sonder hoeft de welcke het aensight in de borst hebben.'

<sup>355</sup> Scheurleer, 'Un Amphitheatre...' p 248

### ***III. The Collegium in practice: teaching methods and grumbling students***

When the Collegium Medico Practicum had been functioning for about a year under Heurnius and Screvelius the curators of the University found it necessary to take stock of the way things were going. On 3 June 1637 they interrogated master Joannes Kamphuysen, the surgeon, about the way in which the professors and the city doctors respectively went about their duties in the city hospital. The curators also asked Screvelius questions. The professor told them how he fulfilled his position at the hospital. It was his habit ‘to communicate to his students the prescriptions for agreeable and powerful medicine, tested by years of experience, after he had examined the patients and established a convalescence plan.’<sup>356</sup> In this way Screvelius allowed his students to profit from his long experience as a practician. He asked the curators to be allowed to continue in the same manner. The professor was advised to employ the manner that was best and of most profit to the students. The reason for this anxiety on the part of the curators may be found in the grumbings of the students about the way Otho Heurnius gave his clinical instruction. Initially, he interrogated the students on their judgement about the disease of the patient, he wanted the students to tell him what could be the cause of the disease, which symptoms would occur, their prognosis of the course the illness would take and their suggestions about possible treatment. Only then would Heurnius give his own judgement about the case. Most of the students did not particularly like this way of doing things, and Heurnius eventually gave up this teaching method. From then on he just gave his diagnosis and ideas for treatment, without first interrogating his students.<sup>357</sup>

#### **Thirty cases by Otho Heurnius**

An impression of what went on at the Collegium Medico Practicum can be obtained from a 1656 edition of Johannes Fernelius’s medical textbook *Universa Medicina*, to which are added ‘notes of the secrets of the observations and medications of Johannes and Otho Heurnius’.<sup>358</sup>

The appendix of this book contains 30 cases from the practice of Otho Heurnius, all except two of which were patients he encountered in his role as professor teaching clinical medicine at the Caecilia Hospital. That these patients were indeed real historical people, and not fictitious cases made up for educational purposes, is proven by the so-called *doodboeken* (death books) of the Caecilia Hospital. Most of the people figuring in Heurnius’s reports can be traced in these lists of people who died in the hospital.<sup>359</sup>

Comparing these patient histories gives us some information on the background of the patients of the Collegium Medico Practicum and it shows us the performance of the professor, the city doctors and the city surgeon, especially in the case of a postmortem. Sixteen of the 30 patients described in the appendix were immigrants: Walloons, Germans and Britons. They belonged to the lowest stratum of 17<sup>th</sup>-century society, as they were (ex-) soldiers, beggars or people ‘searching to make a living in the cloth industry’ (*lanificio victum quaeritans*). Some of these patients exactly fit the description ‘foreign and unbefriended’ that Heurnius gave in his proposal of 1636 for a clinical teaching programme, such as the Walloon Pierre Varny, who had left his wife and children ‘in patria’ when he came looking for work in Leiden. Others appear to have had family in town, a fact that became important when the

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<sup>356</sup> Kyperus quoted by Suringar in *NTvG* jg. 1862 pp. 518-519: . . . na het onderzoek der lijders en de vaststelling van het geneesplan, de voorschriften van aangename, krachtige en door langdurige ervaring beproefde geneesmiddelen aan zijne leerlingen mede te delen.

<sup>357</sup> O’Malley, op. cit. p. 205

<sup>358</sup> *Johannis Fernelii Ambiani Universa Medicina cum notis observationibus et remediis secretis Johannis et Othonis Heurnii Ultraject.*, Nijmegen (G van Zijll), 1656.

<sup>359</sup> GAL Doodboeken Caecilia Gasthuys

patient died and the professor wished to dissect him or her. In two of the cases described there is mention that the wife of the deceased had some say in the matter. One Joannis Paulisz. was dissected on 13 November 1641 ‘consensu uxoris’.<sup>360</sup> And in the case of Evert Baerendsen, a 60-year-old Leidener, his wife did not give her consent to the postmortem, although ‘this (the postmortem) is in similar cases always done, following the mandate of the prefecture of the nosocomium’.<sup>361</sup> Baerendsen was dissected anyway.

The sections on the deceased patients of the Caecilia Hospital were performed in the place ‘preordained for the dissections’, which means the room of the collegium practicum. In the descriptions of the sections we usually find that the actual dissecting was performed by the surgeon Kamphuysen, in the presence of both the city doctors Weyssens and Moerbergen. The professor Heurnius explained the section and the causes of death to a group of students, who are sometimes described as ‘several students’ and sometimes as ‘all the gentlemen students of medicine’.<sup>362</sup> These sections were usually performed the day after the patient passed away, often at around two o’clock.

In many of the case histories personal details are given about the patients, as for instance in the description of the disease and death of Hubert Pemble, who originated from the village of Jawer near Liege. Hubert was 19 years of age, of a ‘sanguine temperament’ and tried to make a living as a draper.<sup>363</sup> We are also told that this young Walloon had enlisted in the army of the Dutch Republic and had been in the field from August 1635 until January 1636. After that he became unemployed and was apparently hoping to find a job in the Leiden cloth industry. His short career as a soldier had left him with a gruesome souvenir, as all his toes – except the big toe on his right foot – had had to be amputated because of frostbite.

From July 1636 on his condition deteriorated. He experienced severe back aches and pain in the loins, as well as bouts of coughing. On 20 November he was afflicted with diarrhoea and a racing pulse, symptoms that increased in severity around 30 December, when he was admitted to the Collegium Medico Practicum at the Caecilia Hospital, suffering from fever and showing a ‘facies cadaverosa’. Medication was ineffective at this late stage, and at around midnight on 9 January 1637 Pemble died. He was dissected the following day at two in the afternoon. During the postmortem Heurnius had the surgeon open the chest cavity and the abdomen. The professor commented on the lungs and the pericardium and on the liver – which was quite swollen – and the kidneys, the intestines and the stomach. All these internal organs were inspected for their colour and any fluids they might contain.

Many of the elements of the case of Hubert Pemble are also typical of the other cases Heurnius describes in his appendix to Fernelius’s *Universa Medicina*. The majority of the 30 cases were people of a low standard of living, their dire circumstances often being the cause of their afflictions. In several cases Heurnius for instance ascribed the ailments of the patients of the Collegium Medico Practicum in 1636 to their lodgings, which were located in neighbourhoods where the plague had raged the previous year.<sup>364</sup> Other patients had been soldiers like Pemble, or beggars, their hardships contributing heavily to their medical problems.

Many of the postmortems that were performed after the death of these unfortunates also answer to the type given in the description of the case of Hubert Pemble: the parts of the body that are inspected are the parts where Heurnius expected to find the causes of the disease and the eventual death of the patient. Judging from these case descriptions, the sections that were conducted at the Collegium Medico Practicum under Heurnius were postmortems proper, and certainly not anatomical sections, in which all parts of the human body were demonstrated.

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<sup>360</sup> Appendix Fernelius p. 26

<sup>361</sup> Ibid. p. 23

<sup>362</sup> Ibid. p. 15

<sup>363</sup> Ibid. Hist. V, p. 9

<sup>364</sup> Ibid. Hist. I, p. 1

Some of the case descriptions, like that of Pemble or the case of Pierre Varny of Valenciennes (Historia II p.4), show that the patients had been suffering from their afflictions several months before they were admitted to hospital, and that there was also a case history from this period before hospitalisation. These case histories were probably recorded by the city surgeons, who visited the sick on their rounds through the city once every two weeks. Leiden had four city surgeons in Heurnius's day. Besides Kamphuysen there were Evert van Leeuwijck, Cornelis Schouten and Jacob Nijen, who were all entrusted with a certain sector of the city. The reports of their inspection rounds, 'de boecken der visitation der siecken' (books of the visitations of the sick) can still be found in the Leiden city archives, containing short notes with the name of the patient, his or her address and a verdict on whether or not his condition justified hospitalisation. This verdict could range from 'is niet nodig' (not necessary) and 'is wat beter' (is a little better), to 'nodig plaets' (place is necessary) or 'geeft plaets' (place should be given), the latter two being advice to admit the patient to the Caecilia or Catharina Hospitals.<sup>365</sup>

### Problems of continuity

From various reports from the first decade of its existence it seems that keeping things going at the Collegium Medico Practicum was no sinecure. Problems arose with the payment of the professors, as well as the city surgeon and doctors, for the extra duties they performed in running the clinical teaching course beside their regular job. Apart from that the clinical teaching apparently interfered with the normal routine of the Caecilia Hospital and of the city doctors and surgeon whose first duty was to take care of the hospital and its patients, instead of the Collegium Practicum.

On 25 August 1637 the city doctors Moerbergen and Weyssens were interviewed by the curators, once more about the way Screvelius and Heurnius were fulfilling their duties. This was in connection with a request by the professors for a yearly salary for their work in the hospital. Obviously, the two city doctors gave favourable accounts of Heurnius and Screvelius, because both were allowed a salary of 200 guilders a year, even backdated to the moment the collegium was set up.<sup>366</sup>

Money continued to be an issue for the professors and doctors however because on 21 November 1639 Heurnius and Weyssens asked the curators for an increase in their salaries. It was decided that everyone involved – professors, doctors and the surgeon – should keep account of the expenses they incurred for the Collegium Medico Practicum. These accounts would be settled at the end of each half year or year, in such a way as the curators deemed fit for each man.<sup>367</sup> A year later the curators refused to give Heurnius and Screvelius a pay rise. The surgeon Kamphuysen however was allowed a bonus of 100 guilders for his work in the collegium. At the same meeting of the curators doctors Esaias Trelcatius and Franciscus Gomarus were appointed to take the place of the deceased Weyssens and Moerberghen.

After five years of practice matters were obviously becoming rather slack, to the dismay of Otho Heurnius. On 13 August 1641 he asked the curators to send for the city doctors and the surgeon and to point out their duties to them. Heurnius demanded that they be present when he was doing the rounds with his students and remain at the hospital until he had finished. The doctors and the surgeon were also told to report to the house of the professor before the collegium and to accompany him to the hospital, as stipulated in the advice of the medical faculty to the curators in 1636. It was even necessary to point out that the surgeon should be present in person, and not send one of his servants/journeymen. Furthermore, the doctors were not allowed to be out of town without the permission of the professor and one of the burgomasters, and certainly not both be out of town at the same time. Nor was the surgeon to leave Leiden without permission.<sup>368</sup>

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<sup>365</sup> GAL Arch Gasthuizen inv. 48 De Boeken der Visitation der Siecken

<sup>366</sup> Molhuysen II pp. 215-216

<sup>367</sup> Molhuysen II pp. 251-252: '...recompense of nader belooninghe van elx verdiensten sulx gedelibereert ende geresolveert te werden als men bevinden sal te behooren.'

<sup>368</sup> Molhuysen II p. 260

## New faces

In 1647 Screvelius died, and his place was taken by Johannes Walaeus, professor extraordinarius. Three years later, in May 1650, Otho Heurnius retired. That same year Albertus Kyperus from Breda was appointed professor of medicine, with the Collegium Practicum among his duties. At his request the exercises in anatomy and in the practice of medicine at the hospital were included in the University's *series lectionum*.<sup>369</sup> Neither Kyperus, nor Walaeus however, appear to have been very active in the Collegium Medico Practicum. A more active part seems to have been played by Johannes Antonides van der Linden from Franeker, appointed in February 1651, explicitly as a replacement for 'the very old and feeble' Heurnius. In 1658 another new professor was appointed, to teach at the collegium besides Van der Linden. This new man, Franciscus de Boe Sylvius, was to become the leading name at the medical faculty of Leiden University. His fame would attract students from all over Europe.

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<sup>369</sup> Molhuysen III, p. 46: '...dat d'exercitien in de anatomie ende ouffeningen van de practycque in de gasthuysen alhier mede in de Series Lectionum mochten werden gedrukt'

#### IV. *Sylvius*

Franciscus de Boe Sylvius was born in Hanau near Frankfurt am Main in 1614. His parents came from the Southern Netherlands and had emigrated to Germany for religious reasons. Although his father hoped that Franciscus would follow in his footsteps and become a merchant, young Sylvius had other ambitions. He took up medical studies, first in Sedan and then in Leiden under Adolphus Vorstius and Otho Heurnius. In 1637 Sylvius graduated as *medicinae doctor* in Basle and set up a medical practice in his home town of Hanau. A year later he left for Leiden, to acquire a position of some kind at the University. Soon after his arrival, in the autumn of 1638, he was indeed lecturing on anatomy, albeit not in any official academic capacity. These lectures and demonstrations took place in the *ambulacrum*, the conservatory of the botanical garden, which also housed a collection of curiosities.



Figure 40: *Franciscus de Boe, Sylvius*, by C. van Dalen, 1659 (Museum Boerhaave Leiden)

At his well-frequented lectures on anatomy and physiology Sylvius showed himself to be a man of modern convictions within medicine. He was the first to advocate Harvey's theory of the circulation of the blood at a Dutch university.<sup>370</sup> Among his audience were professors of medicine Vorstius and Walaeus, the latter being converted by Sylvius from an opponent of Harvey to one of his supporters. Sylvius's lectures in the *Ambulacrum* were terminated in 1641, when he left Leiden to become physician to the Walloon poor relief board in Amsterdam. This turned out to be a lucrative position, allowing Sylvius to negotiate a high salary when he was recalled to Leiden for a professorship in 1658.

During his lectures at the *Ambulacrum* of the Leiden *Hortus Botanicus* Sylvius regularly performed vivisections. His aim was to demonstrate in animals the principles/mechanics of the human body. He was interested in all manner of newly discovered physiological processes, such as the circulation of the blood, the way food was absorbed into the bloodstream and the workings of the lacteal vessels. He

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<sup>370</sup> Baumann, *Sylvius*, p. 6

did not lose this interest when he moved from Leiden to Amsterdam in 1641 to set up a profitable medical practice; he continued to dissect cadavers – both privately and as the anatomical professor of the Amsterdam surgeons' guild – and he experimented with distillation vessels and furnaces.<sup>371</sup>

In 1640 Sylvius had met Descartes. Sylvius praised the French philosopher on several occasions, especially his principle that nothing should be held true that had not first been observed clearly and beyond doubt. And although Sylvius may not be called a Cartesian, his views on anatomy and physiology were strongly influenced by Descartes and arguably could not even have been possible without the work of the Frenchman. As with many other medical scientists, especially in Leiden, Descartes' mechanical theories about the workings of the human body inspired Sylvius to do empirical research into the physiology of man and beast.

But Sylvius expected to find the secrets of the working of the human body primarily in chemical processes and not so much in mechanistic principles. His ideas in this respect were influenced by the theories of Paracelsus, the founder of iatrochemistry. Paracelsus believed that nature was ruled by chemical principles; understanding these principles not only allowed Man to understand the whole of creation – the macrocosmos – but also himself – the microcosmos. In a medical context this concept led to the conviction that chemistry (or alchemy) could be applied in a very practical way for therapeutic purposes: drugs prepared with (al)chemical methods to heal a body that was ruled by chemical processes. These paracelsian or spagyric theories survived well into the 17<sup>th</sup> century, and because of their materialistic aspects (the body is not ruled by sympathetic influences but by the workings of concrete chemical substances) even gained new impetus in the second half of the century as a result of the mechanistic and corpuscular theories influenced by Descartes.

Franciscus de Boe Sylvius is often seen as the culmination of this mechanical-chemical way of thinking in 17<sup>th</sup>-century medicine.<sup>372</sup> In Sylvius's view there were two kinds of chemical compound: one in which salt was the binding medium and another in which the chemical components were bound together by oil. Breaking up these compounds could be either fast and violent, by processes influenced by fire, or slow and moderate by processes influenced by water. In the physiological process of digestion Sylvius recognised both categories at work. In the stomach the food was transformed into chylus by means of fermentation, a gradual, moderate process. The nutritional parts of the chylus were subsequently separated from the other parts in the duodenum. This was accompanied by effervescence, a violent, quick process. This effervescence needed saliva and pancreatic juice (which are acids), as well as bile, which contained lye and salt according to Sylvius. Both substances were created with the help of fire, and so contained fire particles. Reactions between the substances set the fire particles free, causing heat. A comparable process took place in the heart, where the fire particles enclosed in the chylus that was absorbed by the blood, left the acid and lye in the chylus to bind themselves to other, more suitable particles within the blood substance. This caused a kind of combustion in the heart, activating the heart muscle and setting the blood in motion. So effervescence was one of the driving principles of physiology.<sup>373</sup>

As Beukers signalled, Sylvius's chemical theories contain many mechanistic and corpuscular elements: the particles of the different substances, which were more or less tightly bound together according to their shape and which worked mechanically on each other; the mechanical image of the heart as a spring-like muscle driven by effervescence; the adherence to Harvey's theory of the circulation of blood, etc.<sup>374</sup> Sylvius also applied his chemical principles to pathology and medication. According to him, many diseases were caused by mechanistic defects, often a local abnormal condition of the bodily fluids. The fluids could for instance become thick, their viscosity causing specific vessels, nerves and glands to clog up. In contrast to the traditional view, the iatrochemists held

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<sup>371</sup> Baumann, *op. cit.*, p. 16.

<sup>372</sup> Cf. Harm Beukers, 'Mechanistische principes bij Franciscus de Boe Sylvius', in: *GEWINA* Jrg. 5 nr. 1 (1982) p. 6 ff.

<sup>373</sup> Beukers, 'Mechanistische principes', pp. 10-11

<sup>374</sup> Beukers, *ibid.* p. 12

that this abnormal condition was localised in specific organs and not a general condition of the whole constitution. Medication should therefore counteract this local thickening of the fluids; many of the drugs prescribed by Sylvius were intended to alter the liquidity of the bodily fluids in specific organs, especially with volatile salts, used as a solvent for thick and slimy substances. Sylvius regarded experiments on animals, as well as experiments in medical and anatomical practice, as the foundation of his theories. Metaphysical, theological or philosophical connotations as a result of these chemical-mechanistic definitions of life did not seem to concern Sylvius, unlike his alchemist forebears Paracelsus or Jan Baptista van Helmond.

### **Sylvius at work in the Collegium Medico Practicum**

Sylvius's theories not only guided his scientific experiments, but also his method of prescribing medication. Sylvius used medicine containing either alkaloid or acid substances to restore the balance in the physical system of his patients. This reliance on medication was a major cause of the complaints from the administrators of the Caecilia Hospital when Sylvius left his Amsterdam practice to become professor teaching the practical exercise of medicine. Apparently the restoration of the chemical balance within the physiological system of the patients of the Collegium Practicum was such a subtle affair that it took a great deal of (expensive) medicine.

