Chapter I: Introduction

I. The Older the Better

Gerard Oyens was not keen on being upstaged by the British. But in March of 1881, he was worried he might be – and justifiably so. Oyens had just been tasked with organising the Netherlands' contribution to the Paris Electrical Exhibition of 1881 and, from his perspective at least, things had not gotten off to a good start.

The idea behind the Electrical Exhibition was that every country in the world could present the newest electrical devices its engineers and scientists had developed. The grand total of these separate, national sections to the Exhibition would then amount to a spectacular celebration and public demonstration of the immense progress that had been made in the field of electrical science in the space of just a few decades. As one official announcement published in France stated: "This exhibition will comprise everything to do with electricity: it will bring together apparatus of various types and various origins which serve to generate, transmit and use electricity."[1]

The Paris Exhibition was not the first large-scale international exhibition. Ever since the Great Exhibition held in London in 1851, a veritable hype had developed around what came to be known as the World's Fairs, with every country that could afford to do so organizing various international exhibitions on a wide variety of topics. The exhibition in Paris was, however, the first that was devoted exclusively to electricity. What prompted it were the groundbreaking developments that had occurred over the course of a fairly short period preceding the exhibition. Not many years had passed since James Clerk Maxwell published his theory of electromagnetism for instance, and even more recently patents had been filed for the electric telephone and the electric light bulb, by Alexander Graham Bell and Thomas Alva Edison respectively. The world was quick to realise the far-reaching implications these and other inventions had, and the Paris Exhibition can be seen as the epitome of the excitement they generated, both amongst the general public and amongst scientists and engineers. The exhibition itself was held from August until November 1881 at the Palais de l'Industrie on the Champs-Élysées, and it was accompanied by a four-day conference to which specialists from all over the world were invited. One "hot topic" at this conference was the establishment of standard units to describe electromagnetic phenomena.

[1] "Cette exposition comprendra tout ce qui concerne l'electricité : elle réunira les appareils de toute nature et de toute provenance servant à la faire naître, à la propager et à l'utiliser." A. Cochery: "Congrès International des Électriciens, Exposition internationale d'électricité, Paris 1881, Rapport au Président de la République", c. 01.1881, The Hague, NL-HaNA, WHN / Handel en Nijverheid I, 2.16.60.04, inv.-nr. 287.

But just like all the other international exhibitions of that time, there was a strong competitive element to the Electrical Exhibition too. More specifically, it was competitive in two ways. Firstly, the idea was not only to showcase the progress that had been achieved in science and engineering in general, but also to develop the market for electrical apparatus. To the organisers of the exhibition, even the participants of the international conference were primarily potential clients for the exhibitors of electrical apparatus. A representative of the French government at least explained as much to the Dutch minister of trade and commerce when he wrote that for "the exhibitors", "the modest expenses of installing [their exhibits] will be a good investment", because "[T]hey will profit from a unique event, that has been anticipated for a long time and that was difficult to organise, at which they can display their inventions, explain their systems and let their machines function in front of the greatest scientists of the world."[2]

Secondly, on another level and again in much the same way as with all previous international exhibitions, the race was on to establish which country was the most productive and progressive, i.e. which country's display included the most spectacular innovation. This contest was less of an open one than that between different manufacturing companies. Manufacturers could measure and compare their level of success by citing the prizes that were awarded to them by an independent and international jury during international exhibitions. The jurors in turn had concrete criteria through which they could evaluate manufacturers' products, such as their durability, practical use, aesthetic quality, etc. A sense of national pride, by contrast, was far less tangible – but its importance should nevertheless be anything but underestimated during this particular period in history. The "nation state" had recently become a hugely important political category, and almost literally so. One could even say that the stability of the political system in Europe at the time depended in no small part on citizens developing a sense of pride that they belonged to a particular nation state: in defining themselves as members of such a nation state and pledging allegiance to it, even if only subconsciously, they were turning themselves into good and reliable citizens.

This contest of the nation states at international exhibitions brings us back to Oyens. Although he was probably not very worried about the stability of the European or even the Dutch political system in general, it was clear to him that in taking on the task of organising the Dutch section of the Paris Exhibition he had also accepted the higher responsibility of providing a positive image of the Netherlands at this exhibition, certainly in comparison with the other nations' displays. It was of course clear that the Netherlands, as a comparatively small country, would not be able to take on many of the larger nations. But Oyens was confident that the Dutch need not shy away from the competition. As he confidently declared in a letter to the Dutch minister of trade and commerce which he sent shortly after his

[2] "les exposants" ; "Les dépenses modiques d'installation […] seront pour eux de l'argent bien place"; "Ils profiteront, en effet, d'une occasion unique, qui était depuis longtemps désirée et qui ne pouvait être que difficilement offerte, de produire leurs inventions, d'expliquer leurs systèmes et de faire fonctionner leurs appareils devant la réunion des plus grands savants du monde." G. Berger to G.J.G. Klerck, 08.12.1880, The Hague, NL-HaNA, WHN / Handel en Nijverheid I, 2.16.60.04, inv.-nr. 287.

appointment, Oyens felt that "the Netherlands can certainly successfully compete with other countries, in particular concerning the excellent organisation of the telegraph service."[3]

In spite of his confidence, however, Oyens – who lived in Paris and ran a business there– soon found it difficult to rally the troops at home in support of his cause. The Dutch government in particular followed its traditionally liberal approach of leaving all cultural and economic matters – which obviously included international exhibitions – to private initiative, and was therefore reluctant to provide Oyens with any funding for his display, or any government items to include in it.

And then, matters began to look even worse when he heard that the British Postmaster General had announced his office would send in "every kind of electrical and in particular telegraphic instruments which have been used by the British government since 1837 until now, and which demonstrate the important improvements that have gradually taken place in this area."[4] By drawing attention to their long history of important contributions to the development of telegraph systems, the British were of course bolstering their claim to pre-eminence in this area of technology – which was precisely the area in which Oyens had hoped the Dutch would be able to prove their mettle.

Somewhat desperate, Oyens again wrote to the Dutch ministry of trade and commerce. Attempting to invoke a sense of debt towards the French government as the hosts of this international exhibition, he first reported how he had heard about the British plans, and then "how pleased His Excellency the Ministre des Postes & Telegraphes, under whose patronage the Exhibition will be held, would be if the Dutch Government would also contribute such an important collection."[5]

Ultimately, however, his pleas were to no avail. The ministry of trade and commerce did actually take them seriously enough to pass the matter on to the state telegraph company (*Rijkstelegraaf*). But its chief director did not consider it wise to try and match this British show of past ingenuity. He scribbled his reply on the letter he had been sent by the ministry, stating: "The state telegraph company acquires its instruments from abroad and is therefore unable to contribute anything original or special. In such a situation it is better, I think, to refrain entirely from participating."[6] And this way, no extra costs were of course incurred either.

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[3] "Nederland zeker met andere landen gunstig kan wedijveren, vooral wat de voortreffelijke inrigting van het telegraafwezen aangaat"; G. Oyens to G.J.G. Klerck, 04.03.1881, The Hague, NL-HaNA, WHN / Handel en Nijverheid I, 2.16.60.04, inv.-nr. 287.

