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Prologue

In this book, death is not the end. It is not even the beginning – we enter the story weeks, months, years after the body went cold. It is the nineteenth century, the age in which institutional medical collections flourished, and anatomists have already dissected the body, turned parts of it into anatomical preparations and added these preparations to their institutions' collections. These collections often contained thousands of body parts. Injected vessels, macerated bones, bottled organs, some stuffed animals – medical institutions kept them all. And they still do. In many present-day medical faculties, historical anatomical collections linger. Contrary to most other nineteenth-century university collections, these have never been replaced or thrown out, and they did not end up in public museums for the history of science and medicine. What makes anatomical collections different? Why were they not discarded, but kept? Did they continue to be used in teaching? Did medical researchers hold on to them to learn more about the human body? Were they, perhaps, some sort of tourist attraction? Could they be a status symbol? And when did they finally lose their use – if ever? This book will answer these questions by exploring the trajectory of anatomical preparations *after* they entered (institutional) collections.¹ To do so, it will closely investigate one of these collections: the nineteenth-century Leiden anatomical collections.

Today, historical anatomical collections pose several management problems, not just in Leiden, but in other medical institutions as well.² I want to point out two of them.³ First, the question how and to what extent these collections should be presented to the general public; second, the question where these objects belong, in medical faculties or in historical museums.

In Leiden, the collections are hard to access these days. They are housed in the Anatomical Museum in the Leiden University Medical Center (LUMC), which is open to the general public two weekends a year only.⁴ This is, at least partly, due to moral concerns, as is implied in the following quotation from two Leiden medical professors involved in the management of the Anatomical Museum:

A collection of human material has a morally complex nature, and normative demands are made with regard to managing and displaying such a collection. For example, the material is

¹ On the lives of objects after they enter a collection, see also Alberti 2005a.

² Throughout Europe, many historical anatomical collections are still kept in medical institutions, not in museums for the history of science and medicine. As this book shows, this is because they continued to be useful in medical research and teaching for a long time. As this book also shows, these collections are often invisible to non-medical audiences, which makes it hard to provide an overview. At the moment, a European anatomical collections network is being established, see Corradini and Bukowski 2012.

³ These are not the only two. Another recurring issue, for example, is individuals or groups claiming the return of their ancestors' body parts. I do not discuss these requests and the debate on how to deal with them in this book, but for the position of the Leiden University Medical Center on returning human remains from their collection, see Engberts and Hogendoorn 2010.

⁴ LUMC, 'Anatomisch Museum'

usually not freely accessible to the public.⁵

Many anatomical collections are more accessible than Leiden's, but on average medical museums are much harder to enter than for instance art museums. The debate on whether or not this is a good thing is ongoing. Everyone agrees that we should decide carefully on whether or not to display (human) anatomical preparations, especially because it is almost never clear whether or not the people involved gave permission for keeping, let alone openly displaying, their remains. Nonetheless, some argue that preparations can teach us about our body and our history, both medical and cultural (in the case of anthropological remains, our colonial history in particular). The general public should therefore be able to come and see historical anatomical collections. Others argue for a more restrictive access policy, often because they consider this the only way to respectfully deal with these human remains. Other things that may factor into their decision are personnel and financial matters, and the wish to allow students to use the collections in relative peace and quiet.⁶ Those in favour of restricted access are usually willing to admit students and medical researchers to the collections, because they can use the collections to enhance medicine; lay visitors, who come 'just' to look at the preparations, are believed to have (almost) no place in the medical institutions' anatomical museums. Sometimes only a particular kind of preparations is kept away from the public, for instance pathological ones, because they would be too disturbing to look at, or fetal preparations, which, especially in the US, attract controversy because they are linked to the abortion debate.⁷