About his working method at the Collegium Practicum Sylvius said:

'I have applied a method that up to now was unusual here, and probably everywhere else. To wit: I have introduced my audience in the practice of medicine by taking them every day to the public hospital, when I went to visit the patients there. I made them listen to the complaints of the sick and I showed them their symptoms. Then I asked the students which ailments these people in their opinion suffered from, and I asked them for their diagnosis, and their motivation for it and the causes of the disease and its suitable treatment. And when a difference of opinion would arise among them, I calmly let those who were at odds defend their points of view with reasonable arguments, giving them total freedom in their choice of arguments, as long as these rested on solid foundations as much as possible. Finally I gave my own opinion or added this to the opinions already given. After the students for some days witnessed the effect of the administered medication, I again discussed their opinions about the developments with them, just like before. Until the patients, God willing, were cured or, according to their fate had passed away, leaving us dead bodies to be anatomised. After careful opening of the corpses and demonstration it would become clear to us all who was right and who was wrong in his diagnosis about this particular disease, and other things relating to it.'<sup>375</sup>

It is interesting to note that Sylvius's teaching methods show considerable similarity to Heurnius's interrogations of his students, which had met with so much resistance 30 years before.

Sylvius's postmortems in the room of the Collegium Medico Practicum were so popular with the students that in February 1660, less than two years after he began teaching in Leiden, Sylvius reported to the University authorities that he had had 'twee omtreken' (additional benches) constructed for the postmortem room in order to accommodate more students.<sup>376</sup> These benches doubled the seating places offered by the three wooden benches 'made like scaffoldings' that had been part of the inventory since Heurnius's day. This extension by Sylvius made the postmortem room in the Caecilia Hospital into a dissecting theatre with ample seating. But as the postmortem room only measured six by six metres, it was still considerably smaller than the original theatrum anatomicum.

Sylvius's fame and his activities led to an increase in the daily business of the Collegium Practicum at the Caecilia Hospital, which inevitably led to more interference with the normal state of affairs within the institution. The hospital administrators were not happy with this and filed a complaint with the Burgomasters and Curators, the board of directors of Leiden University. The city chronicler Frans van

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<sup>375</sup> Baumann, op.cit, p. 24

<sup>376</sup> Molhuysen IV, p. 158 (feb 1660) and Suringar, 'De Chemiatrische School van Sylvius', in: *Reprint NTvG* p. 18

Mieris tells us about the discontent of the hospital administrators, which they had vented in May 1666. One of their problems was the room occupied by the Collegium Medico Practicum, which ‘used to be a proveniershuisje, of the kind they were used to reap benefits from, of which they must now remain deprived’.<sup>377</sup> Furthermore, the administrators complained that they had to reserve 12 beds in one of their wards, and that the hospital had to pay for the medication prescribed by the professors to the patients of the collegium, as well as the costs of the postmortems.

But besides these more general complaints about the loss of income and the extra expenses caused by the Collegium Medico Practicum, there was displeasure with the administrators of the hospital about the behaviour and attitude of the professors of medicine, especially Sylvius, who ‘instead of twice a week, was giving daily exercises in the practice (of medicine) with a great number of students in the men’s and women’s wards’. Sylvius also did not always ‘prescribe the medication that was specified in the list of medicine for the poor’.<sup>378</sup>



**Figure 41: Annoyed by Sylvius’ activities, the board of administrators of the Caecilia and Catharina hospitals, portrayed by Jan de Vos de Jonge, oil on canvas 1659 (Stedelijk Museum De Lakenhal, Leiden)**

After a decision was postponed in August the curators finally decided on 8 November 1666 that the hospital should ‘to some extent be relieved of the expenses they were obliged to bear, because of the prescriptions of one of the professors of medicine’.<sup>379</sup> The hospital was also allowed a yearly sum of 120 guilders as compensation for the use of its house and a room (i.e. the room of the Collegium Practicum). Furthermore, Sylvius would be politely admonished to use as much discretion as could be borne by the aforementioned house and the condition of the patients. As, on the other hand, the administrators of the hospital would be asked ‘not to discourage (decourageeren) the aforementioned Professor Sylvius in his good services to the advantage of the students of medicine, but to treat him with all politeness’.

<sup>377</sup> Van Mieris, *Beschrijvinge der Stadt Leyden* DI I, p. 179: ‘... van welcke soort zy gewoon waren voordeel te trekken, van ’t welcke zy op deze wijze waren verstoocken.’

<sup>378</sup> AC 26, 8 mei 1666, fol. 68 vo.: ‘... in zyn ordonnantie niet altyt [...] praescribeert de medicamenten gespecificeert in de lijst van de medicamenten voor de armen.’

<sup>379</sup> Ibid. Fol. 76: ‘... eenigermate te worden ontheven van de onkosten die syluyden genootsaackt syn meer te dragen vermits de ordonnanties van een der professoren medicinae.’

## A Danish eyewitness

Some impression of what went on in Leiden in Sylvius's day can be distilled from the diary of Ole Borch, or Olaus Borrichius, the Danish polyhistor who undertook an extensive Grand Tour of Europe from 1660 to 1665, initially on his own, but from 1661 as chaperon to the sons of his patron Joachim Gersdorff, the Danish 'rigshofmester'.

The first stop on Borrichius's European travels was Holland, where he mainly stayed in Leiden and from there undertook trips to Amsterdam, Rotterdam, The Hague and the surrounding countryside. Borrichius was a scholar with a wide field of interests; he was well-versed in philosophy, poetry and linguistics, but he also counted medicine, anatomy, botany and alchemy among his disciplines. In Leiden he sought contact with the University librarian Gronovius and the philologist Vossius, but also with professors of medicine Van Horne, Sylvius and Van der Linden, among others. Borrichius's itinerary gives an almost day-by-day account of his activities in Holland from 1 January 1661 to May 1663.<sup>380</sup>

During his stay in Leiden Borrichius attended lectures by Van Horne, Sylvius and Van der Linden, but he was also present at quite a few dissections. Even on the day of his arrival, 1 January, Borrichius witnessed the dissection of an epileptic who had died at the nosocomium, as he called the Caecilia Hospital.<sup>381</sup> First he gives the symptoms that the patient showed in the five weeks leading up to his death: convulsions, headaches, deliriums. Borrichius also reports the medication, accompanied by the reasons why these drugs were administered. And when after his death the epileptic was dissected by Sylvius, he gives the working order of the dissection, starting with the skinning and bleeding of the subjectum, and ending with an inspection of the brain. Much of Sylvius's account of his teaching methods can be found in Borrichius's descriptions of the medical cases in the nosocomium. Borrichius probably copied quite extensively from the books of the Collegium Medico Practicum in which the day-to-day prescriptions for the patients' medication and any particularities about the remedy or the prescriptions the professor might find noteworthy were to be reported, as stipulated in the regulations for clinical teaching from November 1636.<sup>382</sup>

One very elaborate example of this is the case of Klaas Pietersz. (or Claus Petersön as he is called by the Dane). Borrichius's account of the development of this patient's disease and his eventual death give a good idea of the style and contents of the case report books of the Collegium Practicum. The case starts on 30 November 1660 'in nosocomium', that is before Borrichius was in Leiden.<sup>383</sup> Klaas Pietersz. was a man 37 years of age, who had been 'debilis' (weak, incapacitated) for four years. For the last six weeks he had felt a constant cold, especially around the loins. He had also felt aches all over his body, especially in the head, 'but he still had an appetite'. He was administered a medicine composed of fennel, bark of guaiacum (or lignum vitae), pulp of colocynth and syrup of black hellebore, a 'deconcoctio simul alterans et evacuens' (an emetic). The medicine does not really take effect: the patient defecates sparsely and painfully. The following days, 2 to 10 December, the patient's stools are recorded meticulously, with notes of his pulse and general condition.

On 11 December Klaas is administered a purgative, which causes a lot of defecation, great weakness, a pulse that is 'minus febrilis', a dry tongue, much urinating and no appetite. Yet another new medicine is administered. The patient now feels pain when coughing, he experiences headaches but his tongue is less dry. The medication is repeated.

On 17 December the patient's whole body is swelling up, he is coughing a lot. He has a headache, especially in the forehead and he has no appetite. A new medication is then administered, containing opium and laudanum. This brings some relief, but the patient is very weak and his breathing is

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<sup>380</sup> H.D. Schepelern (ed.), *Olai Borrichii Itinerarium 1660 – 1665*, Copenhagen 1983.

<sup>381</sup> *Itinerarium* pp. 61–63

<sup>382</sup> Cf. Molhuysen II, pp. 315–316: 'Advies van de medische faculteit over het invoeren van klinisch onderwijs' (29 sept. 1636)

<sup>383</sup> *Itinerarium* p. 76 ff

agitated. Still another medicine is tried, which makes his respiration less agitated. On 27 December Klaas Pietersz. dies. In the subsequent postmortem the following parts were opened in this order: first the abdomen, then the stomach, the glands of the mesenterium, the bladder, the thorax and finally the ear. Unfortunately, Borrichius does not tell us whether this patient was treated by Sylvius or Van der Linden, or who performed the postmortem. But as Pietersz. was treated in the winter of 1660-1661 it is most likely that he was Sylvius's patient, because Sylvius and Van der Linden worked alternating three-monthly shifts.

During his two-and-a-half year stay in Leiden Borrichius was present at some 21 anatomies and attended or performed over 29 vivisections, mainly on dogs. The human anatomies he witnessed were for the most part performed in the Collegium Medico Practicum: 13 of them, nine of which were done by Sylvius. He saw two public anatomies, two anatomies by Van Horne (apparently not in the Theatrum Anatomicum) and four other dissections. These numbers, reported by someone who had other interests besides the study of medicine, are not entirely out of accordance with the numbers given by the Scottish student of medicine Robert Sibbald (1641 – 1722). Sibbald studied in Leiden for 18 months, from 1660 to 1661 and saw 23 bodies dissected in the Caecilia Hospital and 'some dissected publicly by Van Horne'.<sup>384</sup> Another piece of information corroborating the impression that Sylvius was a prolific anatomist can be found in Lucas Schacht's statement that Sylvius dissected some 300 cadavers in Leiden.<sup>385</sup>

### **Descartes, Sylvius and Anatomia Nova**

When the reports of the dissections in the Collegium Medico Practicum as given by Borrichius are compared with the dissections described some 20 years earlier by Heurnius, it is striking to note that the sections done in the 1660s examined more parts of the body of the deceased than the sections performed by Heurnius. Heurnius only examined the parts that were afflicted or the parts where causes of the affliction might be found. During the time of Sylvius and Van der Linden the postmortems also included other parts of the body that are of more general anatomical interest, such as the ear in the case of Klaas Pietersz. Arguably, Sylvius's interest in the ear in the early 1660s may have had something to do with the recent discovery of the salivary duct in the ear by Niels Stensen. We often read in Borrichius's reports that postmortems also included the anatomy of the head, the brain, the heart, etc.<sup>386</sup>

What was the reason for so many more parts of the body being examined during the dissections under Sylvius and Van der Linden than during the dissections under Heurnius? Did the new view of the workings of the human body, influenced by Descartes' ideas about physiological processes and Sylvius's iatrochemical theories, lead the performers of the postmortems to examine as much as possible of the human anatomy because in their opinion all parts of the body worked together? Or did the dissections in the Collegium Medico Practicum take over the role of the dissections of the anatomical theatre as the main source of anatomical information for the students of medicine? This would imply that the intentions of these dissections at the Collegium went beyond merely examining the causes of diseases to showing the whole of human anatomy.

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<sup>384</sup> Baumann, op. cit., pp. 28 – 29

<sup>385</sup> Ibid. p. 52

<sup>386</sup> Cf. Borrichius, *Itinerarium*: dissection of an epileptic by Sylvius pp. 61-63, dissection of a woman with Sylvius and Van Horne present pp. 69-71.



Figure 42: René Descartes

There is indeed considerable evidence that in Sylvius's time as Professor at the Collegium Medico Practicum the anatomical research in this institution went beyond the usual postmortem openings of the bodies of deceased patients, into more general anatomical research for the benefit of the students. Sibbald's remark that he witnessed 23 dissections at the Caecilia Hospital within a year points in this direction; as does Schacht's mention of 300 cadavers dissected by Sylvius. But also a letter from Stensen – who studied in Leiden in 1662 – to Bartholin, mentioning Sylvius's habit of leaving the anatomical subjects of the Collegium at the disposal of his students after he had completed his own demonstrations, shows the role the dissection room at the Caecilia Hospital played in the anatomical research in Leiden in the second half of the 17<sup>th</sup> century.<sup>387</sup>

Apart from these letters and memoirs of a colleague and of foreign students about the broader anatomical activity in the dissection room of the Caecilia Hospital (broader both in number and in scope), there is also the testimony of Sylvius's famous student Reinier de Graaf. In the 'address to the reader' in his book on the female reproductive organs De Graaf tells us how the illustrations of his treatise were presented by Sylvius in

'the hospital in Leiden together with the body of a deceased person, especially prepared and dissected for that purpose by us [= De Graaf], with which these [illustrations] concurred in a very neat and life-like manner, [it] pleased this illustrious man when he demonstrated the reproductive parts, to show my illustrations to anyone, in order for them to judge their veracity'.<sup>388</sup>

<sup>387</sup> Letter from Stensen to Bartholin 9 January 1662 cited in H.L. Houtzager, *Gelukkig Geneesheer tot Delft*, Delft z.j. (1982) p. 21

<sup>388</sup> R. de Graaf, *Alle de Werken*, Amsterdam (A. Abrahamsz.) 1686 p. 147: '...nieuwe platen [. . .] die voorleede jaar met den wijdt vermaarden Hoge School Leeraar Sylvius tot Leyden in 't Gasthuys met eens overleedens lighaam, daer toe van ons vervaardigt en bereydt hebben vergeleken, waar mede als deselve seer net en leevendig over een kwamen, heeft het dien doorluchtige man (= Sylvius) belieft mijne prenten als hij tot de voort teelende deelen gekomen was aan een yder te vertoonen, op dat (zij) alsoo van haar nauwkeurige gelijkheyt mogten oordelen'

These accounts show that the room of the Collegium Medico Practicum in Sylvius's day evolved from the postmortem room of the Academic Hospital, as it was under Heurnius, to a centre of research and demonstration of the broader human anatomy. This evolution was driven by the new spirit of investigation and empirical demonstration that took hold of the Leiden medical faculty from the early 1640s, with Sylvius's lectures at the Ambulacrum, and gained significant momentum from the late 1650s onwards with the activities of Professors Van Horne and Sylvius and their students such as Swammerdam, Steno, Ruysch, De Graaf and others. The mechanistic view of the physiology of living organisms (men as well as animals) proposed by Descartes in his *Traité de l'homme* and other works certainly inspired these Leiden scientists to investigate this particular field.

The character of this new *élan* in anatomy (even called 'anatomia nova' by its adherents) called for much closer observation of the anatomical structures than could be provided by the traditional setting of the *theatrum publicum*. The new anatomy – and one must remember that physiology in the 17<sup>th</sup> century was seen as a part of anatomy – wanted to unravel the mechanisms that drove the human physiology into its finest detail. And, because the research subjects at hand were so small and difficult to interpret, these investigations required teamwork; if more than one pair of eyes could discern the same details, one could enter into scientific discourse. The book as an authoritative information source in these matters was widely mistrusted. One of Sylvius's maxims being that he only accepted those things that he had seen with his own eyes. Both De Graaf and Swammerdam on several occasions expressed their disdain for bookish knowledge as opposed to the knowledge gained by personal investigation, observation and demonstration, witnessed by several gentlemen of science. For this empirical teamwork the ideal setting was either the small private anatomy, or a somewhat larger setting, such as the room of the Collegium Medico Practicum.

## V. *The Collegium in the final decades of the 17<sup>th</sup> century*

After Sylvius's death in 1672 the anatomical activity at the Collegium Medico Practicum diminished, and – to all appearances – resumed its more strictly clinical and pathological character. Admittedly, Sylvius's colleague and former student Lucas Schacht was at that time paid 200 pounds a year for 'waernemen' (observing) the Collegium, but no other professor took over Sylvius's responsibilities at the Caecilia Hospital.<sup>389</sup> Instead, the doctor at the hospital, Jacob Vallan, was appointed to take over Sylvius's teaching hours, taking turns with Professor Lucas Schacht.<sup>390</sup>

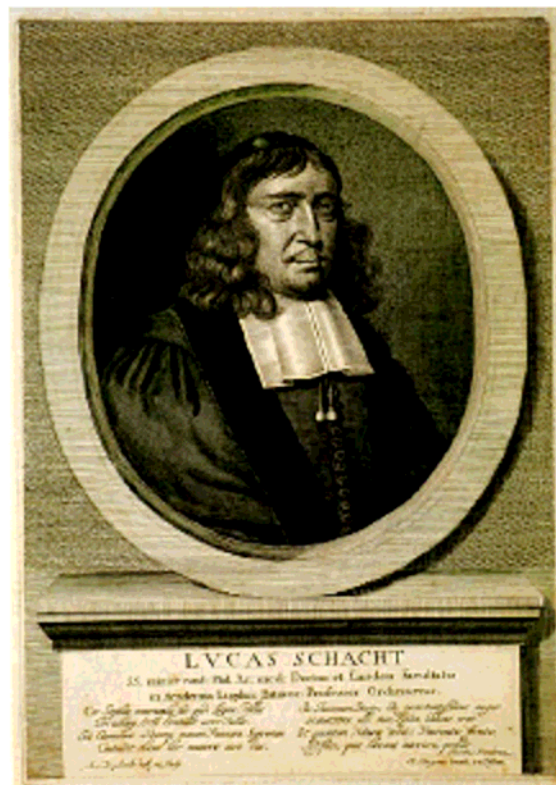


Figure 43: Lucas Schacht, Sylvius' student, friend, colleague and successor (Museum Boerhaave, Leiden)

In the meantime, although it was decided by the University authorities that Vallan and Schacht would take care of the clinical lessons at the Caecilia Hospital, Sylvius's successor as professor medicinae, Theodorus Craanen, also undertook some initiatives in that direction. Craanen – born in Cologne in 1620 – had taught philosophy, geometry and medicine at the Nijmegen Athenaeum Illustre since 1641. In 1670 he was called to Leiden as professor of logic and metaphysics. Craanen already had a reputation as a Cartesian, and these leanings made him controversial as a philosophy professor. In 1673 the curators of the University offered him Sylvius's vacant chair, apparently because they thought he could do less harm there.<sup>391</sup> As a Cartesian Craanen was more inclined to theorising about the human body than to empirical observations and experimenting. In his *Tractatus Physico Medicus*

<sup>389</sup> AC 361 Jaarrekening rentmeester over 1674 fol. 224

<sup>390</sup> AC 26 fol.308 Vo. 4 dec 1673 '... is goetgevonden ende verstaen dat de commissie van de voornoemde Vallan gealtereerd ende nopende het houden van het Collegium Practico Medicam den selve in plaetse van de heer Professor Sylvius gesurrogeert sal werden. . . '

<sup>391</sup> A.M. Luyendijk-Elshout, 'The Rise and Fall of the Mechanical Philosophical School of Theodoor Craanen' in: *Leiden University 400 Years*, p. 298

*de Homine*, published by Craanen's student and disciple Theodoor Schoon in 1689, Craanen compares the human body to a clock, whose wheels are analogous to the organs of the human body and weights to its blood and animal spirits.<sup>392</sup> Nevertheless, on 8 February 1674 the curators received a request from the Cartesian theorist Craanen to have some sick male and female persons at his disposal in the Caecilia Hospital in order to exercise the students in medical practice.<sup>393</sup> The curators did not deal with this request, because they were of the opinion that it should be left to the consideration of the Burgomasters of Leiden and not to them. Whether Craanen redirected his request to the Leiden city administrators and if anything came of it remains unknown.