[4] "elke soort van electrische en in 't bijzonder telegrafische instrumenten welke sedert 1837 tot heden door de Engelsche regeering zijn gebruikt worden, en welke dus de belangrijke verbeteringen aantoonen welke successievelijk op dat gebied hebben plaats gehad"; G. Oyens to G.J.G. Klerck, 17.03.1881, The Hague, NL-HaNA, WHN / Handel en Nijverheid I, 2.16.60.04, inv.-nr. 287.

[5] "hoe aangenaam het Z.E. den Ministre des Postes & Telegraphes, onder wiens bescherming de Tentoonstelling zal plaats hebben, zou zijn indien de Nederlandsche Regeering ook eene dergelijke belangrijke verzameling zou willen inzenden." Ibid.

[6] "De Rijkstelegraaf ontvangt zijn toestellen van buiten 's lands en zou dus niets oorspronkelijks of eigenaardigs kunnen inzenden. In zoodanig geval doet men, meen ik, beter zulks geheel te onthouden." Hoofddirecteur der

Oyens, however, did not give up easily. In fact, he had a backup plan. It appears he had actually harboured some grave doubts as to whether his government was going to support him, because the very same day he penned his letter to the ministry of trade and commerce, he also sent one to the Dutch Manufacturers Society in Haarlem, asking for help. He had already been in contact with this society about the exhibition over the course of the previous weeks; although Oyens was officially appointed by the Dutch government, because he was based in Paris the Manufacturers Society had taken on organisational matters such as announcing the exhibition and encouraging its members to participate. It was manufacturers of electrical apparatus, after all, that stood to gain the most from this exhibition, at least in the short term. What Oyens was hoping to obtain from the Society now was some information: he had heard that there was a museum in Haarlem with an "important" collection of electrical apparatus. "[I] politely request [...] you to inform me whether it would be possible, for this first electrical exhibition, to procure some of the important electr. instruments which are housed in the museum in your home town", he wrote to the president of the Manufacturers Society.[7]

It seems a little strange that Oyens did not refer to the museum by its name: Teylers Museum. In fact the entire wording of his letter suggests that he was not familiar with it. Somewhat surprisingly, his attention appears to have been drawn to the museum by the French government representative who had been tasked with coordinating the Exhibition. Oyens reported how, on a visit to Haarlem, this Frenchman had been "struck by the large number of important items in the museum".[8] Indeed, if Oyens had really never heard of Teylers Museum before, he is sure to have been similarly impressed very soon. And he is sure not to have forgotten this privately owned museum for the entire remainder of his life, because the way subsequent events then unfolded, Oyens eventually built the entire Dutch display around the largest and simultaneously most magnificent item that he was provided with by Teylers Museum: the Cuthbertson electrostatic generator from 1784.

This was not just any electrostatic generator. At the time of its completion it had been the largest of its kind in the entire world, and, in part because electrostatic generators were soon rendered obsolete by the development of the Voltaic pile, the machine in Haarlem never had to cede its title either. Already in its heyday it had inevitably attracted a lot of attention. This, in turn, was greatly encouraged by the machine's initiator and first director of Teylers Museum, Martinus van Marum. He saw to it that word was spread of this huge device that had the potential to push the boundaries of science, and once he had completed and published the results of a series of experiments he conducted with the generator, he ensured copies of the publication circulated widely. At one point for instance he succeeded in personally presenting Benjamin Franklin with a copy. Through his efforts van Marum effectively built both his own and Teylers Museum's reputation around the electrostatic generator, thereby literally putting "his" new museum in Haarlem on the map.

Telegrafie to Ministry of Waterstaat, Handel en Nijverheid, 25.03.1881, The Hague, NL-HaNA, WHN / Handel en Nijverheid I, 2.16.60.04, inv.-nr. 287.

[7] "[Ik] verzoek [...] U beleefdelijk mij te willen mededeelen, of het mogelijk zou zijn voor deze eerste electrische tentoonstelling een gedeelte der belangrijke collectie electr. Instrumenten welke zich in het museum à costy bevinden te bekomen"; G. Oyens to F.W. van Eeden, 17.03.1881, Haarlem, NHA, Nederlandsche Maatschappij voor Nijverheid en Handel te Den Haag, vol. 609, nr. 765.

[8] "getroffen door het vele belangrijke hetwelk dit museum bezit"; Ibid.

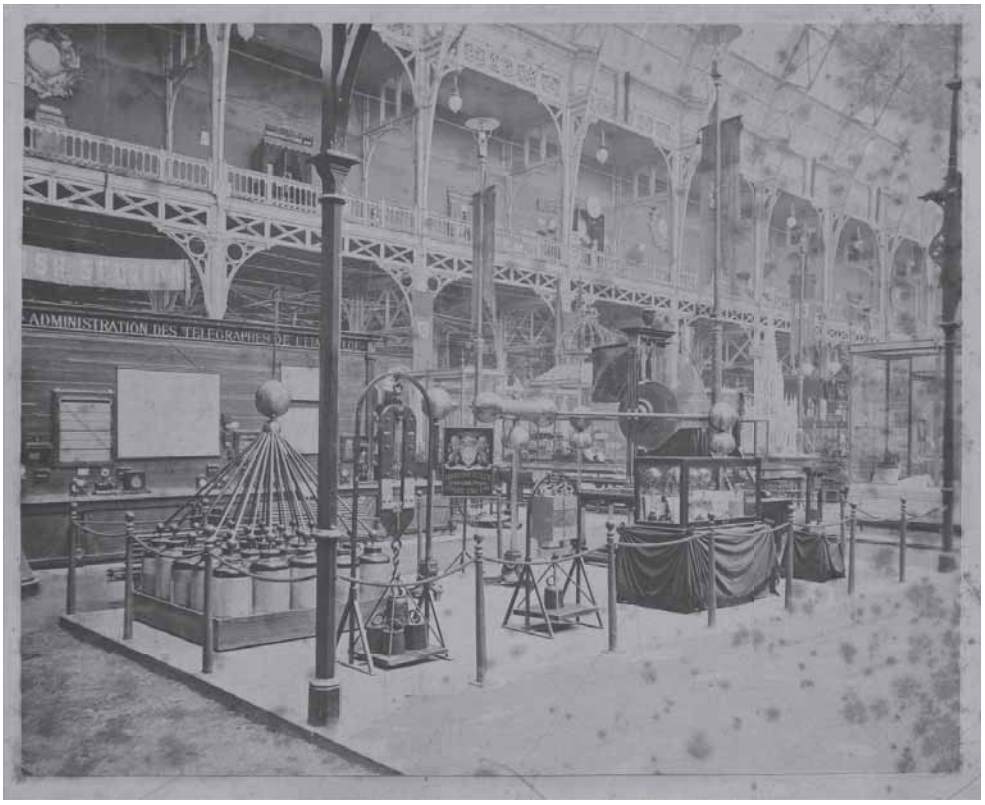

Fig.1. The electrostatic generator on display at the Paris Electrical Exhibition in 1881 (Teylers Museum, Haarlem)

Now, almost a century later, the electrostatic generator had evidently not been forgotten, and still did not fail to impress. The British might have had their collection of historic telegraph equipment, but it was the electrostatic generator in the Dutch section that made it into the introduction to the catalogue of the Electrical Exhibition. As part of a brief, introductory bird's-eye guided tour through the Palais de l'Industrie, the visitor was informed how, next to the German section, one could find "the exhibition of the Netherlands, in the midst of which has been placed the enormous electric machine of Van Marum, almost a monument, and in any case a historical curiosity".[9] A description of the machine then followed, and it was pointed out how "during its age, the electric machine of Van Marum was a marvel."[10] Oyens, clearly, had lived up to expectations and fulfilled his mission – thanks in no small part to the support he received from Teylers Museum.

