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The Masses and the Muses

A History of Teylers Museum
in the Nineteenth Century

Front cover: The Oval Room, drawing by Johan Conrad Greive, 1862 (Teylers Museum, Haarlem, DD042b)

Back cover: The First Art Gallery, drawing by Johan Conrad Greive, 1862 (Teylers Museum, Haarlem, DD042d)

The Masses and the Muses

A History of Teylers Museum in the Nineteenth Century

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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’électricité : 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.

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 elektrische 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 beleefdelyk 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.

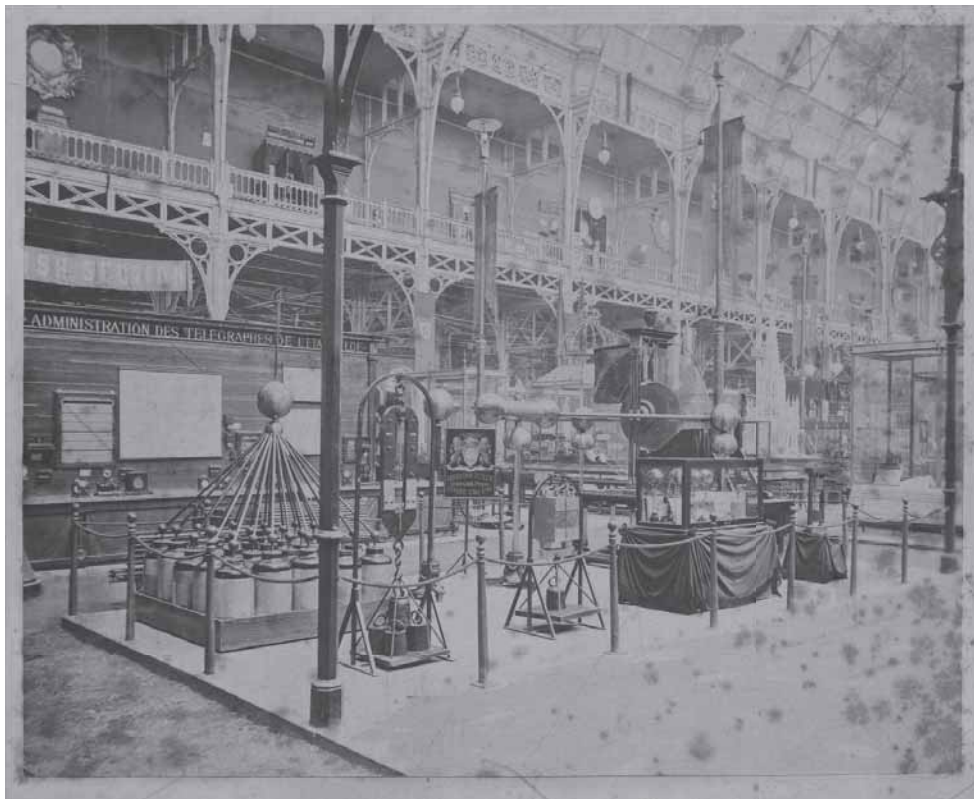


*Fig.1. The electrostatic generator on display at the Paris Electrical Exhibition in 1881
(Teylers Museum, Haarlem)*

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 topography 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

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 mensdom: 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

Doornspijk: Teylers Museum, 1997); Carel van Tuyl 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 Thijssse" (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 Penningkabinet* (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.

Chapter II: The Birth of a Musaeum

I The Museum's Pre-History

1. Martinus van Marum & the Beginning of the Age of Museums

In a letter to the Dutch minister of the interior Anton Reinhard Falck posted in July 1819, the ornithologist and collector Coenraad Jacob Temminck left no doubt as to what he thought two of his colleagues really wanted to do to him, if the opportunity ever presented itself: “Both”, he wrote, “would stop at nothing to clear me out of the way”.¹ He was referring to Sebald Justinus Brugmans, professor of botany and director of the botanical gardens in Leiden, and Martinus van Marum, the director of Teylers Museum and secretary of the Holland Society of Sciences in Haarlem.

This was more than just a letter of complaint. Temminck himself was no angel, and at the time was in fact pursuing his own political agenda. He had dined with Falck just a few days earlier, and the two men had discussed the establishment of a national museum of natural history in the Netherlands – of which Temminck was to be handed the directorship. Just 13 months later, Temminck's highly valuable and widely recognised personal ornithological collection, consisting of more than 4000 stuffed birds, had indeed been merged with both the University of Leiden's natural history collections and the former Royal Cabinet of Natural History in Amsterdam, to form the new National Museum of Natural History (*Rijksmuseum van Natuurlijke Historie*) based in Leiden.

Although Temminck does not explicitly refer to these plans in his letter – but concentrated instead on pointing out how in his opinion the university collections in Leiden were insufficient to form the nucleus of a national collection, which he suspected Brugmans was hoping would be the case – it is highly likely that the plans that were eventually implemented, including Temminck's directorship, were already on the table. Perhaps in order to get ahead of the opposition, and sensing that he currently held the upper hand, Temminck urged Falck to make haste with his plans of establishing the national museum, adding in a thinly veiled threat that “if a national museum comes to nothing, or if the facilities remain inadequate, no one

¹ C.J. Temminck to A.R. Falck, 17.07.1819, NL-HaNa, Familie Falck, 2.21.006.48, inv.-nr. 85. A transcription of the letter has been published in Herman Theodor Colenbrander, ed., *Gedenkschriften van Anton Reinhard Falck*, Rijks Geschiedkundige Publicatiën 13 ('s Gravenhage: Martinus Nijhoff, 1913), 411–415. I am grateful to Andreas Weber for drawing my attention to this letter.

shall be able to blame me if I continue my eager quest for the extension of my knowledge of nature in another country;”²

In an almost cruelly bizarre twist to the story, Brugmans died suddenly just five days after Temminck penned his letter. A short biography later claimed that he had had just enough time to get some of his paper work in order during his short illness.³ With Brugman’s death, Temminck’s major opponent was out of the way, a fact which is sure to have helped bring about the speedy establishment of the new museum. As for van Marum, he unexpectedly threw his weight behind the new museum too. An example of his support is how he gave Falck advance warning when members of the Dutch Royal Academy, where the former Royal Cabinet of Natural History was now stored, decided to send a delegation to Falck in order to formally complain about their losing their collection. As a member of the Academy, van Marum was privy to this information.⁴ In another letter, sent around the time the final decision to merge the three collections had been taken, van Marum assured Falck that it was his aim to ensure “that the Museum should equal or surpass the foremost Museums in Europe not just as far as birds are concerned but also in all other areas”, adding that “if I shall have the opportunity to contribute to that aim, it will be a pleasure to me.”⁵

That he was so supportive of what essentially amounted to considerably raising Temminck’s rank within academic circles – until about the middle of the 19th century an academic’s status was determined as much by the collections that fell under his purview as it was by his other activities – remains a little puzzling, for three reasons. Firstly, because of his apparent antipathy towards Temminck; secondly because as secretary of the Holland Society, van Marum was also in charge of the Society’s natural history collection, and its status was in danger of being diminished by the establishment of the new museum; thirdly, because in supporting this new museum van Marum effectually also undermined the future position of a good friend of his, Caspar Georg Carl Reinwardt.

Reinwardt was not only the director of the former Royal Cabinet of Natural History, but was also chosen as Brugman’s successor as professor of botany in Leiden, which meant he was also in charge of the university’s natural history collections. However, at the time of Brugman’s death and the establishment of the National Museum of Natural History, Reinwardt was stationed in the Dutch Colonies, literally on the other side of the world. He had been there since 1815, and for the duration of his stay his duties at the Royal Cabinet were being taken care of jointly by van Marum and Temminck. Perhaps this too made the latter especially eager not to create the impression that he was trying to undermine Reinwardt with his plans for a national museum. Temminck in fact praised Reinwardt’s work effusively

² “word er niets, van een nationaal museum, of blijft de inrigting voortdurende gebrekkig, dan zal men mij niet ten kwade kunnen duiden, dat ik mijne begeerte en lust tot uitbreiding mijner natuurkundige kennis, in een ander land voortzette;” Ibid.

³ Abraham Jacob van der Aa, *Biographisch woordenboek der Nederlanden*, vol. 2 (Haarlem: J.J. van Brederode, 1855), 1471.

⁴ M. van Marum to A.R. Falck, 08.09.1820, Haarlem, NHA, Archief van Marum, vol. 529, nr. 7.

⁵ “dat het Museum niet slegts wat de vogelen betreft maar ook in alle de overige vakken, de eerste Musea van Europa evenare of overtreffe”; “Indien mij de gelegenheid moge voorkomen om tot dat oogmerk mede te werken, zal ik mij een genoegen van maken.” M. van Marum to A.R. Falck, c. 09.1820, Haarlem, NHA, Archief van Marum, vol. 529, nr. 7.

in his letter to Falck, stating “that, whatever the plan may be in this respect, it is nonetheless fair that upon his return Reinwardt will not be relegated to the position of a subordinate or of a possible substitute: there is no need to mention this point to Yr. Exc. as Reinwardt has received too many tokens of your interest than that such a capable man, endowed with such noble virtues both as a person and a friend, should need someone else to plead his affairs and interests.”⁶ Yet despite these assurances, when Reinwardt did return to the Netherlands in 1822 Temminck’s initiative had effectually robbed him of both natural history collections that would have fallen under his purview, had the new national museum not been founded. Small wonder that he was bitterly disappointed when he heard about the establishment of the National Museum on Java, and hurt by the fact that he had not even been kept in the loop properly.⁷ If one takes into account that mail to the Dutch colonies took months to be delivered, it becomes clear that the speedy establishment of the museum in fact precluded Reinwardt’s involvement in the process – which everyone involved must in turn have been aware of. Van Marum however was probably genuinely convinced that merging some of the eclectic collections across the country would indeed help all students of natural history; he might also well have believed that Reinwardt would be involved in organising and running the new collection upon his return from the Colonies; and finally, he appears to have been greatly disappointed by Reinwardt’s decision at precisely this time to extend his stay on Java.⁸

Whatever the reasons, it is in itself striking just how pivotal van Marum’s position was. The sequence of events as it unfolded around the establishment of Temminck’s museum provides an indication of how Temminck’s initial worries were certainly not unfounded. Had van Marum for instance judged it to be in Reinwardt’s best interest to resist Temminck’s plans, the ornithologist would surely have had a harder time. Van Marum, too, clearly had Falck’s ear and enjoyed comparatively easy access to the minister. So the entire episode as such can also serve as a good example of just how influential van Marum was, a fact which is all the more remarkable if one takes into account that in 1821 he was already a septuagenarian. But it was not just old age from which he derived his authority, but also from his past contributions to science and the high office he held. As secretary of the Holland Society of Sciences – roughly equivalent in status to other countries’ national academies – for more than a quarter century he was one of the highest representatives of Dutch academia, and his membership of a multitude of national and foreign academies (including the Royal Society and the Académie des Sciences) bore witness to his immense networking skills. He had in turn been able to establish that network because his intelligence and skills as a researcher were generally recognised and appreciated. Although he had largely ceased to perform research of his own by the time Temminck’s museum saw the light of day, the numerous publications he had penned

⁶ “dan, hoe of zulks ook het plan moge zijn, zo is het nogthans billijk dat Reinwardt bij zijne terugkomst niet als ondergeschikt of als eventueele plaatsvervanger worde teruggeschoven: deze snaar is het ook overbodig bij Uwe Exc. aan te roeren, alzo Reinwardt te vele blijken van belangstelling van UHEG. ontvangen heeft, dan dat zo een kundig man, met zulke edele deugden als mensch en vriend begaafd, iemand anders zoude behoeven om zijne zaken en belangen te bepleiten.” C.J. Temminck to A.R. Falck, 17.07.1819, NL-HaNa, Familie Falck, 2.21.006.48, inv.-nr. 85. See also: Colenbrander, *Gedenkschriften van Anton Reinhard Falck*, 415.

⁷ Andreas Weber, *Hybrid Ambitions: Science, Governance, and Empire in the Career of Caspar G.C. Reinwardt (1773-1854)* (Leiden: Leiden University Press, 2012), 186–187.

⁸ Andreas Weber and Martin Weiss, “Martinus van Marum en Caspar Georg Carl Reinwardt: Vriendschap, planten en musea,” *Teylers Magazijn* 110 (2011): 11–13.

over the course of his long career, covering topics such as electricity, chemistry, geology and botany, were widely recognised. Most of the research he had conducted had been performed under the auspices of the Teyler Foundation in Haarlem, either at the museum the Foundation funded and of which van Marum had been the director since 1784, or at the Foundation's laboratory. Van Marum's close association with the Teyler Foundation, his directorship of Teylers Museum, and above all the Foundation's considerable financial clout all boosted his standing within academic circles immensely.

Another point that surely contributed to van Marum's authority was the fact that the decades during which he had enjoyed a reputation as one of the Netherlands' best academics had been turbulent, certainly in political terms. And even though the political disputes that shook all of Europe were played out in a far less violent fashion in the Netherlands than they were in neighbouring countries, divisions ran just as deep as everywhere else.

Even before the French Revolution the so-called Patriots had already fought for a restriction of the stadtholder's powers in what was still the Dutch Republic, consisting of seven largely autonomous provinces. The function of stadtholder was the highest and most influential political office one could hold in the Dutch Republic. Despite a long-standing tradition of decentralised governance, the House of Orange had succeeded in securing near-monarchical privileges half way through the 18th century, such as the right to hold the position of stadtholder. Although the Patriots briefly made it seem as if the House of Orange was to be toppled after a series of long-standing protests, its power was restored in 1787 with the help of the Prussian army.

In 1795 however, six years after the French had violently disposed of the ancien régime, Dutch and French history became entwined when the French Revolutionary Army conquered the Dutch Republic, welcomed by those who sympathised with the suppressed Patriots. The stadtholder (the future King William I's father) was forced to flee, and the Batavian Republic was founded to replace the Dutch Republic.

But by 1806, Napoleon had crowned himself emperor of a new French Empire, and was no longer satisfied with the Batavian Republic's independence. He therefore opted to turn it into a satellite state run by his brother, Lodewijk Napoleon, who was given the title "King of Holland". Eventually Napoleon Bonaparte felt that his sibling had become too acclimatised to the Netherlands and was no longer acting in France's interest. In 1809 he therefore forced him to abdicate, and declared the Netherlands had been integrated into the French Empire. Soon, however, the self-pronounced Emperor's fortunes were declining, and by 1813 he was forced to surrender the Netherlands, prompting the return of the last in line of the House of Orange who was subsequently officially installed as King William I of the Netherlands in 1815.

Yet despite this succession of governments and repeated political upheaval, van Marum's reputation never seemed to suffer, he always seemed to put academia above politics, was never forced to surrender his position or move anywhere else because of his political views, and his position within the academic community must therefore increasingly have seemed unassailable.

At the same time however, these political changes were strongly reflected in the changes Dutch cultural policy underwent over the course of these decades. And this in turn did affect van Marum and the institutions he was associated with.

What is particularly relevant within the context of this study is that the events which took place in the aftermath of the French Revolution had a huge impact on the status and function of collections. This was not only the case in the Netherlands, but all over Europe, particularly within the French periphery. On a more general level, the methods and aims of the acquisition and production of knowledge were called into question in almost all respects. With regard to collections, these changes had an impact on issues such as the accessibility of collections, but also the status of individual objects within a collection. Not only for instance were many cultural artefacts torn from their original context as a result of the despoliation of churches during the French Revolution and the confiscation of public property and sovereign's collections by the French Army as it gradually conquered Europe, but – crucially – these objects were then also re-contextualised in publicly accessible museums in Paris, which actively encouraged these objects' public scrutiny and scholarly analysis. On the one hand this of course served to humiliate both the defeated sovereigns and their people: it cannot have escaped the communities deprived of their community emblems, or the sovereigns deprived of valuable collections, how this transferral of material objects to Paris symbolically represented the transferral of power to Paris; but on the other hand, the relocation of so many objects on an unprecedented scale also helped bring about a new way of looking at, appreciating, and studying such cultural artefacts, i.e. as distinct objects that needed to be contextualised through scholarship. This in turn helped define the general role of a museum as a place where such cultural artefacts were stored and made accessible for public scrutiny. And by the time Napoleon had been defeated, the proliferation of national, publicly accessible museums – which had sometimes been created in order to accommodate the collections as they were returned to their former owners in the aftermath of Napoleon's downfall – reflected how deeply engrained museums' potential as tools for the reconfiguration of a community's (e.g. a nation's) material culture had become in the fabric of European society. The museum in general has therefore also been referred to as “the cultural institution par excellence of a period of revolution and imperial expansion”.⁹

To make this more palpable, Temminck's museum itself can serve as an example of how the Netherlands were not exempted from these developments. At the time of its establishment for instance it was one of only three national museums in the Netherlands, the other two being the Rijksmuseum in Amsterdam and the National Museum of Antiquities in Leiden. The former could trace its origins to the time of the Batavian Republic, the latter had only been established in 1819. In other words, national museums were obviously a fairly new phenomenon in the Netherlands too. What's more, the past peregrinations of the two collections that were merged with Temminck's reflected how turbulent times had been

⁹ Jonah Siegel, “Introduction,” in *The Emergence of the Modern Museum: An Anthology of Nineteenth-century Sources*, ed. Jonah Siegel (New York: Oxford University Press, 2008), 5. On debates surrounding the re-contextualisation of items in museums see for instance: Daniel J. Sherman, “Quatremère/Benjamin/Marx: Art Museums, Aura, and Commodity Fetishism,” in *Museum Culture: Histories, Discourses, Spectacles*, ed. Daniel J. Sherman and Irit Rogoff (Minneapolis: Univ. of Minnesota Press, 1995), 123–143.

politically. The University of Leiden's natural history collection had originally belonged to the stadtholder, but was brought to Paris by the French in 1795.¹⁰ It was only upon its return twenty years later that it was placed in the university's care. The former Royal Cabinet of Natural History had been established by Lodewijk Napoleon. His original idea of combining the collections with a menagerie and botanical gardens in Haarlem never however materialised, one reason being that Lodewijk moved his residence from Haarlem to Amsterdam, and the collections followed him there.¹¹

At the same time the new National Museum of Natural History provides an indication of some of the idiosyncrasies of Dutch history too, and how the generalisations have their limits. The *stadtholder's* natural history collections for instance were publicly accessible in The Hague long before they were confiscated, and could be taken as an early example of – or at least a precursor to – the public museums as they proliferated at the beginning of the 19th century. Their accessibility certainly illustrates how the division between the *stadtholder* and Dutch citizens was less pronounced than the division between monarchs and their subjects in other European countries of the time. This relative lack of a centralised, monarchist tradition is also recognisable in the fact that it was Temminck's own, privately acquired collections, rather than both the (formerly) Royal collections that were merged with it in order to form the new national museum, which formed the nucleus of the new institution.¹²

Both the idiosyncrasies of the Dutch situation as well as general shift in the status of collections described above are key elements to understanding the origins and the early history of Teylers Museum. But while addressing the question of how this specific institution's history fits into the overall history of collections is important, in order to do so it is equally important to realise that the driving force behind its establishment was the ubiquitous Martinus van Marum. Through his lifelong directorship he left an indelible mark on the museum, even if he did reduce his activities at the museum after 1803; and while his far-reaching ambition and personal talents helped put Teylers on the map, as was already mentioned the benefit was mutual in the sense that his association with the Teyler Foundation also helped boost van Marum's own career.

A deeper understanding of this institution's first years can only be gained by familiarising oneself at least a little with the cultural and political debates that raged throughout van Marum's career. They are particularly relevant in as far as they concerned the importance of the acquisition and production of knowledge, because of the implications this had for the character and use of the collections that fell under his purview. How important for instance

¹⁰ On the history of this collection see Theodor H. Lunsingh Scheurleer et al., *150 jaar Koninklijk kabinet van schilderijen, Koninklijke Bibliotheek, Koninklijk Penningkabinet* (The Hague: Staatsuitgeverij, 1967).

¹¹ For an account of this enterprise and its effects for Haarlem see: Elsa van der Pool-Stofkooper, "Verwachting en werkelijkheid: parken en tuinen van het domein Welgelegen in de periode 1808-1832," in *Paviljoen Welgelegen 1789-1989: Van buitenplaats van de bankier Hope tot zetel van de provincie Noord-Holland* (Haarlem: Schuyt, 1989), 132–138.

¹² Similar developments are discernible in the art world, where essentially local collections in The Hague and Amsterdam were simply declared "national" museums in the aftermath of the French Revolution: Debora J. Meijers, "The Dutch Method of Developing a National Art Museum: How Crucial Were the French Confiscations of 1795?," in *Napoleon's Legacy: The Rise of National Museums in Europe*, Berliner Schriftenreihe Zur Museumsforschung 27 (Berlin: G+H Verlag, 2009), 41–54.

was public accessibility? How was the public that was to be granted access defined and screened? Was the purpose of the museum the production of knowledge, its diffusion, both, or more? Was the knowledge stored in the museum to serve the purpose of demonstrating the complexity and beauty of God's creation, or was its value to be judged by the amount of practical applications it brought forth? Did van Marum's views differ from those of others who were concerned with the museum, such as the trustees of the Teyler Foundation? What role did the museum itself play in possible disputes? Did they have an impact on the collection itself or its management? These are the questions that will be addressed over the course of the following chapters. Ultimately, the aim is to situate van Marum within these debates, in order to understand how Teylers Museum was managed during the first decades of its existence.