A second issue involved in the management of historical anatomical collections is the question about where they belong. As said above, the collections are often housed in medical institutions – but would they not find a better home in museums for the history of science and medicine? In 2012, several historians (myself included), artists and museum curators have expressed their fears about the future of collections housed in medical institutions in the Leiden Declaration on Human Anatomy/Anatomical Collections.⁸ They fear that the collections in these institutions might not always receive proper care, especially if institutions no longer use their collections in teaching or research. Yet, even if the

⁵ Engberts and Hoogendoorn 2010, 26

⁶ For more extensive overview of the debate on whether or not to display (and keep) anatomical collections, see Alberti 2011, 196–213, which focuses on the UK. For (medical) historians on different sides in the debate see for example Hendriksen 2012, 196–198 and Morgan 2009, 224–246 (both in favour of opening up anatomical collections), and MacDonald 2006, 183–189 and Richardson 2000, 416–418 (both more critical on displaying (and keeping) anatomical preparations). Specifically on display of anthropological preparations, see for instance Van Duuren 2007, and Fabian 2010, 217–220. Medics often 'voice' their opinions by either allowing or refusing lay visitors to their institutions' anatomical collections. Last, although he does not display a historical collection, it has become impossible to ignore Gunther von Hagens when discussing issues on displaying human remains. No historical collection attracts as much controversy and outrage as his full-body plastinates, positioned as if engaging in activities usually reserved to the living – including playing poker, riding horses and having sex. Literature on the debate surrounding Von Hagens is rich, see for example Bogusch, Graf and Schnalke 2003; and Jespersen, Rodriguez and Starr 2009.

⁷ On the restricted display of fetal preparations in the US, see Morgan 2009, 224–246.

⁸ The declaration is available at <<http://www.hum.leiden.edu/research/culturesofcollecting/news-events/leiden-declaration.html>>; see also Knoeff 2012.

collections are not in use, medical institutions are not always willing to part with them: there seems to be a tendency to keep them inside the medical faculties, more than, for example, physics laboratories hold on to their nineteenth-century instrument collections.

This book does not solve today's problems, but it does (help to) explain why they exist. All issues described are related to the capacity of anatomical collections to remain useful in medical research and teaching for a long time. That is why they linger in medical institutions instead of being moved to historical museums. It is also, as we will see, why lay visitors disappeared from the Leiden anatomical collections, which happened in the nineteenth century. How, then, can we explain this prolonged use in research and teaching? It is not self-evident, and even in the history of medicine it is not always acknowledged. This book suggests that, to fully understand it, we need to adjust our ideas about anatomical collections. Anatomical collections are still often seen as static entities, intended to be classified and arranged by their curators, and to be looked at from a distance by their audiences. I propose that we should see them as 'dynamic' entities, meaning that they were not just meant to be looked at, but also to be actively used.⁹ The preparations in the collections could be methodically arranged and viewed together, but they could also be taken out of the arrangement (and often out of the museum) to be handled individually. Preparations were constantly on the move: from storage box to dissection table to glass jar to anatomical museum to lecture hall to laboratory bench to demonstration table to students' hands and back again. And they not only moved around, they also changed: preparations were taken out of their jars to be re-examined, reinterpreted and even redissected. Anatomical collections were full of life – that is this book's main message.

To get this message across, I will analyse how the nineteenth-century Leiden anatomical collections were used by four different groups: students, researchers, lay visitors and university governors. Of course, not everything that applies to Leiden, applies to the many other nineteenth-century institutional anatomical collections as well – not even to the other Dutch ones. However, many of the practices and developments I discuss *did* take place in other places as well, sometimes later, and often earlier than in Leiden. I will demonstrate this throughout the book with examples from other European collections, both continental and British.¹⁰ The book's main insight – that anatomical collections should be seen as

⁹ Sam Alberti has also used the term 'dynamic entity' to describe anatomical collections, but his use of the term differs from mine. For him, seeing a collection as a dynamic entity means seeing it as 'a set of relations (between patients, practitioners, collectors, curators, and audiences) enacted through material (including not only body parts but also models, pictures, and texts).' (Alberti 2011, 7) This might indeed be a useful way of viewing anatomical collections, but it is not what I propose here. I have nonetheless decided to use the term 'dynamic entity' because it clearly contrasts my view with the 'static' view and because Alberti does not use the term extensively or systematically in his book, so this footnote should be enough to avoid confusion.