[9] "l'exposition des Pays-Bas, au milieu de laquelle on avait placé l'immense machine électrique de Van Marum, presque un monument, et en tout cas une curiosité historique" ; Henri de Parville, *L'électricité et ses applications: Exposition de Paris.* (Paris: G. Masson, 1882), 7.
[10] "pour l'époque, la machine électrique de Van Marum était une merveille." Ibid., 7–8.

Very little detail is known about the actual process by which the electrostatic generator arrived in Paris, alongside a number of other, smaller instruments from the collection of Teylers Museum. Hardly any correspondence has been preserved that could throw some light on questions such as why those in charge of the museum agreed to participate in the Electrical Exhibition, by exactly how much it set them back financially, or how the huge logistical feat of transporting the fragile electrostatic generator the distance of more than 500 km from Haarlem to Paris – and then bringing it back in one piece – was achieved. Nevertheless, the fact remains that they did, and that by doing so they played a pivotal role in creating a display at the Electrical Exhibition that helped bolster the Netherlands' image abroad as a serious contender in matters of science and technology.

II. Time for Two

This entire episode, in turn, provides an indication of how deeply engrained Teylers Museum already was in the topograpy of Dutch culture by the end of the 19th century, and, even more importantly, touches upon the issues that lie at the heart of the book you have just started reading. More specifically, there are two issues, and the episode just described represents them in the following way:

Firstly, by end of the 19th century Teylers already had a history, longer than most other institutions that carry the title "museum". This is a book about that history, told from the vantage point of the museum's scientific instrument collection.

Secondly, what transpires clearly from this episode in history is how scientific instruments were increasingly appreciated for their historical value. The electrostatic generator is a case in point: originally built solely for the purpose of research, by the time of the Electrical Exhibition its primary value lay in its historical significance. In other words, instruments were being recognised as cultural artefacts, which was actually a new phenomenon. And where better, one might suppose, to preserve and display cultural artefacts than in a museum? However, the single biggest mistake one could make in assessing the history of Teylers Museum – or, for that matter, any other 19th century museum – is not to take into account the huge shift in meaning the word "museum" underwent over the course of that century. It was only by the end of the 19th century that museums had acquired a reputation primarily as places for the public display of collections – and even then, they were associated above all with the fine arts, not with science and technology. By and large, "science museums" are actually a 20th century phenomenon.

This makes Teylers Museum a particularly worthwhile case study, and not only because it was called a museum and housed a prominent collection of scientific instruments at a time when this was pretty much unique, but also for another reason, that hasn't even been mentioned yet, but is of crucial importance: from the very beginning on, Teylers Museum was

also home to a collection of fine art that was equally – if not even more – valuable than its scientific collections. In other words, Teylers Museum was an art museum as well, and as such it was subjected to the changing concept of what role "museums" were to fulfil to a far greater extent and in a different way than if it had only housed scientific collections. Consequently, a major theme of this book is provided by the twists and turns that resulted from this double – or hybrid – identity of Teylers Museum.

So, in a nutshell, the aim of this book is: one, to give an account of the history of Teylers Museum in the 19th century and to do so from the vantage point of the museum's instrument collection; and two, to illustrate how Teylers Museum was subject to and therefore reflects the changing ideas on what constituted the role and function of "museums" over the course of the 19th century. Before explaining in what ways this will provide a contribution to the existing body of literature on museums and instrument collections, these two points will now be addressed in more detail.

III. An Institutional History of Teylers Museum in the 19th Century

Teylers Museum's roots lie in the last will and testament of a wealthy Haarlem textile merchant and banker, Pieter Teyler van der Hulst, who died a childless widower in 1778. He had stipulated that his fortune was to be used to set up a foundation in his name – the Teyler Foundation – which in turn was to ensure that his bequeathal would serve to support the study of theology, the study of the arts and sciences, and charitable causes. To further the first two of these causes, two learned societies were to be set up. Shortly after Teyler's death, and even though he had not mentioned anything of the kind in his will, the decision was taken to set up a museum. A purpose-built two-storey high edifice, which came to be known as the "Oval Room", was subsequently erected behind Pieter Teyler's old town house in Haarlem. Upon its completion in 1784, the aforementioned Martinus van Marum was appointed the new institution's director and supplied with one of the first – and for many years also one of the most spectacular – items that were bought for the museum's collection, i.e. the Cuthbertson electrostatic generator.

Three points which proved to be particularly important for the museum's future development in a variety of manners are already discernible at this stage of its history: first of all, it is already explicitly referred to as "Teylers Museum", albeit that other terms were used on occasion as well. The name "Teylers Museum" stuck, however, and by the end of the 20th century it was therefore frequently being referred to as "the oldest museum of the Netherlands". Secondly, the museum housed both scientific collections and a collection of fine art. One of the main reasons was that Teyler had stipulated that both the "arts" and the "sciences" were to be supported through his bequeathal. These terms' connotations changed profoundly over the course of the 19th century, but both areas of collecting were developed in equal measure at Teylers Museum as the century progressed. Put shortly, Teylers Museum

was therefore never "just" an art museum or a museum with scientific collections. Thirdly, Teylers Museum was privately owned. To be precise, all its costs were covered by the Teyler Foundation. As the 19th century progressed and state funding became increasingly important in all matters pertaining to culture, Teylers Museum's private ownership became increasingly exceptional. The Foundation actually retained full responsibility for the museum almost until the close of the 20th century. By 1982, however, the changes in the financial markets of the previous decades had left the Foundation in a precarious situation, almost unable to pay for the upkeep of its museum. At this point the Dutch government stepped in, Teylers Museum was declared a monument of national importance, and an agreement reached by which Teylers Museum effectively became a national, publicly funded museum, albeit that the Foundation retained some influence on the way it was run.

Largely as a result of these changes in financial policy, by 1982 Teylers Museum had gone through a long period during which little had been changed on both its collection and its housing. This meant that essentially all of the original museum buildings – the Oval Room and all further annexes that were added over the course of the 19th century, the last of which was completed in 1892 – had been preserved in their original state – or at, at the very least, in their late-19th century or early-20th century state. Guidebooks that had been written before the turn of the century were still largely appropriate.[11] So, by this time, in contrast with many other museums Teylers Museum was not only of interest because of the collection it housed, but had also had acquired an additional role as a "museum of museums", reflecting earlier architectural conventions and presentation techniques, and providing a tangible juxtaposition of how they had changed over the 19th century. As has been previously said, "To enter Teyler's, especially the Oval Room, is to enter a "time-machine"."[12]

This, and the world-class quality of both its scientific collections and its art collection, began to generate much scholarly interest, starting roughly during the period in which it became a state museum.[13]

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[11] Such as, for instance, the guidebooks compiled by Tiberius Cornelis Winkler. See John de Vos and Joop van Veen, "Honderd jaar oud en nog steeds te gebruiken," *Teylers Magazijn* 37 (1992): 5–7.