2. Martinus van Marum's Formative Years & The Holland Society of Sciences

Before turning to van Marum's role in the establishment of Teylers Museum however, it is worth learning a little more about his formative years, i.e. his youth and what he did in the years before he became involved with the Teyler Foundation.¹³

Martinus van Marum was born in Groningen in 1750. His father had been trained as a constructional engineer and a surveyor, and later became a master potter in Delft, where van Marum attended the Latin School. He appears to have been an excellent student, as he was allowed to present a Latin poem twice at prize ceremonies, an honour that was reserved for the best student of a class. When van Marum was 14 his family moved back to Groningen. On December 31st 1764, he enrolled at the town's university, from which he was to graduate some nine years later.

His teachers in Groningen included Wouter van Doeveren, Dionysius van de Wijnpersse, Sebald Justinus Brugmans (who was already mentioned above), and Petrus Camper. Of these, Camper undoubtedly had the most profound influence on his young student's life. Camper was recognised as one of his generations' most formidable intellectuals, and his wide range of activities included studies of plant life, the human body, animal life, and finally fossilized remains. He was particularly interested in comparative studies. Camper even ventured into

¹³ Unless indicated otherwise, the details of van Marum's biography are taken from: Alida M. Muntendam, "Dr. Martinus van Marum (1750-1837)," ed. E. Lefebvre, J.G. de Bruijn, and R.J. Forbes, vol. 1, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1969), 1-72; Gerda H. Kurtz, "Martinus van Marum, Citizen of Haarlem," ed. E. Lefebvre, J.G. de Bruijn, and R.J. Forbes, vol. 1, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1969), 73-126; Bert Theunissen, "Martinus van Marum, 1750-1837," in *Een Elektriserend geleerde: Martinus van Marum 1750-1837*, ed. Lodewijk. C. Palm and Anton Wiechmann (Haarlem: J. Enschedé, 1987), 11-32; Mart J. Lieburg, "Martinus van Marum en de geneeskunde," in *Een elektriserend geleerde: Martinus van Marum, 1750-1837*, ed. Lodewijk. C. Palm and Anton Wiechmann (Haarlem: J. Enschedé, 1987), 183-222.

politics, becoming the “president” of a small county of Workum in 1782. In politics, he supported the Orangist cause.¹⁴

Camper’s influence is perhaps most obviously reflected in van Marum’s choice of topic for the research that formed the basis of the two dissertations with which he graduated from university, in that he chose to investigate the movement of plant juices, adopting a comparative approach in which he juxtaposed this with the circulation of fluids in animals.¹⁵

The original idea appears to have been to present all of his findings in one publication, but it was then decided that they should be divided into two, so that the defence of the first of these could be presided over by the stadtholder, the young Prince of Orange, because the head of state happened to have scheduled a visit to the university. Van Marum later recalled how deeply honoured he had been by the stadtholder’s presence, and this might go some way towards explaining his latent Orangist sympathies later on in life – although here, too, Camper’s opinions may well played a role. The second defence ceremony was held about two weeks after the first, on August 21st 1773, and van Marum was now a qualified doctor.

Despite the glamour that accompanied his graduation, a bitter disappointment soon followed: later on in life van Marum recalled how he had had high hopes of succeeding his mentor Camper in his post at the university, and even claimed that as much has been promised to him upon his first graduation ceremony.¹⁶ Instead, the post went to Wynoldus Munniks who – in van Marum’s eyes probably adding insult to injury – had enrolled at the university in the same year as van Marum did.

Deeply disappointed and offended, van Marum turned away from his studies in plant physiology and botany, and turned instead to the improvement of electrostatic generators, his curiosity apparently having been piqued through reading Joseph Priestley’s book on the history of electricity. Van Marum subsequently succeeded in minimising the problems that arose through the wear of an electrostatic generator’s friction pads by building a “machine with gum-lac discs drawn through mercury” together with the instrument maker Gerhard Kuyper, and published their results in 1776.¹⁷

By this time, he had started practicing medicine in Haarlem. The precise reasons for his moving to Haarlem remain elusive. As far as finances were concerned, other towns appear to have promised to yield more lucrative patients – at least van Marum claimed as much in a letter to a friend some years later.¹⁸ But again, Camper may have had some influence on van Marum’s decision to move to this town, in that he recommended him for membership of the

¹⁴ On Camper see: Robert Paul Willem Visser, *The Zoological Work of Petrus Camper (1722-1789)* (Amsterdam: Rodopi, 1985); J.K. van der Korst, *Het rusteloze bestaan van dokter Petrus Camper (1722-1789)* (Houten: Bohn Stafleu van Loghum, 2008).

¹⁵ Lieburg, “Martinus van Marum en de geneeskunde,” 185.

¹⁶ Martinus van Marum, *Catalogue des plantes, cultivées au printemps 1810; dans le Jardin de M. van Marum à Harlem* (Haarlem, 1810), iii–iv.

¹⁷ Muntendam, “Dr. Martinus van Marum (1750-1837),” 13; Martinus van Marum, *Verhandeling over het electrizeeren: in welke de beschryving en afbeelding van ene nieuw uitgevondene electrizeer-machine, benevens enige nieuwe proeven uitgedagt en in ’t werk gesteld door den auteur, en Mr. Gerhard Kuyper, physische-instrument-maker te Groningen* (Groningen: Yntema en Tieboel, 1776).

¹⁸ Muntendam, “Dr. Martinus van Marum (1750-1837),” 15.

Holland Society. The town's new citizen was duly elected at the Society's annual meeting on May 21st 1776.

Just a few months later, van Marum was appointed town lecturer in natural philosophy by Haarlem's town council. He later claimed that his appointment had been prompted by a number of requests from other citizens, asking him to give lectures on the newest developments in natural philosophy.¹⁹ According to his own account, he was willing to comply under the condition that he was officially appointed by the town – the post was unsalaried, but came with a number of medieval-sounding privileges, such as a special seat in Church (van Marum was a member of the Reformed Church), and unhindered passage of the town fortifications. On June 2nd 1777, van Marum held his inaugural lecture, claiming it was the first time he had ever spoken in public. Although he was surely trying to flatter his audience – which appears to have consisted of town notables and other curious members of Haarlem's elite – the published version of his inaugural also contains the only known explanation van Marum ever gave as to why he had decided to settle in Haarlem, citing its reputation as one of the bastions of Dutch science. As van Marum put it, it was above all the fact that Haarlem was home to the first Learned Society of a national scope, the Holland Society of Sciences, which had enticed him to settle in this town. Pointing out how, as he saw it, the Society's "main aim is to apply the knowledge of nature for the benefit of our country", he saw its establishment in Haarlem as "clear proof that *Haarlem* is particularly devoted to this science", and added that he was equally impressed how "several other special institutions and societies, established for the exercise of reason, for the advancement of the sciences, and for the advancement of the practical arts, are to be found here in this city more than elsewhere in *the Netherlands*".²⁰

Because the history of the Holland Society and that of Teylers Museum soon became entwined and remained so until well into the 20th century, a closer look at the Society's early history is called for. It had been created in 1752 through the merger of three smaller, local, amateur societies, whose focus lay on the emerging experimental sciences.²¹ Soon after, the Holland Society received a royal charter from the Prince of Orange, and was evidently taken so seriously throughout the rest of the Dutch Republic that the University of Leiden – which up until then had been the bastion of Dutch intellectual life and just a few decades earlier had played host to such eminent researchers as Herman Boerhaave, Willem Jacob 's Gravesande, and Pieter van Musschenbroek – insisted that the Holland Society was prohibited from engaging in or facilitating any kind of educational activity. The Society accordingly restricted itself to publishing academic treatises – most of which were the result of prize essay competitions organised by the Society – alongside functioning as a platform for intellectual

¹⁹ Ibid., 16.

²⁰ "voornaam doelwit is de natuorkennis ten nutte van ons Vaderland toe te paszen"; "sprekend bewys, dat *Haarlem* deze wetenschap byzonderlyk is toegedaan"; "verscheide andere byzondere inrichtingen en gezelschappen, die opzettelyk ter oeffening van 't verstand, tot bevordering van wetenschappen, en ter voortzetting van nuttige konsten, hier ter stede, meer dan elders in *Nederland*, gevonden worden". Martinus van Marum, *Intree-rede over het nut der natuurlunde in 't algemeen, en voor de geneeskunst in 't byzonder* (Haarlem: J. Bosch, 1777), 46.

²¹ On the history of the Holland Society see: Johan A. Bierens de Haan, *De Hollandsche Maatschappij der Wetenschappen, 1752-1952* (Haarlem: Tjeenk Willink & Zoon, 1970).

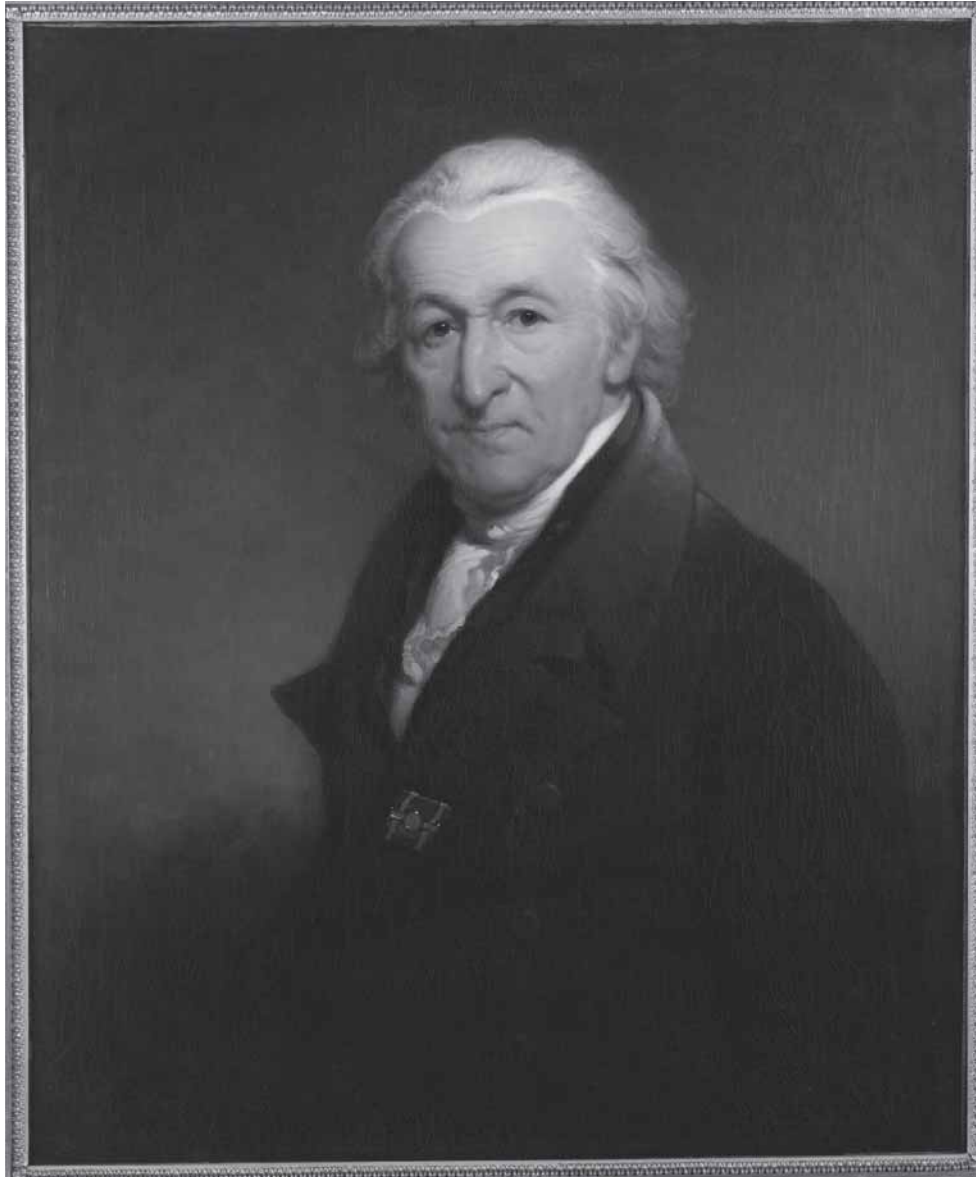


*Fig.2. Martinus van Marum (1750-1837), painted by Charles Howard Hodges in 1826
(Teylers Museum, Haarlem, KS1999)*

exchanges and debates. The prize essay competitions in particular however enabled the Society to develop considerable clout within Dutch academia, despite the restrictions it was faced with.

The Holland Society was Haarlem's largest learned society and as such became an integral part of the town's identity. But it is worth pointing out that, while the Holland Society came to eclipse other societies in Haarlem because of its sheer size and national scope, a number of smaller societies devoted to the arts and sciences were also founded during and after Pieter Teyler's lifetime.²² Even if many of these were less about "serious" academic output and more about sociability, many citizens of Haarlem were evidently interested in the newest developments in the academic world.

So the Holland Society was indeed acting as a sort of figurehead of Dutch natural philosophy by the time van Marum settled in Haarlem; but there might also be another reason why he chose to emphasise its importance: about a week before he gave his inaugural as town lecturer, van Marum had succeeded in obtaining another position of some prestige and also importance within academic circles in Haarlem, namely as director of the Holland Society's natural history collection. Although here too he initially had to make do without a salary, this soon changed when the collection's caretaker of some ten years, Nicolaus Linder, resigned from this position and returned to his homeland of Switzerland to take up a job as a beadle in Basle in 1778. Upon Linder's resignation, van Marum received his salary of f300,- annually. A further f100,- per year went to Willem van Aardenburg, who had been appointed as taxidermist alongside van Marum.

Linder had been the first caretaker of the Holland Society's collections, and his full-time appointment in 1768, as yet on an annual salary of f150,-, already provides some indication that the collection was not inconsiderable. By the time van Marum became its director, it had indeed acquired a reputation internationally, as witnessed by the several hundred visitors that came to see it and signed the guest book each year.²³ At the same time however, Linder, a self-taught and self-made man who had started out as a gardener, was never provided with a serious budget with which to finance acquisitions for the Society. The collection was not so much the result of any pre-determined acquisition plan, but more the result of a steady stream of donations by the affluent and often well-connected members of the Society. Even after van Marum's appointment, the situation hardly changed.

The first of these donations of natural history specimens had occurred as early as 1755, just three years after the Society's establishment, and in the same year in which the Society moved to its own premises at the Prinsenhof in Haarlem. Before then, all meetings had been held at the one of the members' homes. This first donation was made by Pieter van den Broek, one of the Directors, and consisted of a number of stuffed animals, such as an iguana, a cayman, and

²² For an overview see: Alle D. de Jonge, "Gezelschappen in Haarlem rond 1800," in *De verborgen wereld van Democriet*, ed. Bert Sliggers (Haarlem: Schuyt, 1995), 16–25.

²³ Liang de Beer, "Voor iedere vriend van de wetenschap: Het publiek van het naturaliënkabinet van de Hollandsche Maatschappij der Wetenschappen in de jaren 1772-1830," unpublished manuscript (The Hague, 2012).

two lizards.²⁴ They were put on display at the new premises. But it was only a far larger donation in 1759, by another one of the Director's, Job Baster, of his own collection, that prompted the Society's Directors to make funds available for the collection's adequate preservation, stating "that from time to time such glass bottles as are needed for the purpose will be bought and the insects preserved in alcohol, so as to produce a respectable collection".²⁵

As this "respectable collection" continued to grow, very little urgency appears to have been attached to the construction of storage and display cases, even though an entire room had been reserved for the collections as early as 1756. Detailed plans how to furnish this room appropriately were drawn up in 1763 by an architect from The Hague, Pieter de Swart, but it was only in 1771 that the Haarlem carpenter Jan de Laurier was actually paid f1000,- for the construction of display & storage cupboards for the Society.²⁶ Some years previously, in 1767, another potential donor, Martinus Slabber, was even asked to hold back the specimens he was willing to give to the Society, because of a lack of appropriate storage cupboards.²⁷ Although Slabber also left no doubt that he was hoping to be placed in charge of the Society's collections and this may have been a subtle way of declining his offer (Linder was employed one year later), reference to the storage cupboards is unlikely to have been a fabricated excuse.

Another indication that the growing collection's presentation was initially not considered a pressing matter is that the rules concerning the collection's usage were changed in 1772. Before that, access had been restricted to members of the Society, but now Linder's salary was doubled to f300,- per year, on condition that he remain on for another six years, and that he provide access to anyone interested in the collections, regardless of whether they could provide appropriate letters of reference. Visitors were only required to enter their names in a visitor's book – this practice was continued until 1830 – and would have been expected to give Linder a tip if he guided them through the collections.²⁸

The collections continued to grow, and it was their "vast extent" that prompted the Directors van Sijpestijn, van Brakel, and Decker to suggest van Marum be appointed as director of what was by now referred to as "the cabinet of natural history specimens".²⁹ One can only speculate as to whether his appointment had any bearing on Linder's decision to leave before the end of the six-year term he had agreed to serve in 1772. Either way, one of van Marum's first tasks as director was to oversee the collections' transferral to new premises the Society

²⁴ For a complete chronological list of all donations and acquisitions see Bert Sliggers and Marijke H. Besselink, eds., *Het verdwenen museum: natuurhistorische verzamelingen 1750-1850* (Haarlem: Teylers Museum, 2002), 130–142.

²⁵ "dat men van tijd tot tijd de glazen, zooals die daartoe vereischt worden, zal koopen en de insecten in liquor bewaaren, om er dus een behoorlijke collectie van te maaken". Ibid., 55. That same year, the Cabinet was given the inevitable "unicorn's tusk" by the Director Pieter Sannié.

²⁶ Ibid., 105–108.

²⁷ Ibid., 57.

²⁸ Bierens de Haan, *De Hollandsche Maatschappij der Wetenschappen, 1752-1952*, 251–252.

²⁹ "grote uitgestrektheid"; "het kabinet der Naturalia". The earliest recorded example of this name being used is Linder's appointment in 1768 as "oppasser van het kabinet der Naturalia": "Notulen 1767-1781", 07.06.1768, Haarlem, NHA, Hollandsche Maatschappij der Wetenschappen, vol. 444, nr. 13, fol. 524.

had acquired in the Grote Houtstraat in Haarlem in 1777 – interestingly enough, with the help of a loan from one Pieter Teyler van der Hulst, whose last will and testament was to have a profound and in all likelihood unexpected impact on van Marum’s life after the former’s death just one year later. Van Marum appears to have performed this logistic operation fairly swiftly, and welcomed the first visitors to the new premises in May 1778.

In comparison with the premises at the Prinsenhof, the new building was huge. It consisted of two sections – one at the front and one at the back, both joined by a courtyard – and comprised three functions: the collections were stored in a total of eight rooms on the second and third floor of the front section of the house, facing the Grote Houtstraat; the Society held its meetings in a large meeting room on the ground floor of the building, facing the courtyard; and finally the cabinet’s director van Marum was allowed to live in the rest of the house rent-free. This meant he had the entire back section as well as two rooms on the ground floor of the front section to himself. The only condition was that he kept the premises clean and took care “that the cabinet can, at all appropriate times, be viewed by respectable people who desire to do so.”³⁰ Van Marum soon came to an arrangement with his two lady servants that they were allowed to keep all the tips from visitors if they kept the premises clean – this would probably also have meant they granted visitors access to the collections and showed them around.

So by 1778, the year in which Pieter Teyler van der Hulst passed away and the Teyler Foundation was set up, van Marum was already firmly rooted in Haarlem’s intellectual circles. His position as town lecturer meant he could reach a large audience of interested connoisseurs, and that he was recognised as an up and coming talent in his fields of interest, i.e. all branches of natural philosophy. As director of the Holland Society’s cabinet, he not only had secured an elevated position within the Society itself, but had also obtained a means to getting in contact with all those collectors and researchers from abroad who came to see the collections. Finally, the pay he received from the Holland Society, albeit modest, meant he did not have to depend entirely on treating patients for a living, and could focus more on the newest developments in natural philosophy.

By 1779, van Marum was a member of one of the Learned Societies that were set up by the Teyler Foundation, and by 1784 he was made the director of the Teyler Foundation’s newly built museum. Before learning more about these events though, let us first turn to Pieter Teyler van der Hulst himself, the details of his so far-reaching bequest, and the background against which this bequest itself has to be seen.

³⁰ “dat het kabinet ten allen behoerlijken tijde door fatsoenlijke Lieden, die zulks begeeren, gezien kan worden.” “Notulen 1767-1781”, 05.08.1777, Haarlem, NHA, Hollandsche Maatschappij der Wetenschappen, vol. 444, nr. 13, fol. 900.

3. Pieter Teyler van der Hulst

The citizens of Haarlem appear to have had little good to say about Pieter Teyler van der Hulst after his death in 1778, even though the only evidence about his life that has been preserved is in stark contrast with the rumours that appear to have been spread about him. His bad reputation probably had a lot to do with the fact that to many citizens of Haarlem the most visible result of Teyler's bequest, Teylers Museum, must have come as a complete surprise when it was first opened in 1784. The name "Teyler" they had been familiar with – the museum's namesake Pieter Teyler van der Hulst was one of the richest inhabitants of Haarlem, a former Mennonite textile dealer and banker; but as visitors to the museum were evidently told, Teyler had "throughout his entire life not expressed any particular inclination towards the sciences"³¹, and was "[n]either by nature [n]or education any way allied to the arts"³². So a museum devoted to the arts and sciences set up in his name must have been unexpected. The quotes are taken from reports by a German and an English visitor to the museum from 1790 and 1789 respectively.