¹⁰ I selected these examples partly based on availability of secondary literature and primary sources, which means that some not very well documented collections may have received less attention than their historical relevance justifies. To a certain extent, this goes for the collections of the other Dutch universities, Groningen and Utrecht, but I have tried to include examples from them as much as possible. Having said this, I have no reason to assume my main conclusions would have differed if I had been able to take these collections fully into account.

dynamic entities – can be applied not only to other places, but also to other periods, as will be demonstrated in the epilogue.

Having made clear what this book is about, I have three things left to do before we move on, or rather back, to nineteenth-century Leiden. I must first clear up a common misconception about anatomical collections, define some key terms and provide an overview of the structure of this book. That is what the remainder of this prologue will do. Once it is done, the story of the nineteenth-century Leiden anatomical collections can begin.

Anatomical collections in nineteenth-century medicine

In history of medicine, the nineteenth century is famous for two things: the birth of the clinic and the rise of the laboratory. However, it was just as much the age in which institutional anatomical collections flourished – a fact often overlooked by historians of medicine focusing on the aforementioned birth and rise.¹¹ At best, historians have simply neglected nineteenth-century anatomical collections, as is witnessed by general overviews of the period, such as introductory textbooks to the history of medicine.¹² At worst, they explicitly state that anatomical collections became redundant and were replaced by hands-on learning, clinical teaching and laboratory research.¹³ In the last decade, anatomical collections have become an increasingly popular topic of historical research, and historians like Erin McLeary and Samuel Alberti have clearly shown that anatomical collections did not disappear but were used in medical research and teaching throughout the nineteenth century.¹⁴ So much so, that Jonathan Reinarz has suggested renaming the century ‘the age of museum medicine’.¹⁵ Which would not solve the problem, of course: it only turns it around by overrating museums and neglecting not only the clinic and the laboratory, but also collections outside museums. The question is not: clinic and laboratory *or* collections? It is: how could the old collections function in new spaces like the clinic and the laboratory?¹⁶

In these new spaces, practices like bedside teaching, dissecting, practical training and experimenting took centre stage. It has often been assumed that anatomical collections were of no use in these practices because preparations supposedly are static objects that are not to be touched, handled, dissected or experimented on. Similar statements have been made

¹¹ As has been noted before. See in particular Pickstone 2000, 73.

¹² See for example Bynum et al. 2006; Bynum and Porter 1993; Jackson 2013.

¹³ See for example Wachelder 1992, 100–102 on the Dutch situation.

¹⁴ McLeary 2001, Alberti 2011. On nineteenth-century anatomical collections, see also Burmeister 2000, Close Koenig 2011, Fröber 2003, Matyssek 2002, Reinarz 2005 and Sappol 2004. On anatomical collections before and after the nineteenth century, see for example Angel 2012, Chaplin 2009, Hallam 2013, Hendriksen 2012, Jones 2002, Margócsy 2011, Morgán 2009, and Schultka and Neumann 2007.

¹⁵ Reinarz 2005.

¹⁶ An answer to this question also contributes to solving a problem raised by Nicholas Jardine: to what extent were the new laboratory practices extensions and transformation of existing practices like ‘the practices of the anatomy theatre and its preparation room’ – which included building and using collections for research and teaching. (Jardine 1992, 318)

about other types of collections, in particular natural history collections.¹⁷ Scholars have also formulated the argument in more general terms by claiming that collections lost their prominence due to a new style of thinking, or way of knowing. Collecting, arranging and classifying, as they have stated, was surpassed by experimenting. The former combination of practices goes by different names; I will call it a ‘museological’ way of knowing, because it is often, although not necessarily, connected to museums. In museological ways of knowing, objects are collected for the ‘whole’ of the collection; here, the added meaning objects acquire in a collection is considered essential to producing knowledge.