[12] Gerard L'E. Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum* (Haarlem: Teylers Museum, 1996), 11. Over the years, various English spellings have been used to refer to the Museum: "Teyler's Museum", "Teylers Museum", or "the Teyler Museum". Note how Turner refers to it as "Teyler's Museum" in the quote, whereas it is referred to as "the Teyler Museum" in the title of the book from which the quote is taken. In Dutch, the consensus has emerged that the Museum should be referred to as "Teylers Museum", and not "het Teylers Museum" or "Teyler Museum". Therefore, and because it has been done before, the Museum will therefore be referred to by its Dutch name, i.e. "Teylers Museum", throughout this study.

[13] The following publications are either devoted to the Museum's history or contain sections which are: Trevor H. Levere, "Teyler's Museum," vol. 4, Martinus van Marum: Life & Work (Leyden: Noordhoff International Publishing, 1973), 39–102; Gerard L'E. Turner and Trevor H. Levere, "Van Marum's scientific instruments in Teyler's Museum," in *Martinus van Marum: Life and Work*, vol. 4 (Leyden: Noordhoff International Publishing, 1973); *"Teyler" 1778-1978: studies en bijdragen over Teylers Stichting naar aanleiding van het tweede eeuwfeest.* (Haarlem; Antwerpen: Schuyt, 1978); Gerard L'E. Turner, "Teyler's Museum, Haarlem, During the Nineteenth Century," in *Nineteenth-century Scientific Instruments and Their Makers*, ed. Peter R. de Clercq (Amsterdam: Rodopi, 1985), 227–240; W. W. Mijnhardt, *Tot heil van 't menschdom: culturele genootschappen in Nederland, 1750-1815* (Amsterdam: Rodopi, 1988); Peggy Bouman and Paul Broers, *Teylers "Boek- en Konstzael": de bouwgeschiedenis van het oudste museum van Nederland* ('s-Gravenhage: SDU, 1988); Michiel Plomp, *The Dutch Drawings in the Teyler Museum: Artists Born Between 1575 and 1630* (Haarlem; Ghent;

This new account of Teylers Museum's history was able to draw on all of these previous studies on various aspects on the institution's history. Far more than just a synthesis of these previous works, however, it differs from them in three specific ways. Firstly, it asks some more fundamental questions, as outlined above, and as is detailed in the following two sections. Secondly, it covers a far greater period in history than any of the previous studies, namely what could be described as the "long 19th century", from about 1780 until about 1930. Thirdly, it focuses specifically on the museum, addressing aspects of the history of the other institutions associated with the Teyler Foundation and the Teyler Foundation itself only in so far as this is relevant to gain a better understanding of the museum's history. This account is not, for instance, a history of the library of the Teyler Foundation, although this was always closely connected to Teylers Museum.

This account does not, however, purport to be comprehensive. Rather, the history of Teylers Museum is told from the vantage point of its scientific instrument collection. More specifically, it focuses on three curators that were in charge of this collection at different times during the 19th century. The first of these is Martinus van Marum, the second Volkert Simon Maarten van der Willigen, and the third Hendrik Antoon Lorentz.

Focusing on these three curators allows for a better illustration of certain fundamental changes that occurred over the course of the 19th century. More to the point, this choice allows one to highlight and contrast how these three individuals – all of them acknowledged members of their generation's scholarly elite – thought about the production and the consumption of knowledge, and how this in turn affected their work at Teylers Museum. Put differently, it allows for a juxtaposition of their concept of the value of knowledge: how should it be gained? How could knowledge claims be assessed? How were these to be communicated and to whom? Was there – or should there be – any practical use derived from the accumulation of

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Doornspijk: Teylers Museum, 1997); Carel van Tuyll van Serooskerken, *The Italian Drawings of the Fifteenth and Sixteenth Centuries in the Teyler Museum* (Haarlem; Ghent; Doornspijk: Teylers Museum, 2000); Leslie A. Schwartz, *The Dutch Drawings in the Teyler Museum: Artists Born Between 1740 and 1800* (Haarlem; Ghent; Doornspijk: Teylers Museum, 2004); Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum*; Freek Schmidt, *Paleizen Voor Prinsen En Burgers: Architectuur in Nederland in de Achttiende Eeuw* (Zwolle: Waanders, 2006); Marjan Scharloo, ed., *Teylers Museum 1784-2009: een reis door de tijd* (Haarlem: Teylers Museum, 2009); Geert-Jan Janse, *Heel de wereld in één zaal: de Ovale Zaal van Teylers Museum* (Amsterdam: Nieuw Amsterdam, 2011). In addition to this literature, a number of studies concerning individuals associated with Teylers Museum is available: E. Lefebvre, J.G. de Bruijn, and R.J. Forbes, eds., 6 vols., Martinus van Marum: Life & Work (Leyden: Noordhoff International Publishing (formerly Tjeenk Willink & Zoon, Haarlem), 1976); A. S. H. Breure and J. G. de Bruijn, *Leven en werken van J.G.S. van Breda (1788-1867)* (Haarlem: H.D. Tjeenk Willink, 1979); O.H. Dijkstra, "Willem Martinus Logeman," *Jaarboek 1974 Haerlem* (1974): 138–159; Marijn van Hoorn, "Elisa van Der Ven and the Physical Laboratory of the Teyler Foundation (Haarlem), 1878-1909," *Making Instruments Count: Essays on Historical Scientific Instruments Presented to Gerard L'Estrange Turner* (1993): 278–290; Marijn van Hoorn, "The Physics Laboratory of the Teyler Foundation (Haarlem) Under Professor H.A. Lorentz, 1909-1928," *Bulletin SIS* no. 59 (1998): 14–21; Marian Stegeman, "T.C. Winkler En de Popularisering van de Natuurstudie: Een Onderzoek Naar de Verschillen En Overeenkomsten Met Het Werk van Heimans En Thijsse" (master thesis, Rijksuniversiteit Groningen, 2004); Bert Sliggers, ed., *De idealen van Pieter Teyler: een erfenis uit de Verlichting* (Haarlem: Teylers Museum, 2006); Geertje Janssen, "Elisa van der Ven en het Teylers Museum" (master thesis, Leiden University, 2007); Catherine de Jong, "Gerrit Jan Michaëlis: Beperkingen En Vrijheden van Een Kastelein in Het Teylers Museum" (bachelor thesis, Utrecht University, 2011). Finally, ever since its first edition was published in 1983, *Teylers Magazijn* has regularly included short articles on various aspects of the Museum and its collections' history.

knowledge, or was this an end in itself? (One might rephrase this by asking what their "philosophy of science" was, but some caution is called for when using the term "science" in regard to anything concerning the 19th century, because the word's connotations changed profoundly during this period in history.)

Ultimately the most interesting and relevant question is of course in what regards these three curators' mindset had an impact on their work at Teylers Museum, and therefore by extension on Teylers Museum itself. It may seem that their ideas on the value of knowledge are far less relevant in this respect than a host of other contingent factors such as more general scientific developments, their own personal research interests, or a host of external factors such as the facilities and budget at their disposal. However, while all this is also important, their ideas on the value of knowledge were highly relevant on a far more fundamental level. More precisely, what is crucial is their definition of, and attitude towards, "the public". Above all, this is reflected in their ideas on the communication of knowledge. Did they make a distinction between "amateurs" and "professionals" for instance? But it is also reflected in their attitude towards the use value of knowledge. Was, for example, the abstract analysis of natural phenomena ultimately worthwhile because it could lead to technological applications that would in turn benefit "the public"? Finally, the reason the curators' ideas on "the public" are so important in assessing the history of Teylers Museum – and in fact provide the key to a better understanding of Teylers Museum's 19th century development – is because on a more general level "museums" became "public" institutions as the 19th century progressed. Phrased in another manner, the changing definition and overall role of "the public" in Western society had a huge, and in many instances also reciprocal, impact on the definition of the overall role of museums in that society.