But while one might expect Haarlem's citizens to be grateful for the establishment of what was soon to become an illustrious institution in their home town – whatever the institution's namesake's interests – their surprise seems to have turned into a sense of disbelief and anger for another reason: the museum was housed in a magnificent building and exquisitely furnished, whereas at the time of its establishment many citizens of Haarlem were struggling to make ends meet. In fact the entire Dutch Republic was deep in recession. A general sense of malaise had spread across the Republic, with Haarlem forming no exception. One can get a sense of how deep this sense of decline went if one realises that just a few decades before Teyler passed away the young Mozart had made a detour to Haarlem on his tour of Europe in order to play the town cathedral's world famous organ, whereas by the time Teylers Museum was built houses were being torn down in Haarlem because of the town's sharp decline in the number of inhabitants, brought about by the decline fortunes of the textile industry on which Haarlem had depended for decades.³³

More importantly as far as Teylers Museum and Teyler's reputation was concerned, this perceived contrast between the general state of the Dutch Republic's and Haarlem's economy and the magnificence of the new museum was exacerbated by rumours that Teyler had been

³¹ „Peter Teyler van der Hulst, ein reicher Kaufmann, der in seinem Leben keine besondere Neigung für die Wissenschaften geäußert hatte, vermachte sein ganzes Vermögen den Armen und der Physik.“ Georg Forster, *Ansichten vom Niederrhein, von Brabant, Flandern, Holland, England und Frankreich im April, Mai und Junius 1790*, vol. 9, Georg Forsters Werke (Berlin: Akademie-Verlag, 1958), 325.

³² Samuel Ireland, *A Picturesque Tour through Holland, Brabant, and Part of France; Made in the Autumn of 1789*, vol. 1 (T. Egerton: London, 1796), 124.

³³ On the situation in Haarlem see: W. W. Mijnhardt, *Tot heil van 't menschdom: culturele genootschappen in Nederland, 1750-1815* (Amsterdam: Rodopi, 1988), 296–297. This was a time of general economic malaise in the Netherlands, and Haarlem was no exception. One indication of the scale of the general sentiments that the Republic of the Netherlands was on a downhill slope is provided by the establishment of the "Oeconomische Tak" of the Holland Society of Sciences, which had the explicit goal of boosting trade and industry in the Netherlands – even if the question which of the two was more important became quite an issue. For an overview of its history see: Bierens de Haan, *De Hollandsche Maatschappij der Wetenschappen, 1752-1952*, 160–177.

extremely tight with the purse strings, even to the point of being stingy, during his lifetime. One story related by another visitor to the museum on another occasion for instance was that Teyler had half a litre of milk delivered to his front door and another half litre to his back door by different milk maids, so that he could receive two of the free spoons that were included with each delivery.³⁴ On the basis of what he had been told, the English visitor already quoted above therefore came to the verdict that Teyler had been “one of the greatest misers in Holland”.³⁵

This, however, has to be an exaggeration, and a strong one at that. We will never know for sure just how much truth the above statements contained, simply because very few documents that could shed some light on Teyler’s life have been preserved, let alone any documents that might reveal some of his personal traits; no letters to or from him for instance are known of, just one single short poem he penned in 1737.³⁶ But the sporadic evidence that has been preserved points to a man who was by no means frugal where charitable causes were concerned; on the contrary, he devoted both time and money to a number of institutions which we can safely assume were close to his heart. And as if he had wanted to prove any rumours of his frugal lifestyle wrong, the most elaborate document revealing anything about Teyler, his 39-page last will and testament, is in effect one resounding benevolent donation in support of “theology, the arts and sciences and the common good”³⁷ in his home town, explicitly including the less well-off. It bears some irony that this bequest initially had the opposite effect to what he must have intended, probably going a long way toward cementing his posthumous image of being overly economical, because the charitable causes he supported were eclipsed by the establishment of the museum in his name – about which, ironically, he had said almost nothing throughout his entire will.

So who was this man, and what exactly did he stipulate in his will? Pieter Teyler was born on March 25th 1702, to Maria van der Hulst and Isaac Teyler, an affluent textile trader.³⁸ Two younger sisters died in childhood. The family came from a line of Scottish textile traders – the name Teyler is most likely derived from the English word “tailor”. Pieter’s grandfather Thomas had fled his home country to avoid religious persecution, and adopted the Mennonite faith after settling in Haarlem.

When Pieter was 19, his mother passed away, and from that moment on he carried her family name as well, becoming Pieter Teyler van der Hulst. Nothing is known about his early years,

³⁴ August Hermann Niemeyer, *Beobachtungen auf Reisen in und außer Deutschland*, vol. 3 (Halle: Buchhandlung des Waisenhauses, 1824), 150. This is a report of travels undertaken in 1806.

³⁵ Ireland, *A Picturesque Tour through Holland, Brabant, and Part of France; Made in the Autumn of 1789*, 1:24. Sophie LaRoche refers to Teyler as the “roemsüchtige[n] Geizhalse[s] Thoeler” in her report of travels in 1788: Sophie La Roche, *Tagebuch einer Reise durch Holland und England* (Offenbach: Ulrich Weiß & Carl Ludwig Brede, 1788), 108.

³⁶ Bert Sliggers, “Niets bij zijn leven, alles na zijn dood,” in *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, ed. Bert Sliggers (Haarlem: Teylers Museum, 2006), 40.

³⁷ “[B]evorderingen van Godsdienst, aanmoedigingen van kunsten en wetenschappen en het nut van ’t algemeen”. A transcript of Teyler’s will has been published in: Bert Sliggers, ed., *De idealen van Pieter Teyler: een erfenis uit de Verlichting* (Haarlem: Teylers Museum, 2006), 192–206.

³⁸ For the biographical information on Teyler that follows in this section see, unless otherwise indicated: Sliggers, “Niets bij zijn leven, alles na zijn dood.”



*Fig.3. Pieter Teyler van der Hulst (1702-1778)
(Teylers Museum, Haarlem, KS281)*

but in 1728 he started helping his father with his business, and married Helena Wijnands Verschaave on his birthday. A collection of poems written on the occasion of the couple's marriage again reveals little apart from confirming that he was a well-connected member of the wealthy elite of Haarlem, and certainly no philistine. In one poem, penned by his life-long friend the poet Pieter Langendijk, Teyler's love of art (*Kunstlief*) is a recurring theme.

The newly-weds moved into a house in the Damstraat in Haarlem, the street in which the Teylers essentially lived for the rest of their life, although they did acquire some grounds just outside the town of Haarlem in 1734 and had a house they christened *Lustrust* constructed there, and moved to a different house in the Damstraat – nr. 21 – in 1740. This second town house was the one behind which Teylers Museum was later to be constructed.

Shortly after their marriage Teyler also purchased a *Hofje*, a sort of retirement home for widows who had hit hard straits financially, near what is today known as Klein Heiligland in Haarlem. Financing a *Hofje* was a popular way for the Dutch elite to provide for those less well-off.³⁹ But in Teyler's case this was not the only charitable institution to which he was to devote time or money: as from 1739 he served on the board of Haarlem's Aalmoezeniershuisje, a kind of Christian charity, as a *regent*; as from 1750 he succeeded his father on the board of Haarlem's Mennonite orphanage. He was also an active member of his parish. As early as 1733 he was appointed deacon, and later repeatedly reappointed.⁴⁰ That he cared about Mennonite church policy can also be deduced from the fact that he was present at the opening of the first Mennonite seminary in Amsterdam in 1735, and that four years later he was involved in setting up a fund from which lay preachers could be paid at his parish. He was still a member of the board of this fund at the time of his death over four decades later.⁴¹

Personal tragedy however struck in Teyler's life in 1754 when Helena died, just four years after his father had passed away too. It is hard to imagine that the fact that he had become a childless widower, as well as the sole owner of a lucrative business, had nothing to do with his drawing up his will in 1756. Either way, on May 17th Teyler, "physically healthy and in possession of his reason and memory"⁴², met Nicolaas Gallé, a notary in Haarlem together with two legal witnesses, and half an hour later they all signed the 39-page document constituting Teyler's last will and testament, which eventually laid the grounds for the establishment of Teylers Museum after Teyler had passed away on April 8th 1778. Only minor revisions were subsequently made to the document before Teyler's death, most of them in 1776.

³⁹ For an overview of some Mennonite examples of this phenomenon in Haarlem see: B. van den Bosch-Vervoort, *De Doopsgezinde Haarlemse Hofjes* (Haarlem: De Vrieseborch, 1999).

⁴⁰ Alle D. de Jonge, "'Doopsgezinden, zo die daartoe bequaam zijn,'" in *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, ed. Bert Sliggers (Haarlem: Teylers Museum, 2006), 117.

⁴¹ Piet Visser, "Onbepaalde verdraagzaamheid en zedelijk gemak," in *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, ed. Bert Sliggers (Haarlem: Teylers Museum, 2006), 131; Jonge, "'Doopsgezinden, zo die daartoe bequaam zijn,'" 119.

⁴² "gezond van lichaam en zijn verstand en memorie wel magtig", Sliggers, *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, 193.

4. The Contents of Pieter Teyler's Last Will and Testament

Teyler's will contained detailed instructions: Firstly, a number of personal friends, distant family members, his remaining staff, and a few institutions such as his parish were to receive financial support.⁴³ In the grand scheme of things however, these payments were almost insignificant, even though they are sure to have meant a lot to the recipients.

Secondly, Teyler decreed that a foundation was to be set up which was to be run by five trustees – it soon came to be known as the Teyler Foundation. The first five of these trustees Teyler appointed personally through his will. The Foundation's, or rather the trustees', task was then to look after the money Teyler left it, and to see that, as was already quoted above and as Teyler summarised towards the end of his will, these resources were employed to further "theology, the arts and sciences and the common good".⁴⁴

Thirdly, he detailed how these somewhat abstract goals were to be achieved. First of all the *Hofje* he had bought was to be upheld. In addition to this, two learned societies were to be set up: one for theology, and one for the arts and sciences. As with the trustees, Teyler himself appointed the first members of these Learned Societies posthumously through his will – six for each society.

Of course he elaborated on all of these points: the trustees for instance were instructed to meet once a week, and every year they were to receive f1000,- each for their troubles.⁴⁵ They were to be assisted by a secretary, who did not have any voting rights but initially received the same salary as the trustees. Teyler also stipulated that, preferably, the trustees' successors were to be Mennonites, but he was not overly particular about this: Mennonites were ultimately only to be selected if they were "capable" of the job – nevertheless, the importance of Teyler's Mennonite roots should not be underestimated, and we will return to their impact in more detail in the following section.⁴⁶

The members of the Learned Societies too were instructed to meet once every week, the society for theology on Monday, and the society for the arts and sciences either on Friday or Saturday. Every year they were both to be given f600,- by the foundation to pay for expenses and share amongst their members. New members had to be chosen by the remaining members of the respective society together with the trustees, who were given the last say in these matters by Teyler. For their weekly meetings the theologians were given the somewhat enigmatic task of "discussing all kinds of topics and matters concerning and respecting liberty in the Christian Religion and in the Civil State;"⁴⁷, while the members of the Second Society were to discuss matters pertaining to "physics, poetry, history, the art of drawing, and

⁴³ Ibid., 196–198.

⁴⁴ Ibid., 203.

⁴⁵ Ibid., 194.

⁴⁶ "Zo die daartoe bekwaam zijn." Ibid., 195.

⁴⁷ "verhandelen allerhande stoffen en materien tot de vrijheid in den Christelijken Godsdienst en Burgerstaat specteerende en behoorende;" Ibid., 200.

numismatics”.⁴⁸ “Physics” has to be taken here as “the study of nature”. The Dutch word Teyler used, *natuurkunde*, only came to be defined in the narrower, modern sense of “physics” some decades after Teyler had passed away. In order to avoid confusion it will therefore be translated as “the study of nature” throughout the following chapter.

Just as importantly, both societies were also tasked with holding competitions concerning the newest developments in the areas they had been instructed to study by Teyler. Every year, each society was to publish a question pertaining to one of the subjects Teyler had mentioned and give members of “the public”⁴⁹ two years to write essays in reply to these questions. The authors of the best reply to one of the questions would be rewarded by having their essays published, and were each to be awarded a gold medal worth f400,-. The recipients of this prize were to be chosen in joint meetings of both societies and the trustees. Again, as with the election of new members, the trustees had the last say in these matters. In order to prevent any kind of bias, entries had to be anonymous.

If one takes into account that the average wages of an unskilled worker at the time were a few guilders per week, the amounts of money that were being dispensed by the Teyler Foundation seem vast. However, in comparison with the total value of Pieter Teyler’s estate at the time of his death, they almost pale into insignificance. Teyler had obviously not had a bad hand at financing: the last of his father’s by then declining business having been sold off in 1763, Teyler subsequently became a financial broker, and at the end of his life possessed bonds in excess of the considerable sum of f1.700.000 guilders⁵⁰, alongside all the properties mentioned above, a stable with numerous coaches and three mares in town, and of course personal belongings which included a collection of porcelain, of coins and medals, natural history specimens and a library.⁵¹

In his will, Teyler explicitly gave the trustees total freedom to do as they pleased with the money now under their purview. They could sell whatever they deemed appropriate, and invest in whatever they considered wise. There was just one exception: Teyler stipulated that the Haarlem town house he had been living in – in the Damstraat 21 – along with his “library and collection of medals, prints and drawings and everything that could be connected with them” was never to be sold.⁵² The house could then serve not only as a repository for the collections that were to be placed at the societies’ use, but also as a meeting place for the weekly gatherings of the trustees and the members of the societies. To this end, Teyler explicitly allowed the house’s interior to be refurbished as the trustees deemed appropriate.

Finally, Teyler stipulated that a custodian be appointed to look after the collections, and that he was allowed to live rent-free in the Damstraat 21. What’s more, Teyler left specific

⁴⁸ “natuur-, dicht-, historie-, teeken- en penningkunde”, Ibid.

⁴⁹ “het publicq”, Ibid.

⁵⁰ Eric Ketelaar, “Teyler, man, je moest eens weten,” in *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, ed. Bert Sliggers (Haarlem: Teylers Museum, 2006), 149.

⁵¹ Sliggers, “Niets bij zijn leven, alles na zijn dood,” 32.

⁵² “bibliotheecq en verzameling van medailles, prent en teekenkonsten en alles wat daaronder eenigzints behorende en daartoe betrekkelijk gemaakt zoude kunnen werden”; Sliggers, *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, 198.

instructions as to who was to be appointed to this position: it was not to be any random caretaker, but preferably an “artist-painter or other connoisseur of the arts and sciences”.⁵³ As with the trustees and the societies, Teyler even suggested specific candidates to whom to offer the job. All three were highly regarded in Haarlem, and even of national standing. His initial first choice was Taco Jelgersma, who had painted one of only two known portraits of Teyler himself, and who had also sat on the board of the Drawing Academy in Haarlem that Teyler had helped establish with a generous loan in 1772, and of which he remained a lifelong board member too. However, Jelgersma appears to have indicated that he was not interested in serving the foundation in this function during Teyler’s lifetime already, because Teyler replaced his name with that of another painter, Vincent van der Vinne, during a revision of his testament.⁵⁴ Van der Vinne, a well respected member of a long line of Mennonite artists from Haarlem, then indeed accepted the position after Teyler had passed away.

The importance of this section of Teyler’s will can hardly be overestimated, at least as far as the history of Teylers Museum is concerned. It is no exaggeration to say that this had profound influence on the character and shape of the museum throughout the 19th century. The reason being of course that Teyler had placed someone – more to the point, a fine artist – in charge of the foundation’s collections; in fact he had done so in crystal clear terms too, writing that the

“occupant of the house (in addition to the care of the house and the housekeeping at his expense) shall have to look after and pay attention to the library, the curiosities and the collections of medals, prints and drawings and everything that may be added from time to time, arranging in proper order, conserving and preserving, as well as keeping for this purpose a neat catalogue or register of everything;”⁵⁵

As already transpires from this passage, Teyler left no doubt that the collections could be expanded too. A few lines above the passage just quoted, Teyler was more explicit, stating that:

“the library and collection of medals, prints and drawings [...] shall not be diminished, but instead shall, by the said Trustees, in communication and consultation with the members of the Societies, be enlarged, expanded and be brought to greater perfection.”⁵⁶

He even indicated that the custodian was to be involved in the acquisition of new items. Although he left no doubt that the collection was primarily for the use of the societies and therefore of course also the trustees, stating somewhat circuitously that:

⁵³ “konstschilder of ander liefhebber van kunsten en wetenschappen”, Ibid., 199.

⁵⁴ The other two painters Teyler suggested were: Hendrik Spilman and Cornelis van Noorde. Ibid.

⁵⁵ “bewoonder (booven de zorge van het in ordre houden van het hujs en huijshoudelijke ten zijnen kosten) goede toeverzigt en agt zal moeten geeven op de bibiotheecq en liefhebberijen en verzamelingen van medailles, prent- en teekenkonst, die allen en het gunt van tijd tot tijd daarbij zal komen in behoorlijke ordre, schikkende, conserveerende en bewaarende, mitsgaders ten dien ejinde van alles een nette catalogus of register houdende;” Ibid.

⁵⁶ “de bibliotheecq en verzameling van medailles, prent- en teekenkonst [...]geenzints verminderd, maar wel door gemelte Heeren Directeuren [the trustees], met communicatie en overleg van de leeden van die Collegien, vermeerdert, uijtgebreijdt en tot meerder volkomenheid gebragt zal mogen worden;” Ibid.

“[...] all members of these Societies shall at all times have free admittance and access, as well as [the right to] handle and use, be it only within the house, without being allowed to take the least thing outside, to the Testator’s library and other collections of medals, prints etc., without any exception, both for their private interest and in order to enable them to debate and assess matters that arise within the Societies as they ought to.”⁵⁷

Ironically, Teyler’s collections themselves did not constitute much to write home about. He doesn’t even mention that he also owned a collection of stuffed birds and other natural history specimens preserved in alcohol, an indication that he did not value them too highly, which might go some way towards explaining why they were in such a dilapidated state by the time of his death. The Foundation soon sold off the entire collection.⁵⁸ His books too were not deemed valuable enough to be kept⁵⁹, and the paintings and prints and drawings were sold to van der Vinne⁶⁰. The only collection that was preserved was the one closest to Teyler’s heart, his numismatic collection. This is the only part of his “gentleman’s cabinet” for which he gave additional instructions to the ones quoted above: the coins and medals were only to be taken out of the cabinet they were kept in when at least two trustees or four members of the societies were present, and the key to the cabinet itself was always to be safeguarded by the eldest of the trustees.⁶¹

5. Contextualising the Will: Mennonite Governors in Haarlem

The fact that his collections were in a poor state however is not as important as the fact that he included them so explicitly in his will. Had he not done so, the foundation might never have established Teylers Museum – which, as can also hardly be stressed enough at this point, Teyler did not mention with so much as a word throughout the entire 39 pages of his will. As will be illustrated in the next section, the whole idea of setting up Teylers Museum was conceived after Teyler had passed away; and one reason that made this possible was a somewhat liberal reinterpretation of his last wishes. This however would not have been possible, or at least a lot harder, without the passages quoted above.

⁵⁷ “[...] alle leeden van dezelve Collegien ten allen tijden zullen hebben de vrije toegang en acces mitsgaders de behandelinge en ’t gebruik, dog alleen binnenshuijs, zonder iets het geringste te mogen daarbuiten medeneemen, tot, aan en van zijn Heer Testateurs bibliotheecq en andere verzameling van printkonst, medailles etc., zonder eenige uitzonderinge ende zo voor hunne particuliere liefhebberije, als omme hen in staat te stellen tot het verhandelen en beoordeelen der zaken ieder in zijn Collegie voorkomende als na behooren.” Ibid., 201.

⁵⁸ “Directienotulen”, 12.11.1779, Haarlem, ATS, vol. 5.

⁵⁹ Martinus van Marum: “Journaal van mijne Verrichtingen ter verkrijging eener Bibliotheek in Teyler’s Museum 1783-1790”, c. 1790, Haarlem, NHA, vol. 529, nr. 11d, p. 3

⁶⁰ “Directienotulen”, 11.01.1782, Haarlem, ATS, vol. 5.

⁶¹ Sliggers, *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, 201. For more detail on Teyler’s numismatic collection see also: Paul Beliën, “Waarom verzamelde Pieter Teyler penningen en munten?,” in *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, ed. Bert Sliggers (Haarlem: Teylers Museum, 2006), 93–115.

Perhaps more importantly, though, one has to understand that – as far as the history of the museum is concerned – the significance of Teyler’s will lay more in the gist of the whole document, rather than its precise contents. Already for the simple reason that Teyler had not referred to the establishment of a museum, his will could not act as a kind of blueprint of what needed to be done in the future. Yet it did have a significant impact on the daily running of the museum, in the sense that the will set the tone of future debates concerning policy. It was an unchangeable, firm reference point that in itself can be taken as an almost typical product of certain traditions and the values associated with those traditions, which in turn lived on through Teyler’s will; more to the point, Teyler was a Mennonite, and the contents of the will reflect Mennonite traditions and their priorities in life, i.e. the Mennonite views on society; by stipulating that kindred spirits were to be appointed as trustees of the Teyler Foundation, Teyler ensured that the core views and values he espoused as a member of the Haarlem Mennonite community continued to be upheld through his Foundation.

In the turbulent decades after his death however, these views and what they entailed were frequently assailed. Most importantly, they were not easily compatible both with the utilitarianism and the Republicanism increasingly associated with the French Republic and Empire, and proved to be the source of some friction between the Foundation’s trustees and the director of the Foundation’s museum, Martinus van Marum.