The argument for the decreasing importance of anatomical collections in medicine may seem reasonable and convincing, but there is one problem: anatomical collections did not disappear. On the contrary, their numbers exploded. In Leiden thousands of preparations were added to the university collections, and serious amounts of time, money and space were invested in the collections. The same happened in other European cities.¹⁸

Two things are important in understanding how anatomical collections could flourish in the age of the clinic and the laboratory. First, museological ways of knowing never disappeared. John Pickstone, A.C. Crombie and Chunglin Kwa have all written about ways and styles, and they carefully avoid the claim that new ways of knowing fully replaced old ones.¹⁹ When new ways of knowing appeared, old ones remained in use, although they might become less prominent – a subtlety that unfortunately often gets lost when other researchers apply the work of Pickstone, Crombie and Kwa. Furthermore, Pickstone has argued that early in the nineteenth century a whole series of disciplines emerged for which a museological way of knowing was central.²⁰ One of the areas of study that employed this way of knowing was comparative anatomy. Comparative anatomists compared the structures of different animals, including man. We tend to think of their work as part of natural history or, later, of biology. However, almost all medical collections in nineteenth-century Europe contained animal preparations. Comparative anatomy was an essential part of nineteenth-century medicine, something I will return to in more detail in chapter 2. Since comparative anatomy belonged to medicine, the museological way of knowing underlying it did so as well. This explains in part why anatomical collections remained relevant in nineteenth-century medicine.

But it is not the full story. Collections were used outside comparative anatomy and similar (‘museological’) fields. The Leiden physiological laboratory, for example, housed a collection, although the new physicalist orientation transformed physiology into a discipline based on an experimental way of knowing. This brings us to the second of the two

¹⁷ Lynn Nyhart has written about the view that laboratories replaced museums in natural history, and why this view is wrong. (Nyhart 1996, 435–429)

¹⁸ See the literature mentioned in note 14 above. For an impression of nineteenth-century Dutch collections outside Leiden, see *Binnenste buiten* 2010, Haneveld 1978a, Le Grand 2001, De Rooy and Van den Boogaard 2009, and SAE 2006.

¹⁹ Pickstone 2000, Crombie 1994, Kwa 2011

²⁰ Pickstone 1994

important things mentioned above: collections are not bound to museological ways of knowing. Pickstone addresses this issue briefly, explaining that experimental styles of biology and medicine needed data that had to be collected and stored.²¹ However, it is not clear why these data collections needed in the new medicine should also include collections of anatomical preparations – at least, not as long as we consider collections static entities. As soon as we start seeing anatomical collections as dynamic, it becomes clear immediately. Preparations could be touched, handled, dissected and experimented on – just what the doctor ordered in the new, hands-on practices in the laboratory and the clinic. Therefore, the preparations and the collections they constituted fitted perfectly within the new, experimental way of knowing.²²

Together these two observations – museological ways of knowing did not disappear and collections are not bound to museological ways of knowing – explain why anatomical collections flourished in what is often seen as the age of the clinic and the laboratory.

Collections, museums, cabinets

Many of the handling practices took place outside museums; what is more, certain types of collections never even made it into a museum. Therefore, we need to be careful in our use of the terms ‘museum’ and ‘collection’. Often, even in the history of anatomical collections, the two terms are used interchangeably. Yet collections and museums are not one and the same, nor are they inextricably linked. As mentioned above, nineteenth-century anatomical collections were used regularly in spaces other than museum buildings. To grasp this, we need to separate both concepts and use them carefully. This is tricky, not in the least because our nineteenth-century actors often use these words (together with ‘cabinets’) ambiguously. To avoid confusion between analytical concepts and actors’ categories, I will use this section to explain how the words ‘collection’, ‘museum’ and ‘cabinet’ were used in nineteenth-century Leiden and to define how I use the terms in this book.