Towards the end of the 1670s the Collegium Medico Practicum was also hampered by financial difficulties, first and foremost the financial problems of the Caecilia Hospital. On 23 January 1679 the masters of the Caecilia Hospital decided to meet the lack of takings of their institution, 'which were in the course of these times exceptionally few' by lessening the 'numbers of mouths [to feed] by letting the old people die out without filling their places with other eaters'.<sup>394</sup> This decision to economise and scale down the affairs at the Hospital must also have had its effect on the Collegium Medico Practicum. The Collegium Medico Practicum was effectively closed ('discontinued') on 17 May 1680.<sup>395</sup> Moreover, a year later the University authorities decided to freeze (*mortificeren*) the wages of the doctors and the surgeon of the Collegium, owing to the poor financial situation of the University at that time. This meant that if they should leave their job or die, the posts of the doctors and surgeon would not be filled again.<sup>396</sup>

Within two years however there was a feeling among the parties involved that the existence of a facility for clinical teaching had possibly been an important feature of the Leiden medical curriculum, at least in the eyes of the students. Curators and Burgomasters began to ponder whether it 'would not be useful and of the highest importance for the furthering of medical studies to [. . .] restore the exercitia practico medica [. . .] in their former state'.<sup>397</sup> The more so because Lucas Schacht was still paid his annual wages of 200 guilders a year for his position as professor of the Collegium Medico Practicum, which at that time had been defunct for almost two years.<sup>398</sup>

The spark that ignited the whole plan to resuscitate the Collegium seems to have been a request from the surgeon Jacob Verbeeck, who asked the University Curators to appoint him in the place of the deceased Thomas Stafford, former surgeon assisting in the Collegium Medico Practicum.<sup>399</sup> A month later Verbeeck was indeed appointed, as was also communicated by the Burgomasters of Leiden to the

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<sup>392</sup> A.M. Luyendijk-Elshout, *Ibid.* p. 300

<sup>393</sup> AC 26 fol. 312 8 feb 1674: 'het versoeck van Theodorus Craanen, Professor in de medicine in de voorn. Universiteyt om tot sijne dispositie in 't Cecilie gasthuis eenige siecke soo mans als vrouwspersoonen te mogen hebben doen als hij de studenten in praxi medicina met eenige vrucht soude kunnen exerceeren.'

<sup>394</sup> GAL Resolutien Vergaderingen Meesters in de Caecilia en Catharina Gasthuysen 1678-1758: 'nademael de huysen nergens meer door konden werden gesoulgeert als dat haere consumptie wierde gemildert na proportie van haere incompten die in't verloop deser tijden bovenmaten wynich sijn dat men 't getal der monden soude laten verminderen door 't afsterven der oude luyden sonder de plaetsen der overleidenen te vervullen met andere eeters.'

<sup>395</sup> AC 27 8 feb 1683 p. 202 . . .de exercitia Practico Medica voormaels in 't Gasthuys alhier [. . .]sedert den 17. mey sestien hondert tachtigh gediscontinueert is geweest. . .

<sup>396</sup> AC 27 17 fol. 152 (mei 1681): ' . . .sullen worden gehouden voor gemortificeert de tractementen van den Doctor en Chirurgijn Collegii Practici Medici. . .'

<sup>397</sup> AC 27 fol. 202 (8 feb 1683): ' . . .off niet dienstigh ende tot bevorderinghe van het studium medicinae niet ten hoogste noodigh soude sijn de exercitio medico practica [. . .] in voriger stant te worden gebracht.'

<sup>398</sup> AC 27 *ibid.*

<sup>399</sup> AC 27 *ibid.*: ' . . .een requeste gepresenteert by Jacob Verbeeck, chirurgijn alhier, om in de plaetse van Thomas Stafford, in sijn leven het Collegium Practico Medicum als chirurgijn geassisteert en waergenomen hebbende te mogen succedeeren'.

directors of the Caecilia and Catharina Hospitals.<sup>400</sup> At about the same time the University authorities decided to look for a replacement for Doctor Petrus Gecquier (Vallan's successor since April 1675) who had died some time earlier, in order to have an assistant for Lucas Schacht in case the Collegium should be revived.<sup>401</sup> Theodoor Craanen, who some ten years before fruitlessly asked permission to teach clinical medicine at the Caecilia Hospital, was asked to fill the position left by Gecquier by the University authorities in November 1683.<sup>402</sup> He accepted this appointment only reluctantly, after extensive haggling over fees and compensations, only to leave Leiden in November 1685 to become court physician to the elector-king of Brandenburg.<sup>403</sup>

Meanwhile the Burgomasters of Leiden promised to do their best to provide the Collegium Medico Practicum with 'suitable subjects'. The Burgomasters fully recognised the threat to the existence of the Collegium if there were a shortage of patients for the clinical lessons. In order to guarantee its continuation they decreed to 'order their city doctors that – in case the hospital would contain no, or too few sick persons – they would transfer some of the sick tended by them at the city's expenses to the aforementioned hospital in order to be used as suitable subjects for the aforementioned exercise [of medical practice]'.<sup>404</sup>

This proved to be no easy task. At the meeting of the Curators and Burgomasters of 8 and 9 February 1686 it was remarked that the Collegium was interrupted some time earlier, mainly because 'the hospital in which the exercises used to take place was usually occupied by healthy and prosperous subjects and this offered no occasion to educate the students of medicine in the art of healing by means of daily indications of all sorts of diseases and symptoms.'<sup>405</sup>

The curator Van Beverninck, together with the four Leiden burgomasters, was delegated by the University authorities to see what action had to be taken to put things right. Van Beverninck visited the Caecilia Hospital together with the Burgomasters, talked to its directors and to Professor Schacht, after which he came up with the following recommendations, which he presented to the curators on 18 February 1686.

Twelve beds, Van Beverninck advised, should be kept apart at all times for the sick and the wounded, on which the lessons in clinical medicine should be practised. These beds should not be used for any other purpose than to accommodate the subjects of the Collegium. Furthermore, the beds had to be distinguished from the other beds of the hospital by a number applied to the bed itself. The professors and their students, and the city doctors and the surgeon should have free access to the 12 beds at all times, to exercise medical practice and teach the students. And, finally, a suitable place should be set apart in which 'some notable patients on the occasion of their death could be opened in order to

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<sup>400</sup> AC 27 fol. 204 Vo. (8 maart 1683)

<sup>401</sup> AC 27 fol. 206: 'Bij het overleyden van dr. Petrus Gecquier, in sijn leven doctor Collegii Practico Medica 't welck ampt sijnde comende te vaceren hebben curateurs ende burgemeesteren in bedenckinghe genoemen off men dese plaets by occasie van de wederoprigtinghe van t selvige collegium behoorde te worden gesupplieerd ten eynde de heer Professor Schagt in het doen vasn sijn exerticiten mogte werden gesecondeert, ende vervolgens goetgevonden en verstaan dat deze suppletie [. . .]sal geschieden.'

<sup>402</sup> AC 27 fol. 22 (18 nov 1683)

<sup>403</sup> cf. Suringar, *Invloed der Cartesiaansche wijsbegeerte op het Natuur en Geneeskundig onderwijs aan de Leidse Hoogeschool*, p. 36

<sup>404</sup> AC 27 fol. 233 (18 dec 1684): ' . . .haer stadsdoctoren daer toe te houden dat soo [. . .] in 't Gasthuys geen ofte weynich siecken souden werden gevonden, dat sy dan eenige siecken door haer ten costen van de stad bedient werden, souden doen opbrengen in 't selve gasthuys en aldaer geverseert, nu voor bequame subjecten aen voors. Exercitia gebruyckt te kunnen werden'

<sup>405</sup> AC 28 fol. 15 Vo. (8 en 9 feb 1686): ' . . .dat het gasthuys daer de exercities plagten te geschieden doorgaans was beset met gesonde en welvarende subjecten en sulx geen gelegthyet was gegeven om de studenten in medicine door dagelykse aenwijsinghe van alderhanden sieckten ende symptomata in de geneeskunst te kunnen doen vorderen.'

perform anatomical demonstrations and instructions on them'. This could only be done 'after communications' with the directors of the hospital and after explicit consent of the burgomasters.<sup>406</sup>

This last remark of course referred to the room of the Collegium Medico Practicum, for which the University had paid an annual rent of 120 pounds since 1666.<sup>407</sup> This dissection room had obviously fallen into disuse. Nevertheless, the University continued to pay the rent. In the year 1683 for instance, when the Collegium Medico Practicum was labelled 'discontinued' by the University, the annual sum of 120 pounds was duly paid to the directors of the Catharina and Caecilia Hospitals.<sup>408</sup>

Van Beverninck's remark that a suitable place should be set apart (*ingeruymt*) suggests that the old room of the Collegium was not in working order in 1686. And that it had to be made usable again. I do not suppose this meant that a whole new room was to be established in the Caecilia Gasthuys. The room of the Collegium Medico Practicum was after all perfectly suited to the performance of postmortems and the demonstration of even the smaller structures of anatomy. The limited dimensions of the room and the short distance of the spectators from the dissecting table allowed them a good view of what was being uncovered by the dissector.

In Sylvius's day these favourable features of the room of the Collegium were put to good use by the professors, as we have seen above. The words chosen by Van Beverninck to describe the function of the room of the Collegium: a suitable place to perform anatomical demonstrations and instructions, suggest that the broader use of the postmortem room of Sylvius's day was also intended after the restoration of 1686. In the 18<sup>th</sup> century the room was even known as the room of the Collegium *Anatomico* Practicum and in one instance as the 'Theatrum anatomicum'.<sup>409</sup> But are these intentions borne out by the facts? How important was the room of the Collegium as a centre for anatomical investigations and demonstrations in the decades around the turn of the century?

Contrary to what the alarmed or worried reports in the University archives might suggest about the Collegium Medico Practicum, it did not seem to be lacking any vigour in the year 1684-85. A document from that year, kept in the Kirow Institute in Petersburg, shows that the Collegium, led by Theodorus Craanen for the lessons in the spring semester of 1684 and Lucas Schacht for the autumn and winter months, was far from defunct. It treated some 90 patients in that year!<sup>410</sup> Some of them died during treatment, as can be judged from their case reports, ending with *obiit*. Unfortunately, the case reports of these deceased patients are not followed by a postmortem report. Nevertheless, the patient figures from 1684-85 suggest that there was a much activity in that year.

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<sup>406</sup> AC 28 fol. 19 (18 feb 1686): '...dat men by provisie soude vaststellen een getal van twaelff bedden dewelcke privatieve sullen werden gehouden ten behouwe van de voors. Siecken ende gequetsten ende dat de heeren regenten deselve daerin sullen doen plaetsen ende accomoderen sonder dat die to ander gebruyck sullen moghen werden geapliceert ende dat men deselve sal teecken met een kenbaar number tot distinctie van de andere. Dat de heeren professoren met haer gevolgen, den doctor ende chirurgojn tot aller tijden daer toe sullen hebben een vrij acces om aldaer de prectijcq te offenen ende de studiosos medicinen te exerceren. Dat oock sal werden ingeruymt een bequame plaetse om by gelegentheyt van eenige notabele patienten affgestorven derselver lighamen te mogen openen ende de anatomische demonstratie ende instructies daer aen te pleghen, welverstaende dat sulx aen geene lighmaen en sal worden ondernomen als met communicatie van de welgemelte heeren regenten ende expresse toestemminghe van de heeren Burgemeesteren der Stadt. . '

<sup>407</sup> GAL Afschrift notulen C&B 1662-1667 fol. 93 Vo.: 'St. Catharina Gasthuys iets toegeleyt voor 't gebruyck van 't huys en een kamer bij de studenten der medicijnen'

<sup>408</sup> AC 370 Rekeningen Rentmeester over 1683, fol. 205 Vo. '120 ponden over een jaer Camerhuur van de Camer welcke tot het Collegium Practicum Medicum gebruyckt wert'

<sup>409</sup> Respectively: AC 524 Rekening Rentmeester 1771 fol. 123 Vo. 'Betaald 120 pond over een jaar Kamerhuur ten dienste van 't Collegium Anatomico Practicum, and quotation in Arch Senaat & Faculteiten 525 from 6 sept 1787: 120 glds zedert verscheyde jaeren zoo weegens het Theatrum Anatomicum als anderszins de regenten van 't Gasthuys [. . .]betaalt'

<sup>410</sup> UBL Microfilm Leningrad XIII 122, Collegium Nosocomii cum habitum 20 februarii 1683 sub praeside professore Theodoro Craanen praeceptore.



**Figure 44: Frederik Dekkers**  
(Museum Boerhaave, Leiden)

The same goes for the first decade of the 18<sup>th</sup> century, when Govard Bidloo and Frederik Dekkers were in charge. In the Leiden Municipal Archives there is a list of admissions to the Collegium Medico Practicum at the Caecilia Hospital showing a relatively high average number of patients: 43.5.<sup>411</sup> The lowest number of admissions was found in the year 1709 (19 patients); the highest in 1704: 85 persons. This number is explained by Beukers as due to a decree of the City of Leiden to admit the poor diseased patients to the Caecilia Hospital exclusively and no longer to the other municipal hospitals.<sup>412</sup>

However, although these documents offer us patient numbers for the Caecilia Hospital and the Collegium Medico Practicum in the decades around 1700, they do not give us any explicit information about any anatomical activity in the room of the Collegium. Nevertheless, there is enough evidence – albeit circumstantial – to maintain that the postmortem room of the Collegium was in regular use during this period. For instance, on at least two occasions Frederik Dekkers stresses the importance of anatomy in general, and of the inspection of the bodies of deceased patients in particular, as ways of gaining knowledge for medical science. In his inaugural address as professor of medical practice in January 1695 he mentions ‘the utmost necessity’ of anatomy in medical practice.<sup>413</sup> And again, in his valedictory address as Rector of the University on 8 February 1701, Dekkers stresses the importance to medical science of anatomical or postmortem research on human bodies ‘especially in case an unusual disease, or a disease which is not in accordance with the normal phenomena, appears’.<sup>414</sup>

<sup>411</sup> GAL 287 Lijst van Siecke Personen die Consent hebben verkregen om in het Caecilia gasthuys ingenomen te worden 1699-1710

<sup>412</sup> Harm Beukers, ‘Clinical Teaching in Leiden from the beginning until the End of the 18<sup>th</sup> Century’, in: *Clio medica* 21 (1987-88) p. 146

<sup>413</sup> F. Dekkers, *Alle de werken*, Amsterdam (J. Hartig) 1743, p. 889

<sup>414</sup> *Ibid.* p. 911

But Dekkers's colleague as Professor in charge of the Collegium Medico Practicum, Govard Bidloo, also mentions the room of the Collegium at the Caecilia Hospital. When Bidloo complained to the University authorities in December 1705 about the anatomical lessons held by the Amsterdam surgeon Rau in the Theatrum Anatomicum, which Bidloo saw as an infringement of his position as professor of anatomy, he suggested that Rau hold his demonstrations in 'the usual place in the Hospital' (i.e. the room of the Collegium Medico Practicum).<sup>415</sup> This surely proves that the room was still functioning at that time as a place for anatomy. Moreover, it suggests that the room was at times used for anatomical demonstrations beyond the postmortem of the deceased patients of the Collegium Medico Practicum. It seems that the practice of the Sylvius period was continued in the following decades, albeit in a much more moderate form.

### Some concluding remarks

From the time of its establishment in 1600 the Caecilia Hospital had a certain association with anatomy in Leiden. The reason for this association lies of course in the kind of patients this municipal hospital for the poor took into its care. In a city with so many poor foreign people within its walls as Leiden, some of these destitute foreigners were bound to end their lives in the Caecilia Hospital and, as 'foreign and unbefriended' persons (to use Heurnius's expression), were sometimes considered suitable subjects for dissection in the public anatomical theatre. Although subjects for the theatrum anatomicum selected from the deceased inmates of the hospital were the exception, and executed criminals as subjects were the rule, it is clear that, because anatomical subjects were difficult to come by, the Leiden anatomists could not afford to be too scrupulous about the source of their human material.

Otho Heurnius modified this state of affairs when he organised the Collegium Medico Practicum at the Caecilia Hospital in 1636. From then on interesting patients were selected from among the inmates of the hospital and/or from among the patients of the city doctors as instruction material for the students following clinical lessons there. If any of these patients were to die during treatment, and if he or she was a foreigner without friends or family to take care of his earthly remains, he was considered a suitable subject for dissection in the small anatomy room in the Caecilia complex. These dissections by Heurnius, performed in the late 1630s and the 1640s, were always done to investigate the causes of death of the patients. The condition that these subjects should always be foreign and unbefriended people – as stated in the regulations for the Collegium Medico Practicum in 1636 – seems not to have been interpreted too strictly. This is illustrated by the cases of Joannis Paulusz. and Evert Baerendsen, who were both dissected by Heurnius even though they were married.

When Sylvius began his work at the Collegium Medico Practicum, activity at the Caecilia Hospital increased. The students were taken down to the wards on a daily basis, instead of twice a week. The dissection room was equipped by Sylvius to accommodate twice as many spectators. This increasing activity was triggered by the mechanistic view of the human body, influenced by Cartesianism. Interest in the physiology of the living organism made frequent experiments and observations of the utmost importance for medical science. This was especially true in the field of anatomy, where the unravelling of the small structures, the minutiae where the miracles of the human machine really take place, was placed at the centre of attention. These details were often revealed by all kinds of experiments: the injection of coloured liquids to demonstrate vascular systems, the inflation of vessels to show how they were connected to each other, vivisections, etc.

In Leiden the room of the Collegium Medico Practicum played an important role in this new anatomical science. Here Sylvius demonstrated to his students newly discovered anatomical details such as the Stenonic duct; physiological experiments were performed in front of the students. And (former) students also used the room to conduct and present their own research, as did De Graaf when he let Sylvius present a female cadaver dissected by himself to compare it to the anatomical illustrations for his book on the reproductive organs, and as can be deduced from Stensen's remark

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<sup>415</sup> AC 29 fol. 391, '...ordinaris plaetse van 't gasthuys. . .'

about Sylvius's habit of leaving his anatomical subjects to his students after he had finished his own demonstrations.

Although much of the research for the new anatomical discoveries of the mid-17<sup>th</sup> century was performed in private quarters by small groups of scientists, *presenting* these new discoveries to a larger audience had to be done in a more public setting. The dissection room at the Caecilia Hospital was perfectly suited to this. Especially after Sylvius extended its seating capacity in 1660, it could accommodate a considerable number of people, while at the same time offering them a close enough view of the small details being demonstrated, owing to the limited dimensions of the location. This made the dissection room at the Caecilia Hospital a more suitable place for demonstrating the new anatomy than the old anatomical theatre at the Faliebagijnekerk. The old theatrum anatomicum was designed for the grander, indeed more theatrical kind of anatomy of around 1600, which was based on humanistic scientific principles, rich in allegory and emblematic connotations.