This warrants taking a closer look at this Mennonite community in Haarlem. Now, in order to gain some understanding of the Haarlem Mennonites’ status within society as a whole, the parish members’ self-perception and also they way in turn were perceived by others, it is important to understand two of the major factors that shaped this community – both of which clearly discernible in Teyler’s will, but can at the same time also help understand why Teyler’s bequest was met with such animosity when the museum was first opened (reflected in the anecdotes about Teyler’s life recorded by visitors and mentioned above), and, most importantly, can also help obtain an idea of how those kindred spirits of Teyler’s that were going to be entrusted with upholding his legacy, i.e. the Foundation’s trustees, perceived themselves, the role of the Foundation, their own position and role in society, and by extension the museum’s function.

These two factors are, firstly, some of the core beliefs Mennonites hold, and, secondly, one of the most striking idiosyncrasies of the Dutch Republic, the curiously Dutch tradition of decentralised governance at all levels, which is frequently subsumed under the heading of “*regentencultuur*”. In Haarlem, both merged to form what can be described as “Mennonite *regentendom*”.⁶²

As far as the first point is concerned, three characteristics of Mennonite theology in particular are important. Firstly, Mennonites are not allowed to participate in any form of violence. This in turn led to their refusing to take any form of public office as this would have meant they might have had to condone a state’s use of force through its organs of power. As a result, Mennonites stayed out of the fray as far as state politics were concerned. Their outsider’s

⁶² Piet Visser, ed., *Wezen en weldoen: 375 jaar doopsgezinde wezenzorg in Haarlem* (Hilversum: Verloren, 2009), 121–148.

status was further enhanced in the Dutch Republic, where all public office could only be assumed by members of the Reformed Church, to which the majority of citizens belonged. Although religious minorities were tolerated in the Dutch Republic – this did not go without saying in other countries at the time – they were effectively barred from taking public office.

Being barred from politics, both by conviction and by law, members of the Mennonite Church therefore turned to trade and the arts and sciences as an outlet for their talents. Generally speaking they did so successfully, and by the end of the 18th century a handful of Mennonite families in Haarlem had amassed a huge fortune amongst themselves. One area just outside town was even referred to as the “Mennonite Heaven” (*Menniste Hemel*), because many Mennonite families had built small summer residences there – including Pieter Teyler.⁶³

While this “Mennonite Heaven” indicated a certain ambivalence towards the second important characteristic of Mennonite faith – the obligation not to indulge in any material riches – the Haarlem Mennonites certainly didn’t waste any money either. It is these remnants of a frugal life alongside the Mennonite families’ obvious wealth that may very well have caused other citizens in Haarlem to gain the impression that these families were greedy with their money – the establishment of a magnificent museum with Pieter Teyler’s money would then only have confirmed this prejudice, and may very well help explain some of the vitriolic remarks visitors recorded about his apparent stinginess as they were quoted above.

But even if they were no longer living a frugal life, all Mennonite families were deeply involved in charitable work, devoting large amounts of money and time to such institutions as orphanages or so-called *Hoffjes*. A good example both of how seriously they took this responsibility, but also how Mennonite views on their role within society could clash with the ideals of good citizenship as they began to emerge over the course of the 19th century, is an episode from the 1850s in which the Dutch state wanted to classify the Mennonite orphanages and *Hoffjes* as almshouses for the poor. The Mennonite parish and Teylers Foundation (as the organisation funding Teylers Hofje) strongly opposed this move, on the grounds that they considered the definition of the orphans and widows in these houses as “poor” incompatible with their own mission.⁶⁴ In their opinion, if members of a Mennonite parish had to live in poverty, that parish had failed to live up to its responsibilities. It was the duty of those in privileged positions to ensure the well-being of those less well off. This left little room for a state enforcing a kind of “Robin Hood”-redistribution of wealth.

The third and final striking feature of 18th Mennonite theology is its relative lack of dogma. Adult baptism is perhaps the best example of the Mennonite concept of their belief as a conscious, emancipated decision every individual has to make for himself before God. Similarly, in matters of sin Mennonites know no intermediary between the individual sinner and God – only God can redeem the sinner, and he only forgives those who genuinely act in faith.

⁶³ Ibid., 135–136.

⁶⁴ Simon Leendert Verheus, *Naarstig en vroom: Doopsgezinden in Haarlem 1530-1930* (Haarlem: Rombach Boek en Beeld, 1993), 134. On the Teyler Foundation’s reaction to the new law on poverty and charity see: “Directienotulen”, 17.05.1850 & 21.02.1851 & 18.04.1851 & 12.12.1851 & 26.11.1852 & 02.12.1853 & 15.09.1854 & 18.01.1856, Haarlem, ATS, vol. 9.

This strong emphasis upon the individual and his decisions in turn also meant that Mennonites were in principle far more open to new theological concepts than other Christian communities – oversimplifying just a little, one can say that as long as a Mennonite genuinely held onto his core beliefs and as long as he continued to act altruistically out of genuine conviction, nothing was categorically forbidden. More specifically, this meant that their beliefs did not prevent Mennonites from engaging in the newly emerging experimental sciences. On the contrary, Mennonite theology was easily compatible with a physico-theological approach to the study of nature.

Returning to Teyler's will, one can see how its core elements fit in well with overall Mennonite priorities and views. The fact that his Hofje, the study of theology, and the arts and sciences were obviously close to his heart make him an almost typical member of Haarlem's Mennonite community. The little that is known about his overall lifestyle – such as his house Lustrust in the *Menniste Hemel* – does not make him look eccentric either. His family history, too, would have allowed him to blend in: many of the most prominent Mennonite families in Haarlem could trace their roots back to the 17th century, when their ancestors had arrived from other countries to avoid religious persecution. Since then, these same families had established a densely woven family and business network. Typical areas of business were the textile trade, the printing business, and by the end of the 18th century the financial sector.

As far as the “regentencultuur” is concerned, this is a lot harder to pinpoint. Yet it is at least as important as Teyler's Mennonite background, not only in the sense that its effects can be discerned in the Foundation's organisational structure, but also because it goes a long way towards explaining the way the trustees of the Foundation saw themselves, namely as “regenten” – which is probably best translated as governors. In order to understand this point's full significance, a little more needs to be said about the Dutch Republic's unique traditions of governance.

The system of governance that had emerged in the Dutch Republic – which has also been described as an “uit zijn krachten gegroeide laat-middeleeuwse stadstatenbond” – differed significantly from that in neighbouring countries in the sense that power almost always lay with a type of executive committee, rather than one central, presidential-type leader.⁶⁵ These committees were comprised of governors, i.e. regenten. The habit of forming such committees was not just confined to one level of administration, but could be found almost everywhere. Whether a local orphanage needed to be run, or a city, or even the Republic itself, it was always such committees that took the decisions. The stadtholder himself for instance was officially just at the service of the States-General of the Dutch Republic.

What else was special about this organisational principle was that the members of such committees, i.e. the governors, were not necessarily noblemen, as was much more likely to be the case in neighbouring countries. The Dutch Republic was almost meritocratic in the sense that such governors were often successful traders or businessmen, from well-established families. The system was not democratic or even open to all: the governors saw to it that only

⁶⁵ W.W. Mijnhardt, as quoted in: R.A.M. Aerts et al., *Land van kleine gebaren: een politieke geschiedenis van Nederland 1780-1990* (Nijmegen: SUN, 2010), 17.

members of established families could sit on the committees, and would often even pass on a position on such a committee to their own heirs. In this sense they of course emulated nobility's behaviour, but what set them off from traditional forms of nobility was that they claimed their rights as much on the basis of successful trade and business practices as they did on family membership.

This is obviously a very concise and therefore inevitably superficial description of the main facets of what came to be known as the "regentencultuur". Some caution is called for in using that label too broadly anyway, as it has acquired meanings and connotations of its own which have in turn changed over the years. This is not the place for a detailed discussion of the term and its usage, but what is important to note is that the general belief in the advantages of a benevolent patriarchy that this "regentencultuur" entailed and which obviously pervaded Dutch society at the time, also had an impact on the Dutch Republic's cultural life. The Holland Society for instance differed from its counterparts in neighbouring countries – the national academies – in that it consisted of two separate classes of members: a group of so-called "Directors", and a group only referred to as "members". The Directors essentially provided all the Society's funding, in exchange for which they basically ran the institution. The members were "savants" or natural philosophers who were welcome to use the Society as a platform through which to discuss, improve, or publish their work – but they had little say in managerial or organisational matters.

Generally speaking, Teyler devised a similar organisational structure for the institutions that were to be set up with his bequest. The Foundation's trustees (who were referred to as *Directeuren*, i.e. "Directors" in Dutch) took care of all organisational and financial matters, with the aim of facilitating the work of the institutions that Teylers had wanted to see established as far as possible. With regard to the Learned Societies, this meant they were granted every freedom and funding necessary for the "encouragement of the arts and sciences".

Considering that the Holland Society was founded only four years before Teyler penned his will, it is conceivable that his own plans were directly inspired by the establishment of the Society. It seems however that Teyler had drawn up plans for a similar Learned Society years earlier already. Documents indicating as much were found amongst his papers after his death, and it is likely that he picked up on these earlier plans when drafting his will.⁶⁶

Be that as it may, the organisational structure as it was set out by Teyler in his will clearly indicated that he saw their role within this structure as equivalent to that of "regenten" in other institutions. That the group of men he appointed indeed saw themselves as members of this elite class of governors too, can be inferred from one of their first acts as newly appointed trustees after Teyler's death, which was to refurbish one room in Teyler's old house as a

⁶⁶ "Voor-Rede," in *Verhandeling over de Gephlogisteerde en Gedephlogisteerde Luchten*, vol. 1, *Verhandelingen uitgegeven door Teyler's Tweede Genootschap* (Haarlem: J. Enschedé; J. van Walré jun., 1781), i–ii. The trustees' account of having found these papers after Teyler's death is confirmed by the minutes of the Second Society, in which the members record how they had to rewrite parts of the introduction to the first edition of the *Verhandelingen*, because the trustees had come across Teyler's earlier draft for the establishment of a Learned Society: "Notulen Tweede Genootschap", 06.07.1781, Haarlem, ATS, vol. 1382.

meeting room. The design they chose rather tellingly coincided with the style in which so-called “regentenkamers” all over the Netherlands were furnished, i.e. meeting rooms for governors. We will return to this in the next section, in which we take a look at the early history of the Foundation. Before doing so however, it is worth dwelling briefly on Teyler’s choice of “arts and sciences”.

6. Teyler’s Choice of “Arts and Sciences”

Pieter Teyler’s instructions detailing that the members of the Learned Society for the arts and sciences were to devote time to the study of nature, poetry, history, the art of drawing, and numismatics, indicates that this is how he defined the “arts and sciences”, or at least that these were what he considered the most important branches of the arts and sciences. His choice had an impact on the character of the Society itself, but also on Teylers Museum itself, in the sense that it affected its collections policy. Although the museum gradually began to lead a life of its own and the successive curators’ personal interests were eventually just as important as Teyler’s selection of areas of study in determining what was to be acquired, one can for instance easily imagine how it would have been a lot more difficult for the Foundation’s trustees to defend their decision to let van Marum acquire a geological collection and scientific instruments if Teyler had not included “the study of nature” in his list. One can also say with little exaggeration that Teyler’s explicitly stating that both the arts and the sciences was what defined the museum’s unique evolution and resulting shape throughout the course of the 19th century, essentially because the definition of what constituted the “arts and sciences” changed fundamentally over the course of the late 18th and the entire 19th century: oversimplifying only a little, the restriction lay in the fact that Teylers Museum could never be simply an “art museum” or a “science museum” – because of what Teyler wrote in his will.

But Teyler’s choice is somewhat confusing, and already puzzled the members of the Second Society shortly after Teyler passed away. The minutes of a series of meetings of its members in 1780 record how they were confused by what they considered “the absurdity of the arrangement of the sciences as it occurs in Mr P. Teyler van der Hulst’s will”, and how they unsuccessfully sought permission from the trustees to change the order in which they were required to hold the prize essay competitions.⁶⁷ In their opinion, it would have been better “to deviate to such an extent from the words in the founding document [the will] that the order of

⁶⁷“d’absurditeit van de rang-schikking der wetenschappen in het testament van den Heer P. Teijler vander Hulst voorkomende”; “in zoo verre van de woorden in der Fondatie af te wijken, dat de rang der wetenschappen, in de programmata, en verhandelingen over dezelve, mogte over één komen met den natúúrlijken aard deezer wetenschappen”; “d’extensie van dit artikel in het testament bevindelijk meerder moest worden geadribueerd aan d’onachtzaamheid, of onbedachte willekeurigheid van den Nots. [Notaris] welke het testament schrijft, dan aan den testateur zelven, die op zijne fundatie wel bedacht is.” The entire discussion was sparked by the sequence in which the goddesses representing the branches of the arts and sciences should be placed on the medal that was to be awarded to the winners of prize essay competitions. “Notulen Tweede Genootschap”, 03.11.1780 & 17.11.1780, Haarlem, ATS, vol. 1382.

the sciences, in the Society's publications on the same, may coincide with the natural order of these sciences". At the same time however, they went out of their way not to suggest they were criticising Teyler's choice, stating that "the formal text of this paragraph in the will should be attributed to the carelessness or the thoughtless caprice of the Notary who writes the will rather than to the testator himself, who is intent on his foundation."

Teyler's puzzling choice is perhaps best understood if one bears two points in mind. Firstly, as was also pointed out above, the definition of what counted as "arts and sciences" was about to undergo a complete transformation, as medieval systems of knowledge struggled to accommodate for the increasing importance and popularity of the empirical, and particularly the experimental, sciences. Any selection of "arts and sciences" from before 1800 is therefore bound to sound unfamiliar to post-19th century ears. Secondly, like the rest of his will, Teyler's choice of subjects must be taken to reflect his own interests and preferences.

Consider numismatics for instance. In all likelihood this only made the list because it was a personal hobby of Teyler's, as his detailed and protective instructions concerning his collection of coins and medals suggests. Whatever definition of the "arts and sciences" one chooses to use, numismatics is unlikely to be included. The art of drawing, too, must have been close to Teyler's heart. One need only recall that he was a board member of the local Drawing Academy. Poetry, too, might well have been something Teyler enjoyed, which would help explain why the only document written by Teyler himself (besides his will) which was preserved for posterity is a poem. As for the study of nature, there is little evidence of any profound or longstanding interest of Teyler's in this area. Yet it would not have made him stand out amongst his contemporaries if he had been interested in natural philosophy. The foundation of the *Hollandsche Maatschappij* shows there was no shortage of Haarlem citizens prepared to devote time to the experimental sciences, and at least four of Teyler's friends are known to have done so outside the *Maatschappij*.⁶⁸ Still, why he put it at the top of the list remains an intriguing puzzle. Finally, as far as history is concerned, one can assume that Teyler had some sense of history, simply because numismatic collections frequently consisted of coins and medals commemorating historic events. Yet the specific reasons why Teyler included this in his list remain elusive. Although again, in general, it can be said that historical awareness was on the rise. One of the friends Teyler appointed member of the society for arts and sciences for instance had been made the official town chronicler (Gerrit Willem van Oosten de Bruijn). And, in a much larger frame of reference, the year in which Teyler penned his will was the same year in which Johann Winckelmann published his groundbreaking monograph on the history of art.

To conclude, it is interesting to note that Teyler did not include music in his will in any form at all. What's more, whilst other contemporaries usually kept sheets of music or some

⁶⁸ Jacobus Barnaart, Bernardus Vriends, Jan Bosch, Cornelis Elout. All of them were named in Teyler's will and given positions either at the Foundation or one of the societies. See: Bert Sliggers, "Honderd jaar natuurkundige amateurs te Haarlem," in *Een elektriserend geleerde: Martinus van Marum, 1750-1837*, ed. Lodewijk. C. Palm and Anton Wiechmann (Haarlem: J. Enschedé, 1987), 87–91.

instruments in their house, the only musical device Teyler possessed at the time of his death was a small barrel organ.⁶⁹ Music, clearly, was not one of his passions.

But before venturing even further into the realm of pure speculation, let us turn to the sequence of events in the aftermath of Teyler's death which led up to the establishment of Teylers Museum.

II The Establishment of Teylers Museum

1. Avoidance of Boredom

On September 17th 1784 the newly refurbished main meeting room in Teyler's old town house in the Damstraat in Haarlem provided the backdrop to an unpleasant scene and vociferous disagreement about money. The events that had led up to this day, and those which took place in its aftermath, were soon eradicated from the Foundation's memory, even though – or more likely: because – they brought about a painful financial loss.

Six years earlier, shortly after Teyler's death, one Pieter Klaarenbeek had contacted the newly appointed trustees of the Teyler Foundation and asked to be provided with more detail concerning Teyler's testament. He was an heir to Catharina Olthoff, who in turn was a grand-niece of Maria van der Hulst's, Pieter Teyler's mother.⁷⁰ The trustees were not of the opinion that he was entitled to any part of Teyler's fortune, but he continued to beg to differ, arguing that Teyler's aunt and uncle on his mother's side of the family had stipulated that the money they left him after their death should be paid out to any heirs of the van der Hulst family, should Pieter Teyler not leave any heirs of his own.

The two parties were unable to resolve their differences, and Klaarenbeek subsequently declared that he was going to sue the Foundation before the Dutch high court in The Hague. As he put it, this was "for the avoidance of boredom" – a not so subtle sense of humour the trustees will hardly have appreciated.⁷¹ After years of legal procedure, the high court eventually passed judgment in Klaarenbeek's favour in 1784.

It was soon after the verdict had been pronounced that Klaarenbeek joined the trustees at one of their meetings in Teyler's old town house. He was hoping either to collect the money he was entitled to, or was perhaps just seeking assurances that it would be paid out soon. What he did not know, however, was that the trustees had decided to lodge an appeal against the

⁶⁹ Sliggers, "Niets bij zijn leven, alles na zijn dood," 33.

⁷⁰ Ketelaar, "Teyler, man, je moest eens weten," 156–158.

⁷¹ "ter vermijdinge van langwijligheid"; "Directienotulen", 30.10.1778, Haarlem, ATS, vol. 5.

court's verdict. Upon hearing this Klaarenbeek "changed his tone considerably" and "expressed himself in rather strong terms" – as the formal minutes of the meeting read.⁷²

Despite obviously being irate, he appears to have been able to contain his anger during the next hearing, because the sentence was subsequently upheld and the Teyler Foundation saw itself forced to pay out a total of f163.000,- – a huge sum of money.⁷³

If one remembers that the Teyler Foundation's total assets amounted to about f2.000.000,-, one easily realises that the court's verdict did not mean the Foundation had to stop functioning; but it also makes clear that their loss was not inconsiderable. More importantly, this financial setback came at a crucial point in the Foundation's history, at which they had taken on many financial responsibilities in addition to those delineated by Teyler in his will. By the end of 1784 the new building behind Teyler's town house – Teylers Museum – had essentially been completed; so had what was to become the new museum's *pièce de résistance*, the costly electrostatic generator, which at the time was the largest of its kind in the world; furthermore, van Marum had only just been taken on as director of the new museum, and had been promised an annual salary of f1400,-; finally, the Foundation had just acquired the grounds on which to construct a new almshouse, bigger than the one Teyler himself had supported. Van Marum later complained that it was the financial burden of this almshouse that had led to his budget for the acquisition of new items for the museum to be restricted – but it is highly likely that Klaarenbeek had something to do with this as well, if it wasn't even the real reason the trustees cut back on expenditures.

But as was already said, Klaarenbeek successfully contesting Teyler's will did not mean that the Foundation had to stop functioning. On the contrary, 1784 has since been remembered not as the year in which Klaarenbeek won his case, but the year in which Teylers Museum was opened. This section is about the sequence of events surrounding the "birth" of Teylers Museum.

2. The Famous Five

The precise date of the first meeting of the five friends Teyler had tasked with setting up the Teyler Foundation is not known: even though they did start keeping minutes of the meetings from their very first assembly on, they only recorded the date after the second meeting on May 26th 1778. As for the venue, it is most likely to have been Teyler's old town house on the Damstraat 21, which soon came to be known as the "Foundation House".

Although two of the original trustees didn't actually see the construction of Teylers Museum or the appointment of van Marum as the museum's director because they passed away within

⁷² "veranderde zeer van toon"; "laat zich uit in vrij scherpe bewoordingen"; "Directienotulen", 17.09.1784, Haarlem, ATS, vol. 5.

⁷³ Ketelaar, "Teyler, man, je moest eens weten," 158.

the short period of just a few years, it is still worth taking a closer look at all five of these first trustees' biographies – albeit that very little is actually known about them – both in order to get a general idea of the composition of the Foundation's board, and also because these five individuals sat on the board during the constitutive and therefore particularly formative period of the Foundation's history.

In alphabetical order, the five trustees appointed by Teyler through his will were: Jacobus Barnaart, a broker and a resident of Haarlem – he was soon to play an important part in the inception of Teylers Museum; Isaac Brand, a nephew of Pieter Teyler's who lived in Haarlem, and became the president of the board of trustees because of his seniority; Gerard Hugaart, like Teyler the former proprietor of a textile factory and together with his wife Femina Heems an ardent supporter of Haarlem's Mennonite orphanage – Femina Heems had also helped sponsor a new, grander entrance to one of Haarlem's Mennonite churches in 1757 together with Pieter Teyler and four other senior members of their parish; Antoni Kuits, as mayor of Haarlem a long-standing member of the town's political elite and also the only of the first five trustees who was not a Mennonite; finally, Willem van der Vlucht, another nephew of Teyler's, who also lived in Haarlem and was a broker.⁷⁴

Also present at the first and all subsequent meetings was Koenraad Hovens, whom Teyler had appointed as secretary to the Foundation, i.e. the trustees. Incidentally, in 1807 Hovens changed his position when he was elected to a trusteeship as successor to Willem van der Vlucht. Until then however he took on the crucial task of coordinating and implementing most of the decisions taken by the trustees, and acting as chief liaison with the Learned Societies. Hovens was an affluent silk manufacturer, also an active supporter of Haarlem's Mennonite orphanage, and after Teyler's death increasingly known for his involvement in politics.⁷⁵

On the one hand the composition of the board of trustees shows how strongly the Teyler Foundation was rooted in Haarlem's Mennonite community, but on the other hand it also clearly shows how this did not have a constrictive effect. Kuits' non-membership of the Mennonite church was obviously less important than his other merits. One could say that the Foundation's Mennonite roots had a greater impact on style than on substance.