In nineteenth-century Leiden four different words were used to describe the anatomical collections and the buildings and institution that housed them: *verzameling*, *collectie*, *kabinet* and *museum*. *Collectie* and *verzameling* are synonyms; *verzameling* was used more often in the nineteenth century. I translate both words as ‘collection’. As I understand the concept, a ‘collection’ is a large amount of material entities, gathered and kept together. The entities have been consciously selected (by the ‘collector’ – this can be a human being or an institution) because they possess a certain value. This distinguishes a collection from other large amounts of objects: objects in a collection are selected for a reason. Reasons for selecting objects for a collection vary widely: it can be because they are rare, because they are of artistic or historical importance, or because they can be used for a certain purpose.

²¹ Pickstone 2000, 75–76

²² Collections used in non-museological ways of knowing are valued *not* primarily for the ‘whole’, but for their individual parts.

Whatever the reason, all objects in a particular collection are selected for that reason. Hence, objects in a collection always tend to resemble each other: they all share the characteristics connected to the reason for which they were selected.

When an object first enters a collection, it changes. Being part of a collection adds a new layer of meaning to the object. In the collection the object is part of a ‘whole’.²³ This whole is more than the sum of its parts. A collection’s value, in other words, is not simply the added value of its objects; it is more. Yet – and this is crucial – this ‘more’ is not necessarily the purpose or reason for bringing together the parts, for collecting the objects. Body parts, for example, are not necessarily collected to be part of an orderly arranged anatomical museum collection – a setting which, as we will see, values the whole over the parts. There is another, more prosaic reason for collecting them: bodily material is scarce. You need to catch it while you can and then store it away for future use. This future use does not always depend on the extra meaning body parts gain from belonging to a collection. Note that the extra meaning nonetheless exists: the body parts constitute a collection, and hence they have to be stored and arranged, and they are placed together – these things alter their meaning and add value. However, the added value can be unintended, or at least the (future) use does not require it.

Kabinet and *museum* are more ambiguous words than ‘collection’. Nineteenth-century actors used them inconsistently. In 1864 the *Nieuw woordenboek der Nederlandsche taal* [‘New dictionary of the Dutch language’] defined *museum* as follows:

Museum, n.[neuter] ([pl.] ...ea), building —, institution dedicated to art or science; art cabinet, cabinet (mainly) of objects of natural history etc.²⁴

(Museum, o. (...ea), gebouw —, instelling aan kunst of wetenschap gewijd; kunstkabinet, kabinet (voornamelijk) van voorwerpen der natuurlijke historie enz.)

Museum could refer to a collection or to the institution housing the collection (both meanings are implied in *kabinet* in the second part of this definition), but it could also mean ‘building or institution dedicated to art or science’.²⁵ This building or institution did not need to own a collection, nor did it need to be open to visitors. Towards the end of the nineteenth century this meaning disappeared: in 1908 the lemma *museum* in the *Woordenboek der Nederlandsche taal* (*WNT*, ‘Dictionary of the Dutch Language’), calls it ‘now obsolete in our language’.²⁶ In the period discussed in this book, however, *museum* was still regularly used in this way. In England this use seems to have disappeared before the nineteenth century already: the *Shorter Oxford English Dictionary* (*SOED*) claims it was last used this way in

²³ On what it means for an object to be part of a collection, see for example Pearce 1992.

²⁴ Calisch and Calisch 1864, 813

²⁵ For lack of a better word, I use ‘science’ to translate the Dutch *wetenschap*, although the latter has a broader meaning. It is similar to the German *Wissenschaft*

²⁶ *WNT* <<http://gtb.inl.nl>>, s.v. ‘museum’ (accessed 18 March 2013)

the late eighteenth century.²⁷ Nonetheless, ‘museum’ remained an ambiguous term in nineteenth-century English: like the Dutch equivalent, it was used both for a collection and the institution housing this collection.