After Sylvius's death in 1672 however the activity in the room of the Collegium Medico Practicum became less spectacular. On the one hand this was due to financial problems experienced by both the city of Leiden and the University, as is reflected by the difficulties that the University authorities had in warranting the continuity of the Collegium. On the other the anatomical interest of the professors of the Collegium Medico Practicum in the final decades of the 17<sup>th</sup> century appears to be less theoretical than that of their colleagues from the middle of the century. Lucas Schacht and especially Frederik Dekkers were above all practitioners, and their practical focus on medicine was reflected by what went on at the Collegium: a return to a more limited scope of the postmortems.

Still, even at the end of the 17<sup>th</sup> century, the room of the Collegium Medico Practicum was considered a suitable location for more general anatomical work, as is illustrated by Bidloo's suggestion that Rau should do his anatomical demonstrations there and not in the theatrum anatomicum.

### ***PART THREE (CODA)***

# ***AN UNEASY SYMBIOSIS; THE LEIDEN SURGEONS AND THE UNIVERSITY***

## **Introduction**

In the previous two parts of this book I have sometimes obliquely touched upon a group of medical professionals who, besides the academic community, also had an interest in gaining insight into anatomy: the surgeons. The surgeons and their apprentices are explicitly mentioned by Orlers for instance when he describes the seating of the spectators in the *theatrum anatomicum* when a public dissection was to take place.<sup>416</sup> The surgeons also played a part in the *Collegium Medico Practicum* in the *Caecilia Hospital*; we have seen that the city surgeon was an important aide to the professors of the collegium, especially in the case of postmortems. Furthermore, the decoration of the room of the *Collegium Medico Practicum* with emblematic prints, *naturalia* and representative furniture was also motivated by the fact that the surgeons, and not just the medical students, used this facility. Clearly, the surgeons – although not part of the academic community – made use of the academic facilities where anatomy was practised. Apart from that, the theoretical instruction and examination of the surgeons was, as we shall see, in the hands of the Leiden professor of anatomy. These close relationships with the university clearly set the Leiden surgeons' guild apart from surgeons' guilds in other major cities in Holland, such as Amsterdam and Delft. For one, the Leiden surgeons did not leave posterity with any fine art treasures in the form of paintings of anatomical lessons, as their colleagues in Amsterdam and Delft did.<sup>417</sup> Was this the price they paid for their dependence on university facilities and university professors? The next part of this study focuses on the Leiden surgeons and their – perhaps somewhat uneasy – symbiosis with the University for much of the 17<sup>th</sup> century.

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<sup>416</sup> J.J. Orlers, *Beschrijvinge der stad Leyden* (2), 1641, p. 209

<sup>417</sup> For the Delft surgeons' guild: cf. Houtzager, Jonker, *De snijkunst verbeeld*, Delft/Voorburg 2002

## ***I. The Leiden Surgeons' Guild, the University and Anatomy***

Surgeons' guilds appeared in the Netherlands from the middle of the 15<sup>th</sup> century onwards. The Leiden guild was mentioned for the first time in 1466.<sup>418</sup> The guilds were trade associations whose membership was obligatory for all those who wanted to practise a certain trade within the city. Early guild regulations mainly stipulated financial duties for the guild members. Their contributions were used for maintaining a chapel or at least an altar in the local church, dedicated to the guild's patron saint. In the case of the surgeons' guilds the patron saints were usually the medical brothers St. Cosmas and St. Damian.

In the 16<sup>th</sup> century the regulations became more detailed, stipulating who was allowed to enter the guild, how they could qualify as surgeons, the structure of the examinations, how the examinations should be judged, etc. Most surgeons' examinations in the Northern Netherlands combined both practical and theoretical examination of the candidates. The theoretical part was generally based on the textbooks on surgery of the 14<sup>th</sup>-century French surgeon Guy de Chauliac (1298-c. 1368), who divided the art of surgery into seven parts or books. The candidate surgeon in the Netherlands was therefore usually interrogated on anatomy, unusual growths (i.e. tumours), wounds, ulcers, fractures and dislocations and about the antidotarium, the range of therapies at the surgeon's disposal (e.g. phlebotomy). Towards the end of the 16<sup>th</sup> century other surgical textbooks were also used for the theoretical training of surgeons, such as the *Franchoyse Chirurgie* by Jacques Guillemeau (1550-1610) and the works of Ambroise Paré (1510-1590), translated by the Dordrecht doctor Carel Baten. These textbooks incorporated more recent developments in medical science, especially the anatomical discoveries made by Andreas Vesalius.<sup>419</sup>

The practical part of the surgeon's examination usually included a part in which the candidate had to perform a successful phlebotomy, and he had to fashion a lancet (sometimes two or three) from a piece of raw iron. The candidate also had to demonstrate that he could evaluate several medical cases correctly, and he had to carry out some sort of surgical operation. The Leiden surgeon's examination, first described in the guild regulations of 1589, generally follows this mould, with some exceptions as we shall see below.

### **Surgeons and Anatomy**

Anatomy was generally regarded by the surgeons as a basic science of their trade. Guy de Chauliac stated the importance of anatomy for the surgeon as follows: 'surgeons who do not know anatomy make mistakes very often, and cut through nerves and ligaments. When one is dealing with a wound, it will be easy through one's knowledge of anatomy to know whether a nerve has been cut, or a tendon or even a ligament'.<sup>420</sup> Other authors on surgery made similar statements in their textbooks.

The importance of anatomy for the surgeons, as declared by De Chauliac and other authorities, is clearly reflected in the request of the Amsterdam surgeons' guild to Philip II of 1555. It was in this year that the Amsterdam surgeons asked, and were granted, the privilege of dissecting the cadaver of an executed criminal once a year. The surgeons were of the opinion that anatomy could not be mastered merely by studying books. Practical experience, the actual dissection of a human body, was an indispensable means of gaining insight into the anatomy of man. The teaching and demonstration of anatomy was entrusted to the 'praelector anatomiae', a medical doctor appointed by the city authorities. The surgeons and their apprentices were obliged to attend these lessons, and would be fined if they did not.

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<sup>418</sup> Cf. De Moulin, *History of Surgery*, p. 66 ff.

<sup>419</sup> Cf. M.J. van Lieburg, 'De genees- en heelkunde in de Noordelijke Nederlanden, gezien vanuit de stedelijke en chirurgijngilde ordonnances in de 16<sup>e</sup> eeuw' in: *GEWINA* 6 (1983) 4, p. 183

<sup>420</sup> Quoted by De Moulin, op. cit. p. 71

The instruction of the surgeons usually took place in the Guild Hall, with the aid of anatomical plates and a skeleton. The anatomical demonstrations involving a human cadaver were special occasions drawing a larger audience than just the surgeons and apprentices. These demonstrations were held in locations suitable for the purpose, often secularised chapels or parts of churches or the city hospital, where temporary theatres were constructed for the occasion. Only in the course of the 17<sup>th</sup> century did some of the guilds in the larger cities of the Republic acquire permanent theatres. The way these things were arranged within the Leiden surgeons' guild more or less concurs with the general picture for the Dutch Republic, except that in many respects the domineering presence of the University, especially in the field of medical or anatomical practice, exerted its influence.

## Leiden

The history of the Leiden surgeons' guild is closely tied up with that of the University. In the 1580s the surgeons' guild, together with many other aspects of public life, was reorganised to conform to the new balance of power within the city administration and within society. The guild regulations of the Leiden surgeons – drawn up in 1589 and published in print in 1590 – show that the University certainly played a part in this reorganisation. As the introductory chapter of the regulations states, they were drawn up after 'preceding council, advice and accordance of the gentlemen doctors of the medical faculty of the University'.<sup>421</sup> It was decided among other things that a professor of the Leiden University medical faculty should act as a supervisor of the guild. This professor – usually someone with anatomy in his teaching assignment – would be invested with the title of *praeses*.

The guild regulations state among other things that 'those who want to practise the surgeon's art will be questioned in the Dutch language, in attendance of a professor of medicine from the University as well as the deacon of the guild and two 'proefmeesteren', as much as possible about such theses as given to him by said professor, deacon and 'proefmeesteren'.<sup>422</sup> The professor was later joined by two assessors: the city doctors.

This part of the Leiden regulations, stipulating that the surgeons, and especially the examinations for admitting new practitioners to the guild, were to be supervised by a medical doctor, is a phenomenon we can see in cities all over the Dutch Republic. These doctors were usually also responsible for the theoretical training of the surgeons and their apprentices, especially in the field of anatomy. That in Leiden this representative of the occupational group of medical doctors was a University professor is of course one of the effects of the presence of the University in this city.

This same 1589 version of the Leiden surgeons' guild's regulations stipulates the contents of the theses the aspiring surgeon would be interrogated on. They were 16 in number and to a large extent followed the division of the different aspects of the surgeon's craft made by De Chauillac. There were two theses 'from surgery from the Capitulo Singularis of Guido (Guy de Chauillac) or other authors who have written about surgery, two about anatomy, two about the definitions of growths, two about wounds, two about ulcers, two about fractures, two about dislocations and two about bloodletting'. These theses would be handed out to the candidate a month before the examination, 'or with less time for consideration if he so wishes'.<sup>423</sup>

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<sup>421</sup> Gildebrief dienende tot onderhout van de conste, handelinge ende ouffeninge van de Chirurgie [. . .], offgelezen opten XXVIII der maent Decembris 1589, Leiden 1590: '[na] voorgaende beradinge advijs ende goetdenken metten heeren doctoren in de Faculteyt der Medecynen vander Universiteyt alhier'

<sup>422</sup> GAL, Archief Gilden No. 307, concept Gildebrief 1589: 'Die sullen begeren te practiseren in de conste van chirurgie zal men ten overstaen van eenen professor der medicijnen uyt der universiteyt alhier, mistgaders van den deecken ende twee proufmeesteren in de nederduytsche taele voor so vele doenlickewen es ondervragen op alsulcke thesen als hem bij de voors. Professor, deecken ende proufmeesteren zullen werden gegeven . . .'

(transcription by Michiel van Halem Regionaal Archief Leiden aug. 2005)

<sup>423</sup> GAL Ibid: ' . . . zestien propositien, voorstellen of artuckelen, te weten twee uyt de chirurgie ofte ex Capitulo Singulari Guidonis of andere authoren, die van de chirurgie gescreven hebben, twee uyt de anathomie, twee ex Apostematum Definitionibus, twee ex Vulneribus, twee ex Ulceribus, twee De Fracturis, twee De

The praeses, in other words the professor of medicine installed by the city authorities to supervise the surgeons, was probably largely responsible for these theses. This is suggested by lists of theses, preserved in the Leiden city archives, dating from 1682 that are all signed by Lucas Schacht, at that time professor of medicine and praeses of the surgeons' guild. There is no reason to suppose that the situation was any different at the beginning of the century.<sup>424</sup>

Remarkably, the 1589 Leiden surgeons' examination as prescribed in the guild regulations does not include a practical section; the candidate is only required to answer the 16 theses or questions. The barbers however, who were members of the same guild, but who were regarded to be of somewhat lower prestige, were examined on their practical abilities. They were given two or more 'raw' lancets, which had to be fashioned into working (sharp) lancets within 14 days. The quality of these lancets was tested by slashing through a sheet of leather held taut between the fingers. Furthermore, the barbers were tested theoretically on their knowledge of the veins and arteries, and the nerves. And which veins should be bled in what place. Eventually, the assignment of fashioning the lancets was introduced into the surgeons' examination as well in December 1612.<sup>425</sup>

But there is more to connect the Leiden surgeons to the University, besides the fact that they were supervised by a medical professor who was also responsible for the theoretical contents of their earliest examinations. The places where the surgeons held their examinations and other meetings were also University territory. In the guild regulations of 1589 this location is described as a 'certain public place ordained or still to be ordained for that purpose'.<sup>426</sup> In the 1637 printed version of the Guild Regulations this public place is named: it is the anatomical theatre in the Faliëdebagijne chapel. In the 1637 regulations we read that 'the College of examiners shall convene every first Wednesday of every month at two o'clock in the afternoon at the Anatomical Theatre at its usual location [ . . . ] in order to hold its sessions and busy itself with all examinations, letters of apprentices and other affairs belonging to the best promotion of surgery'.<sup>427</sup>

In the early decades of the 17<sup>th</sup> century the anatomical theatre probably also functioned as the location for the anatomy instruction of the surgeons and their apprentices. It is at least certain that the surgeons attended the *Theatrum* on the occasions of public anatomical demonstrations, as we can learn from Leiden's city chronicler Orlers's description of the *Theatrum Anatomicum*.<sup>428</sup>

A year after the 1637 printed guild regulations were published however a new location presented itself as a possible meeting place for the Leiden Surgeons' Guild. This was the room of the Collegium Medico Practicum, which entered service in 1638. The place where the room of the Collegium was situated, the Caecilia Hospital, must have played a role in the affairs of the Surgeons' Guild even before the room was taken into service.

While there is no mention of any practical part of the surgeons' examination in the draft regulations of 1589, in the printed version of 1637 there is. According to the regulations of 1637, the examination is divided into two parts: the 'preparatoir examen' and the 'decretoir examen'. The preparatory examination tested the practical abilities of the candidate. Before being admitted to the preparatory

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Dislocationibus ende twee van de aderlatinge, welke theses ontfangen hebbende, zal de proufdoender tijt van beraet mogen hebben een maent, of minder tijt te zijnen believen.'

<sup>424</sup> GAL inv. No. 352

<sup>425</sup> Addition in MS. on an exemplar of the Guild letter of the Leiden Surgeons' guild of 1589, kept in the UBA (Ned. Mij ter Bevordering der Geneeskunst, Sign. UBM Br. M.G. Fn. 2

<sup>426</sup> GAL, archief gilden: no. 307: 'seeckere gemeene plaetse daertoe geordonneert of noch te ordonneeren. . .'

<sup>427</sup> GAL Bibliotheek 59420 *Gildebrief Chirurgijns 1637* ' . . . ende sal het voorz. Collegie der examinateurs telckens den eersten woonsdach in yder maent des naemiddachs ten twee uyren moeten bijeenkomen en hare vergaedinghe houden in Theatro Anatomico als ter gewoonlicken plaetse [ . . . ] omme alsdan te vaceren ende te besongueren op alle prouven, brieven van leerjongens ende verdere saecken specterende tot de meeste bevorderinghe van de Chirurgie alhier.'

<sup>428</sup> J.J. Orlers, *Beschrijvinge der Stadt Leiden*, 1641 (II), p. 209

examination proper however the candidate had to apply two or three bandages as ordered by, and in the presence of, the examiners. These bandages were to be applied in the 'gasthuys' or hospital.<sup>429</sup>

After applying the bandages the candidate had to fashion two lancets of good quality from raw iron, and he had to apply a 'cauterium potentiale', a means of cauterising with chafing chemical substances. Once these tests had been executed successfully, the preparatory examination began. In the presence of the praeses, two assessors (medical doctors), the guild's deacon and proefmeesteren, the candidate was 'at the first occasion' ordered to dissect certain parts of a dead body in the hospital, parts to be designated by the examiners. If no suitable subject could be procured – which would often be the case judging from the scarcity of subjects also plaguing the anatomical theatre – the candidate was to be 'interrogated thoroughly and properly on the anatomy of the aforementioned parts by the examiners'.<sup>430</sup>

After 1638 the parts of the examination that took place in the Caecilia Hospital were probably performed in the room of the Collegium Medico Practicum. This supposition would also account for the representative appearance of the room of the Collegium. The inventory list of that room, dating from 1639 and signed by both Otho Heurnius and the surgeon of the Collegium, Johannes Camphuysen, contains many aspects that suggest a representational function of that location, such as the prints with emblematic warnings against pride and the portraits of great men from history, whose lives set worthy examples. But the furniture of the room, as mentioned in the inventory, also suggests that it played a part in the surgeons' examinations. The mention of a 'chair of walnut wood [. . .] for the professor to sit on, a black lacquered Spanish chair for the city doctor to sit on, with the praeses during the consultations' might fit in with this hypothesis, except for the complication that from 1637 onward the assessors were always mentioned as a pair, namely the two city doctors.<sup>431</sup> The 'three green matted chairs' – also mentioned in the inventory list – can be accounted for as meant for the deacon and 'proefmeesters' of the guild. Furthermore, the inventory mentions 'a few earthenware cups for bloodletting', which also hints at the use of the room for the practical part of the surgeons' examination.<sup>432</sup>

On two occasions during the surgeons' examination therefore the hospital was visited by the candidate and the examiners, to wit the 'clinical' part of the examination and the anatomy part. The second occasion however, the dissection, does not seem to have been a very feasible part of the examinations. Even the printed regulations of 1637 mention the alternative of interrogating the candidate on the theory of anatomy if no subject should present itself. And this alternative is continued in the different versions of the guild regulations throughout the 17<sup>th</sup> century. Alterations of the guilds' rules proposed in the final decades of the century even suggest doing away with the dissection altogether, in favour of the theoretical questions on anatomy.<sup>433</sup> No mention of any test anatomy can be found in the printed guild regulations of 1703.

The anatomical theatre as a meeting place for the Leiden surgeons' guild is only mentioned once: in the guild regulations of 1637. The room of the Collegium Medico Practicum as a location where parts of the surgeons' examinations were performed is never explicitly mentioned. But it seems a highly probable location for the examiners and the candidate to perform their practical tests and theoretical interrogations of the preparatory section of the examination. If any dissections were included in the

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<sup>429</sup> Gal Bibliotheek 59420 *Gildebrief Chirurrijns 1637*: Prouf ende Ondersoekinghe van de chirurgijns

<sup>430</sup> Ibid: ' . . .met de eerste gelegentheyt daer naer in een doot lichaem in het Gasthuys eenige partyen by de voors. Examineurs te ordonneeren, moeten ontleeden. Maer by gebreecke van het voors. Subject tot de voors ontleedinge sullen deselve in de anatomie der voors. partijen strictelijck ende sulcx des behoort ondervraegt te werden'

<sup>431</sup> AC I, Nr. 230: inventaris van alle de meubelen [. . .] in de Camer van de Practycque: ' . . . een stoel van note bomen hout met root Pruyssisch lack bekleet, om de Professor op te sitten [. . .] een swarte Spaensche lack stoel om de ordinaris doctor der Stadt by de Praeses inde consultaties te sitten [. . .] Drie groene matte stoelen'

<sup>432</sup> Ibid: 'Eenige aerde kommekens om bloet in te laeten'

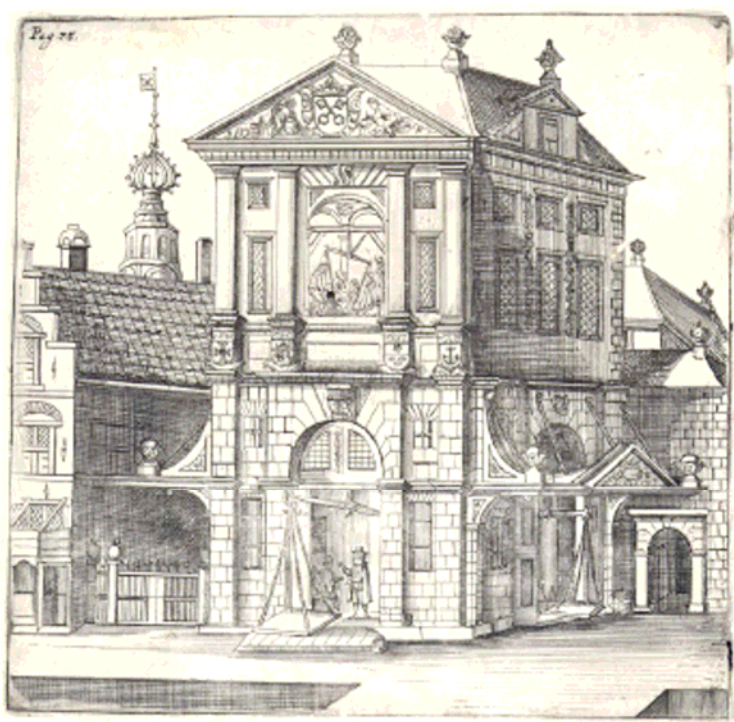
<sup>433</sup> GAL Archief Chirurrijns no 310 ontwerp gildebrief 1681(?)

examination, which admittedly must have been a rarity, the room of the Collegium would have been the only suitable location in the Hospital. Most of the guild activities must have taken place in these locations, the anatomical theatre and the room of the Collegium. They were both University facilities, and in combination with the fact that the praeses of the guild was a University professor, this meant that much of the institutional life of the Leiden surgeons' guild in the first two thirds of the 17<sup>th</sup> century took place within the sphere of the University. Of course Leiden University was also a municipal institution: the four burgomasters of the city of Leiden formed the governing board of the University together with the three curators. The anatomical theatre also reflected this relationship between 'town and gown', as the large cupboard of instruments in the theatre not only contained anatomical instruments but also surgical instruments.<sup>434</sup> These instruments were certainly used for the instruction of surgeons and their apprentices. They could probably also be borrowed by the members of the surgeons' guild to perform more complex surgical operations for which the instruments did not usually belong to the standard equipment of surgeons.