Another important point is that it would be mistaken to assume that the five trustees were the only ones involved in setting up the Foundation, or that they took their decisions in isolation, even though they had been granted privileged status by Pieter Teyler. Certainly during the early years of the Foundation's existence they drew upon outside expertise and were just five individuals amongst the many involved in the larger enterprise of implementing Pieter Teyler's last will and testament. The members of the Learned Societies for instance had known Pieter Teyler just as well as the trustees. Similarly, Koenraad Hovens was seemingly denied the privilege of a trusteeship by Teyler, yet closer inspection of his position as secretary to the trustees reveals that Teyler himself was obviously well aware just how pivotal

⁷⁴ On the trustees see: Mijnhardt, *Tot heil van 't menschedom: culturele genootschappen in Nederland, 1750-1815*, 298–299. On Hugaart see also: Visser, *Wezen en weldoen: 375 jaar doopsgezinde wezenzorg in Haarlem*, 136. On van der Vlucht see also: Verheus, *Naarstig en vroom: Doopsgezinden in Haarlem 1530-1930*, 207.

⁷⁵ Visser, *Wezen en weldoen: 375 jaar doopsgezinde wezenzorg in Haarlem*, 133; Verheus, *Naarstig en vroom: Doopsgezinden in Haarlem 1530-1930*, 207.

Hovens' job was for the success of the entire project, certainly during the Foundation's constitutive period. There is hardly any other way of explaining why Teyler stipulated that Hovens was to receive the same salary as the trustees, yet his successors only half that amount. Another example of the intimate involvement of non-trustees is that of Adriaan van Zeebergh. A young pensionary of the council of Haarlem (*pensionaris van Haarlem*) and a lawyer by training, he was called upon repeatedly in legal matters during the first months of the Foundation's existence.⁷⁶ Then, when the first opening on the board of trustees came up in 1780, Zeebergh was elected a new trustee. Over the following decades, it was Zeebergh who initially proved to be van Marum's strongest ally, but later also opponent on the board of trustees. As such, his impact on the history of Teylers Museum should not be underestimated.

3. Administrative Affairs

As yet, however, all that was in the future. First, the five first trustees had to officially accept the positions Pieter Teyler had had in mind for them. Then, a host of administrative, financial and legal matters awaited them, and needed to be tackled over the course of the ensuing months. One of the first things they did was to sell off some of Teyler's assets, such as his horses, stables, coach, and his property outside Haarlem, *Lustrust*.

Far more importantly, though, they also lost no time in appointing a caretaker for Teyler's former house and collections, as required by Teyler's will. There seems to have been little discussion about Teyler's recommendation of nominating the painter Vincent van der Vinne for this position. The first time his name is mentioned in the minutes of the trustees' meetings (aside from a preceding summary of Teyler's will) is on June 5th 1778, when he joined the trustees for their meeting in Teyler's old town house in the Damstraat 21. At this point van der Vinne had evidently already accepted the post of *kastelein*, because what was discussed was the partition of Teyler's old house.⁷⁷ It was agreed that all except four rooms could be used by van der Vinne. One room on the ground floor towards the back of the house, opening out onto the central courtyard, should serve as the main meeting room. This room became known as the *Grote Herenkamer*. On the first floor, parts of the room above the meeting room were to house all documents required by the Foundation, acting as a sort of archive. A third room facing the street on the first floor was to serve as storage space for the Foundation's collections. Finally, a small room on the ground floor, opposite the main meeting room from the central court yard, was to serve as a second meeting room, should it ever occur that one of the Learned Societies and the Foundation held meetings simultaneously. This room later became known as the *Kleine Herenkamer*.

Although the term caretaker, or *kastelein* in Dutch, might give the impression that this was a lowly position, it was in fact quite prestigious. Van der Vinne for one was not just any

⁷⁶ His name is first mentioned in writing in June 1778: "Directienotulen", 26.06.1778, Haarlem, ATS, vol. 5.

⁷⁷ "Directienotulen", 05.06.1778, Haarlem, ATS, vol. 5.

unemployed painter, but had built a reputation of his own and came from a long line of accomplished artists. His Mennonite family's association with Haarlem can be traced back to the second half of the 16th century, when forebears of his settled there.⁷⁸ Vincent had been trained by his father Jan, who in turn had been apprenticed to his father, Laurens.⁷⁹ The post Teyler had created also came with the handsome annual salary of f800,- . The only condition was that the caretaker had to look after and keep an inventory of the Foundation's collections, and that he had to ensure that the premises were equipped and available for meetings. In practice, the last point would not have constituted much of a burden for the caretaker himself: although he was ultimately responsible for the smooth running of the meetings, he soon took on two housemaids and was provided with another servant by the Foundation. These three – the servant in particular – would have seen to it that there was enough paper, ink, tobacco and drink available in the house and, if necessary, that the premises had been heated ahead of any meeting.

4. Room for Improvement

The only initial drawback would have been the condition of the Foundation House. The trustees soon found that it was not shipshape. As the minutes of the trustees' meetings of September 1778 read,

“[...] it was found that [the house] was very dilapidated, and everywhere in need of large and extensive repairs if it was to be made into a good dwelling, a suitable repository of documents and curiosities and a meeting place of the trustees and the societies as is implied in the will of the deceased.”⁸⁰

One specific problem that is subsequently mentioned is that the cellar was damp. Dampness was an issue that was to recur some years later when it inhibited van Marum's electrical experiments, so it was obviously not solved by the major refurbishment of the Foundation House that the trustees decided on in 1778. This included replacing the windows towards the street, laying out the entrance hall with a marble floor, and re-furbishing the two rooms on the ground floor that had been designated meeting rooms. It was already mentioned in the previous section how the design of these rooms – and the main meeting room in particular – was strikingly similar to that of “Regentenkamers” in almshouses, and how this can be taken to reflect the trustees' self-perception and how they were rooted in the traditions of Haarlem's

⁷⁸ Bert Sliggers and D.F. Goudriaan, “De Haarlemse kunstenaarsfamilie Van der Vinne,” in *Jaarboek van het Centraal Bureau voor Genealogie*, 41 ('s Gravenhage: Centraal Bureau voor Genealogie, 1987), 150.

⁷⁹ Pieter A. Scheen, *Lexicon Nederlandse Beeldende Kunstenaars 1750-1950*, vol. 2 ('s-Gravenhage: Pieter A. Scheen, 1994), 515.

⁸⁰ “[...] heeft men bevonden [het huis] zeer vervallen te zijn, en alomme groote en zware Reparation nodig te hebben, zoude het tot eene goede woning, geschikte bewaarplaats der Effecten en Liefhebberijen en vergaderplaats van HH. Directeuren en der Collegien strekken kunnen [unreadable: komen?] zo als de wil des Overledenen medebrengt.” “Directienotulen”, 04.09.1778, Haarlem, ATS, vol. 5.

Mennonite community. Just how far this similarity went becomes clear if one compares the main meeting room in the Foundation House with a recent description of “regentenkamers” in Mennonite orphanages in Haarlem. In these rooms, the description reads,

“the trustees [...] assembled for their meetings, in which unanimously decisions were made about financial policy, personnel policy, the admission and custody of the orphans, and daily matters in the house. This is also where the accountants or administrators, financial brokers and agents were received for consultation.”⁸¹

According to the description, each of these rooms also contained a cabinet in which to store important legal and financial documents as well as the minutes of the meetings that were held. These minutes would usually only contain the final decisions taken, and very little information on any discussion preceding that decision.

With the exception of the admittance of new orphans and the fact that all paper work was stored on the first floor, this description could easily be taken to describe the *Grote Herenkamer* in the Foundation House. The minutes of the trustees of the Teyler Foundation’s meetings for instance contain very few traces of discussion – their primary function was to regard the decisions taken. And even the passage on the admittance of new orphans is not too far off the mark if one remembers that Pieter Teyler had also tasked the Foundation with running the *Hofje*, or almshouse, which bore his name. Little discussion concerning new occupants of this almshouse would have been necessary, because the trustees soon agreed on a system according to which they would take turns selecting the next widow who was allowed to move into the almshouse whenever a room became available – but the final decision would still have been taken in the trustees’ meeting room.⁸²

Significantly, when a new almshouse was constructed by the Teyler Foundation in 1787, this included a large meeting room for the trustees. This clearly underscores the point made previously of how they saw themselves as governors, i.e. regenten. Incidentally, the trustees are also sure to have used the new venue after its completion. Unfortunately, the minutes of their meetings do not record which of the available rooms was used on what occasion.

The fact that they constructed a new almshouse so shortly after Teyler’s death in turn provides an indication just how strong a priority this particular part of their overall task formed for the trustees. In fact, had it not been for practical problems and their inability to obtain the equivalent of modern planning permission, they would have constructed a new almshouse that could accommodate more widows than Teyler’s original *Hofje* even earlier. In December 1779 they had already asked the caretaker at the *Hofje* to vacate one of the rooms of his living quarters in order to make room for another widow. They then seem to have developed plans for refurbishing or perhaps even rebuilding the almshouse, even having the architect Leendert

⁸¹ „kwamen de bestuurders [...] bijeen voor hun vergaderingen, waarin bij algemeene stemmen besluiten over het financieel beleid, het personeelsbeleid, de opnamen van en de voogdij over wezen, en de dagelijkse gang van zaken in het huis werden genomen. Daar werden ook de boekhouders of administrateurs, de makelaars in financiën en de rentmeesters voor overleg ontvangen.” Visser, *Wezen en weldoen: 375 jaar doopsgezinde wezenzorg in Haarlem*, 123.

⁸² “Directienotulen”, 27.11.1778, Haarlem, ATS, vol. 5.

Viervant draw up plans this effect which they were shown in September 1780. Viervant, incidentally, was the same architect who designed Teylers Museum, which was already being constructed at this point. Why the trustees didn't go through with these plans is not quite clear, "great difficulties" are only referred to later, which probably concerned the occupants of neighbouring houses.⁸³ Whatever the reasons, in order to avoid these "great difficulties" the trustees decided to acquire an old brewery which first came up for sale in April 1782. Negotiations over the price ran for over two years and at one point were even broken off completely, until in August 1784 the trustees finally agreed to buy the grounds of the brewery if the former owner agreed to break down all the buildings on the property. Viervant was then commissioned with constructing a new almshouse. The property and the construction of the new building of course came at a price – which van Marum later quoted as the reason why, to his annoyance, the funds for the acquisition of new instruments for "his" museum had been slashed. As was already pointed out in the introduction to this section, it was however not unlikely that the court case brought by Klaarenbeek had something to do with the change in financial policy as well.

5. The Haarlem Drawing Academy

The almshouse was not the only institution the Foundation devoted time and money to because Pieter Teyler himself already had – another was the Haarlem Drawing Academy (*Teekenacademie*). Interestingly enough, Teyler had not mentioned the Academy with as much as a word throughout his will, even though it was clearly important to him during the last years of his life. As was mentioned in the previous section, he was one of the founder members of the Academy, which was chartered in 1772.⁸⁴ Given that he had penned his will some 15 years earlier, this could help explain why it did not include the Drawing Academy. Teyler remained one of the three "main directors" (*hoofddirecteuren*) of the academy until his death, thereby actively supporting its aim of enabling individuals deprived of the financial means to pay for a full education to be able to attend classes and be trained in the art of drawing. As from 1775 he also provided one of his houses in the Damstraat, which was referred to as the House Hulst, as a venue for the Academy's meetings and drawing lessons.

After Teyler passed away the academy asked the Teyler Foundation as the heirs to Teyler's fortune if its members could continue to use the House Hulst and if the Foundation might continue to provide the Academy with the financial support Teyler had provided. Initially the Foundation wanted to sell the House Hulst to the academy for the comparatively small sum of f1000,-, but the Academy declined the offer. One of the main reasons is likely to have been the dilapidated state of the building itself. Even before Teyler's death, complaints were recorded about the draught and cold in the room in which classes on nude drawing were held.

⁸³ "Directienotulen", 05.04.1780, Haarlem, ATS, vol. 5.

⁸⁴ On the history of the academy see: Bert Sliggers, *Augustijn Claterbos, 1750-1828: Opleiding en werk van een Haarlems kunstenaar* (Zwolle: Waanders, 1990), 16–20.

The Academy's board of directors and the Teyler Foundation then agreed that the academy could continue to use the premises provided by Teyler for another three years at the comparatively low rent of f60,- per year. When those three years had passed, the Academy found new premises in the Warmoesgracht in a building referred to as the Hof van Holland. The Foundation sold off the House Hulst, and also agreed to provide the academy with an annual subsidy of f140,- for the duration of ten years so that it would be able to shoulder the higher rent obligations brought about by the change of venue. The Foundation's annual subsidy was raised by another f60,- in 1786.

However, the agreement in 1781 had been that the subsidy would not be automatically extended once the ten years had passed – something the Academy's board of directors appears to have overlooked, or perhaps not taken seriously. When a representative of the Academy was sent to the Foundation to collect f200,- for 1792 without re-applying for financial support, this seriously offended the Teyler Foundation's trustees. They pointed out what a "gross and inexcusable omission" this was, and subsequently refused to pay the academy any more money, despite repeated pleas on their behalf.⁸⁵ Although the academy managed to sustain its activities for another four years solely through membership fees, by 1795 it had clocked up such a high amount of debt that it had to be dissolved. In almost bittersweet irony, it was the *kastelein* of the Teyler Foundation, Wybrand Hendriks, who repaid the Academy's debts of about f250,- and was allowed to keep all its material possessions – such as clay models – in return. Before concluding that this was a case of adding insult to injury however, it needs to be pointed out that Hendriks' association with the academy went back further than his association with the Teyler Foundation. He had in fact become a director of the academy when Pieter Teyler was still alive.

6. The Learned Societies

Finally, what has not been mentioned yet but what in fact constituted one of the trustees' most important tasks in the immediate aftermath of Teyler's death, was the establishment of the two learned societies for theology and the arts and sciences. This was not too difficult, given Teyler's precise instructions. Essentially, the members only needed to be assembled. The trustees decided to call a meeting of all those to be appointed to the society for theology on June 4th 1778, and of all those to be appointed to the society for the arts and sciences on June 6th 1778. They only ran up against some minor difficulties. One was that Teyler had only named five members for the society for theology. This problem was easily tackled by electing a new member to fill the vacant position. For the society for the arts and sciences on the other hand, Teyler had suggested a total of eight members – two of these, however, had already passed away.⁸⁶ It was subsequently decided to leave the number of members at six.

⁸⁵ "grove en inexcusabele omissie"; *Ibid.*, 20.

⁸⁶ Mijnhard, *Tot heil van 't menschedom: culturele genootschappen in Nederland, 1750-1815*, 353.

Three of the members of the society for theology were prominent Mennonite preachers from Haarlem: Age Wijnalda, Klaas van der Horst, and Cornelis Adriaansz. Loosjes. The other two that had been nominated by Teyler were Jan Verbeek and Barend Hartmann from Groningen, both of them Remonstrant preachers. These five then agreed that Frederik Scheltinga, another Mennonite, should join them as a sixth member.⁸⁷

Only one member of the society for the arts and sciences was a Mennonite: Jan Bosch.⁸⁸ Bosch was a publisher and bookseller. As publisher, he was responsible for the Holland Society's proceedings. He was not the only publisher in the new society: Johannes Enschedé was of the same profession. Enschedé gradually expanded his father's printing business, eventually making his sons associates, renaming the business "Joh. Enschedé en Zon." (This firm later became a household name in the Netherlands because they printed all Dutch banknotes.) A third member was Gerrit Willem van Oosten de Bruijn, who had spent many years researching and writing up the history of Haarlem upon the town council's request.⁸⁹ As most senior member of the society he became the presiding member. He is also noteworthy because he sympathised politically with the Orangists – both in Haarlem and especially amongst Mennonites at the time, those sympathising with the Dutch Republic's equivalent of a Royal Family were in the minority. As the political conflicts along these lines were played out over the course of the ensuing years, it became increasingly clear that amongst those associated with the Teyler Foundation too, a strong majority favoured the Orangists' opponents, the Patriots. As yet however, all that was in the future, and the most important point here is again Pieter Teyler's, and by extension the Teyler Foundation's, accommodating spirit: neither religious nor political divisions were evidently supposed to stand in the way of personal merit. As for the remaining three members – Cornelis Elout, Bernardus Vriends, and Jean le Clé – what is particularly striking about them is their wide range of interests. Elout was a passionate collector, whose obituary included the sentence: "He was a man of study and taste, as is also apparent from the collections of books, paintings and natural products he left".⁹⁰ Vriends and La Clé too were engaged in a wide range of activities. La Clé had been a secretary to the board of directors of the Haarlem drawing academy during Teyler's lifetime, and remained in this position until 1782.⁹¹ Vriends on the other hand appears to have been interested in physical phenomena, as it was recorded that he helped other members of the society conduct experimental research.⁹²

After having met in June, the societies only reconvened some months later, while the Foundation House was being renovated. The minutes of the society for the arts and sciences

⁸⁷ Ibid., 343–344. On Wijnalda and van der Horst see also: Verheus, *Naarstig en vroom: Doopsgezinden in Haarlem 1530-1930*, 114–116.

⁸⁸ On Bosch see: Mijnhardt, *Tot heil van 't mensdom: culturele genootschappen in Nederland, 1750-1815*, 353.

⁸⁹ On Oosten de Bruijn see: Cornelis van de Haar, "G.W. van Oosten de Bruyn, stadshistorienschrijver van Haarlem," *Tijdschrift voor Geschiedenis* 67 (1954): 209–223.

⁹⁰ "Hij was een man van studie en smaak, ook blijktens zijne nagelaten verzamelingen van boeken, schilderijen en natuurvoortbrengselen"; Abraham Jacob van der Aa, *Biographisch woordenboek der Nederlanden*, vol. 5 (Haarlem: J.J. van Brederode, 1859), 96.

⁹¹ Sliggers, *Augustijn Claterbos, 1750-1828: Opleiding en werk van een Haarlems kunstenaar*, 18.

⁹² Trevor H. Levere, "Teyler's Museum," vol. 4, Martinus van Marum: *Life & Work* (Leyden: Noordhoff International Publishing, 1973), 49.

refer to the “extensive repairs that were needed and which had been begun at the Foundation House”.⁹³ But once October had come they wasted little time in taking on the tasks they had agreed to shoulder. One of the first tasks was to agree on names by which the two societies could refer to themselves when announcing the first prize essay competitions. The theologians informed the Foundation that they wished to be known as “Teylers Theological Society” (*Teylers Godgeleerd Genootschap*) on October 9th 1778.⁹⁴ The members of the society for the arts and sciences were initially unsure what to call their new group, and seriously considered referring to themselves by five different names, each incorporating one of the five “arts and sciences” Teyler had stipulated they were to hold the competitions on, and one of which was to be used whenever a competition on that particular branch of knowledge was to be held. Because Teyler had stipulated that the first competition was to concern the study of nature (*natuurkunde*), they initially referred to themselves as *Teylers Natuurkundig Genootschap*, until settling on the more universal “Teylers Second Society” (*Teylers Tweede Genootschap*), to be used on all occasions, in December 1778.⁹⁵

Other formalities needed to be attended to as well. The members of the Theological Society for instance were not entirely sure how to interpret Pieter Teyler’s somewhat ambiguous definition of their main purpose, and sought assurances from the trustees that they agreed with the Society’s interpretation of the testator’s words. Teyler’s instructions that the Theological Society should “discuss all kinds of topics and matters concerning and respecting freedom in the Christian Religion and in the Civil State” was rephrased to say that the Society’s publications (the *Verhandelingen*) “should concern various topics relating to Natural and Revealed Religion, amongst them such essays as are suited to defend the Freedom of Religion and the Civil State against all oppression, i.e. to oppose the inclination to persecute and to advance the rational freedom of thought.”⁹⁶ The members of the Second Society, too, had some questions about Teyler’s precise intentions, and asked “whether all sciences expressed in the Will shall be retained, and in the same order as the Testator has arranged them”. They were informed that “they were undoubtedly bound to this formulation.”⁹⁷

Further formalities concerned the meetings themselves. Apparently not enamoured with the idea of meeting every single week, as Teyler had requested, the Second Society was soon granted permission by the Foundation to meet just once a month. Another issue was the service to be provided by the caretaker. Although he was explicitly exempted from having to cater to the members of the Societies by the trustees, he agreed to help them with any

⁹³ “zwaare reparatien welken aan ‘t Fondatie-Huis noodig en begonnen waren”; “Notulen Tweede Genootschap”, 19.06.1778, Haarlem, ATS, vol. 1382.

⁹⁴ “Directienotulen”, 09.10.1778, Haarlem, ATS, vol. 5.

⁹⁵ “Notulen Tweede Genootschap”, 23.10.1778, Haarlem, ATS, vol. 1382.