This brings us to the second main issue of this study: the changing connotations of the word "museum" over the course of the 19th century.

IV. The Complexity of the Term "Museum"

In the simplest of terms, one could posit that by the end of the 19th century museums had become primarily associated with the public presentation of material collections – where "public" is taken to mean "accessible to all", regardless of their personal background. It is important to stress that one is talking of "material collections" too, i.e. collections of objects or collectible items. The point is that one can collect and present a lot more. One such example is provided by books, which in turn can be seen as representatives of knowledge in general. By the end of the 19th century, however, libraries, i.e. publicly accessible collections of books, were distinct from museums.

This definition of museums' primary purpose as the public presentation of material collections contrasts strongly with earlier definitions of the same term. As the 18th century

drew to a close, museums were still largely associated with the humanist spirit of the late Renaissance, and carried far broader connotations. Museums were seen as sites for the accumulation of knowledge, and as such were seen as akin to academies. They were places where scholars could meet and were provided with all the resources needed to pursue their scholarly activities.

This simple summary of course amounts to little more than a caricature of 19th century developments, which merely helps to set the scene. Far more than following a straightforward, linear path through history, the changing connotations of the term "museum" and the proliferation of public museums throughout the Western hemisphere, were the result of highly complex historical processes occurring over the course of the 19th century. What's more, these processes differed according to local circumstances.

All in all these processes were in fact so complex that their analysis has brought forth a host of scholarly literature on various aspects of the history of museums and collections over the past decades.[14] The history of collections has become a research area in its own right, with entire groups of historians and journals devoted to it.[15] This area of study is in turn closely connected to the equally new field of museum studies, although the object of museum studies is more to analyse and improve the present day role and impact of museums, with less of a focus on these institutions' history.

A certain appreciation of the subtleties of these complex historical processes is pivotal in gaining an understanding of the history of Teylers Museum. The easiest way to gain such an appreciation is by drawing attention to some of the main themes that run through the body of literature devoted to the history of collections and museums. Two issues in particular constantly recur and have led to numerous debates amongst scholars working on the history of collections.

The first of these is the question in how far a definition of what constitutes a "museum" is at all possible. The general consensus has become that "museums" form anything but a clearly definable set of institutions, either today or in history. The general opinion is far more that museums have emerged as a particular type of collecting and displaying collections, typical of a particular period in history (i.e. modernity), which was brought forth by a variety of developments within the political and cultural domain, and is closely tied to modern definitions of what was deemed "cultural".[16] What does distinguish this specific group of collections from others, though, is that it is perceived as some sort of absolute, or universal, form of displaying collections, despite the blurriness of its definition. In analogy with Andrew Cunningham's and Perry Willams' claim that the definition of "science" as a universally

[14] For a comprehensive recent overview see Randolph Starn, "A Historian's Brief Guide to New Museum Studies," *The American Historical Review* 110, no. 1 (2005): 68–98.
[15] The earliest example is *Journal of the History of Collections*, first published in 1982.
[16] One of the first to argue this point was Kenneth Hudson: Kenneth Hudson, *A Social History of Museums: What the Visitors Thought* (London: Macmillan, 1975).

applicable research method leading to incontrovertible knowledge claims is essentially an early-19th century invention, one could also speak of the "invention of the museum".[17]

The second, closely related, issue is that of the general status – and in particular the epistemic value – material objects were and are assigned. In the simplest of terms, this can be boiled down to the question of whether objects speak for themselves, or whether the context within which an object is seen is perhaps even more important than the object itself in determining the way it is perceived, i.e. how it is imbued with meaning and value.

Because any collection – and a 19th century museum in particular – is always about material objects, the stance one takes on this issue has a direct impact on one's assessment of any collection, past or present. More specifically, it determines whether one sees exhibitions – i.e. the orderly presentation of objects – primarily as an assortment of objects, or whether one sees the objects as mere props within the larger context of the exhibition, thereby attaching more significance to the exhibition and its overall aims. This in turn has an effect on one's assessment of the impact these exhibitions had on those who visited them. The first approach could lead one to determine this impact by summing up all the – quite literally – "objective" evaluations of the items on display, whereas the second approach should lead one to attach far greater importance to the way the overall impressions conveyed through an exhibition were assimilated into a visitor's personal, i.e. subjective, framework of experiences.

This latter approach has come to be associated with what is referred to as the "narrative interpretation" of past exhibitions. What this entails is treating exhibitions and museums as akin to a literary genre, meaning that their impact on visitors can be assessed in much the same way as one might assess the impact of their reading a book.[18] Put differently, exhibitions are essentially interpreted as "readable" stories, providing an overarching narrative that is not necessarily made explicit, but supported through a variety of factors such as the objects on display, the manner and sequence in which these objects are presented, explanatory texts accompanying the items on display, or the architecture of the building in which the exhibition is held. Museum buildings themselves often provide the most tangible clue as to the visual appearance of past exhibitions, and in line with the narrative interpretation a number of studies have recently taken museums' architecture as a vantage point from which to analyse their 19th century purpose.[19]

This idea of exhibitions as "texts" can easily be taken one step further. More to the point, once one sees exhibitions as narrative structures, this is not a far cry from establishing how they,

[17] Andrew Cunningham and Peggy Williams, "De-centring the 'Big Picture': The Origins of Modern Science and the Modern Origins of Science," in *The Scientific Revolution: The Essential Readings*, ed. Marcus Hellyer (Malden: Blackwell, 2003).
[18] This methodological approach can often be traced back to Carol Duncan, whose decade-long studies were eventually summarised in: Carol Duncan, *Civilizing Rituals: Inside Public Art Museums* (London; New York: Routledge, 1995).
[19] A prominent example is: Carla Yanni, *Nature's Museums: Victorian Science and the Architecture of Display* (New York: Princeton Architectural Press, 2005). For an overview and analysis of the literature on museum architecture with a particular emphasis on museums with scientific collections see Sophie Forgan, "Building the Museum: Knowledge, Conflict, and the Power of Place," *Isis* 96, no. 4 (2005): 572–585.

much like any other literary genre, could be actively employed to drive home a certain message.

This way of seeing exhibitions is associated most prominently with two authors, Eilean Hooper-Greenhill and Tony Bennett.[20] In their work, both of them rely heavily on Foucauldian ideas of the state, its wielding of power and its influence on the individual. Bennett in particular portrayed museums as carrying huge political charge. He defined them as a subset within the larger category of exhibitions. As Bennett phrased it, all types of exhibition together form the "exhibitionary complex", within which museums gradually began to set themselves off from what were perceived as more "vulgar" examples of exhibitions such as public fairs as the 19th century progressed.[21] More to the point, Bennett drew on a large amount of archival material from the Anglo-Saxon regions to underscore how museums began to be defined as places of "high culture", and – crucially – began to serve as public sites where citizens could be inculcated with the behavioural patterns and a concept of sophistication as it was expected from the good (read: bourgeois) citizen of the 19th century. In other words, Bennett's argument ran that 19th century public museums became instruments of cultural engineering.