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<sup>434</sup> Cf. Barge, *op. cit.* pp. 46-50

## II. *A new room for the surgeons*



**Figure 45: De Waag, Leiden's municipal weighing house. The surgeon's guild hall was on the first floor (Regionaal Archief Leiden)**

In May 1669 the situation in which the surgeons' guild depended on the University for its accommodation came to an end. It was in this year that the Leiden city administration granted it the room above the city weighing house (de Waag), built by Pieter Post in 1659.<sup>435</sup> This new location would also be the place in which all activities relating to the surgeons' examinations would gradually be concentrated. The draft of the Guild regulations of that same year 1669 already states that 'all the aforementioned tests will take place at the usual place ordained for that purpose, which at this time is the room within the weighing house'.<sup>436</sup> But there were quite a few exceptions: the practical parts of the examination, the application of bandages, took place at the hospital. The 'cauterium potentiale' had to be concocted and applied in the presence of the administrators of the hospital at the house of the guild's deacon, as did the fashioning of the three lancets from raw iron, which was then to be completed at the houses of the proefmeesteren.<sup>437</sup>

A new draft, probably dating from some time in the early 1680s, proposes that all tests be held at the guild hall, and this time there were no exceptions.<sup>438</sup> This proposal is taken up in the printed version of

<sup>435</sup> About the surgeons' room in de Waag cf. Ch.Thiels, A.M. Luyendijk-Elshout, 'De Leidse chirurgijns en hun kamer boven de waag' in: *Nederlands Kunsthistorisch Jaarboek* 31 (1980), pp. 215-238

<sup>436</sup> GAL Archief Chirurgijns no 308: 'IV Plaetse waer de prouven sullen geschieden. Alle de voors prouven sulle geschieden op de gemene plaetse daer toe geordonneerd, gelyck als tegenwoordig is de Camere boven de Waegh. . .'

<sup>437</sup> Ibid: III Prouff ofte ondersoeckinge van de chirurgijns, '[. . .]sal hij (the candidate) ten huysse van de Deecken in presentie van de Gasthuysmeesteren praepareren een cauterium potentiale en deselve daer navoor 't volle Collegie op de bequame plaetse appliceren.' And: 'De lancetten moeten opgemaect worden ten huysse van de deecken en verder vervolmaakt ten huize van de proufmeesters'

<sup>438</sup> GAL Archief Chirurgijns No. 310 Ampliatie v.d. Gildebrief c. 1681

the guild regulations of 1703. The Caecilia Hospital is no longer used as a location for the bandaging test, nor is there any further mention of a proof anatomical demonstration or dissection to be performed by the candidate. In fact all the testing of anatomical knowledge is now theoretical: (the candidate will be) 'interrogated and examined on the whole body of anatomy and surgery in general'.<sup>439</sup>

The fact that all practical performance of anatomy has disappeared from the surgeons' examination does not mean that there was no anatomical activity whatsoever going on at the guild hall above the weighing house. Every Thursday from two till three (except during academic holidays) the praeses of the guild (i.e. the professor of anatomy and surgery) would hold his public lessons in anatomy there. These lessons were obligatory for the assessors, the deacon and the 'proefmeesters' of the guild, as well as for all the master surgeons and their apprentices. All other persons 'no matter what their stature and rank may be' could also attend, if they paid a fee of three stuyvers.<sup>440</sup> These public lessons were probably based on anatomical textbooks, and a skeleton and some anatomical preparations were used as instruction material.

Although the guild hall above the weighing house did not feature an anatomical theatre like the surgeons' guild halls of Delft or Amsterdam, there is evidence of more anatomical activity in the Leiden hall than just the weekly anatomical lessons. Most of this evidence dates from the year 1681, and the anatomical activity that went on then seems mainly to have been intended to furnish the guild with anatomical specimens for further instructional use.

### Jacob Remmers

On 24 February 1681 12 guilders and 12 stuyvers were paid to 'the woman of the four children', probably stillborn quadruplets who were assigned to the Guild by order of the Burgomasters of Leiden.<sup>441</sup> On 25 March 12 stuyvers were paid to the constables for bringing to the Guild Hall 'the child whose throat was cut'.<sup>442</sup> In between these two dates a third subject was brought to the Guild Hall. On 3 March the constables were paid two guilders and ten stuyvers for bringing in the body of one Jacob Remmers.

Jacob Remmers was a criminal, whose executed body was ceded to the surgeons by the city magistrates for use as an anatomical subject.<sup>443</sup> The dissection of his corpse was very thorough, and with the apparent purpose of preserving as much of the anatomised parts as possible. Money was paid for 'bedsheets, towels, pots, and a bucket used for washing and dissecting' the body. But there were also expenses for 'liquor for preserving and preparing the dead body of Remmers'.<sup>444</sup> A coppersmith was paid three guilders rent for his kettles and a trivet, which were used to cook the bones of Remmers so that they could be assembled as a skeleton. Even his flayed skin and entrails were preserved. The skin was apparently stuffed, for in April some expenses are mentioned for the 'opsetten' and 'opvullen' of the skin. The entrails of the unfortunate Remmers could still be admired some 70 years later, as they hung from the ceiling of the Guild Hall. Finally, Remmers's genitals were also preserved

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<sup>439</sup> GAL Archief Chirurgijns No. 311: '[the candidate will be] ondervraagt en geexamineert werden op 't gehele stuk van de Anatomie en Chirurgie in 't Generaal'

<sup>440</sup> GAL Archief Chirurgijns No. 312 Reglement van de Lessen die gehouden staan te werden op de Chirurgijns gildekamer binnen Leyden, n.d. (late 17th century?)

<sup>441</sup> GAL Archief Chirurgijns No. 301 Uitgaven van de Chirurgijns: 'aen de vouw van de vier kinderen door ordre van de heeren burgemeesteren'

<sup>442</sup> Ibid: 'aen de dienders voor 't boven brengen van 't kint dat de strot affgesneden was'

<sup>443</sup> Remmers was a 'confirmed thief, perpetrator of violence and coiner' executed that same day, according to the *Crimineel Klachtboek*, quoted by Thiels, *op. cit.* p. 234

<sup>444</sup> GAL Archief Chirurgijns No. 301: 'liquor [. . .]voor conservatie en preparatie van 't doode lichaem van Remmers'

for posterity; they were mounted on a board and displayed.<sup>445</sup> The dissection of Jacob Remmers in March 1681 must have been performed in front of an audience that was large enough to make some kind of scrutiny necessary, because Jan Both, the servant of the Guild's deacon Hermanus van Delden, was paid for 'oppassen' during the dissection.

The bodies of the children brought to the Guild Hall at about the same time were also dissected and partially preserved. The skeleton of the child whose throat had been cut was set up in the same manner as the bones of Remmers. The quadruplets were apparently to be preserved in some way, as a brass founder was paid four guilders in connection with these children.<sup>446</sup> Maybe he worked on some kind of container or vessel to keep the preparation in. Seventy years later the children were still present in the surgeons' guild collection as 'four children of one pregnancy'.<sup>447</sup>

The anatomical activities in the spring of 1681 seem to be rather exceptional in the history of the Leiden surgeons' guild. In the remaining two decades of the 17<sup>th</sup> century only three more anatomies in the surgeons' hall are mentioned: two by Antonius Nuck in 1684 and 1686 and one by Govard Bidloo in 1696. For the 1686 dissection by Nuck some kind of anatomical theatre was constructed in the room above the Waag, as the carpenter Pieter Jansz. van Velsen was paid for timber and the making of the theatre'.<sup>448</sup> Furthermore, the books of the guild mention earlier expenses for assembling and mounting a skeleton with copper wire in 1677. And the inventory of the Guild Hall of 1714 mentions six more skeletons, as well as 'three small skeletons' and a 'stuffed child' that were discarded in 1718 and 1719 respectively. But we know nothing of the provenance of these objects. There is no evidence that they were dissected in the course of some kind of public anatomical demonstration in the Guild Hall.

Arguably the Guild Hall of the Leiden surgeons above the Waag can be characterised as a third, more or less public location, besides the anatomical theatre and the Collegium Medico Practicum, where anatomy was practised. But the extent of the anatomical activity in this youngest of the anatomical centres in Leiden was rather modest, and in the 18<sup>th</sup> century it ceased altogether.

Just like the anatomical theatre and the room of the Collegium Medico Practicum, the surgeons' Guild Hall had a collection for instructive as well as representative purposes. The preserved anatomical parts of Jacob Remmers and the five dissected children of 1681 probably served as instruction material for the surgeons and their apprentices. The Guild Hall collection also contained a small quantity of other anatomical preparations of the same kind: 'a small skeleton, one side with the muscles [. . .] an *aspera arteria* (a wind pipe) and the tibia and the fibula'. It also contained a few pathological specimens, such as 'two ossa femoris, badly set [. . .] three human (bladder) stones and an os femoris with an ankylosis'.<sup>449</sup>

The rest of the collection of the Leiden surgeons' guild, as displayed in their Guild Hall, in many ways seems an echo of the collection of curiosities of the Leiden theatrum anatomicum. There is a conspicuously large array of objects from natural history: skeletons and stuffed specimens of more or less exotic animals: rhinoceroses, armadillos, (parts of) whales, a sawfish, coconuts, pieces of coral. But also two flayed human skins in a frame, a model of a Muscovite house and boots from that same region, as well as portraits of nearly all the praeses of the surgeons' guild and of some eminent surgeons. Like the Leiden anatomical theatre, the Guild Hall was also equipped with an instrument cupboard. The monumental surgeons' cupboard contained some 50 items: surgical instruments that the surgeons' guild members could borrow when they needed them for certain specific operations.<sup>450</sup>

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<sup>445</sup> GAL Archief chirurgijns 301 en 302, resp. Inventaris van Meubelen, Ornamenten en Instrumenten op de Chirurgijnskamer 1714 en 1753

<sup>446</sup> GAL Archief Chirurgijns 301: 'geelgieter betaelt voor de 4 kinderen'

<sup>447</sup> GAL Archief chirurgijns 302, inventaris 1753: vier kinderen van een dragt

<sup>448</sup> Thiels, *op. cit.* p. 219

<sup>449</sup> GAL Archief chirurgijns 301 Inventaris 1714

<sup>450</sup> Cf. Appendix by Luyendijk Elshout to Thiels, *op. cit.* p. 229 ff.

The presence of the University clearly influenced the way the Leiden surgeons were instructed in the field of anatomy. Even in the early 1590s they could use the facilities the University provided for this purpose: the anatomical theatre. The theatre was also the location of the surgeons' examinations. From 1638 onwards the surgeons probably also used the room of the Collegium Medico Practicum at the Caecilia Hospital as a location for the examinations. Whether the use of this new location meant that they could no longer use the facilities of the theatrum, or that the surgeons' guild shuttled back and forth between the room of the Collegium and the theatrum for their meetings, examinations and anatomical instruction remains unclear. Whatever the case may be, the surgeons did not view the situation as ideal: the wish for a location of their own remained and it was granted in 1669 when the city administrators offered them the room above the *Waag* for their Guild Hall. This meant the surgeons' guild moved away somewhat from the sphere of the University. It also seems to have made the problem of acquiring practical exercise and instruction for the surgeons even more acute, as evidenced by the removal from the guild regulations towards the end of the 17<sup>th</sup> century of the practical anatomical demonstration as part of the surgeons' examinations. Anatomical activity by the Leiden surgeons after they moved to the *Waag* was only very incidental, as the dissections of Jacob Remmers, the 'four children' and 'the child with its throat cut' in 1681, as well as the three other dissections by Nuck and Bidloo, seem to illustrate.

## SYNTHESIS AND CONCLUSIONS



Figure 46; *Dance of Death*, used as a vignette in Petrus Paaw's *Primitiae anatomicae* (Leiden University Library)

Although the outward appearance and the contents of the Leiden anatomical theatre do not essentially change after 1630, when Otho Heurnius had more or less completed his collection for the Faliedebagijnenkerk, the use of the theatre and its perception by both the public and the professionals working in it certainly do change over the period described in this book.

### 1589-1617 Petrus Paaw

The theatre was set up by Petrus Paaw, Leiden's first appointed anatomy professor, bound by family as well as intellectual ties to important Dutch humanists such as Hendrik Laurenszoon Spieghel, Jan van Hout and Jan Jacob Orlers. To Paaw and the humanist milieu that he represents, nature, anatomy, and also therefore the anatomical theatre were there to teach man about his relationship to the world and its Creator. Nature was seen as a treasure trove of *emblemata*, meaningful images inspiring contemplation of existential themes such as the transitoriness of this earthly existence and moral themes such as how to lead a virtuous life, following the examples set by Christ and by the heroes of Greek and Roman antiquity.

The skeletons set up around the theatre by Paaw conform to this allegorical view of nature in general and the human being in particular, for they are equipped with banners bearing maxims referring to the idea of *Vanitas*. But also the study of anatomy in itself – the purpose after all of an anatomical theatre – was seen in this emblematic light. This is clearly shown by the cooperation of Paaw and his uncle, the poet Spieghel, resulting in a representation of Plato's cave in the shape of a human heart. Human anatomy was seen as a meaningful construction, created by God to teach man about his Creator, and about himself and his place on earth. In Paaw's conception the Leiden anatomical theatre and the

public demonstrations performed there were not only intended to instruct the public about anatomy *per se*, but to serve a much broader purpose of addressing metaphysical themes of human existence: the relationship between transitoriness and eternity, and between man and his Maker. Clearly, the Leiden anatomical theatre and the activities taking place there were not only aimed at an audience of medical professionals and students, but also at a broader general public from the upper strata of Dutch society. In this the Leiden *theatrum anatomicum* as conceived by Paaw reflects the way anatomy was included in philosophy and theology courses at other Protestant universities in Germany and Scotland. This strategy was advocated by Protestant thinkers, notably by Philip Melanchton at Wittenberg. But broad as this use of the Leiden anatomical theatre may have been, the ‘language’ in which its messages were transmitted was exclusively the language of anatomy.

### 1618-1650 Otho Heurnius

Paaw can be characterised as a humanist who regarded anatomy as the key to understanding not only the material structure of the human body, but also the metaphysical themes of human existence. His successor Otho Heurnius seems to have been inspired by the holy fire of anatomy to a much lesser degree. The mere fact that Adrianus Valckenburg was appointed professor of anatomy alongside Heurnius points in this direction, particularly as it was specified that Valckenburg (and initially also Florentius) should perform the anatomies in case Heurnius ‘was not eager to do the dissection’.<sup>451</sup> The fact that the German student Otto Sperling preferred the anatomical teaching of Valckenburg to that of Heurnius seems to confirm this image of Heurnius as a reluctant anatomist, as does the fact that Heurnius published no textbooks on anatomy.

Heurnius’s interests – especially at the beginning of his career – appear to have been theoretical rather than practical and to have concerned a general concept of cultural and natural history rather than the specific subject of anatomy. This universal approach found its expression in the collection of rarities Heurnius amassed for the *theatrum anatomicum*. The aim of the collection seems first and foremost to have been to take stock of the diversity and strangeness of the world around us. The places of origin of the curiosities to be found in the collection of the *theatrum anatomicum* reflect the expanding world of early 17<sup>th</sup>-century Dutchmen, as opened up by Dutch seafarers and traders. The motivation to build up such a collection lay in the Protestant (and more especially Calvinist) view of nature as the second revelation of God alongside the first revelation, which was the Bible. God had created nature so that man could learn His greatness and omnipotence from it; a collection documenting nature would serve the same purpose in a concentrated form. This concept of the *Bijbel der Natuere* (the Bible of Nature), nature as a way to appreciate the greatness of the Supreme Being, was not unique to the Leiden anatomical theatre, although Leiden was an early example of this kind of collection. A still earlier example can be found in the collection of Bernardus Paludanus in Enkhuizen, which has many a trait in common with the Leiden collection. The fact that in 1591 Leiden University unsuccessfully tried to incorporate Paludanus and his collection of curiosities may very well have inspired Otho Heurnius some three decades later to try and build a collection along the same lines as Paludanus’s for the Leiden anatomical theatre.

There are however some remarkable differences between Paludanus’s collection and the Leiden collection. The prominent place of the portraits of mythical and historical heroes (as well as villains) representing various moral and intellectual concepts is one of them. Such a portrait gallery of exemplary mythical and historical figures representing certain moral standards is a feature often encountered in princely collections from the late Middle Ages onwards. In these aristocratic collections the portraits served the purpose of teaching and edifying its visitors as well as its owner, and it seems the portraits in the Leiden *theatrum anatomicum* served the same purpose; together with the biblical and classical commonplaces emblazoned on the walls of the theatre and on the banners borne by the human skeletons, they instilled humility and a contemplative state of mind in the visitors to the theatre – laymen and medical professionals alike. This mindset was deemed appropriate for those about to witness the greatness of God’s creation in the form of an anatomical demonstration, or in the form of the wondrous objects on display around the theatre.

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<sup>451</sup> Molhuysen II, p. 81

Another remarkable feature of the Leiden collection is a certain atmosphere of esotericism or Hermeticism pervading the ensemble. This atmosphere can in part be explained by Heurnius's early academic formation at the philosophical faculty at Leiden. In 1600 he published a work on ancient philosophical systems, which sought to unravel the primordial wisdom communicated to Adam by God. The figure of Hermes Trismegistos and the *Corpus Hermeticum* loom large in this study, associating Heurnius with the Hermeticist current that pervaded European thinking during the Renaissance and the early 17<sup>th</sup> century. The presence of the Egyptian artefacts in the collection – of which Heurnius was very proud – can be explained by this interest in the *prisca scientia*; ancient Egypt was after all the culture from which the Hermetic knowledge supposedly originated. Some of the prints in the collection can also be linked thematically to Heurnius's interest in the primordial wisdom, such as those representing the Four Ages of the World, or one representing the building of the Tower of Babylon.