‘Museum’ still carries this double meaning, as the definition in the *Oxford English Dictionary* (*OED*) reveals:

A building or institution in which objects of historical, scientific, artistic, or cultural interest are preserved and exhibited. Also: the collection of objects held by such an institution.²⁸

These days, ‘museum’ can refer to a building, to an institution or to the collection housed within this building or institution. Without further explanation, the term quickly becomes confusing when used to discuss the relationship between museums and collections. Therefore, when I use ‘museum’ as an analytical category, it *never* refers to a collection. Also, again to avoid confusion, whenever possible I use ‘museum’ to refer to the institution and ‘museum building’ to refer to the structure housing this institution.

With these modifications, I have reduced the *OED* museum definition to: ‘an institution in which objects of historical, scientific, artistic, or cultural interest are preserved and exhibited.’ Exhibition is crucial in museums. The objects in a museum (i.e. the museum collection) are *on display*. They are meant to be observed by an audience. However, this audience does not necessarily refer to ‘the general public’: it may consist of, for instance, students or researchers instead of lay visitors. Scholars regularly assume that being open to a broad audience (more or less anybody who can afford the entrance fee) is a key characteristic of a museum. As Mieke Bal summarized it, ‘What is a museum for if not for [lay] visitors?’²⁹ Indeed, most present-day museums are open to non-specialist visitors, but some institutions – and anatomical museums are among them – are called ‘museums’ and yet have a restricted access policy. The Leiden Anatomical Museum offers a case in point, as do the Wellcome Museum of Anatomy and Pathology at the Royal College of Surgeons of England and the Gordon Museum of Pathology at the King’s College medical campus, both in London. All three of them are described as ‘museums’ and yet they are only open to specialist visitors: medical students or researchers.³⁰ In the nineteenth century, museums with restricted access were more common – in fact, the idea of a museum as an institution open to all only emerged in this century;³¹ hence the changing meaning of the term during this century. So, when I use the term ‘museum’, I refer to an institution where exhibiting is central, but where the audience did not necessarily consist of non-specialists.

Kabinet, which I translate as ‘cabinet’, was used even more ambiguously than *museum* in the nineteenth century. It could refer to an institution housing collections, to a building,

²⁷ *SOED* 6th ed., s.v. ‘museum’. On early modern use of the term ‘museum’ and its French equivalent ‘*muséum*’, see Findlen 1989 and Lee 1997.

²⁸ *OED* 3th ed., <<http://www.oed.com>>, s.v. ‘museum’ (accessed 18 March 2013)

²⁹ Bal 1996, 208

³⁰ RCS, ‘Information for visitors’; KCL, ‘The Gordon Museum’; LUMC, ‘Anatomisch Museum’

³¹ Bennett 1995

room or cupboard in which collections were kept, or to a collection itself. All uses were common in Leiden. Regularly, multiple uses occurred in the same text, even if this text was a national law.³² I do not use ‘cabinet’ as an analytical category. Quotations from primary sources aside, it only appears in this book as part of the proper name ‘Anatomical Cabinet’ (*Anatomisch Kabinet*), which I use to denote a particular Leiden institution. In the nineteenth century, this institution was known under many names, for instance Anatomical Cabinet, Anatomical Museum, Cabinet of Anatomy and Anatomical-Physiological Cabinet. To keep things as clear as possible, I consequently use ‘Anatomical Cabinet’, from time to time shortened to Cabinet (with a capital C). The Anatomical Cabinet housed the university’s principal anatomical collections.