Although also highly controversial, this approach has proven to be fruitful in many studies and debates.[22] However, its adoption should come with two major caveats. These, incidentally, are not intended as, and should not be equated with, direct criticism of the work of the authors mentioned above, but should be taken as a general caution worth keeping in mind when adapting their premises and arguments to other case studies.

Firstly, describing exhibitions in terms of "power" and "manipulation" threatens to drown out the constitutive role of the public. The public's demands, and each and every visitor's personal background, have a huge impact both on the design of every exhibition as well as its actual effect on visitors. There is no guarantee that the message that the designers of an exhibition intended to bring across to their audience is actually what visitors take home from their experience. Tony Bennett's work itself is a good example of how selective an audience's perception can be – in the introduction to his book "The Birth of the Museum" he himself pointed out:

"My concern in this book is largely with museums, fairs and exhibitions as envisaged in the plans and projections of their advocates, designers, directors and managers. The degree to which such plans and projections were and are successful in organizing and framing the experience of the visitor, or, to the contrary, the degree to which such planned effects are

[20] Eilean Hooper-Greenhill, *Museums and the Shaping of Knowledge* (London; New York: Routledge, 1992); Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London; New York: Routledge, 1995).
[21] Bennett, *The Birth of the Museum: History, Theory, Politics*, 59–87. "Vulgar" is taken here in the French sense of the word, i.e. closer to "popular" than "revolting". Cf. Jonathan R. Topham, "Rethinking the History of Science Popularization / Popular Science," in *Popularizing Science and Technology in the European Periphery, 1800-2000*, ed. Faidra Papanelopoulou, Agustí Nieto-Galan, and Enrique Perdiguero (Farnham; Burlington: Ashgate, 2009), 10.
[22] For a recent discussion of Bennett and the applicability of his theory to the Dutch situation see: Lieske Tibbe and Martin Weiss, eds., *Druk bekeken: collecties en hun publiek in de 19e eeuw*, vol. 3, De Negentiende Eeuw 34 (Hilversum: Verloren, 2010).

evaded, side-stepped or simply not noticed raises different questions which, important though they are, I have not addressed here."[23]

Yet this was largely drowned out by the impact his subsequent claims about those "advocates, designers, directors and managers" had.

In every study of the history of collections and museums it is nigh-on impossible, however, to pay full justice to the public's constitutive role. The main reason is the availability of source material – or rather the lack thereof. It is far easier to collect evidence to throw some light on the intentions of those designing exhibitions or assembling a collection than it is to find any indication as to what impression the display of a collection made on its audience, certainly the further back one goes in the 19th century. In most cases it is even difficult to obtain as much as an estimate of how many visitors attended an exhibition. And not only are sources scarce, but until recently they have also been extremely difficult to locate. It is only with the advent of the digitisation of source material such as public newspapers that a full-scale systematic analysis of such archival material has become conceivable.

As a result of this first difficulty, the danger of projecting contemporary ideas concerning the role and function of exhibitions and museums back in history again crops up – this is actually the second major caveat. It may seem superfluous to mention this yet again given that one of the ideas underlying the "narrative interpretation" of exhibitions is to deconstruct – in Jacques Derrida's sense of the word – the museum, but it remains one of the major pitfalls of any history of any collection. More specifically, it can be not only tempting to assume that there is some sort of natural predisposition to create large-scale, institutionalised, and entertaining exhibitions, but it can also be very difficult not to succumb to this temptation, even if only subconsciously, for the simple reason that the more recent situation is the most familiar, and because the further an exhibition lies in the past, the less concrete evidence about it is usually available, and the more one has to start speculating in one's own terms. There is, in other words, an acute danger of becoming "Whiggish", which is not eliminated by analysing museums in Foucauldian terms.

What's more, the danger of analysing past exhibitions in contemporary terms is particularly acute whenever one is dealing with a collection that straddles the pre-modern and the modern periods in history. Most of the studies mentioned above focus on the modern period. Again, this is not intended as criticism, and it does also not mean that many of the ideas propounded by the authors mentioned above don't bear relevance to the study of collections from the pre-modern period (- one could in fact argue that the distinction between these two periods has become so pronounced and seemingly ever-prevalent amongst historians that it has ceased to be a helpful and become stifling in the sense that far too little attention is being paid to the continuities between these two eras); but at the same time one does have to be aware of the fact that even though these authors' methodology and premises are applicable in other phases of history, many of the conclusions derived from them need not be.

[23] Bennett, *The Birth of the Museum: History, Theory, Politics*, 11.

One particularly important point concerns the definition and role of "the public" in the early modern and the modern period. In a nutshell, there was no "bourgeoisie" in the early modern period. Given the role Bennett for instance assigns museums as sites that helped define this bourgeoisie and delineate it from other social groups, one can see how museums in the Bennettian sense could not exist before the 19th century, even if it is perfectly possible that exhibitions have always carried political messages throughout history already.

This is all particularly relevant to any study of the history of Teylers Museum because it was conceived towards the very end of the pre-modern period, which, as a rule of thumb, is taken to end with the French Revolution of 1789. The fact that Teylers Museum was not created as a purely modern institution goes a long way towards explaining some of the characteristics that seemed to constitute increasingly puzzling facets of this "museum", such as the fact that it housed both scientific collections and a collection of fine art, or the design of its building. Notwithstanding its lavish and costly decoration, the Oval Room was not conceived primarily for the display of a collection, but far more as a site where collections could be stored and – above all else – studied. Yet later additions to the building clearly reflect the changing concept as to what function "museums" were to fulfil. The best example at Teylers is provided by the wing that was added between 1878 and 1885, i.e. precisely at the time the electrostatic generator was sent to Paris. This new annex for instance provided the museum with a new entrance that was far more prominent than its previous one, in a clear sign that the "general public" was now being embraced. By this time, the museum had also acquired a reputation as an art museum, and was less known for its scientific collections. By and large, the scientific research funded by the Foundation was now conducted in an adjacent laboratory.

One of the most interesting questions with regard to the history of Teylers Museum is therefore how much of an impact its 18th century, early-modern roots had on the institution's 19th century development, its role within society, and its perception by outsiders. This, in turn, is particularly relevant in trying to understand the role of the museum's scientific instrument collection. As was already mentioned above, by and large the first "museums" in the sense of the "invented museums" of the 19th century were art museums. To rephrase this, those institutions called "museums" that came to determine the connotations the term "museum" carried by the end of the 19th century were – generally speaking – art museums.[24]

Expressed metaphorically, the scientific instrument collection at Teylers Museum therefore effectively found itself in a kind of force field, which was in turn determined largely by two fluctuating gravitational poles: on the one hand, it formed part of a public museum that – in its architectural form at least – began to resemble the stereotypical "Bennettian" museum aiming to attract bourgeois visitors; on the other hand, it clearly betrayed the 18th century roots of this museum, in that it was primarily intended for research – the Paris Electrical Exhibition is one of the first examples of an instrument from the museum's collection being presented to a large audience on the basis of its historical value.