Finally, issuing forth from Heurnius's Hermeticist leanings there is the question of the extent to which he was influenced by the Rosicrucian phenomenon, which was noticeable in scholarly circles in Protestant Europe in the early decades of the 17<sup>th</sup> century. Heurnius's association with the printer and bookseller Goverd Basson points in this direction. Basson was a freethinker who sold works of Rosicrucian signature, such as the first two publications of Robert Fludd, who is generally considered to be one of the main advocates of Rosicrucianism. Goverd Basson was also the sole dealer of books and prints for the Leiden anatomical theatre under Heurnius's direction.

The microcosmos-macrocosmos concept that was a characteristic feature for Paracelcist and Rosicrucian medical scientists such as Robert Fludd can also explain the presence of Heurnius's universal collection within the whole of the Leiden anatomical theatre. The collection represented the macrocosmos – nature – surrounding the microcosmos – man – which was represented by the anatomical subject on the dissecting table. Following Paracelsus's dictum that there is nothing in man that is not also in nature and nothing in nature that is not also in man, knowledge of nature – which was represented by the objects in the collection – was essential to obtain knowledge of man.

After the 1630s Heurnius appears to have lost much of his interest in expanding the collection of the theatrum anatomicum. Whether he considered the collection to be complete, decided that the scientific method represented by the collection was a dead end, or stopped collecting because the University refused to provide further funding, I am unable to ascertain. In any event, from 1635 onwards Heurnius apparently redirected his energies towards the creation of an institution for clinical teaching within the Leiden medical faculty, the Collegium Medico Practicum at the Caecilia Hospital.

### **1651-1669 Johannes van Horne**

Heurnius's successor in 1651, Johannes van Horne, had no active interest in expanding the collection of *naturalia* in the anatomical theatre, let alone adding artefacts to it, with the notable exception of the anatomical preparations by Louis de Bils, which Van Horne acquired for the theatre right at the beginning of his appointment as anatomy professor. On the one hand this acquisition, several human and animal skeletons and the stuffed skin of a man, was a smart career move by an ambitious young anatomist who wanted to secure a position at Leiden University; being instrumental in acquiring these objects for the theatre would of course do no harm to his career prospects. On the other, however, Van Horne's interest in the work of Louis de Bils also says something about Van Horne's views on anatomy. With Van Horne a new concept of anatomy, an *anatomia nova*, enters the Leiden anatomical theatre. Van Horne, like many of his contemporaries, was primarily interested in the finer structures of human anatomy, such as the lymphatic system, chyle vessels and smaller veins and arteries where the physiological processes were taking place. These smaller parts of anatomy where the mechanics of life could be seen at work were hard to study. To begin with they could not be seen once the anatomical subject had died. Anatomists were therefore looking for techniques that would preserve these subtle physiological systems in dead material. Louis de Bils claimed he had developed just such techniques, but as it turned out, it was a claim he could not substantiate, to the disenchantment of Van Horne.

Nevertheless, preserving, studying and demonstrating human anatomy and especially its subtler parts appears to have been the driving force behind Van Horne's anatomical activities. This is also illustrated by his project of producing an anatomical atlas with the artist Saghemolen, or by the

‘Hornian mummy’, a prepared arm reported on by Borrichius, and by the fact that later anatomists famed for their preparation skills, such as Jan Swammerdam and Frederik Ruysch, were among Van Horne’s students at Leiden University.

As reported by Borrichius, Van Horne kept his anatomical plates, his preparations and a skeleton made of copper wire demonstrating the different vascular systems in his own private collection; he did not display them at the anatomical theatre. Arguably the reason for this may have been the fact that Van Horne did not deem the theatre that suitable a location for demonstrating the finer points of anatomy as, during demonstrations, the major part of the audience would be too far removed from the anatomical subject to be able to observe these small structures. Studying and demonstrating the subtle vascular systems of the (human) anatomy could be done much better in a small setting, with fewer people, allowing the participants to observe the demonstration from close by. These anatomical demonstrations on a smaller scale did indeed take place in Leiden from the 1650s onwards, often in private quarters, for instance during Van Horne’s and Sylvius’s *privatissima*, or in the many private dissections and vivisections described by Borrichius in his diary, or the experiments performed by the members of the Collegium Privatum Amstelodamense. Van Horne was an important participant in many of these private demonstrations, both in Leiden and in Amsterdam, and it seems plausible that he used his personal collection as an instruction aid at these small gatherings.

The postmortems at the Collegium Medico Practicum in the relatively small setting of the dissection room at the Caecilia Hospital, postmortems frequently performed by Sylvius in this period, were another opportunity besides private anatomies to study the human anatomy. That this opportunity was not only recognised by the students, but also facilitated by their teachers is made clear by the fact that many of Sylvius’s postmortems went beyond the explanation of merely the anatomical parts touched by disease. Other parts – often parts that were the subject of discussions among anatomists – were also demonstrated. The interest in the field of anatomy and physiology for the subtler structures of the human fabric, combined with the fact that there were other and more suitable locations to observe these subtle structures, meant that the public demonstrations in the anatomical theatre were of less interest than they had been in the first half of the century.

Remarkably, metaphysical or philosophical observations, as we have encountered in the era of Petrus Paaw and Otho Heurnius, do not figure very prominently in the writings of Van Horne or in the reports of contemporaries such as Borrichius in the 1660s. One gets the impression that the anatomists of this period were so immersed in the discovery of ever smaller anatomical details, and finding out ever more wondrous facts about the workings of living creatures, that any interpretation of the higher purpose of it all was at that moment beyond their grasp. Arguably, the Cartesian philosophical school’s dichotomy of matter and mind, the material and the spiritual, made it possible for the scientists of this era to disregard the spiritual connotations of their anatomical discoveries for the time being.

### **1670-1713 Charles Drelincourt, Antonius Nuck and Govard Bidloo**

In the 1670s however attention to the philosophical and metaphysical aspects of anatomy again became a customary part of the discourse. Exemplary in this respect is the *Praeludium Anatomicum*, the lecture delivered to Leiden students by Van Horne’s successor Charles Drelincourt when he took up his professorship of anatomy in December 1670. In this lecture Drelincourt describes how gaining knowledge about the human body is a means of gaining insight into, and reverence and respect for, the greatness and wisdom of its Creator. More knowledge of the anatomy of living beings can but lead to more humbleness towards God. This physico-theological moral can not only be encountered in the work of Drelincourt. It was also present in contemporary reactions to the microscopic research of Antoni van Leeuwenhoek (although not in the writings of Leeuwenhoek himself), in Bidloo’s introduction to the Dutch translation of his anatomical atlas of 1690, and – most explicitly – in the writings of Jan Swammerdam.

Again the study of nature, also in its highest form – the human anatomy – is seen as the study of the second revelation of the Divine besides the Scriptures; the Bible of Nature besides the Bible proper. But there is a noticeable shift in the notion of nature as a revelation of the Divine, as we compare the concept of the *Biblia Naturae* of around 1600 to that of the final decades of the 17<sup>th</sup> century. In Paaw’s

time nature and anatomy were presented as allegorical and emblematic, a language of signs offering moralistic lessons about human existence and about the relationship between man and his Maker. See for instance the emblematic attire of the skeletons around the Leiden anatomical theatre, pointing out the vanity of this earthly existence to its visitors. In the final decades these emblemata, these allegorical interpretations of nature, were no longer needed. The ingenious workings of nature in itself, the wondrous structures encountered in the smallest details of life, whether on the dissection table or under the microscope, pointed all who studied them towards the greatness of God. This physico-theological connotation would remain the faithful companion of the study of nature in Calvinist Dutch society until well into the 19<sup>th</sup> century.

As this godly ingenuity was for late 17<sup>th</sup>-century scientists primarily encountered in the smallest structures of living creatures, the anatomy of the subtle parts remained the central topic of investigation among anatomists, a point that is illustrated by Drelincourt's as well as Bidloo's use of microscopes, or by Antonius Nuck's mapping of the vascular systems. For this concept of anatomy and its metaphysical connotations the setting of a public anatomical demonstration in a theatre, in front of a large audience, seems less practical. As the presence of the Divine was seen primarily in the smaller structures of anatomy, the audience in an anatomical theatre such as the Leiden amphitheatre were simply too far removed from the action to see what was going on. This is one of the reasons why the anatomical theatre at Leiden University drifted away from the centre of the anatomical action from the mid-17<sup>th</sup> century onwards. Even the one Dutch anatomist active in around 1700 who should have been able to keep the theatrical, allegorical style of the public anatomy alive, Govard Bidloo, could not counter this course of affairs when he was appointed professor of anatomy in 1694. After all, judging from his anatomical atlas *Anatomia humani corporis*, Bidloo must have had a flair for the theatrical 'performance', the more so as one takes into consideration his other non-medical activities as a poet and playwright and his directorship of the Amsterdam *schouwburg* (city theatre).

Bidloo's appointment as professor of anatomy at Leiden University was largely the result of his endorsement by William III. But the loyalty he owed the Stadholder-King also hampered Bidloo's ability to fulfil his obligations to the students adequately. He was frequently called away by his patron, particularly as in the last years of his life William became sickly and fragile. Bidloo's absence often occurred in wintertime, the dissection season. Apart from this, Bidloo was more than once reprimanded by the University authorities for his laxity and the neglect of his duties, the more so because this laxity and negligence did not cease after William III died. One serious problem Bidloo could not handle in a way that would satisfy the Curators was the scarcity of anatomical subjects. The unwillingness of the different authorities in the States of Holland and Westvriesland to hand over their executed prisoners to the Leiden anatomy had been a problem that had hampered the anatomical theatre from its very beginning, but Bidloo seems to have been especially inadequate at acquiring suitable cadavers. Combined with the fact that for the academic medical world demonstrations at the theatrum anatomicum were considered to be an outdated vehicle for conveying anatomical knowledge, this made the existence of the theatre as an anatomy place rather precarious.

### **1650-1720 The rise of the anatomy servant**

From the 1650s onwards the 'public' in public anatomical theatre seems to refer more and more to the collection of curiosities kept at the Faliedebagijne chapel. This collection was exploited by the anatomy servant by showing visitors around the theatre in exchange for a fee. Over the decades this part of their activities is taken on ever more rigorously by successive anatomy servants, printing and selling catalogues of the collections and engaging family members and other personnel to help receiving visitors. This led to conflicts between the anatomy servant and the anatomy professor. The servant supplemented his income with the revenues from the visitors to the collection and viewed the chores involved in a dissection as bothersome and unlucrative, while the professor was required to perform these anatomical demonstration regularly, and furthermore earned extra money by organising them. These conflicting interests made it necessary more than once for the University authorities to regulate the affairs at the theatre. Eventually, at the beginning of the 18<sup>th</sup> century, the anatomy servant (now usually called the 'custos' or caretaker of the theatre) seems to have gained the day; and with that the identity of the theatrum anatomicum as a cabinet of curiosities or a museum prevailed over that of an anatomy place. Apart from the shift in anatomical practice from theatrical anatomies to

subtle anatomies as described above, this development was also aided by the circumstances: Bidloo largely neglected his duties to hold anatomical demonstrations at the theatre, and his successor Rau was incapacitated before he was able to show any activity as professor of anatomy. Rau's successor Bernard Siegfried Albinus – and we are into the 1720s by now – first performed his anatomical demonstrations at home and later worked in a smaller anatomical theatre that was constructed according to his wishes in the refectory of the English church, on the ground floor of the Faliëdebagijne chapel. With this the role of the old *theatrum anatomicum* as a locality for anatomical practice was as good as over.

### **1636 The Collegium Medico Practicum**

The Collegium Medico Practicum, Leiden University's facility for clinical teaching, was, like the collection of the anatomical theatre, the brainchild of Otho Heurnius. Heurnius's style is easily recognisable in the furnishing of the dissection room of the Collegium; like the *theatrum anatomicum*, but on a more modest scale, Heurnius had prints of portraits of historical figures and representations of mythical and historical events hung on the walls of this location. Again, the purpose of these representations seems to have mainly been educational and edifying. The audience using this room were to bear the moral examples offered by the persons and stories represented by the prints in mind and behave accordingly. But apart from the decorum expressed by the interior of the dissection or postmortem room, the atmosphere at the Collegium Medico Practicum strikes one as practical and down to earth; especially when compared to the contemplative and scholarly spirit that reigned at the Faliëdebagijne chapel.

The Collegium Medico Practicum was clearly a teaching facility focusing on the daily business of medical practice; and this practical atmosphere could not just be recognised at the bedside, but also where the postmortems were concerned. The purpose of the postmortems performed in the 1630s and 1640s as described by Otho Heurnius was to locate the causes and traces of disease that could be discerned in the body of the deceased patient. To this end the dissections were limited to the affected parts of the cadaver. The character of the postmortems – as well as the day-to-day practice at the Caecilia Hospital – changed from 1658 onwards, when Franciscus de le Boe Sylvius became professor of medicine responsible for the Collegium. In Heurnius's day the Caecilia Hospital was an institution showing clear ties between the city and the University, as both were involved in the Collegium Medico Practicum; the city doctors worked closely together with the professor in the treatment of the patients, as did the city surgeon, who also performed the actual dissecting during the postmortems. Furthermore, the room of the Collegium was not only used by the students, but also by the Leiden surgeons' guild for their examinations. Sylvius altered the balance between the city institution of the hospital and the academic institution of the Collegium Medico Practicum by increasing the student visits to the wards from twice a week to every day of the week, and by basing his drug prescriptions for the patients on his own spagyric convictions, instead of the so-called *Pharmacopoeia for the Poor*, as had been usual up until then. All this made the academic influence on the daily business of the Caecilia Hospital much stronger, to the chagrin of the hospital board of directors.

Sylvius's academic or scientific influence is also discernible in his postmortems. They were performed quite often, as the reports by contemporaries such as Olaus Borrichius, Lucas Schacht and Robert Sibbald show, and they usually demonstrated much more than just the affected parts of the subject, as Sylvius also paid attention to new topics in anatomical research. That Sylvius's dissections at the Collegium took on a more general anatomical character, as opposed to the dissections carried out earlier by Heurnius, is not only borne out by their sheer number, but also by the fact that they drew so much attention from the students. In 1660 it even became necessary to expand the seating capacity of the dissection room at the Caecilia Hospital. Sylvius made the dissection room of the Collegium into an important asset to medical training at Leiden University, going beyond the boundaries of pathological dissections into general anatomy and giving students the opportunity to study the various aspects of anatomy, among other things by his practice of leaving the cadavers for the students to examine after he had finished his demonstrations. In this respect it is also telling that Reinier de Graaf and Sylvius used the room of the Collegium Medico Practicum in 1671 to present the illustrations of De Graaf's yet to be published treatise on the female reproductive parts, together with a dissected female subject that showed the same anatomical details, in order to prove the veracity of De Graaf's

plates. In other words, the Caecilia Gasthuis served as a locality for the presentation of anatomical research.

The room of the Collegium Medico Practicum, because of its relatively small size, was better suited to showing the mechanisms of human physiology in its smallest detail than the larger theatrum anatomicum. The smaller size was also more congenial to teamwork, observation by a group of professionals allowing discourse and interchange. It was a way of working that was implicitly required by the new empirical fashion of performing anatomy: demonstrations and experiments witnessed by groups of gentlemen of science. The ideal setting for this was the small private anatomy or, in a University context, the somewhat larger setting of dissection rooms such as the one at the Caecila Hospital.

The élan of the anatomia nova, or the interest in the mechanistic phenomena of physiology, pushed the Collegium Medico Practicum to the centre stage of anatomical practice in Leiden in the mid-17<sup>th</sup> century. But to all appearances this élan ended immediately after Sylvius's death in 1672. Sylvius's successors Theodorus Craanen, Lucas Schacht and the city doctors Jacob Vallan and Petrus Gecquier were not able to continue the rate of activity set by Sylvius. And in 1680, owing to personnel problems and dire financial straits, the Collegium Medico Practicum was discontinued. Nevertheless, the feeling that a facility for clinical teaching was something to value, and not to be discarded too readily, remained with the University curators and the Leiden Burgomasters. Attempts to revive the Collegium were already being made in 1683, and patient numbers from 1684-85 suggest there was a fair amount of activity in this year, when Craanen and Schacht acted as professors of the Collegium Medico Practicum. In later years too, when Govard Bidloo and Frederik Dekkers were in charge, patient numbers were considerable. Dissections at the room of the Collegium must have also continued in this period – Dekkers for instance stressed the importance of postmortems on several occasions. However, the scope of the dissections performed at the Collegium in this period appears to have returned to the more limited character of pathological research. Schacht and Dekkers were above all practitioners and their interest in anatomy appears to have been practical rather than theoretical.

### **Anatomy and the surgeons' guild**

Finally, some attention has to be paid to the role of the surgeons' guild in the field of anatomical activity in 17<sup>th</sup>-century Leiden. After its reorganisation in the 1580s, the Leiden surgeons' guild lived more or less in the shadow of the University, particularly where its training and examinations were concerned. The surgeons' guild regulations were drawn up under the supervision of the medical professors of the University. Their theoretical (especially anatomical) formation was in the hands of a medical professor, as were their examinations. But also the places where this formation and examination were carried out were University territory; the anatomical theatre and from 1638 onwards the room of the Collegium Medico Practicum at the Caecilia Hospital. In both locations however it appears that the surgeons were tolerated, but did not have any substantial influence on the way business there was conducted. Arguably, the surgeons were treated somewhat stepmotherly in these academic surroundings. The effects of these circumstances can be seen most clearly in the wavering regulations concerning the examination of practical anatomical knowledge of candidate surgeons. Initially, this knowledge was to be tested by having the candidates demonstrate parts of anatomy in any cadavers that were available. But as the University had the major claim both to the localities where this part of the examinations took place and to any of the scarcely available anatomical subjects, the practical examination proved to be virtually impossible. In the final decades of the 17<sup>th</sup> century the clause in the guild's regulations stipulating practical anatomical examinations was therefore dropped.

When the surgeons eventually moved into their own accommodation above the city weighing house, all practical activities for the examinations were moved to these new quarters, as was the anatomical instruction of the surgeons and their apprentices. In other words, the surgeons withdrew from the University sphere. The guild room above the *Waag* was not equipped with a permanent anatomical theatre. Some anatomical activity however went on there in the final decades of the 17<sup>th</sup> century. This was mainly done with the intention of providing the guild with anatomical specimens for further instructional use. The dissection and preparation of the criminal Jacob Remmers in 1681 was carried out in a particularly elaborate fashion. This dissection was probably also done in front of an audience,

as a servant was employed to keep the onlookers in check. Nevertheless, the anatomical demonstrations in the guild room were no regular feature in Leiden; they were held at lengthy and irregular intervals, ceasing altogether in the early 18<sup>th</sup> century. It therefore seems safe to say that the guild room of the Leiden surgeons did not play the role in anatomical practice that the guild rooms in some other towns, Amsterdam and Delft in particular, played. The presence of the University in Leiden of course had everything to do with this.