This brings me to the last word that needs clearing up before we move on to the position of collections in nineteenth-century medicine: ‘anatomical’. I use it broadly, which means that ‘anatomical collections’ contain not just preparations of ‘general’ or ‘healthy’ anatomy, but also of pathological and comparative anatomy, both macroscopic and microscopic. ‘Comparative anatomy’ can mean many things, but we will come to that later (in the chapter on researchers). For now, it should be interpreted as involving the comparison of human and animal structures. In other words: ‘anatomical collections’ contained animal preparations as well. Lastly, in this book I am primarily concerned with anatomical collections of *preparations*, not of *models*, which, as we will see in chapter 2, are definitely not the same thing.³³

Four audiences and an epilogue: the structure of this book

This book asks what happened with prepared body parts after they were added to the nineteenth-century Leiden anatomical collections. How were they used? The short answer is: in multiple ways. The collections had many audiences, and each of them used the collections in its own way. Therefore, the four chapters in this book each centre on a different audience: first students, then researchers, followed by lay visitors, and, to conclude, university governors. Each audience used the collections differently, but they all have in common that they should be understood as active *users*, not as observers or passive

³² See for example the 1815 Royal Decree on Higher Education, which will be discussed in (much) more detail further on in this book. (RDHE 1815)

³³ On anatomical models, see Alberti 2009a, Hopwood 2002, Hopwood 2007, Maerker 2011, Mazzolini 2004, Messbarger 2010, Pirson 2009, Schnalke 2004. Also not the same are, or at least were, *preparations* and *specimens*. Nowadays, the word ‘specimen’ is often used to denote preserved body parts, but in the nineteenth century, this was not the case. The exact usage is hard to pinpoint, but it seems that roughly, ‘preparations’ were preserved body parts whose making involved dissection, whereas ‘specimens’ were things like stuffed animals, displaying the outside of the body. See Chaplin 2009, 101–102 on the early modern use of both terms, which does not differ much from its nineteenth-century counterpart.

recipients.³⁴ This does not mean the audiences could alter the collections as they saw fit. As we will see, both non-medical audiences stopped using the collections in the second half of the nineteenth century because they were no longer able to interpret them, to relate to them, or to present them as they wished.

The first two chapters discuss medical audiences: students and researchers. Together, they flesh out the view of anatomical collections as dynamic entities. Chapter 1 shows how students *handled* preparations instead of just looking at them, as well as how this made preparations relevant in all teaching spaces, not just in museums. Chapter 2 analyses how researchers not only handled preparations, but handled *the same* preparations for decades on end, continuously reinterpreting them. I use the work of philosopher and historian of biology Hans-Jörg Rheinberger to explain how preparations enabled this reinterpretation.

These chapters serve to show not only *how* students and researchers used preparations, but also *that* they used them the whole period of the nineteenth century. Therefore, the chapters have no strict periodization within the nineteenth century. This is completely different in the last two chapters, on the non-medical audiences of lay visitors and university governors. Here, the nineteenth century is strictly separated into two parts: before and after 1860, the year in which the university's main anatomical collections moved to a new location, an educational complex including teaching laboratories for the natural sciences. The move was a consequence of the prolonged use of the collections in research and teaching.

Chapter 3 shows that after the move the anatomical collections ended up in a location that was hard to approach and into an arrangement that was hard to interpret without a medical background. Therefore, lay visitors disappeared from the Anatomical Cabinet. In chapter 4, we see that the university governors also stopped using the collections. Before the move, they had employed the collections as a status symbol, because they embodied the university's glorious past. But in the new arrangement, the preparations lost the connection to their eighteenth-century makers and therefore, their use as a status symbol.

The book ends with an epilogue in which I reflect on the usefulness of seeing anatomical collections as dynamic entities not just in nineteenth-century Leiden but in other times and places as well, including our own.

But for now, we leave the twenty-first century and go back to the early nineteenth, where our story begins properly, with a severed head.

³⁴ In recent history of science, audiences are usually understood in this way – as active users, appropriating collections (or, for instance, books, scientific instruments or theories) and adding their own experiences, knowledge and ideas. See also Secord 2004. On understanding (lay) audiences of specifically anatomical collections as active users, see Alberti 2007 and Knoeff 2011.