[24] On the history and evolution of public art museums see: Kristina Kratz-Kessemeier, Andrea Meyer, and Bénédicte Savoy, eds., *Museumsgeschichte: Kommentierte Quellentexte 1750-1950* (Berlin: Reimer, 2010).

It is precisely in order to be able to locate and describe the instrument collection's historical trajectory through this imaginary force field – although one must not forget that the force field itself changed shape over the years as the Bennettian form of "museum" became ever more dominant for instance – that its curators' stance on the value of knowledge and, by extension, "the public" is of crucial importance.

A large number of recent publications have been devoted to the larger issue of the relation between "science" and the "public" in history.[25] After it has now been repeatedly pointed out how both these terms acquired new connotations as the 19th century progressed, it will not come as much of a surprise that one of the most fundamental questions many of these publications address is how to deal with this.[26] To some extent, Cunningham's and Williams' concept of the "invention of science" can help come to terms with the basic gist of what was happening, and help see how this is relevant to the history of museums, and the history of Teylers Museum's instrument collection in particular.

Recall that, according to Williams and Cunningham, science was increasingly equated with a timeless, absolute methodology that would lead to universal knowledge claims, or "the truth". Certainly this was the case in those areas of study that came to be subsumed under the heading of "physics".[27] (Not entirely coincidentally, this new definition of "science" roughly coincided with the gradual equation of "art" with the "fine arts", another development that had a bearing on the development of "art museums" and therefore also Teylers Museum.[28]) In the most general of terms, one can say that – crucially – this "invention of science" brought about an increasingly pronounced distinction between amateur and specialist practitioners of the experimental sciences. This in turn was reflected in the emergence of a new genre within literature, that of popular science. Books that fell into this genre provided watered down versions of what was discussed amongst specialists, in the more exclusive specialist literature. This was essentially a new phenomenon, and certainly unprecedented on such a large scale.[29] This is not to say that natural phenomena, i.e. what would later become "scientific" phenomena, had already proved to be highly entertaining and could draw huge crowds of clueless but completely intrigued spectators – the public lecturers of the 18th century so

[25] For a recent overview of debates see Topham, "Rethinking the History of Science Popularization / Popular Science." These studies should not be confused with the Public Understanding of Science, which is all about how to improve current outreach work.

[26] One of the most frequently cited works in this regard is: James A. Secord, "Halifax Keynote Address: Knowledge in Transit," *Isis* 95 (2004): 654–672. Secord sees all science as a communicative process, with knowledge "circulating". One critical question is in how far this approach focuses too much on "contested knowledge", and can provide the basis for a world view in which there is no "uncontested knowledge" at all (such as, for example, that objects don't fall "up").

[27] On the changing definition and status of "physics" in the 19th century see for instance: Iwan Rhys Morus, *When Physics Became King* (Chicago; London: Univ. of Chicago Press, 2005).

[28] On this see for instance: Paul Oskar Kristeller, "The Modern System of the Arts: A Study in the History of Aesthetics Part I," *Journal of the History of Ideas* 12, no. 4 (1951): 496–527; Paul Oskar Kristeller, "The Modern System of the Arts: A Study in the History of Aesthetics Part 2," *Journal of the History of Ideas* 13, no. 1 (1952): 17–46.

[29] Frans van Lunteren, "'God is groot en wij begrijpen Hem niet': Kaisers populaire sterrenkunde en het einde van de fysiko-theologie," *Studium: tijdschrift voor wetenschaps- en universiteitsgeschiedenis* 4, no. 2 (2011): 85–104. A random example of popular science from before the 19th century is the frequently reprinted book *Newtonianism for Ladies and Other Uneducated Souls* by Francesco Algarotti. The emergence of an entire new genre of "popular science" in the 19th century also has a lot to do with printing becoming easier and cheaper.

typical of the Netherlands are a prime example;[30] but the clarity of this distinction between amateurs and specialists, and the fact that it was purportedly drawn up purely on meritocratic grounds was new.

What is important with regard to Teylers Museum's instrument collection is that, simultaneously, museums were taking on their role as pedagogical instruments of cultural policy, designed to draw large crowds. Although one has to be careful not to succumb to a teleological analysis of history, one can say that, as the 19th century progressed and practitioners of the experimental sciences increasingly defined themselves as members of an elite group of specialists, i.e. "scientists" (consensus has it that the term was first introduced by William Whewell in the 1830s), and as they increasingly tried to bolster their social status by driving home the point that "science" was academic, i.e. disinterested and scholarly in nature, thereby trying to cash in on the prestige reserved for members of academia, it was sort of only a matter of time before they discovered "museums" as one of the means to achieve these ends. More specifically, the display strategies and the behavioural conventions that had been developed for art museums and had helped turn these into the Bennettian epitomes of higher (again, read: bourgeois) culture were discovered to be applicable to objects from the world of science and engineering too. It is this above all that distinguishes the wave of newly founded science museums (such as, for instance, the Deutsches Museum in Munich) from all earlier forms of exhibitions containing scientific instruments (or rather "philosophical" instruments, as they were referred to at the Great Exhibition in London in 1851).

Having now pointed out and summarized some of the general issues that need to be taken into account when studying the history of any museum, particularly those housing scientific collections, the ultimate question is of course how these challenges are met in the following study of the history of Teylers Museum.

As far as the issue of the changing definition of "museums" is concerned, the approach is to see Teylers Museum primarily not as a museum, but as a collection; more precisely, a collection that changes its guise, gradually becoming a "museum" in the 19th century sense of the word. The extent to which the instrument collection in particular was affected by this changing guise is one of the fundamental questions addressed through this study.

V. To Whom It May Concern

Having now introduced the object of this study, i.e. Teylers Museum, having drawn attention to the multi-layered complexity of the term "museum", and having explained what this study aims to achieve, it is furthermore important to explain whom this study is intended to benefit.

[30] See for instance: Lissa Roberts, "Science Becomes Electric: Dutch Interaction with the Electrical Machine During the Eighteenth Century," *Isis* 90, no. 4 (1999): 680–714.

Incidentally, in what ways it differs from previous publications on Teylers Museum has already been outlined above.

First of all, the idea is that this book will provide anyone who has come across Teylers Museum and is interested in its history with a better understanding of just that – no matter from which angle they want to approach it or what amount of background knowledge they already have. In other words, this is a book aimed at experts in search of more detail and background information on Teylers Museum, as well as anyone merely in search of a good read. Although, inevitably and perhaps also because it was devised as a scholarly work, those already familiar with some of the literature and sources this study is based on – or even just the historical context in which the Museum developed – will probably find this book easier to read than others. Nevertheless, great care was taken to keep this account of Teylers Museum's history as self-explanatory as possible.

Secondly, this book hopes to be of particular value to all those who are interested in the changing status of scientific instrument collections over the course of the 19th century. It remains striking just how few cabinets of physics – which were almost ubiquitous in the 18th century – were preserved in their entirety until the beginning of the 20th century, although instruments from these cabinets then frequently resurfaced in science museums and museums of the history of science. Perhaps the demise of the cabinet of physics is the main reason why relatively little has been published on the overall status of 19th century instrument collections.[31] The amount of publications (although not their quality) certainly pales in comparison with the body of literature on the history of 19th century art collections, collections of antiquities and even natural history collections that has become available over the course of the past decades. By providing a detailed analysis of one of the few instrument collections that did survive the 19th century intact and by identifying the reasons why this was the case, this study hopes to be of further use to those poring over other instrument collections.