⁹⁶ “verhandelen allerhande stoffen en materien tot de vrijheid in den Christelijken Godsdienst en Burgerstaat specteerende en behoorende”; “zullen gaan over allerhande Onderwerpen, die tot den Natuurlijken en Geopenbaarden Godsdienst betrekkelijk zijn waaronder dan ook behoren zulke Verhandelingen die geschikt zijn om de Vrijheid van den Godsdienst en den Burgerstaat tegen alle Overheerschingen te verdedigen, dus de Vervolgzugt tegen te gaan en de redenmatige Vrijheid van denken te bevorderen.” “Notulen Tweede Genootschap”, 09.10.1778, Haarlem, ATS, vol. 1382.

⁹⁷ “[o]f men alle de weetenschappen, in het Testament geëxprimeerd zal behouden, en in denzelven rang, zoo als de Testateur die heeft gerangeerd”; “men, buiten twijfel daar toe is gehouden.” “Notulen Tweede Genootschap”, 23.10.1778, Haarlem, ATS, vol. 1382.

activities requiring his support outside the hours of the monthly meetings, and was also provided with an extra f100,- on top of his regular salary by the trustees “for which amount he should supply both the Trustees and the two Societies with Fire and Light, Pipes, Coffee and Tea”.⁹⁸ In a clear indication of what was considered necessary for a fruitful meeting in those days, upon hearing this news the members of the Second Society noted that this meant that “only tobacco and wine remain excepted, and at the expense of the Members of this Society.”⁹⁹ In addition to the caretaker’s help, the members of the Societies could also rely on the Foundation’s servant, and van der Vinne agreed to his two housemaids catering to the Societies during meetings as well, provided they received some kind of payment at the end of each year. At the end of 1778 it was decided to pay the housemaids f4,- each for their troubles, and to pay the servant f3,- for his. This money was taken out of the f600,- that the Society was provided with according to Teyler’s will and which in turn was always paid out in April. There was some discussion as to whether the servant should receive any pay at all, because

“on Mondays, when the First Society [Teylers Theological Society] met, the said beadle [servant] was not in the Foundation House, and equally on Fridays, when the Second Society meets, remained no longer present than the Trustees [of the Teyler Foundation] remained together, and that he therefore evidently provided no other service to these Societies than announcing the meetings and going on further errands out of doors that he was instructed to undertake by the presiding member.”¹⁰⁰

This, in turn, provides a fairly clear description of what was required of the servants during meetings.

7. Prize Essay Competitions

Having attended to the necessary administrative and formal problems, the members of the Societies could now focus on what Teyler had identified as their most important task, i.e. to organise the annual prize essay competitions. In November 1779 the Theological Society’s draft for the topic of a first essay was approved by the trustees. Just a few weeks later the Second Society’s first question was approved as well. It was on “phlogisticated and dephlogisticated air”. Both questions were published in Dutch, French and Latin in a number

⁹⁸ “voor welke hij zo aan HH. Directeuren als aan de beide Collegien moet bezorgen Vuur en Licht, Pijpen, Coffij en Thee”; “Directienotulen”, 06.11.1778, Haarlem, ATS, vol. 5.

⁹⁹ “alleen tabak en wijn blijven uitgezonderd, en ten kosten der Leden van dit Collegie.” “Notulen Tweede Genootschap”, 06.11.1778, Haarlem, ATS, vol. 1382.

¹⁰⁰ “gemelde pedel zich des maandags, als ‘t Eerste Collegie zit, niet bevond in ‘t Fondatie-huis, en ook des vrijdags, wanneer dit Twééde Collegie vergadert, niet langer bleef, dan zoo lang de Heeren Directeuren en Exsecuteuren bij één bleven, en dat hij midsdien evidentelijk aan deeze Collegien geen en anderen dienst praesteerde, dan het aanzeggen der Vergaderingen, en het doen der verdere boodschappen buiten ‘s huis, welken hem bij ‘t voorzittend lid wierden belast.” “Notulen Tweede Genootschap”, 08.01.1779, Haarlem, ATS, vol. 1382.

of national and foreign newspapers. All entries had to be submitted within the next one and a half years.

As for the competition on theology, entries poured in. By the closing date for submissions in 1780, a total of 11 essays had been submitted.¹⁰¹ As for the Second Society's competition, however, only one single essay was submitted, just one day before the deadline – this particular example will be discussed in more detail later on, because the author turned out to be Martinus van Marum. This only transpired a lot later though, because in compliance with the rules set up by Teyler himself van Marum had submitted his essay anonymously.

The fact that the theological competition garnered so much more attention is remarkable because once Teylers Museum had been built, it was the Foundation's support of the arts and sciences that was to eclipse the theological work it sponsored, even if the Theological Society's prize essay competitions continued to be popular. In fact it seems that the Foundation initially expected the theologians' work to shape their public image. As much at least can be inferred from a discussion the trustees had with the members of the Second Society in November 1780 concerning the format of the Society's proceedings, the first edition of which was to contain van Marum's essay. The Second Society was hoping to publish the proceedings as a booklet of quarto size, just as the Theological Society already had. The trustees however resisted this idea and insisted on a booklet of octavo size, arguing that

“[...] all sciences, to which this society is devoted, are less common, and therefore usually pursued by fewer people than Theology: that therefore the choice of a quarto size seemed too risky, because it is more difficult to fill with small entries than Octavo”¹⁰²

Although, as the years progressed, both Societies focused more and more on their core task of holding prize essay competitions, and by the middle of the 19th century meetings were only ever called either to elect a new member or to discuss issues concerning the competitions, the Societies had initially adhered to Pieter Teyler's suggestion that they “should meet, also with an eye to mutual consultation about matters and topics belonging and relating to these faculties and arts”, i.e. that they should meet to discuss matters currently of interest in academia.¹⁰³ As early as October 1778 the members of the Theological Society for instance asked the Foundation to acquire all past editions of the *Stolpiaans Legaat* – a series of treatises that had been awarded first prize in essay competitions on the subject of theology, which were financed through a bequest of Jan Stolp; and the Second Society's minutes reveal that its members spent a series of meetings in early 1779 discussing a treatise that had been

¹⁰¹ “Directienotulen”, 25.02.1780, Haarlem, ATS, vol. 5.

¹⁰² “[...] alle de weetenschappen, aan welken dit collegie is toegewijd, minder algemeen zijn, en dus ook doorgaans van een minder getal menschen dan de Godgeleerheid worden beoefend: dat derhalven de keuze van 't quarto-formaat te gevaarlijk scheen, als moeilijker, om , met kleinen voorraad te vullen, dan in Octavo,” “Notulen Tweede Genootschap”, 17.11.1780, Haarlem, ATS, vol. 1382.

¹⁰³ “zullen moeten vergaderen, mede ter onderlinge verhandelinge van zaken en stoffen, tot die faculteiten en kundigheeden specteerende en behoorende”; Sliggers, *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, 200.

published by the Society of Dutch Literature (*Maatschappij voor Nederlandse Letterkunde*) – and that they were underwhelmed.¹⁰⁴

8. Pieter Teyler's Prints and Drawings

It was at one of these meetings that the members decided they should take a closer look at the collections Pieter Teyler had left them. The minutes reveal how they decided

“[...] in some subsequent session to inventory what exactly, in the way both of books and of art, has been bequeathed to this Foundation by the late Mr Teyler van der Hulst, and to direct matters to the best of the abilities of the members, to the effect that a proper Catalogue be made of everything by the Custodian [the *kastelein* or caretaker].”¹⁰⁵

Indeed, it appears they had to take matters into their own hands because van der Vinne was shirking his duties. Some months earlier, in October 1778, the trustees had already agreed with their caretaker that he

“shall be obliged to keep precise records of the Books and Curiosities and to hand these over to the Societies with a clear indication of the locations where everything is stored, so that Members are able to find and retrieve themselves whatever they want to use.”¹⁰⁶

Not much seems to have happened by February of the following year though, because the minutes of the trustees meetings record that they had

“requested V. van der Vinne that he should make progress with drawing up the Catalogue and that he should either take Jan van Walré Jr., who had been offered by Jan Bosch for the purpose, as his assistant, or give him [Jan van Walré] the opportunity to work on the Catalogue alone.”¹⁰⁷

Van der Vinne doesn't seem to have had any problem with letting the members of the Second Society start drawing up an inventory, because in April they recorded that

¹⁰⁴ “Notulen Tweede Genootschap”, 22.01.1779 & 05.02.1779 & 19.02.1779 & 05.03.1779 & 12.03.1779 & 26.03.1779, Haarlem, ATS, vol. 1382.

¹⁰⁵ “[...] in eenige volgende session na te zien wat eigenlijk, zoo van boeken, als konst, in deeze Fundatie door wijlen den Heere Teyler van der Hulst waare nagelaaten, en de zaak, zoo veel in 't vermogen der Leden zijn zal, daar heenen te dirigeeren, dat van alles door den Custos een behoorlijke Catalogus worde gemaakt.” “Notulen Tweede Genootschap”, c. 26.03.1779, Haarlem, ATS, vol. 1382.

¹⁰⁶ “zal verpligt zijn een nauwkeurig Register te maken van de Boeken en Liefhebberijen en het zelve aan de Collegien te geven, met eene zoo duidelijk daarin vervatte aanwijzing van de plaatse waar alles geborgen is, dat Leden in staat zijn, om 't geen zij begeeren te gebruiken, te vinden en zelve voor de hand te halen.” “Directienotulen”, 30.10.1778, Haarlem, ATS, vol. 5.

¹⁰⁷ “Aan V. van der Vinne verzogt dat hij voortgang make met het opmaaken van de Catalogus en hij Jan van Walré Jun., door Jan Bosch daartoe aangeboden tot hulp neeme, ofwel dien alleen gelegenheid geeve om aan de Catalogus te werken.” “Directienotulen”, 19.02.1779, Haarlem, ATS, vol. 5.

“a beginning had been made with going through [...] the prints in the art cabinet, which is located in the room of this meeting [the *Grote Herenkamer*], and that it had been approved that the Members gradually record what seems to be of the greatest importance, in particular that which in future should be completed.”¹⁰⁸

Note that they were not just taking notes as to what was in the collection, but also taking notes on “that which in future should be completed”. In other words, they were also recording what they wanted to acquire for the collection of prints and drawings in the future. That Teyler’s cabinet contained not only prints but also drawings, can be inferred from the minutes of the next meeting on April 23rd, in which one finds that the members had continued “the already initiated examination of the drawings and prints, left by the deceased and located in the room of this Society”.¹⁰⁹ Teyler had owned some paintings as well, but these were judged to be “of little value” and don’t appear to have met with much appreciation, because van der Vinne had already been asked to sell them off as early as August 1778.

As far as the catalogue of prints and drawings was concerned, in November 1779 the Society suddenly stopped working on the inventory of Teyler’s prints and drawings. In a somewhat cryptic entry in the minutes, one reads that “for certain reasons the examination of the prints [...] has also been superseded.”¹¹⁰ No further detail is provided as to what these “certain reasons” were. However, this sudden cessation of work on the catalogue is a little less surprising if one takes into account that by November 1779 the trustees had already spent some months planning a far greater project concerning the Foundation’s collections: Teylers Museum. Although the Second Society was not officially informed about these plans until December, they are sure to have caught a whiff of them before.

In fact it is worth pausing briefly here and reflecting on the lines of communication within the Teyler Foundation, or rather between the many institutions it funded. On the one hand the current trustees – and pretty much all future trustees – were sticklers for formality. At one point for instance Jacobus Barnaart, who had joined the members of the Second Society during one of their meetings, refused to reveal whom the trustees had decided to award a gold medal for his entry to the Theological Society’s essay competition, because that person was himself only going to be told the following day.¹¹¹ On the other hand, the fact that Barnaart joined the Society – unannounced, too – shows that there was a strong spirit of cooperation amongst all those associated with the Foundation. What’s more, his refusal to reveal the name of the winner for fear it might be spread around is illustrative of another point one should bear in mind constantly when evaluating the available sources on the museum’s and the Foundation’s history: Haarlem was a fairly small town – albeit of great importance to Dutch

¹⁰⁸ “een begin gemaakt, om [...] na te zien de prenten in de konst-kas, staande in ’t vertrek deezer vergadering [de *Grote Herenkamer*], en verder goed gevonden dat door de leden successivelijk zal worden genoteerd alles wat van de meest importantie schijnt te zijn, vooral dat geen, ’t welk vervolgd wordende alhier zoude dienen gecompeteerd te worden.” “Notulen Tweede Genootschap”, 02.04.1779, Haarlem, ATS, vol. 1382.

¹⁰⁹ “’t begonnde onderzoek van de Teken- en Prent-konst, door den overleeden na-gelaaten, en in de vertrek-kamer van dit Collegie bevindelijk”; “Notulen Tweede Genootschap”, 23.04.1779, Haarlem, ATS, vol. 1382.

¹¹⁰ “men ook met ’t onderzoek der prent-konst [...] om redenen, heeft gesupersedeerd.” “Notulen Tweede Genootschap”, 12.11.1779, Haarlem, ATS, vol. 1382.

¹¹¹ “Notulen Tweede Genootschap”, 07.04.1780, Haarlem, ATS, vol. 1382.

cultural life – and the Teyler Foundation, together with all its associated institutions, was essentially a local organisation. News could therefore travel fast, and on at least one occasion the trustees' secretary Hovens went to every member of the Second Society's home in order to relay a message from the trustees. As much at least can be inferred from reading between the lines.¹¹² It has also already been pointed out how closely knit the Mennonite community in Haarlem was, and that only underscores how likely it was that people associated with the Teyler Foundation would have met outside formal meetings as well. At the same time however, all this did also not guarantee that news travelled fast. On one occasion in 1781 for instance the members of the Second Society were extremely annoyed that they only heard that a paper had been submitted for their essay competition on poetry when Oosten de Bruijn, "accidentally passing by the house of the Trustee, Hugaert, had happened upon that Gentleman on his doorstep and accosted him".¹¹³ On another occasion, about a year later, Oosten de Bruijn again reported

"that he, on the Sunday eight days before, being in the company of the Burgomaster, Mr Kuits, had incidentally been informed by this Gentleman that two essays, one written in French, the other in Dutch, in response to the Historical question of this Society for the year 1781, had been received by the Trustees of this Foundation".¹¹⁴

At any rate it is likely that the "certain reasons" for ending work on the inventory had something to do with the plans for Teylers Museum. Before taking a closer look at these, some last words on the catalogue of Teyler's prints and drawings are called for: it is only mentioned again six years later, when van der Vinne resigns as caretaker in 1785, and hands over "the Catalogue of the Prints and Drawings" alongside the keys to the Foundation House and a list of the furniture it contained.¹¹⁵ It is doubtful whether the catalogue referred to at that point was comprehensive, or in fact that it had much to do with the one being prepared six years earlier. By 1785, all – or at least most – of Teyler's prints and drawings had been sold to van der Vinne, while he himself had acquired many new works of art for the Foundation on the trustees' behalf.¹¹⁶ Either way, neither the catalogue nor any draft version of it has been preserved in the museum's archives.

¹¹² As much can be inferred from phrasings such as "Dat ook, den volgenden dag, dezelfde Heer Hovens aan 't huis van [...] Van Oosten de Bruijn tot bescheid hadde gebragt, dat [...]": "Notulen Tweede Genootschap", 12.01.1781, Haarlem, ATS, vol. 1382.

¹¹³ "toevallig het huis van den Directeur Hugaert passeerende, dien Heer op zijn stoep en aan zijne deur gevonden, [en] aangesproken had"; "Notulen Tweede Genootschap", 20.04.1781, Haarlem, ATS, vol. 1382.

¹¹⁴ "dat hij, op voorleeden zondag voor agt dagen, in gezelschap zijnde met den Heer Burgemeester Kuits, van deezen Heer, bij toeval hadde verstaan, dat er twee verhandeligen, d'eene in de Franse taal, d'andere in 't Nederduits geschreeven, in andwoord op de Historische vraag van dit Collegie voor den jaare 1781, bij de Directeuren deezer Fondatien waren ontvangen"; "Notulen Tweede Genootschap", 05.04.1782, Haarlem, ATS, vol. 1382.

¹¹⁵ "de Catalogus van de Prenten en Tekeningen"; "Directienotulen", 21.10.1785, Haarlem, ATS, vol. 5. The trustees confirmed the receipt of all these items in writing a little later: "Directienotulen", 25.11.1785, Haarlem, ATS, vol. 5.

¹¹⁶ Van der Vinne was, for example, asked to acquire items at an auction in October 1780: "Directienotulen", 06.10.1780, Haarlem, ATS, vol. 5. The sale of items from Pieter Teyler's collection to van der Vinne was discussed in January 1782: "Directienotulen", 04.01.1782 & 11.01.1782, Haarlem, ATS, vol. 5.

9. Birth of a Musaeum

Having now learned more about the Teyler Foundation's origins, its tasks and how the Foundation's trustees saw their institution's role within Haarlem, we can turn to Teylers Museum itself.

The first time any mention was made – in writing – of what was to become Teylers Museum was on April 23rd 1779. Under the heading “Bookhall” (*Boekzaal*) the trustees recorded in the minutes of the meeting they held on this day that they had instructed the carpenter J. van Ee to measure up some of the properties behind the Foundation House, “so that headway could be made towards taking a decision about the Construction of a Hall as Library”¹¹⁷ Two points are striking about this. Firstly, this matter had obviously been discussed before, and the trustees were now hoping to make some “headway”; secondly, the primary aim at this stage of the planning appears to have been to construct some sort of library. No further details, however, are provided.

These plans matured over the course of the following months. Within two weeks, the trustees had bought a house behind Teyler's town house with the aim of demolishing their new acquisition, because that would allow them “to make the yard situated behind this house square and thus make the building much more regular, more spacious and better”.¹¹⁸ The issue was obviously no longer whether a “Bookhall” was to be built, but rather what shape it should take. It was Barnaart who had negotiated with the owner of the house on the Foundation's behalf.

Rather than provide the trustees with enough space to build their “Bookhall”, this first acquisition appears only to have whet their appetite. At their next meeting one week later, the decision was taken to make “attempts” (*poogingen*) to buy two more neighbouring houses. Within another week Barnaart could report that he had managed to buy both houses for a total of f100,-. But the trustees did not stop there. At the same meeting, Barnaart had evidently already set his sights on a fourth neighbouring house, and had already started negotiating a sale with its owner. As the owner was reluctant to sell, Barnaart was forced to pay f250,- to acquire it “although this price very much exceeds the value”.¹¹⁹ Perhaps the owner was not only reluctant to sell – it wasn't he who had to move out but his tenant – but had also realised how eager Barnaart and the Foundation had become to acquire the neighbouring properties. As much at least can be inferred from their subsequent purchase of another four adjacent houses for a total of f2025,-. Aware that this was no small amount of money, they recorded that they were making this investment “so that in future there won't be complaints that this opportunity was allowed to slip past”, and in order to be able to “acquire the yard behind this

¹¹⁷ “op dat men zoude kunnen vorderen om een Besluit te neemen wegens het Timmeren eener Zaal tot de Boekerij”; “Directienotulen”, 23.04.1778, Haarlem, ATS, vol. 5.

¹¹⁸ “het Erf welk agter deezen Huize ligt, vierkant te maken en dus de betimmeringen ongelijk regelmatig, ruimer en betere konde worden”; “Directienotulen”, 30.04.1779, Haarlem, ATS, vol. 5. The deal to buy the house had been struck by May 7th: “Directienotulen”, 07.05.1779, Haarlem, ATS, vol. 5.

¹¹⁹ “schoon deeze prijs de waarde verre te boven gaat”; “Directienotulen”, 04.06.1779, Haarlem, ATS, vol. 5.

house in the regular way, and to make the planned building as spacious as the situation allows”.¹²⁰

By July 1779 all purchases had been finalised, with assurances that all buildings would be cleared by August 1st. On July 9th the trustees contacted an architect from Amsterdam, Leendert Viervant, and asked him to draw up plans “for the proposed building” (*het voorgenomen Gebouw*). He delivered them about a month later, and the plans were discussed and revised throughout October, and a final version accepted in January 1780. In the meantime, the buildings had been razed. Then, on April 28th 1780, the cornerstone of this new “Bookhall” was laid by the president of the board of trustees, Willem van der Vlugt. Building work only commenced slowly though, and what came to be known as the “Oval Room” was completed in 1784.

What, though, induced the trustees to build such a “Bookhall” at all? Nothing to this effect was mentioned in Teyler’s will, and even though he had left the Societies his collection of books, it was not a vast one. What’s more, as with all his other collections save the coins and medals, it did not take the Foundation long to sell off Teyler’s personal library, even if they did do so after having constructed the new building.¹²¹ Their decision to build this huge extension to Pieter Teyler’s house is all the more puzzling because no documents providing any clues as to their underlying motivation have been preserved.

The only document that does contain any significant information on the debates surrounding this milestone in the Foundation’s history are van Marum’s autobiographical recollections from the 1820s. These recollections are best taken with a pinch of salt – not only were they penned some three decades after the event, but van Marum had by this time had a huge row with the trustees and his text is almost vitriolic in tone – but nevertheless, in many respects his account is plausible, and all the facts he gives can be corroborated.

The most important claim van Marum makes is that both he and Barnaart were in fact the driving force behind the establishment of the new building. After describing how their mutual interest in the study of nature [*natuurkunde*] had led to their becoming not only acquainted but also good friends soon after van Marum’s arrival in Haarlem, van Marum remembers how this in turn meant that he soon learnt of the contents of Teyler’s will after the Mennonite’s death, and this in turn “occasioned many consultations” between Barnaart and van Marum.¹²² More specifically, van Marum remembered how Barnaart had spoken “with me many times, before the plan for the construction of this Museum was decided upon, about how it was to be

¹²⁰ “opdat men zich in volgende tijden niet beklage dat deeze gelegenheid voorbij geslipt is”; “dus het Erf agter deezen Huize regelmatig te bekomen, en het voorgenomen Gebouw zo ruim te kunnen maken als de Situatie eenigzins toelaat”; “Directienotulen”, 18.06.1779, Haarlem, ATS, vol. 5.