## Conclusion

The practice of anatomy in the 17<sup>th</sup> century – like the practice of natural history in general in the Dutch Republic – was pervaded with religious or philosophical motives, probably nowhere more so than in the academic milieu at Leiden. From the humanist emblematic interpretation of nature, and especially of human anatomy, at the beginning of the 17<sup>th</sup> century, through to the physico-theological marvelling about the ingenuity of the mechanisms of life in nature and in the human body, the interchange between anatomical practice and religious contemplation remains a constant factor. What did not remain a constant factor however was the extent to which anatomical practice and its religious contemplation was accessible to the public. In around 1600 the interest of the anatomists in the general construction of the human body and the way this construction taught us lessons in an emblematic way about morality and about the relationship between man and his Maker was perfectly compatible with the interests of a larger public. It was the anatomical practice of allegory, of theatricality and therefore the anatomical practice that could pre-eminently be performed in a theatre, or to put it more explicitly, the practice for which the anatomical theatre was set up.

From the mid-17<sup>th</sup> century onwards the interest of the anatomists shifted towards the small and subtle structures of the human body, the subtle parts where the mechanics of life take place. Religious (in this case physico-theological) motives were still an intricate part of this new anatomy, thereby lifting its relevance beyond the exclusive interest of the professionals to the interest of the general (Calvinist) public. Medical and natural scientists were still looking for ‘traces of the finger of God’, as Charles Drelincourt put it in his oration *Praeludium anatomicum* of 1670, but they no longer did so in the context of a theatrical exposé, but as an act almost of private piety, observing the minute structures of the body in restricted company and enclosed quarters. Obviously, the practices and the subject matter of this new anatomy could not so easily be presented to the general public in the setting of a theatrum anatomicum. The consequence of this was that the relevance of, and the interest in, public demonstrations to the academic medical milieu diminished considerably, and with it the rate and the vitality of the anatomical activity conducted in the Leiden anatomical theatre.

Nevertheless, the anatomical theatre still catered for a demand from the general public to admire the marvels of creation, anatomical and otherwise. This demand was met by the collection of the theatre exploited by the famulus anatomicus or, as he was later known, the custos, whose importance and activities increased as the importance of anatomy at the theatre diminished. Anatomical activity shifted to various other locations; to the Caecilia Hospital (especially in Sylvius’s period), to private locations, and – to a small degree – to the surgeons’ hall at De Waag. The public character of these anatomical demonstrations however was limited. The anatomical activities there were mainly performed by professionals for professionals.

## SAMENVATTING (Summary in Dutch)

Deze studie beschrijft in de eerste plaats de geschiedenis van het Leidse anatomisch theater in de 17<sup>de</sup> eeuw. En passant portretteerd zij de ontleedkundigen en andere personen die werkzaam waren in deze universitaire instelling in de eerste honderd jaar van haar bestaan. Verder beschrijft dit onderzoek de plaats die het theatrum anatomicum inneemt in het geheel van de ontleedkundige activiteit in Leiden in de 17<sup>de</sup> eeuw, door de relatie van het theatrum met twee andere belangrijke anatomielocaties te schilderen: de snijzaal van het Collegium Medico Practicum – de instelling voor klinisch onderwijs van de Leidse universiteit – en de gildekamer van de Leidse chirurgijns boven de Waag. Dit alles in de culturele en wetenschappelijke context van de 17<sup>de</sup> eeuw.

Hoewel de uiterlijke verschijningsvorm van het anatomisch theater niet wezenlijk veranderde na 1630, toen de rareitencollectie van het theater was voltooid, veranderde het gebruik van het theater en zijn perceptie door het publiek wel degelijk in de periode die in dit boek beschreven wordt. Het theatrum is opgezet door Petrus Paaw, Leidens eerste anatomiehoogleraar, die door zowel familiale als intellectuele banden was verbonden aan belangrijke figuren uit het Hollandse humanisme. Voor Paaw en het humanistische milieu waarvan hij deel uitmaakte was anatomie, zoals de rest van de schepping, een aaneenschakeling van emblemata, tekens die de mens aanspoorden tot contemplatie over zichzelf, zijn positie in de wereld en zijn relatie tot zijn Schepper. Maar hoe breed deze emblematische visie op de natuur en op de menselijke anatomie ook was, Paaw beperkte zich in het overbrengen van zijn boodschap tot het ‘medium’ van de ontleedkunde: skeletten, anatomische afbeeldingen en –preparaten.

Paaws opvolger Otho Heurnius had een universele kijk op het anatomisch theater. Heurnius’ interesses lagen zeker in het begin van zijn carrière dicht bij een algemene visie op culturele en natuurlijke historie dan bij het specifieke onderwerp anatomie. De verzameling van het Leids anatomisch theater zoals bijeengebracht door Heurnius, lijkt in de eerste plaats te zijn bedoeld om een beeld te geven van de veelheid en vreemdheid van de wereld om ons heen, een veelheid en vreemdheid die alleen maar toenam naarmate de handelscontacten van de Republiek zich uitbreidden over de wereldbol. Een belangrijke motivatie om zo’n collectie op te bouwen ligt in de Protestantse (en met name Calvinistische) zienswijze op de natuur als de tweede openbaring van de Schepper, naast de Bijbel. Uit de bijbel der natuur kan de mens, zelfs als hij geen weet heeft van de Heilige Schrift, de grootheid van God aflezen. Bijzonder aan de collectie van het Leids anatomisch theater is het feit dat deze representatie van de ons omringende wereld werd gepresenteerd op een plek waar ook de kroon op de Schepping te zien was: de bouw van het menselijk lichaam.

Een ander opmerkelijk aspect van de Leidse verzameling is de esoterische sfeer die het geheel ademt. Deze kan deels verklaard worden uit Heurnius’ vroege academische bezigheden: in 1600 publiceerde hij een boek over vroege filosofie waarin hij de primordiale wijsheid probeerde te achterhalen zoals die door God aan Adam was meegedeeld. De figuur van de Egyptische priester-godheid Hermes Trismegistos speelt in Heurnius’ geschrift een belangrijke rol als degene die de *prisca scientia* uit de mond van Noach en een van zijn zoons zou hebben opgetekend. De aanwezigheid van Egyptische artefacten in de collectie – iets waar Heurnius zeer trots op was – is te verklaren uit deze Hermetische interesse.

Samenhangend met het Hermetisme, dat in elk geval een belangrijk kenmerk was van de Europese geleerdheid in de Renaissance en de vroege 17<sup>de</sup> eeuw, is de vraag in hoeverre Heurnius beïnvloed was door het Rosicrucianisme. Het concept van de microcosmos en de macrocosmos, zoals beschreven door Rozenkruizer-adepten als Robert Fludd kan een verklaring zijn voor de aanwezigheid van de collectie in het anatomisch theater. De verzameling vertegenwoordigt dan de macrocosmos, de mens wiens anatomie in het theater gedemonstreerd werd de microcosmos. De eerste boeken van Robert Fludd werden uitgegeven door de Leidse uitgever Govert Basson, met wie Heurnius contacten onderhield.

In 1651 werd Heurnius opgevolgd door Johannes van Horne, een representant van de nieuwe anatomie die vanaf het midden van de 17<sup>de</sup> eeuw opgeld deed. Deze *anatomia nova* hield zich vooral bezig met de fijnere structuren van het lichaam: het lymfesysteem, de bloedvaten en chylvaten waar de geheimen van het mechanisme van het leven zouden moeten zetelen. Deze subtiele details van de anatomie

waren lastig te bestuderen, al was het alleen maar omdat ze onzichtbaar waren in dode lichamen. Prepareertechnieken om het lichaam in zijn fijnste anatomie te behouden werden essentieel voor de nieuwe anatomen, en prepareren, conserveren en demonstreren van het menselijk lichaam was dan ook het leitmotiv in Van Hornes activiteiten. Niet toevallig was hij de leermeester van vervaarde vervaardigers van anatomische preparaten als Jan Swammerdam en Frederik Ruysch. Van Horne stak ook veel energie in het samenstellen van een anatomische atlas met de kunstenaar Martin Sagemolen, en hij bezat een privécollectie ontleedkundige preparaten.

Van Horne bewaarde en gebruikte zijn privé anatomische collectie thuis en niet in het anatomisch theater. Dit laat zich verklaren uit het feit het theater minder geschikt was voor Van Hornes doelen: het demonstreren van de fijne anatomie was lastig in een theatrale setting. Het grootste deel van het publiek zat er te ver vanaf om te kunnen zien waar het om ging. Een betere setting voor de demonstratie en studie van de fijne anatomie was een kleine ruimte waar een klein groepje onderzoekers van dichtbij kon participeren in de waarneming van de subtiele structuren. Inderdaad werden er in Leiden in deze periode veel demonstraties, ontleding en vivisecties in besloten kring georganiseerd. Van Horne was bij veel van deze sessies betrokken, of hij organiseerde ze zelf in de vorm van *privatissima*. Bovendien trokken ook de obducties in de relatief kleine snijzaal van het Collegium Medico Practicum de aandacht als een gelegenheid om de anatomie te bestuderen. Al met al zorgde de aandacht onder medici voor de fysiologie en voor de subtiele delen van de (menselijke) anatomie, met het feit dat deze subtiele structuren beter bestudeerd konden worden in een kleinere ruimte, ervoor dat de demonstraties in het anatomisch theater vanaf het midden van de 17<sup>de</sup> eeuw aan belang inboetten.

De filosofische en metafysische observaties die zo in het oog springen bij Paaw en Heurnius figureren niet erg prominent in de geschriften van Van Horne of in beschrijvingen van zijn tijdgenoten. In het laatste kwart van de 17<sup>de</sup> eeuw maken de transcendente aspecten van de anatomie echter weer wel volop deel uit van het discours. Zo zag Van Hornes opvolger Charles Drelincourt het menselijk lichaam als het middel bij uitstek om inzicht in – en eerbied voor – de voorzienigheid en wijsheid van God te krijgen. Maar terwijl rond 1600 de natuur, en ook de menselijke anatomie, gezien werd als een verzameling *emblemata*, volstond in de laatste decennia van de 17<sup>de</sup> eeuw de vernuftige werking en de wonderbaarlijke doelmatigheid van de natuur op zichzelf om de beschouwer tot contemplatie van de goddelijke almacht te leiden.

Vanaf halverwege de 17<sup>de</sup> eeuw lijkt het ‘publieke’ van het publieke anatomische theater in toenemende mate te slaan op de rariteiten- en naturalienverzameling die in de Faliëdebagijnkerk te zien was. Deze verzameling werd uitgebaat door de anatomieknecht, die tegen betaling de bezoekers rondleidde. Vanaf 1670 verschenen er catalogi van de collectie, gedrukt op kosten van de anatomieknecht bij wie deze boekjes ook konden worden aangeschaft. Bovendien schakelden de achtereenvolgende anatomieknechts meer en meer familie en derden in als personeel bij het rondleiden van het publiek. Het exploiteren van de collectie werd kortom een steeds belangrijkere bron van inkomsten voor de anatomieknecht, wat hem ook in conflict bracht met de anatomieprofessor. Voor de knecht waren de publieke lessen van de professor inbreuken op de lucratieve praktijk van het tonen van de collectie. Voor de hoogleraar anatomie waren de publieke demonstraties juist een belangrijke inkomstenbron. Deze conflicterende belangen maakten meerdere malen regulerend ingrijpen van Curatoren en Burgemeesters noodzakelijk. Eind 17<sup>de</sup> eeuw lijkt het pleit beslecht te zijn in het voordeel van de anatomieknecht (nu ook vaak ‘custos’ genoemd). En daarmee was de identiteit van het theatrum anatomicum ook veranderd van een ontleedkundige locatie in een ‘museale’ locatie; een rariteitenkabinet.

In 1636 vroeg en kreeg Otho Heurnius van Curatoren en Burgemeesteren toestemming om een faciliteit voor het klinisch onderwijs aan medische studenten te organiseren. Hiertoe werkten de medische faculteit en de stad Leiden samen om een aantal bedden in het stedelijke Caeciliagasthuis te reserveren voor ‘interessante’ patiënten, die dienden ter instructie van de studenten die twee maal per week door hun professoren langs de zieken werden geleid. Het Collegium Medico Practicum zoals deze klinische onderwijsinstelling werd genoemd, bezat ook een snijzaal in het Caeciliagasthuis waar obducties op overleden patiënten werden uitgevoerd. De obducties die Otho Heurnius in de jaren 1640 uitvoerde waren bedoeld om de oorzaken van het overlijden van de patiënten aan de studenten te

demonstreren. Heurnius' obducties beperkten zich dan ook tot de door ziekte aangetast delen van het lichaam.

Er veranderde veel voor het Collegium Medico Practicum toen Franciscus de le Boe, Sylvius in 1658 hoogleraar werd met onder andere het klinisch onderwijs in zijn leeropdracht. Sylvius verhoogde de frequentie van het bezoek van de studenten aan het Caeciliagasthuis van twee naar zes keer per week. Ook schreef Sylvius duurdere medicijnen voor in overeenstemming met zijn iatrochemische denkbeelden in plaats van de goedkope medicijnen uit de armenfarmacopee zoals tot dan toe gebruikelijk was, en werd het aantal zitplaatsen voor de studenten in de snijzaal op zijn verzoek verdubbeld.

Sylvius' vernieuwende invloed is ook te bespeuren in zijn obducties. Deze werden frequenter uitgevoerd dan onder zijn voorgangers, en behelsden ook meer dan alleen de door ziekte aangetaste delen van de dode lichamen. Sylvius besteedde ook aandacht aan nieuwe anatomische ontdekkingen en actuele onderzoeksthema's. Dit zorgde ervoor dat het aantal studenten dat de obducties in het Collegium Medico Practicum bijwoonde duidelijk toenam en dat de snijzaal in het Caeciliagasthuis een belangrijk anatomisch centrum binnen Leiden werd.

Het elan van de nieuwe anatomie, de belangstelling voor fysiologische processen, en een mechanistische visie op het leven dwarde het Collegium Medico Practicum ten tijde van Sylvius' hoogleraarschap naar het centrum van het medische toneel in Leiden in het midden van de 17<sup>de</sup> eeuw. Na Sylvius' dood in 1672 was het echter snel gedaan met dit elan. Zijn opvolgers konden Sylvius' grote en brede activiteit in het klinisch onderwijs niet continueren. In de laatste decennia van de 17<sup>de</sup> eeuw werden de klinische lessen en de activiteit in de snijzaal van het Caeciliagasthuis weer gekenmerkt door het praktische karakter dat ze ook voor de periode Sylvius hadden.

Een derde kern van anatomische activiteit – naast het theatrum anatomicum en het Collegium Medico Practicum – is het Leidse chirurgijns-gilde. Dit gilde bevond zich vanaf haar reorganisatie in de jaren 1580 in de invloedssfeer van de Universiteit, vooral waar het regulering en opleiding betrof. Het gildereglement was opgesteld onder auspiciën van de medische faculteit en de hoogleraar anatomie fungeerde als praelector voor de chirurgijns en was voorzitter van de chirurgijnsexamencommissie. Bovendien waren de locaties waar en belangrijk deel van de opleiding en examinatie van de (adspirant)gildeleden plaatsvonden academisch terrein: het anatomisch theater en – vanaf 1638 – het Collegium Medico Practicum.

Zelfstandige anatomische activiteit van de Leidse chirurgijns was in deze periode minimaal. Weliswaar maakte sectie op het lijk reglementair deel uit van het chirurgijnsexamen, maar door de schaarste aan lijken en door de dominante positie van de universiteit, waardoor deze de weinige beschikbare lijken kon opeisen, werd het praktisch ontleedkundig deel van het examen zelden uitgevoerd. Aan het einde van de 17<sup>de</sup> eeuw verdween het zelfs geheel uit het reglement.

In 1669 kregen de chirurgijns hun eigen gildekamer boven de Waag. Daarmee werd de invloed van de universiteit op de dagelijkse gang van zaken van het gilde minder. Hoewel er op de gildekamer geen anatomisch theater was, ontwikkelden de chirurgijns er wel enige anatomische activiteit. Ook legden zij een rariteitenverzameling aan die geïnspireerd lijkt op die in het theatrum anatomicum. Niettemin kreeg de chirurgijnskamer van Leiden – in de 17<sup>de</sup> eeuw na Amsterdam de grootste Hollandse stad – nooit die belangrijke rol in de stedelijke cultuur en de anatomische praktijk als bijvoorbeeld het geval was bij de kamers van Amsterdam of Delft. De dominante invloed van de universiteit had daar alles mee te maken.

De anatomische praktijk van de 17<sup>de</sup> eeuw was doortrokken van religieuze en filosofische motieven. In de vroege 17<sup>de</sup> eeuw was dit vooral een uit het humanisme stammende emblematische visie op de anatomie van het menselijk lichaam. Vanaf de jaren vijftig van de 17<sup>de</sup> eeuw maakte deze geleidelijk plaats voor een fysico-theologische zienswijze, waarin de Goddelijke voorzienigheid werd herkend in de doelmatigheid van de bouw van het menselijk lichaam, tot in – of met name in – haar subtielste structuren. De emblematische interpretatie van de natuur was uitstekend te verenigen met de anatomische demonstratie van het lichaam in een theatrale setting als het Leidse theatrum anatomicum. De latere opvatting, met zijn fysiologische interesse in de mechanismen van het leven, liet zich beter demonstreren in besloten, kleinschalige ontledingen, experimenten en vivisecties. Een

gevolg hiervan was dat de relevantie van de publieke anatomische demonstraties voor het academisch milieu afnam, en daarmee het aantal ontledingen en de vitaliteit van het anatomisch theater. Toch voorzag het theatrum ook in de latere decennia van de 17<sup>de</sup> eeuw nog in de bevrediging van een publieke nieuwsgierigheid naar de wonderen van de schepping, anatomisch en anderszins. Dit gebeurde in de vorm van de rariteitencollectie, die steeds intensiever werd uitgebaat door de anatomieknecht. Anatomische aktiviteit verplaatste zich aan de Leidse Universiteit naar andere locaties: privatissima, ontledingen in besloten kring en kleinere sectieruimtes als de snijzaal van het Collegium Medico Practicum.

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Horne	Johannes van, Q. van Vissendiep (transl.)	<i>Kort-begrip der ontleed- en heel-konst van Joannes van Horne</i> , Leiden (Pieter van der Meersche, de Wed. Daniel Willemsz. van der Boxe) 1669
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Jorink	E.	<i>Wetenschap en wereldbeeld in de Gouden Eeuw</i> , Hilversum 1999
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Wilson	C.	<i>The Invisible World. Early Modern Philosophy and the Invention of the Microscope</i> , Princeton N.J. 1995
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## ***APPENDIX I: Inventory of the Collegium Medico Practicum***

AC 230            Inventaris van alle de meubelen die de Academie toekomen, welcke int Gasthuis ofte  
Dulhuis sijn in de Camer van de Practijcke ofte elders

Anno 1639 Augusti 1.