Thirdly and finally, this study hopes to contribute to the growing body of literature on the history of Dutch collections and museums in the 19th century.[32] Any account of the history of

[31] For publications that address not only the history of particular instrument collections or particular science museums and their precursors, but also the question of the overall status of scientific instrument collections in the 19th century, see for example: Friedrich Klemm, *Geschichte der naturwissenschaftlichen und technischen Museen*, vol. 2, Deutsches Museum: Abhandlungen und Berichte 41 (München: Oldenbourg Verlag, 1973); P. R. de Clercq, ed., *Nineteenth-century Scientific Instruments and Their Makers* (Amsterdam: Rodopi, 1985); Anthony J. Turner, "From Mathematical Practice to the History of Science: The Pattern of Collecting Scientific Instruments," *Journal of the History of Collections* (1995); Anthony J. Turner, "Paris, Amsterdam, London: The Collecting, Trade and Display of Early Scientific Instruments, 1830-1930," in *Scientific Instruments: Originals and Imitations*, ed. Peter R. de Clercq (Leiden: Museum Boerhaave, 2000), 23–47; Jim Bennett, "European Science Museums and the Museum Boerhaave," in *75 Jaar Museum Boerhaave* (Leiden: Museum Boerhaave, 2006), 73–78; Robert G.W. Anderson, "Thoughts on Science Museums and Their Collections," in *75 Jaar Museum Boerhaave* (Leiden: Museum Boerhaave, 2006), 79–87.

[32] The list of available literature on the history of Dutch museums is already extensive if one only focuses on scholarly monographs on institutional collections in the Netherlands, i.e. if one excludes scholarly articles published in journals, publications on collections acquired by individuals, monographs published by museums themselves, and publications on Belgian collections and museums: Johan A. Bierens de Haan, *De geschiedenis van een verdwenen Haarlemsch Museum van Natuurlijke Historie: het Kabinet van Naturalien van de Hollandsche Maatschappij der Wetenschappen, 1759-1866* (Haarlem: E.F. Bohn, 1941); Theodor H. Lunsingh

Dutch museums should not exclude Teylers Museum. The most straightforward reason is that Teylers Museum was the first building in the Netherlands that was not only purpose-built to house a collection, but also referred to as a museum from the very beginning onwards. What's more, it always enjoyed a certain prominence, already because of the Teyler Foundation's financial muscle. But it is also of great interest and can, in particular, complement the existing literature on Dutch institutional collections because Teylers Museum was privately owned throughout the period of history that is covered by this study. The lion's share of literature on institutional collections – and this does not just ring true for the Netherlands but also for international publications – concerns institutions in which the state or some form of officially sanctioned and publicly funded body was intricately involved. To some extent the ratio of literature on government-supported collections to literature on privately owned collections reflects the actual ratio of these collections. Indeed, as the 19th century progressed, Teylers Museum's status as a privately owned museum became increasingly exceptional. But that idiosyncratic status just makes it all the more interesting, and a better understanding of the way those in charge of the Museum defined its public role and the reasons why it continued to thrive in the face of its idiosyncratic status, can contribute to an increasingly nuanced picture of the overall status of collections in the 19th century, particularly in the Netherlands.

VI. Structure of the Book

This book consists of the introductory section you are currently reading, and four main chapters, followed by a conclusion.

Scheurleer et al., *150 jaar Koninklijk kabinet van schilderijen, Koninklijke Bibliotheek, Koninklijk Penningkabiet* (The Hague: Staatsuitgeverij, 1967); Frederik J. Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed* (The Hague: Staatsuitgeverij, 1975); Ellinoor Bergvelt, *Pantheon der Gouden Eeuw: van Nationale Konst-Gallerij tot Rijksmuseum van Schilderijen (1798-1896)* (Zwolle: Waanders, 1998); Bert Sliggers and Marijke H. Besselink, eds., *Het verdwenen museum: natuurhistorische verzamelingen 1750-1850* (Haarlem: Teylers Museum, 2002); Ruurd B. Halbertsma, *Scholars, Travellers, and Trade: The Pioneer Years of the National Museum of Antiquities in Leiden, 1818-1840* (London; New York: Routledge, 2003); Ellinoor Bergvelt and Lieske Tibbe, eds., *Het Museale Vaderland*, vol. 4, De Negentiende Eeuw 27 (Rotterdam: Werkgroep 19de eeuw, 2003); Julia Noordegraaf, *Strategies of Display: Museum Presentation in Nineteenth- and Twentieth-century Visual Culture* (Rotterdam: NAi Publishers, 2004); Ellinoor Bergvelt, Debora J. Meijers, and Mieke Rijnders, eds., *Kabinetten, galerijen en musea: het verzamelen en presenteren van naturalia en kunst van 1500 tot heden* (Zwolle: Waanders, 2005); Donna C. Mehos, *Science and Culture for Members Only: The Amsterdam Zoo Artis in the Nineteenth Century* (Amsterdam University Press, 2006); Rudolf Effert, *Royal Cabinets and Auxiliary Branches: Origins of the National Museum of Ethnology, 1816-1883* (Leiden: CNWS Publications, 2008); Tibbe and Weiss, *Druk bekeken: collecties en hun publiek in de 19e eeuw*; Ellinoor Bergvelt et al., eds., *Napoleon's Legacy: The Rise of National Museums in Europe, 1794-1830*, Berliner Schriftenreihe Zur Museumsforschung 27 (Berlin: G+H Verlag, 2009); Ellinoor Bergvelt et al., eds., *Specialization and Consolidation of the National Museum after 1830. The Neue Museum in Berlin in an International Context*, Berliner Schriftenreihe Zur Museumsforschung 29 (Berlin: G+H Verlag, 2011); Mirjam Hoijtink, *Exhibiting the Past: Caspar Reuvens and the Museums of Antiquities in Europe, 1800-1840* (Turnhout: Brepols, 2012); Hieke Huistra, "Preparations on the Move: The Leiden Anatomical Collections in the Nineteenth Century" (PhD-thesis, Leiden University, 2013).

The first chapter focuses on the period between Pieter Teyler's death in 1878 and the completion of the Oval Room in 1784. A tableau is drawn of the context within which the idea for Teylers Museum was born and within which it was constructed. Special attention is paid to the role Martinus van Marum played in these developments.

The following three chapters each revolve around a curator of the scientific instrument collection. The focus of chapter three lies with van Marum's views on the production and consumption of knowledge and in how far these are reflected in his work at Teylers Museum between 1784 and 1837.

Chapter four revolves around Volkert Simon Maarten van der Willigen. It contains an analysis of van der Willigen's ideas concerning the public role he and – by extension – the collections under his purview were to fulfil. The question in how far these ideas were compatible with the general changes institutional collections were undergoing around the middle of the 19th century is asked.

Chapter five revolves around Hendrik Antoon Lorentz. After an account of developments at Teylers Museum in the three decades following van der Willigen's death in 1878 and preceding Lorentz' arrival in 1909, the reasons why Lorentz took on the job of curator are scrutinised, as is his work in Haarlem until he passed away in 1928.

These four chapters are followed by a summary of the general conclusions that can be drawn from this study.