¹²¹ Martinus van Marum: “Journaal van mijne verrichtingen ter verkrijging eener Bibliotheek i Teyler’s Museum”, 1783-1790, Haarlem, NHA, Archief van Marum, vol. 529, nr. 11d, fol. 3.

¹²² “aanleiding tot menigvuldige gesprekken”; Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 7.

furnished.”¹²³ Note also how the new institution had become known as a “Museum” by the time van Marum wrote his account of the events.

There is no reason to doubt that van Marum and Barnaart were close, or that Barnaart would have sought van Marum’s advice on all matters concerning the study of nature, including Pieter Teyler’s legacy. Firstly, there is no reason why van Marum should have made this up, and secondly another, unrelated sequence of events underscores the idea that these two men were in contact over matters concerning the Foundation. This sequence of events is the one surrounding the Second Society’s first prize essay competition. More specifically, two occurrences make more sense if one takes into account that van Marum’s opinion on issues of natural philosophy mattered to Barnaart. Firstly, Barnaart was the only one of the trustees who did not immediately approve the Second Society’s draft of a question for the competition, but asked to be allowed to run it by an external “expert” before publication. Only one word was subsequently inserted by that expert (the German word for “phlogiston”), but in all likelihood this “expert” was van Marum – who, as was mentioned above, not only entered but also won the contest. The fact that van Marum entered the contest in turn helps explain the second occurrence: when van Marum was elected a member of the Second Society in December 1779 – some months before the closing date for entries into the competition – he was probably already working on the treatise he was planning to submit to his future co-members anonymously some months later. Van Marum was not present at his election and might even have been unaware that he was a candidate, but when the Second Society informed the trustees that they wished to add van Marum to their number, the minutes record how it

“is a point of reflection both about the present case and about future elections of new Members of the Society, that it might happen that such a new Member had written an essay or had the intention of writing one in order to compete for the prize on the topic proposed for that current year, and this might be the reason why such an elected person might not accept his Election, in order not to be barred from competing for the prize.”¹²⁴

Taking into account that eventually only one essay was submitted – that by van Marum – the fact that this issue became “a point of reflection” makes it highly likely that somebody was well aware that van Marum was planning to enter the competition. This could easily have been members of the Second Society – but if so, they subsequently disguised this well in the minutes of the meetings at which van Marum’s essay was evaluated. It is far more likely that Barnaart was the one who brought up this issue, without referring explicitly to van Marum.

So, even though all this is largely speculative, one can clearly say that there is no evidence whatsoever in outright contradiction with van Marum’s later claim that Barnaart and he were

¹²³ “[v]eelmalen [...], vóór dat het plan tot den aanbouw van dit Museum werd vastgesteld, met mij over de inrigting van hetzelfde.” Ibid., fol. 10.

¹²⁴ “komt ter bedenkinge zo omtrent het tegenwoordig geval als bij volgende verkiezingen van nieuwe Leden tot de Genootschappen, dat het veellicht zou kunnen gebeuren, dat zodanig nieuw Lid eene Verhandeling had geschreven of voorneemens was te schrijven om te dingen naar den prijs op het onderwerp voor dat loopende Jaar voorgesteld, en zulks aanleidinge mogt geeven, dat zulk een verkoozen persoon de Verkiezing niet aanname, om niet versteeken te worden van te dingen naar den prijs.” “Notulen Tweede Genootschap”, 17.12.1779, Haarlem, ATS, vol. 1382.

friends and that Barnaart sought the younger man's advice where Pieter Teyler's legacy was concerned.

But even if one accepts that van Marum and Barnaart were the driving force behind the establishment of the "Bookhall", that still leaves the question of why they came up with this idea. It is worth quoting van Marum at some length here. Having heard of Teyler's will and the large sum of money reserved for the "arts and sciences", expectations were high "amongst those who were interested in the advancement of useful sciences". He continues:

"The ardour of Mr Barnaart for the Physical Sciences was well known, as was also apparent from the collections he had brought together, to the best of his ability, for his own use. His intelligence and liberal views were recognized by many in this City, and it was therefore to be expected of his influence with the appointed co-directors of Teyler's estate who had not so much advertised themselves as advocates or patrons of the said sciences, that he would leave nothing untried to make sure that the opportunity would be created to produce such collections and facilities at Teylers Foundation as would be judged the most suitable to function there for the extension and propagation of the Physical sciences. To this end he procured the approval of his fellow-directors for the construction of a spacious hall designed for setting up Physical Instruments, natural objects, placing of drawings and prints, and of a library specially selected for the Physical Sciences. In accordance with this plan the building has been proposed under the name of Teylers Museum."¹²⁵

So, to summarise, according to van Marum the Oval Room was built in order to provide facilities for the "expansion and cultivation of the natural sciences" [*natuurkundige wetenschappen*]. Again, this is not implausible. On the contrary, there is no denying that both Barnaart and van Marum had a keen interest in this area of knowledge. Barnaart's collection consisted of scientific instruments, and he was a member of the *Natuurkundig Gezelschap*.¹²⁶ According to van Marum's account, it was also Barnaart who insisted a small "observatory" be installed on the roof of the new "Bookhall".¹²⁷

The only point one should bear in mind here is that this is still van Marum's account written some 30 years after the discussions with Barnaart took place. As will be shown in the

¹²⁵ "bij diegenen, die in de bevordering van nuttige wetenschappen belang stelden"; "Men kende den ijver van den Heer Barnaart voor Natuurkundige Wetenschappen, blijkbaar ook uit de verzamelingen ter eigene beoefening, naar zijn vermogen aangelegd. Zijne schranderheid en liberale denkwijze werden, althans bij velen hier ter Stede erkend, en men konde dus van zijnen invloed bij de medebenoemde Directeuren van Teijlers nalatenschap, die zich niet zo zeer als voorstanders of begunstigers van gemelde wetenschappen hadden bekend gemaakt, verwachten, dat hij niets onbeproefd zoude laten, om het daar heen te besturen, dat er gelegenheid zoude worden daargesteld, om zoodanige verzamelingen en inrigtingen, bij Teijlers Stichting te maken als meest geschikt zouden geoordeeld worden om aldaar, ter uitbreiding en voortplanting van Natuurkundige wetenschappen, werkzaam te zijn. Ten dien einde bewerkte hij de toestemming der medebestuurderen tot het bouwen van eene ruime zaal, bestemd voor het aanleggen van Physische Werktuigen, van Natuurlijke voorwerpen, plaatsing van Teekeningen en Prenten, en van eene, voor Natuurkundige Wetenschappen, inzonderheid uitgezochte Bibliotheek. Ingevolge dit plan is het gebouw daargesteld, onder den naam van Teijlers Museum bekend." Martinus van Marum: "De Geschiedenis van de oprigting van Teyler's Museum", 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 9-10.

¹²⁶ Sliggers, "Honderd jaar natuurkundige amateurs te Haarlem," 87-88.

¹²⁷ Martinus van Marum: "De Geschiedenis van de oprigting van Teyler's Museum", 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 10-11.

following section, van Marum's subsequent actions leave no doubt that to his mind the scientific instruments ranked above all other collections the Foundation acquired. In his recollections, he makes it sound as if this had been the case with all those involved in the acquisition, i.e. the trustees as well. However, as will be discussed in the following section, contemporary records indicate that in the trustees' view, the geological collections were at least of equal, if not even of far greater, importance. The last thing this means is that van Marum's recollections should be discarded as unreliable – on the contrary, the reasons for this biased view are easily identifiable – but it does suggest the possibility that Barnaart might have been if not less enthusiastic, then perhaps less single-mindedly focused on the natural sciences than van Marum was.

But whatever motivated Barnaart, the “Bookhall” was being built, and Barnaart had evidently played a large part in bringing this about.

Tragically, however, Barnaart did not live to see the building completed. On November 2nd 1779, he passed away, suddenly and unexpectedly after a short bout of illness. Van Marum describes this as a devastating experience, both on a personal and a professional level. Not only did van Marum lose a good friend, but the pain must have been exacerbated by the fact that Barnaart had turned to van Marum for medical assistance, and the young doctor had found himself unable to stop the illness – described as “fibris continua nervosa” – from progressing. What's more, with Barnaart's death he also lost

“[...] any prospect of being active in an agreeable way at Teyler's Foundation in bringing together the collections mentioned before, and extending the Physical Sciences.”

As he put it, the remaining trustees had “little inclination [...] to execute the plan devised by Mr Barnaart.”¹²⁸

Indeed, no mention is subsequently made of the new building in the minutes of the trustees' meetings for almost two years, and it took two years before van Marum became involved with the new building again. He even claimed that one of the trustees had told him privately that if building work had not progressed so far at the time of Barnaart's death already, the remaining trustees would have abandoned the plans.¹²⁹

10. Was it a Library?

But whether the threat was real or not, this obviously never happened. In fact, by late 1782, Viervant had delivered what was to be his masterpiece: the huge, oval shaped, two-storey

¹²⁸ “[...] alle uitzigt om bij Teijlers Stichting op eene aangename wijze, ter aanlegging van de hiervoor bedoelde verzamelingen, en ter uitbreiding van Natuurkundige Wetenschappen, werkzaam te worden”; “weinig neiging [...] om het plan, door den Heer Barnaart beraamd, te volgen.” Ibid., fol. 12.

¹²⁹ Ibid., fol. 12-13.

high “Bookhall”, which included a gallery and was topped by a magnificently stuccoed arched roof incorporating glass panes to let in the daylight, was held in the neo-classical style, and was accessible through Teyler’s former house, from a door that went off from the *Grote Herenkamer*.

Unfortunately, very little is known about the process through which he arrived at the final design of the building he had been commissioned to construct.¹³⁰ Reconstructing the stages of this creative process is further complicated by the fact that those architectural drawings that have been preserved don’t carry any dates. In fact, the entire building’s most striking feature is also its most puzzling: the oval shape of its interior. Judging by Viervant’s drawings, he initially appears to have proposed a rectangular building separated into two large rooms of equal size. It has been suggested that one room was intended as a library, the other as a cabinet to store all other items from the Foundation’s collections.¹³¹ But there is nothing besides the soon-to-come but nevertheless later – and presumably unconnected – decision to reserve the upper half of the Oval Room for books to support this assumption.

By the time the final plans for the building were approved in October 1779, Viervant had obviously come up with the idea of giving the interior its oval shape, thereby inevitably also creating four smaller chambers in the building’s corners. It is conceivable that he might have taken his inspiration from the frontispiece of the catalogue of Levinus Vincent’s collections – Vincent had put these collections on display in Haarlem at the beginning of the 18th century, and made them accessible to all members of the public, provided they paid an entrance fee.¹³² But although Vincent’s cabinet had been world-famous in its day, attracting visitors such as the Russian Tsar and Cosimo de Medici, and the similarities between the – presumably slightly exaggerated – depiction of its premises and the Oval Room are quite striking, there is no evidence whatsoever that Viervant based his designs on Vincent’s frontispieces, or, for that matter, that he was even aware of them.

The general assumption is that the reason Viervant came up with the oval shape is that he was designing a hall intended to store books, i.e. a library. This is a little less speculative than other explanations because there had indeed been famous precedents of libraries built in a rounded shape. Of these, the ducal library in Wolfenbüttel, built between 1705 and 1710, bears the most resemblance to Teylers. And indeed, over the course of the two centuries preceding the establishment of Teylers Museum, as the humanist ideals of the Renaissance were ever more widely adopted and books had become more readily available thanks to the invention of the printing press, libraries had proliferated all over Europe. Over the course of the 18th century in particular they gradually come to be separated from other associated institutions, such as monasteries, cabinets of curiosities, or schools, and were increasingly made publicly accessible too. It has even been suggested that the arrangement of libraries in

¹³⁰ The little information that is available has been scrutinised in: Peggy Bouman and Paul Broers, *Teylers “Boek- en Konstzaal”: de bouwgeschiedenis van het oudste museum van Nederland* (’s-Gravenhage: SDU, 1988).

¹³¹ *Ibid.*, 19.

¹³² On Vincent’s collections see: Eric Jorink, *Het “Boeck der Natuere”: Nederlandse geleerden en de wonderen van Gods schepping 1575-1715* (Leiden: Primavera Pers, 2006), 351–355.

central, oval structures that allowed for better access to a larger number of books, rather than in rectangular, elongated rooms, can be seen as the pinnacle of this development:

“With the central-plan building the idea of the autonomy of the library building is perhaps confirmed most impressively. This is already implied by the choice of a circular form, ensuring visibility from all angles, which ensures the structure remains distinct, even if it forms part of an architectural ensemble. Because of its association with the archetype of the circular ground-plan, the Roman Pantheon, a rotunda also guarantees a universal quality, which in the case of the library metaphorically refers to a place that in utopian fashion contains the knowledge of the entire world. [...] This tendency towards functional and architectural autonomy is an indication of the increasing use [of libraries] by independent scholars, who are not associated with the institution responsible for the library, but use the collection of books for limited research periods.”¹³³

Again however, it cannot be proven that Viervant was in any way aware of such implications when he chose his design, or that he based it on one of the existing examples. And it also needs to be said that, despite the proliferation of libraries in the 17th and 18th centuries, very few actually sported a rounded interior. Wolfenbüttel, Radcliffe’s Camera in Oxford, and the ducal library in Weimar are some of the very few examples – there certainly was no precedent in the Netherlands. What’s more, a number of libraries were built in the more traditional rectangular shape even though their architects suggested a rounded, central hall. Examples include the library of Trinity College in Dublin, and the library of Trinity College in Cambridge, built by Christopher Wren.

So, whatever the reasons, Viervant’s plans constituted a bold move. One can easily imagine one of the trustees having come up with the idea of an oval interior too, but it would actually befit what little we know about Viervant himself. For one, he was strikingly young, and actually inexperienced. Any artistic brashness would not have been inhibited by the need to protect a reputation. All that is known about his training is that he had been an apprentice to his considerably more famous and accomplished uncle, Jacob Otten Husly. Husly himself was involved in the work for the Teyler Foundation, he is known to have decorated the ceiling of the Oval Room. So it is fathomable that his uncle provided some guidance, but there is also little reason why he should have let all the credit go to his nephew if he had not really been the main architect. Viervant’s early success, however, seems to have gone to his head. The only other major building he ever designed was the Foundation’s new almshouse. Caught up in the political turmoil of the late 18th century and displaying a brazenness not befitting of his

¹³³ “Im Zentralbau erlangt die Idee der Autonomie des Bibliotheksbaus vielleicht ihre eindrucksvollste Beglaubigung. Denn dies wird bereits durch die Wahl der allansichtigen Rundform, die sich einem architektonischen Ensemble zuordnen, aber nicht einfügen lässt, signalisiert. Durch den Bezug zum Urmodell des Rundbaus, dem römischen Pantheon, verbürgt die Rotunde zudem einen universellen Gehalt, der bei den Bibliotheken auf die Metaphorik eines Ortes, der in utopischer Weise das Wissen der Welt beherbergt, übertragen wurde. [...] Die Tendenz zur funktionalen und baulichen Autonomie ist ein Indiz für die zunehmende Benutzung durch externe Gelehrte, die nicht der für die Bibliothek verantwortlichen Institution angehörten, sondern die Buchbestände während befristeter Forschungsaufenthalte nutzten.“ Dietrich Erben, “Die Pluralisierung des Wissens: Bibliotheksbau zwischen Renaissance und Aufklärung,” in *Die Weisheit baut sich ein Haus: Architektur und Geschichte von Bibliotheken*, ed. Winfried Nerdinger (München: Prestel, 2011), 185.

age, the last of the few traces he subsequently left in any archives show that, by the beginning of the 19th century, he was earning his living as a sewage worker.¹³⁴

But in late 1782, there was still no trace of Viervant's subsequent decline. On the contrary, as the Oval Room neared completion and Viervant turned to the task of decorating its interior, professionally he had reached about everything an architect could hope for.

11. How to Fill an Empty Vessel

So now that the building had been completed the trustees – rather interestingly – turned to the two learned societies and wanted to know both what the Societies wanted to include in any collections the Foundation would acquire, and how these collections were then to be arranged in the Oval Room. This – crucially – provided van Marum with an opportunity to pick up where he and Barnaart had left off two years before. As was recorded during a joint meeting of the trustees and the members of the Societies on November 1st 1782:

“The Trustees subsequently announce to the two Societies that, as the New Arthall is now nearly finished, they would be pleased to be acquainted with the ideas of the Members concerning the special kinds of curiosities that could be placed in this Arthall to the greatest general benefit, in reference to which the arrangement of the cabinets could be adapted and attention could be paid to the Collection of such Curiosities when the occasion arises.”¹³⁵

The entire phrasing of this enquiry suggests some sort of vacuum had emerged, with no-one within the Foundation feeling entirely sure what the exact purpose of their new – and highly costly – construction was to be. Note their reference to the new building as a “Arthall” (*Konstzael*), rather than a “Bookhall” (*Boekenzael*), for instance. All this in turn implies that van Marum might not have been too far off the mark with his assessment that Barnaart's fellow trustees had been at best lukewarm about his plans for the “Bookhall”. The minutes of the trustees' meetings certainly don't create the impression that they were in any way eager to uphold a legacy Barnaart had left them, but rather that they had passed a “point of no return” as far as this building was concerned, which to them obviously presented something of an enigma.

This is where van Marum stepped in. Recognising the opportunity, he not only saved Barnaart's legacy by convincing the trustees to spend considerable amounts of money on

¹³⁴ Geert-Jan Janse, *Heel de wereld in één zaal: de Ovale Zaal van Teylers Museum* (Amsterdam: Nieuw Amsterdam, 2011), 51.

¹³⁵ “Heeren Directeuren berigten vervolgens aan de beide Genootschappen dat de Nieuwe Konstzaal thans nabij voltooid zijnde, hun Ed aangenaam zijn zoude, de gedagten van de Leden te mogen weeten nopens de bijzondere takken van Liefhebberij welke men tot het meeste nut van het algemeen in dezelve Konstzaal zoude kunnen plaatsen, waar [naar] welk begrip dan ook nog in de inrigtinge der kassen eenige schikkinge zoude kunnen gemaakt worden en men zich bij voorkomende gelegenheden op Verzameling van zodanige Liefhebberij zoude kunnen toeleggen.” “Directienotulen”, 01.11.1782, Haarlem, ATS, vol. 5.

exquisite collections that put their new institution on the map, but in what almost amounted to a political campaign he also managed to secure for himself an exquisite position as director of this new institution – i.e. Teylers Museum, as is it was being called by then. Just one and a half years after the trustees had first turned to the Societies for advice, van Marum had become the undisputed head of the Teyler Foundation's collections, essentially sidelining not only the caretaker as he had been appointed according to Teyler's will (van der Vinne in fact resigned from his post a few months after van Marum was appointed director), but all fellow members of both Learned Societies as well.

Van Marum's first suggestion, in reply to the trustees' first query, was to start building a geological collection, i.e. a collection of fossils and minerals. At this point, he was careful to gain the full backing of all other members of the Second Society. It was even decided to contact Bernardus Vriends and elicit his opinion on this matter too, despite his being so sick that had been unable to attend meetings for some weeks previously. But Vriends' opinion was considered necessary for the Second Society to be able to make its recommendations to the trustees "unanimously".¹³⁶

Vriends doesn't appear to have voiced any objections, and the trustees eagerly adopted van Marum's proposal to acquire a large geological collection that was about to come on sale at auction in Amsterdam, courtesy of Willem van der Meulen. They were obviously convinced by the Society's reasoning that a geological collection would be of great value to the Society and Haarlem. Firstly, because it would complement the Holland Society's cabinet, of which was said that it "excels in everything belonging to the animal kingdom, but isn't nearly in the same situation with respect to fossils". And secondly,

"because at the present time the study of the interior constitution of our earth comprises a considerable part of the efforts of those who devote their efforts to the Study of Nature [*Natuurkunde*], and therefore in organizing essay contests about this science such a collection would be a great service and benefit to us."¹³⁷

In a showcase example of van Marum's persuasive skills – it was he who presented the trustees with the Society's "unanimous" suggestion – they agreed to provide him with up to f6000,- that he could spend at this auction, even though they also pointed out that it was actually a little "too early" to acquire such a collection for the "as yet unfinished new building".¹³⁸

¹³⁶ "eenpariglijk"; "Directienotulen", 01.11.1782, Haarlem, ATS, vol. 5. The minutes of a corresponding meeting of the Second Society state that the decision was to be taken "met volle eenpaarigheid": "Notulen Tweede Genootschap", 25.10.1782, Haarlem, ATS, vol. 1382.

¹³⁷ "zeer uitmunt in alles wat tot 't regnum animale behoort, maar op gene stukken na, zoo gesteld is ten aanzien van de fossilia"; "omdat 't onderzoek der inwendige gesteldheid van onze aarde in den tegenwoordigen tijd een merklijk gedeelte maakt der oefeningen van hen, die hunnen arbeid aan de Natuurkunde toewijzen, en dat, derhalven, in het uitschrijven der vraagen over die weetenschap zulk eene verzameling ons van gewichtigen dienst en voordeel zoude kunnen weezen." "Notulen Tweede Genootschap", 25.10.1782, Haarlem, ATS, vol. 1382.

¹³⁸ "hoewel wat vroegtijdig voor de nog niet voltooide Zaal": "Directienotulen", 01.11.1782, Haarlem, ATS, vol. 5.