Gemaect by Mr. Jan Camphuyse ordinaris chirurgijn van het publyc practiserende collegie ende daer  
naer oversien by Othone Heurnio Academiae Professor ende bevonden met de meubelen der  
Academie die int Gasthuis sijn te accorderen ende hebben wij beyde daerom dese met onse handen  
onderteeckent ter daeghe ende jaere als voors. is

Otho Heurnius, Professor Medicinae et Praeses Collegii Practici Publici

Joannes Camphuysen, Reipubl. Leydensis et Collegii public. practice Chirurg. Ordinar.

Inde eerste sestig prenten op paneele geplackt en in swarte lijste gestelt, geteykent numeris  
ordentlyck beginnende van Henrico IV Galliarum rege ende eindigende met Carolo Angliae rege  
comprehendeerende het heele huys van Burgundien

Item noch dese prenten op de voors. maniere geplackt & gelijsket:

Carolus V Romanorum Imperator

Guilielmus Princeps Auriacus et eus filius Mauritius

Pirrhus Epiretarum rex

Erasmus Roterdamius in cleynder format

Drie tabulae anatomicae op eike panneeel in eicke lijsten

Catalogus Pharmacopeae Pauperum

Reipubl. Leydensis in een eicke lijst

Ordo Lectionum Academiae Patavinae op een vujre planck geplackt

Een vel van een grote Slanghe gespyckert boven agter de Balck

De Strijt van de Amasones van Rubens in een eicke lijst

De val van Lucifer van Rubens in een eicke lijst

S. Peeters Visscherije van Rubens in een swarte en gulde lijst

Het innemen van Damiate in Aegypte door een oorlogsschip van Haerlem sijnde in dienst van de  
grave van Hollant in een eicke lijst

De Tentatie van St. Hieronimi van Callot geëtset  
Het oude capitolinum van Rome in een swarte lijst  
Salomons aanbiddinge der afgoden in een swarte lijst  
De dood van de Coninck Cirrus (???) in een wagenschotte lijst  
Verscheyde gedichten met couleurs[?] afgesettet in een swarte lijst

Een stoel van note bomen hout met root Pruisisch lack bekleet, om de Professor op te zitten  
Een swarte Spaanse lack stoel om de ordinaris doctor der Stadt by de Praeses inde consultaties te zitten  
Drie groene matte stoelen  
Vijf lode inktpotten  
Een lantaern

Een santlooper van twee uren  
Drie groote kopere kandelaers van het oude fatsoen  
Twee kaerssnuiters  
Drie ysere blaeckers  
Twee langhe ysere pijpen staende op ejcke blocken om kaersse in te stellen

En groote vuren taefel groen geverwet met swarte kanten & daer om staende vuren bancken aen de muur vast ende achter met vuren deelen beschooten

Een vure banck met een pulpitem daer aen staende voor de selfde taeffel

Een vuire taeffel op een vuire voet om de lighamen die men opent op te leggen

Drie vuren bancken als stellagie gemaect, elck drie bancken hooch om de studenten op te staen als men de doode lighamen opent

Een ijsere back daer eenige menschen beenderen in sijn

Een eike block om een skeleton oft rift op te setten

Een eysere kassie met een slot & drie deuren daer in bewaart werden

Een scheermes

Een beytel

Een houten hamer

Een lang eyser instrument om in de dode lighamen die geopent werden de partijen te demonstreren

Een snijtanghe om int openen der dode lighamen te gebruycken

Twee sponghien

Dispensatorium Cord:

Pharmacopea Pauperum Reip. Leidensis in goud perkement ghebonden

Een kannetje met inkt & eenig pampier & pennen

Eenige aerde kommekens om bloet in te laeten



## ***APPENDIX II: Inventory of the Leiden Surgeons' Hall***

GAL Archieven gilden (chirurgijngilde) no. 301:

Inventaris van Meubelen, Ornamenten en Instrumenten berustende en behoorende aan de Kamer van het Heel-kunstig Gilde binnen de Stadt Leijden, soo als deselve is opgenomen en nagesien in den Jaare 1714

### In de instrumentenkas

Een schroef om kromme leden regt te setten

Een ribbe schaar

Speculum matricis

Twee spuyten

Een verburge schaar om fistels te openen

Een kogelschroef

Een kromme schaar

Een mondschroef

Een huig afsetter

Een kogeltang

Een kogeltang met een endenbek

Een tongdrukker

Een cranium saag

Twee groote messen

Drie schaaren

Drie buigtangen

Een tandtrekker

Een lood hamertje

Twee cannullen met twee cauterien

Een borstring

Een cauterium

Een incisiemesje

Een cauterium

Een enkelde kromhaak

Een dubbelde kromhaak

Een extirpatiesaa

Een krom mes

Een separatorium

Een nijptang  
Een arterie tang  
Twee cauterien tot fonticuls  
Twee cauterien  
Een trepaan met een croon  
Een kruk trepaan  
Agt croonen  
Twee exfoliatif trepanen, en een hegt  
Een drievoet  
Vier elevatorien  
Een dito, grooter  
Ses raspatorien  
Drie saagjes met een hegt tot de trepaan  
Drie beiteltes  
Twee decussorien  
Een lapidilletje  
Twee driekante elevatorien  
Vier vakjes met yvoren knopjes  
Ses drillen  
Een lood hamertje  
Een saag  
Een beitel

#### Aan de solder

Darmen van Jacob Remmers, NB hangen op het portaal  
Een walvis  
Een spongie in het portaal  
Een onbekende vis  
Een steur  
Een see egel  
Een pompvis  
Een groote crocodil//weggedaan  
Een dito, kleinder  
Een groote swaardvis, daaronder  
Vier kleine  
Een klein swaardvis  
Een kleine crocodil

#### Aan de wand

Een armadil

Vier slange vellen

Een ontsloopen (?) cranium met een gedigt

Twee ossa femoris quaalijk gesteld

Een hart hoorentje

Een swarte hoorn

Twee rhinoceros hoorns

Het hoofd van Van Horne in een kasje, vereerd door de heer Jan Althusius

Een model van een menschen steen

Het pourtrait van Jacob Sasbout van Souburg

Een mensche vel in een raam

#### In het kastje

Een sceletje aan de eene zijde met musculen

Vier kinderen van een dragt

Eenige deelen van de borst van een haas

Een aspera arteria

Twee mensche steenen

Twee vogelstruis eieren

Het pourtaict van Van Horne

Fr. de le. Boe Sylvius

Albertus Kyperus

N. Tulp

De roos van Jericho

Het naambordje van alle de meesters chirurgijns

Het pourtraict van Noach Smaltzius

Lucas Schacht

Een mensche vel in een raam

Een model van een Moscovisch huis

#### In een kasje

Twee plankjes met partes genitales

Een hartekop

Een houte been

Een tafereel

Twee naamberdekens van alle chirurgijns  
Een getekende arm  
Het pourtraict van d. Hr. Prof. G. Bidloo  
Een schilderijtje  
Twee schildpadden  
Seven raamen met naamen van de leden van het collegie  
Twee raamen met naamen van presidenten  
Twee raamen met naamen van assesoren  
Het pourtraict van de heer Prof. Fred. Dekkers  
Twee moscovische schoenen  
Een seegewasje  
Drie pourtraicten boven de spiegel  
Een schilderijtje  
Een spiegel  
Een pijn appel  
Een paradijsvogel//weggedaan den 3. aug 1718  
Een schildpad  
Een vogelbek  
Een seegewas  
Een hamertje voor de praeses  
Een beene voet  
Drie hoornen van een bezoarbok  
De tibia ende fibula  
Een gedroogde penis  
Eene ijsere toonstok  
Een arends klaauw  
Een borstel  
[inserted]  
1722 1 april  
Agtien servetten geteekent G.K.  
Een os femoris met een ankylosis, samengegroeid met het os ischion  
[inserted]  
1738 Novemb  
2 Glase armen aan de Schoorsteen  
Het portrait van Prof. Boerhave  
Ses Groene Gordijnen  
Dito rabat tot de Schoorsteen

6 groene trijpte stoelen

Op het portaal

Vier walvis instrumenten

Een kokus noot

Twee swaarden

Een schildpad

In het links vertrek

Een draaitafel met zijn voet

Vier kaartjes

Twee kleine sceletjes// weggedaan 3 aug 1718

Een opgeset kind// weggedaan in anno 1719

Een elands hoorn

Een hartshoorn

Twee visjes

Een aap// weggedaan 3 aug 1718

Een walrushoofd

Twee seehoorns

Verscheiden

NB Ses sceletten

Een dito klein// weggedaan den 3 aug 1718

Een opgesette aap// weggedaan den 3 aug 1718

Een ovaale tafel met

Een groen tafelkleed

Een kleine tafel

Een groot blad

Twee tabletjes

Een tinne inktkooker//verruylt en 2 nieuwe in de plaets

Een santlooper van een quartier//en een met 4 glazen

Ses groene gordijnen

Twaalf stoelen en sie onder

Een setelstoel

Ses kussens

Een schoorsteenkleed

Een loode tabaksdoos

Een tabaks confoortje//nog een dito confoortje  
Houte bakken  
Ses stooven en testen  
Een tin laat bekken  
Een kapstok  
Een stilletje//verkogt Novembr. 1738  
Een houte hamer  
Twee rhinoceroshoorns  
Een schenkan//verruylt Novembr. 1738  
Een schel  
Een bankje  
Vier oude stoelen verkogt en ses aangekogt, soodat nu sijn veertien stoelen  
Een ebbehoute kist  
Het blasoen silver  
Het Gildesegel met een ketting silver//12 silvere lepels en vorken  
Het gemeene stempel  
Een kopere tang  
Een ijsere tang  
Een Aschbesem  
Een Aschschop  
Een kopere aschschopketel  
Een doofpot  
Een turfmande  
Een ijser comfoor  
Een rooster  
Een vierkant koper stuk//verruylt Novembr. 1738  
Een tinne hangblaaker  
Vier kopere kandelaars//2 verruylt Novembr. 1738  
Een kopere domper  
Een tafellaaken  
Twaalf servetten  
Twee tinnen schotels//verruylt Novemb. 1738  
Seventien tinne borden//verruylt 1730 23 Mars  
Een tinne mostaardpot  
Vier tinne soutvaaten//verruylt Novemb. 1738  
Drie tinne lepels// 1730 23 Mars verruylt dus nieuw  
Tien messen// 1720 twee buiten staet geraakt

Een messelaatje  
 Een scelet in een kasje vereert door mevr. de Wed. Zalr. d. Hr. Dr. F. Dekkers  
 Een klapmuts met een silvere voet vereert door Monsr. Nicolaas Stam  
 Twee theetafels  
 Een ladder  
 Een Lantaarn  
 Een waterremmer  
 Een ijsere spatel \  
 Een – lepel / tot het maken van een Cauterium  
 Twaalf tinne borden  
 Een Schenkbort  
 Een kelk met een deksel  
 Een kelk ratione et experientia  
 2 Groote Engelsche tinne schotels  
 4 dito assietten  
 6 groote dito kandelaars  
 1 dito bierkan  
 4 Glase soutvaten  
 1 Taefellaken  
 18 servetten  
 24 wijnroemers  
 19 messen  
 4 Bocaeltjes  
 Bocaal van Sijn Hoogheyd  
 Een losrentebrief ten naem van Wouter Jorisz. groot 2000 gld in dato 17 April 1665  
 Geregistreerd fol. 7173  
 4 Blauwe posteijne borden  
 9 Blauwe Posteijne Asjetschootels



***APPENDIX III: Dissections in the Leiden anatomical theatre, as documented in archives and contemporary literature***

<b><u>Anatomist</u></b>	<b><u>Date</u></b>	<b><u>Subject</u></b>
<b>Petrus Paaw</b>	December 1589	Jannetgen Jorisdochter van Deventer
	21-23 November 1591	Simon Halewijn Engelsman, 'an evildoer'
	26-28 November 1593	Hans van Antwerpen, 'perished in the city hospital'
	1594	'Schoon Janneken strangled for her famous larceny'
	14 February 1595	Cadaver picked up from the Bayliff of Overveen
	7 February 1595	Cadaver picked up in Delft
	20 September 1596	Cadaver from Leiden
	26 October 1596	Cadaver from Delft
	10 February 1615	Cadaver from Delft
	4 and 5 January 1616	'Body from Amsterdam'
	13 and 14 January 1616	'Two bodies'
<b>Henricus Florentius</b>	23 December 1617	Tryn van Hamburch
<b>Adrianus Valckenburg and Hubertus Bijlius</b>	January 1618	Two 'test dissections'
<b>Otho Heurnius</b>	1619-1621	At least one dissection on a human cadaver, attended by Otto Sperling
	1619	Restitution of advanced money 'in service and necessity of the institution of anatomy' (55 pounds, 4 shillings)
	1620	Restitution of advanced money (80 pounds, 15 shillings)
	1621	Restitution (211 pounds, 16 shillings)
	1622	Restitution (155 pounds, 5 shillings) <sup>452</sup>

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<sup>452</sup> The large sums advanced by Heurnius and restituted by the University in the years 1620-1622 were probably related largely to the Heurnius's collecting activities, which were at a peak in this era, and to a lesser extent to

<b><u>Anatomist</u></b>	<b><u>Date</u></b>	<b><u>Subject</u></b>
	1623	Restitution (38 pounds, three shillings)
	1624	Restitution (52 pounds, 14 shillings)
	1625	Restitution (24 pounds, 1 stuyver)
	1626	Restitution (26 pounds, 8 shillings)
	1627	Restitution (19 pounds, 8 shillings)
	1628	Restitution (71 pounds, 3 shillings)
	1629	Restitution (18 pounds, 14 shillings)
	1630	Restitution (76 pounds, 6 shillings)
	1631	Restitution (74 pounds, 5 shillings)
	1632	Restitution (71 pounds, 12 shillings)
	1633	Restitution (29 pounds, 16 shillings)
	1634	Restitution (85 pounds, 4 shillings)
	1635	Restitution (134 pounds, 3 shillings)
	1639 <sup>453</sup>	Restitution (137 pounds, 14 shillings)
	1640	Restitution (29 pounds, 3 shillings)
	1641	Restitution (176 pounds, 6 shillings)
	1642	Restitution (21 pounds, 6 shillings, 6 deniers)
	1646	Restitution for expenses ' <i>voor 't collegie</i> ' (24 pounds)

---

the acquisition of anatomical subjects. Restitutions up to the amount of circa 50 pounds are likely for expenses connected with acquiring subjects

<sup>453</sup> Heurnius's declarations over 1639-1641 are for expenses for the anatomy theatre as well as the Collegium Medico Practicum

<u>Anatomist</u>	<u>Date</u>	<u>Subject</u>
	1647	From this year on until 1651 (Heurnius's retirement) there are no expenses made by him for the theatrum anatomicum
<b>Adriaen van Valckenburg</b> (joins Heurnius as professor anatomiae and chirurgiae from 1629 as extraordinarius, professor ordinarius from 1630)	1629	In restitution for that which he advanced in service of the anatomy (61 pounds, 19 shillings)
	1630	Restitution (34 pounds)
	1631	Restitution (71 pounds 12 shillings)
	1632	Restitution (38 pounds, 15 shillings, 6 deniers)
	1633	Restitution (40 pounds, 18 shillings)
	1634	Restitution (37 pounds, 4 shillings)
	1635	Restitution (50 pounds, 14 shillings, 3 deniers)
	1639	Restitution (20 pounds, 3 shillings)
	1640	Restitution (104 pounds, 3 shillings, 6 deniers)
	1641	Restitution (45 pounds, 18 shillings, 6 deniers)
	1642	Restitution (49 pounds, 2 shillings, 9 deniers)
	1646	Restitution (10 pounds, 8 shillings)
	1647	Restitution (35 pounds, 3 shillings, 6 deniers) <sup>454</sup>
	1648	No restitution to Valckenburg. The anatomy servant Gerrit Courten however is paid 50 pounds and 12 shillings 'for that which he has advanced [. . .] in acquiring and anatomising a certain subject', <sup>455</sup>

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<sup>454</sup> This declaration is the only one from the Heurnius/Valckenburg period explicitly mentioning that a subject for dissection has been acquired: AC 334 fol. 321 '[. . .] betaelt [aen] denselven Valckenburg [. . .] over 't gene hij voor eenige oncosten heeft verschoten soo in het vercrijgen als anatomiseeren van seecker subject (paid to the aforementioned Valckenburg for expenses which he has advanced for acquiring and anatomising a certain subject).

<sup>455</sup> AC 335 fol. 346

<u>Anatomist</u>	<u>Date</u>	<u>Subject</u>
Joannes van Horne	1649	Restitution (34 pounds, 4 shillings)
	1650	Restitution (23 pounds, 11 shillings)
	1651	Gerrit Courten is paid 47 pounds 3 shillings ‘in reference to some expenses in acquiring and anatomising certain subjects’, <sup>456</sup>
	1652	‘Certain subjects’ mentioned in the books of the University <i>rentmeester</i>
	1653	‘Certain subjects’
	1654	‘Certain subjects’
	1655	‘Certain subjects’
	1656	‘Certain subjects’
	1657	‘Certain subjects’
	1658	‘Certain subjects’
	1659	‘Certain subjects’
	1660	‘A subject’ mentioned in books of the University <i>rentmeester</i>
	24 February 1661	<i>Homicidus decollatus</i> mentioned by Borrichius (possibly dissected in the anatomy theatre)
	23-28 December 1661	<i>Marten den Slaper</i>
	18 December 1662	‘Certain subjects’ mentioned in the books of the University <i>rentmeester</i> , one also reported by Borrichius
	7-17 January 1665	The anatomy servant is paid for rendered services
	1670	The anatomy servant is restituted for payment to the executioner (to obtain a body)
Goverd Bidloo	Winter 1694-1695	Anatomy performed; conflict between anatomist and anatomy servant about payment
	December 1705	Cadaver from Rotterdam arranged by Bidloo (unclear whether a dissection was performed)

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<sup>456</sup> AC 338 fol. 361 Vo.

<u>Anatomist</u>	<u>Date</u>	<u>Subject</u>
	27 January and 4 March 1706	Public demonstrations of one large body and four small bodies
<b>Johann Jacob Rau</b>	Winter 1705-1706	Anatomical demonstrations by Amsterdam city surgeon Rau, who would ‘provide his own corpses’

Data found primarily in the *Resolutien der Curatoren*, *Boeken der Rentmeesters* and in Borrichius’s *Itinerarium* and various other contemporary sources while preparing this study.

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## **Curriculum Vitae**

Tim Huisman werd geboren in Terneuzen op 28 februari 1964. Hij behaalde zijn VWO-diploma aan het Zeldenrust College in 1982. Van 1982 tot 1988 studeerde hij Kunstgeschiedenis aan de Rijksuniversiteit Leiden. Van 1988 tot 1991 deed hij diverse freelance projecten, onder andere voor musea. Sinds 1991 is hij werkzaam voor Museum Boerhaave, vanaf 1998 als wetenschappelijk medewerker. In 2001 begon hij aan dit proefschrift, waaraan hij deels in tijd beschikbaar gesteld door het museum, deels in eigen tijd heeft gewerkt.