Intriguingly, at that very same meeting a suggestion by Oosten de Bruijn to expand Teyler's numismatic collection was rejected by the trustees, despite Oosten de Bruijn's protestations. The reason given is interesting: the trustees did not consider it worthwhile spending much money or effort on the collection, because public access to it was so restricted through Teyler's instructions as to how they were to be handled. What might also have brought about Oosten de Bruijn being snubbed were his Orangist allegiances. By 1782, political tension in the Dutch Republic was increasing.

As for the trustees' question regarding the arrangement of the Oval Room itself, the members of the Second Society agreed to inspect the Oval Room in its unfinished state. On November 8th they convened at the building site, where they happened to run into the architect, Viervant. In a subsequent discussion with Viervant they came up with two major ideas concerning the way the Oval Room was to be furnished.

The first concerned the cupboards lining the walls of the building's interior. This, in fact, was what the trustees were most concerned about and what they had asked the Society to voice an opinion on. Together with Viervant the members of the Second Society agreed that the cupboards lining the gallery in the upper section of the Oval Room were to be furnished as bookcases and "provided with curtains", whereas the cupboards below were to be fitted with glass panes. Crucially, they were of the opinion that the cupboards on the ground floor level "could best be used for the storage of Physical Instruments, and other related objects".¹³⁹ This is the first time any mention is made of an instrument collection to be acquired by the Foundation.

The second suggestion concerned some furniture the members wished to see added. They were hoping the Foundation would buy "two of the best and latest globes" which in turn could be placed "on either side of the large table which will be indispensable in the Museum".¹⁴⁰ The minutes of later meetings reveal that what they had in mind were two globes built by the exquisite instrument maker John Adams of London – they were indeed acquired, but only some years later, when van Marum travelled to London. As for the "large table", over the course of subsequent meetings this gradually evolved into a flat-top cabinet of table-height, which should also serve "for the storage of art books and portfolios with drawings and prints", and which was soon installed in the Oval Room.¹⁴¹

But let us return to the idea of reserving the cupboards on the ground floor level for a collection of scientific instruments. Taking into account that these were neither small cupboards nor few in number, it is clear that somebody – surely van Marum – had far-reaching plans of which no previous record exists. Was van Marum perhaps reviving plans he and Barnaart had drawn up earlier? This is what he implies in his recollections. Or was he pursuing his own agenda? If so, he did so cleverly, because he evidently secured the other

¹³⁹ "voorzien van gordijnen"; "t beste konden dienen tot berging van Phÿsische Instrumenten, en andere zaaken, daaraan verknocht"; "Notulen Tweede Genootschap", 08.11.1782, Haarlem, ATS, vol. 1382.

¹⁴⁰ "twee van de beste en nieuwste globens"; "te weder-zijde van de groote tafel, die in 't Museum onontbeerlijk zijn zal". Ibid.

¹⁴¹ "tevens [...] tot berging van kunst-boeken en portefeuilles met tekeningen, en prenten"; "Notulen Tweede Genootschap", 17.01.1783, Haarlem, ATS, vol. 1382.

members' backing for his acquisition plans. They were put to the trustees at the following joint meeting on January 17th 1783, the same meeting at which van Marum presented and explained all the specimens from van der Meulen's collection he had acquired in Amsterdam for a total of f3667,8,-.

The only extant account of van Marum's initial plans for the instrument collection stems from van Marum's recollections from the 1820s. Here, he summarises how he wanted three types of device acquired: firstly, instruments "which may serve for making discoveries in the Knowledge of Nature [*Natuurkennis*]", by which he meant ones that were too expensive to be acquired by private individuals; secondly, models of technological or mechanical devices and machines that had some bearing on everyday life (such as windmills); and thirdly, "to furthermore make a more generally useful entity of this collection", instruments that were necessary for experimental research (such as optical devices).¹⁴²

Whatever the details of the plans van Marum presented to the trustees, they were not immediately enamoured with his ideas. On the contrary, both accounts of the meeting that have been preserved – one recorded by the trustees, the other by the members of the Second Society – show that the trustees initially resisted van Marum's proposals, on the grounds that both the acquisition of and the maintenance required by these instruments was too costly, especially as the trustees doubted they would be used much by the members of the Second Society. Although he was still presenting these plans in the name of the Second Society, the trustees were perhaps beginning to sense that van Marum had plans that went far beyond both the Foundation's and those of his fellow members of the Second Society. Again, it is probably down to van Marum's negotiating skills that they eventually did accept a watered down version of his ideas. The trustees' account reads as follows:

"The second Society proposes that in the Museum will be brought together a Collection of Physical Instruments and Models of Machines; which proposal, although not entirely endorsed by the Directors, has yet been adopted in this sense that the Cabinets in the basement of the Museum, except two that are suitable for fossils, will be fitted so that such a Collection of Phys. Instr: & Models can be placed there."¹⁴³

The Second Society's account implies that it was mainly van Zeebergh who had been sceptical of the plans, even suggesting that only models and no instruments should be acquired, but that he too had eventually agreed to their proposal, albeit on condition that "not too much should be acquired at the same time".¹⁴⁴

¹⁴² "die tot het doen van ontdekkingen in de Natuurkennis kunnen dienen"; "om wijders van deze verzameling een meer algemeen nuttig geheel te maken"; Martinus van Marum: "De Geschiedenis van de oprigting van Teyler's Museum", 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 15-16.

¹⁴³ "Het tweede Collegie proponeert dat in het Musaeum mogt werden aangelegd Eene Collectie Physische Instrumenten en Modellen van Werktuigen; welk voorstel schoon door Directeuren niet ten vollen toegestemd, nogtans in zoverre is aangenomen, dat de Kassen beneden in het Musaeum behalve twee voor fossilia geschikt, zodanig ingerigt worden dat er zodanige Collectie Phis. Instr: & Modellen zoude kunnen geplaatst worden. –" "Directienotulen", 17.01.1783, Haarlem, ATS, vol. 5.

¹⁴⁴ "men maar niet al te veel t'eener tijd wilde hebben"; "Notulen Tweede Genootschap", 17.01.1783, Haarlem, ATS, vol. 1382.

Not a man of moderation however, van Marum did not wait long before he presented the trustees with a suggestion as to what they could acquire for “their” instrument collection: an electrostatic generator. More to the point, he was not just suggesting they buy any electrostatic generator, but that they pay for the construction of “an Electrostatic Generator of exceptional size”. Amazingly, after having cleared up “some difficulties” – details as to what these were are not provided – the trustees agreed to pay a total of f2500,- for the construction of such a generator on April 11th 1784.¹⁴⁵ Within a month, van Marum presented his superiors with detailed specifications of the machine that the instrument maker John Cuthbertson and he had drawn up together. Although its completion was originally scheduled for February 1784, it was only installed in the Oval Room in December. In the months after that, van Marum built both the Foundation’s as well as his own reputation around this device, and for decades to come it constituted Teylers Museum’s *pièce de résistance*.

Meanwhile, the Foundation had also started building a library. Again, van Marum spearheaded these efforts. It is obvious from the Society’s early suggestion that the cupboards on the Oval Room’s gallery be used as bookshelves that there was never any doubt that books were to constitute one of the focal points of the Foundation’s collecting activities. The initial idea of the Oval Room functioning as a “bookhall” had obviously not been discarded in the two years between Barnaart’s death and the near-completion of the Oval Room. Yet even though it was evidently implicitly clear to all involved that the Oval Room was to function in large part as a library, it took over a year for some sort of acquisition policy to be formulated. It seems the trustees waited until an end to the interior refurbishing of the Oval Room was in sight. The minutes of the Second Society’s meetings states how in November 1783 they felt that “the erection of the Museum behind this Foundation House had now progressed so far, that there was reason to be sure that, next year, it would be entirely completed and finished”.¹⁴⁶ With van Marum acting as intermediary, the trustees then once again turned to the Societies, asking

“that the Societies will each reflect and then, communicating with each other, will conceive a plan to be handed over to the Directors for the creation of a Library and a specification of those Books that the Members of the Societies would deem to be of the greatest use for this Foundation”.¹⁴⁷

Minutes detailing the Theological Society’s response to this have not been preserved, but the Second Society recorded that

¹⁴⁵ “eene Electriseer Machine van buitengemene Grootte”; “eenige zwarigheden”; “Directienotulen”, 11.04.1784, Haarlem, ATS, vol. 5. The corresponding minutes of the Second Society’s meetings were either never drawn up or have not been preserved.

¹⁴⁶ “de bouw van ‘t Museum achter dit Fundatie-Huis thans zoo verre was gevorderd, dat men rede hadde voor zeker te stellen, dat ‘t zelve in ‘t naast volgende Jaar geheel volbouwd en afgemaakt zoude zijn”; “Notulen Tweede Genootschap”, 07.11.1783, Haarlem, ATS, vol. 1382.

¹⁴⁷ “dat de Collegien eerst elk in den haaren hunne gedachten wilden laten gaan, en, vervolgens met onderlinge communicatie, een plan beraamen, om aan Hun Heeren Directeuren over te geeven tot het formeeren van eene Bibliotheek, en eene opgave van die Boeken, welken de Leden der Collegien zouden oordeelen van de grootste nuttigheid voor deeze Stichting te weezen”; Ibid.

“it [was] understood unanimously that the place for the storage of books should not be overloaded, and that it was therefore impossible to think of a very extensive collection of everything belonging to each of the sciences dealt with here, but that only the most select books and works, which are of a great value and therefore rarely to be encountered in private collections, would be most suitable to be listed and recommended for the use of this Foundation.”

It was probably van Oosten de Bruijn who voiced the opinion “that for the Library of this Foundation most useful and most requisite is a fine collection of the editions of the Greek and Roman authors”.¹⁴⁸ This motion was accepted, but not before it had also been decided that the collection’s focal point with regard to the study of nature was to be geology, and books on fossils in particular.

It is worth noting that the idea was to acquire books that were too expensive to be purchased by private individuals, much in the same way that van Marum had suggested this for scientific instruments. No further explanation is provided as to why this point was emphasized. In both cases it might well have constituted a noble attempt at providing some sort of altruistic service to the scholarly community at large, but with the books as with the instruments it is equally likely that this suggestion was van Marum’s alone, and that he did not have private individuals as much as one single individual in mind, i.e. himself. Be that as it may, the statement on the acquisition of books in particular – because it was made in 1783, rather than at a later point in time like the statement on the instruments – can be seen as heralding the significant role the Teyler Foundation’s private collections were to play in the public realm. So, as was summarized in the minutes, it was decided

“that, as far as the Study of Nature [*Physica*] was concerned, the very wide field of Natural History would not be entered, as this could not be treated in its entirety in this foundation, and that only the subdivisional branch of fossils would be taken into consideration, to which purpose a respectable collection of minerals had already been acquired by this foundation.”¹⁴⁹

Indeed, talk of a “respectable collection” was not unjustified, as van Marum had not only been busy designing the electrostatic generator and buying books, but in the meantime was constantly busy expanding the Foundation’s geological collections.

The trustees had not only been pleased with his acquisitions at the auction of van der Meulen’s collection, but also agreed to focus exclusively on geological specimens in their efforts to build a collection, leaving all other branches of natural history to the Holland

¹⁴⁸ “[was] eenpariglijk begrepen, dat de plaats tot berging van de boeken geschikt, zooveel mogelijk diende gemenageerd te worden, en dat er dus niet te denken was aan eene zeer uitgebreide verzameling van alles, wat tot elke weetenschap, hier getraceerd wordende, behoorde, maar dat d’uitgezochte boeken, en werken, die van hoogen prijs zijn, en, daarom, seldom in particuliere verzamelingen worden aangetroffen, alleen en meest geschikt waren om ten gebruike van deeze Stichting te worden opgegeeven en aangepreezen.”; “dat voor de Bibliotheek van deeze Stichting allernuttigst en noodigst is eene schoone verzameling van de beste uitgaaven der Griekse en Romeinse Schrijveren”; Ibid.

¹⁴⁹ “dat, zoo veel betreft de *Physica*, niet zouwde worden getreden in ’t zeer ruime veld der *Historia Naturalis*, alzo die, in haare uitgebreidheid [fol. 92 begins] bij deeze fondatie niet stond te worden getraceerd maar dat daaruit alleen de tak der *fossilia* in aanmerking zouwde dienen genomen te worden, waartoe reeds een aanzienlijke verzameling van mein-stoffen bij deeze fondatie was geacquireerd.” Ibid.

Society. As keeper of the Holland Society's cabinet and representative of the Directors of the Society, van Marum had suggested that the Teyler Foundation buy the Holland Society's geological specimens off them at cost price, thereby preventing any future overlap of the two collections which, after all, were housed in the same town. Again, the trustees agreed, paying the Society a total of f400,-. In addition to this, the trustees also agreed to buy some geological specimens off van Marum, which he had brought back from a journey to Germany and the Southern Netherlands in the summer of 1782, hoping to sell them on to the Holland Society.

It was during this trip that van Marum had first laid his eyes on a collection for sale in Maastricht. This had originally been acquired by the Major Drouin. Van Marum first proposed incorporating this collection in the Foundation's in July 1783, but it took until April 1784 before he could pick it up, after having paid Drouin the handsome price of f2400,-. This collection included the petrified head of what van Marum still described as "a large fish", which was the source of much debate over the course of the following years, particularly regarding the question of whether it represented an extinct species or not. Initially the idea was that these were the fossilised remains of a crocodile or whale. By the early 19th century, the consensus was that van Marum had bought some kind of extinct lizard. By the 1820s, it was classified as a "mosasaur".

By the time of the acquisition of Drouin's collection, van Marum was clearly calling the shots as far as the Teyler Foundation's collections were concerned. And when the trustees once again came around to van Marum's home to inspect the fossils they had acquired, he took the opportunity to consolidate his informal position as head of the collections by seeking permission to buy specimens for the collection without prior permission from the trustees, within certain budgetary limits.¹⁵⁰ The reason he gave was that many traders of geological specimens passing through Haarlem only remained in town for a short period, which in turn meant van Marum did not have the time to check with the trustees whether they agreed with his recommendations for acquisitions. In addition to this, van Marum also suggested that he keep all those specimens in the collection that were present in duplicate at his own home, rather than at the Oval Room. These could then be used as barter.

Both proposals were formally approved by the trustees the following day, and van Marum was granted a budget of 20-30 ducats.¹⁵¹ These new rules constituted a major step in van Marum's gradual monopolisation of the Foundation's collections. Their significance becomes clear if one takes into account that just a few months earlier, in February 1784, he had still been compelled to solicit the opinion of the Second Society's other members regarding the possible purchase of a geological collection assembled by le Francq van Berkheij which had come up for sale.¹⁵² Although van Marum proposed to acquire it, his suggestion met with strong opposition from his fellow members, who were concerned that many of the specimens

¹⁵⁰ Martinus van Marum: "Journaal van mijne verrichtingen ter verkrijging eener verzameling van Fossilia in Teyler's Museum", 1782-1790, Haarlem, NHA, Archief van Marum, vol. 529, nr. 11d, 17.06.1784.

¹⁵¹ "Directienotulen", 18.06.1784, Haarlem, ATS, vol. 5 & Martinus van Marum: "Journaal van mijne verrichtingen ter verkrijging eener verzameling van Fossilia in Teyler's Museum", 1782-1790, Haarlem, NHA, Archief van Marum, vol. 529, nr. 11d, 19.06.1784.

¹⁵² "Notulen Tweede Genootschap", 06.02.1784, Haarlem, ATS, vol. 1382.

in van Berkheij's collection were already represented in the Foundation's own collection. They subsequently decided to acquire only those specimens from van Berkheij's collection which would complement the Foundation's. This, however, proved not to be feasible, and the plan fell through. Because the amount of money that would have been required for the purchase of van Berkheij's collection was higher than the budget van Marum was granted for negotiations on the Foundation's behalf some months later, he would not have been able to push this deal through according to the new guidelines either – but nevertheless, it is clear that with the introduction of the new rules he was gradually shedding the restrictions of having to answer not only to the trustees, but the Second Society too.

Van Marum's real coup and final step in gaining recognition as the head of the Foundation's collections, however, was still to come. Whether it was first mentioned at the same meeting at which van Marum suggested the new guidelines was not recorded; but it is not unlikely, because just one week later, van Zeebergh pointed out to the other trustees how

“the Cabinet of Fossils that has been bought, is already so important that it deserves to be examined by interested persons; that the Museum will be completed soon, and that af.[orementioned] Fossils can be placed in it; that in the meantime this collection could not be exhibited except under supervision of a capable man, as the risk is run otherwise that they will repeatedly be brought into disorder, and in some parts in an irreparable manner;”¹⁵³

The obvious choice for such a “capable man” was of course van Marum. It soon transpired that van Zeebergh had in fact already tested the waters and spoken to the young doctor in what was referred to as an “informal conversation”. Unsurprisingly, van Marum had declared he would be happy to take on the task. According to the minutes the mayor Kuits, who was not present at this particular meeting of the trustees, had previously declared his support for van Zeebergh's proposal, who subsequently had little difficulty in persuading the other two trustees that had shown up for the meeting, van der Vlucht and Hugaart, to ask van Marum “to take on both the Supervision of the Cabinet of Fossils and the general administration of the Museum”.¹⁵⁴ The exact details of his appointment as “Director of Teylers Musaeum” – the post was referred to as such in the heading summarizing the points discussed during the meeting – as well as van Marum's salary were still to be determined.

Intriguingly, there was also talk of a library that was to be placed at the director's disposal. In a way that defies coincidence, the description as to what this library was to contain is an almost verbatim copy of the Second Society's recommended acquisition policy from a few months earlier – save the idea that Greek and Roman Classics needed to be included. As the minutes read:

¹⁵³ “het Cabinet van Fossilia, thans aangekocht, reeds van dat aanbelang geworden is, dat hetzelfde verdiene van Liefhebbers beschouwd te worden; dat ook het Musaeum eerlang zal voltooid zijn, en gen.[oemde] Fossilia daarin zullen kunnen geplaatst worden; dat ondertusschen deeze verzameling niet kon ten toon opengelegd worden, dan onder opzigt van een kundig man, wijl men anderzins gevaar loopt, dezelve meermalen in verwarring gebragt te zien, en wel in zommige gedeeltens op eene onherstelbare wijze;” “Directienotulen”, 25.06.1784, Haarlem, ATS, vol. 5.

¹⁵⁴ “het Toezigt op het Cabinet Fossilia en het algemeen Bestuur van het Musaeum op zig te willen neemen”; Ibid.

“Following the proposal of Mr van Zeeberg it [is] decided to bring together a Collection of Books concerning Natural History, in the first place the Branch of Fossils, at the expense of this Foundation, which will remain the owner, but which collection will in due course be handed over to the Director for the use and study of these matters”.¹⁵⁵

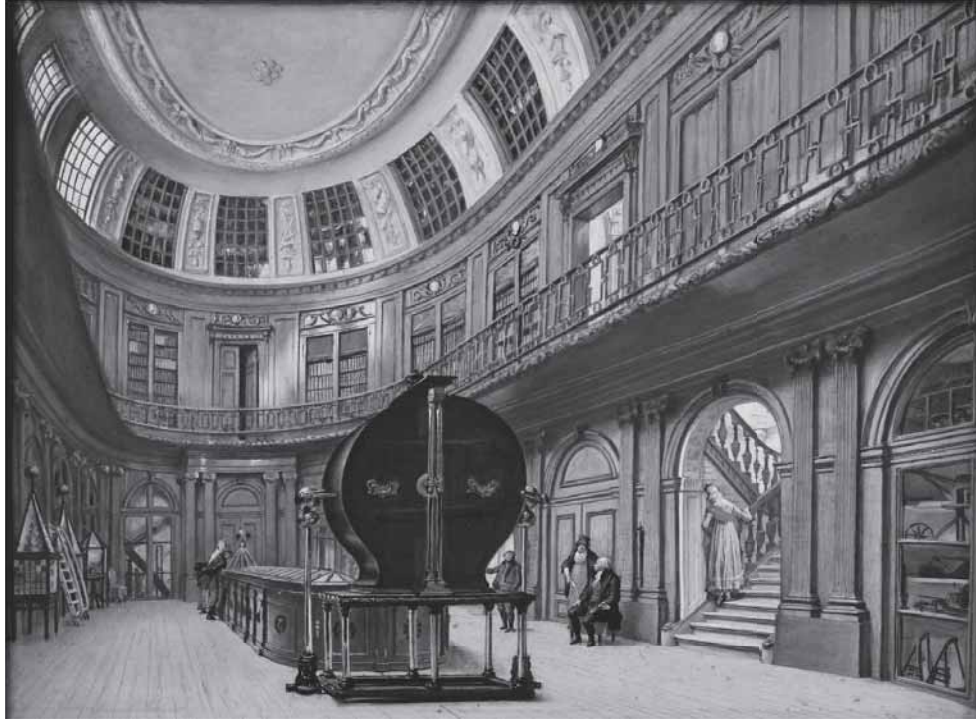


*Fig.4. A painting of the Oval Room by Wybrand Hendriks, c. 1810
(Teylers Museum, Haarlem, KS009)*

The minutes then specify that van Marum could even keep the books at his own house, provided he keep an inventory and return them in case he ever decided to resign from his position.

In other words, van Marum was now not only the undisputed head of the Foundation’s scientific collections, but had also ensured that the Foundation’s library fell under his purview. It is obvious that at this point not only van Zeebergh, but the entire board of trustees were so enamoured with van Marum that they trusted him enough to give him what essentially amounted to a *carte blanche* as far as their new “*musaeum*” was concerned. It is worth noting that there was little indication of the disputes and disagreements that were to lead to the nigh-on vitriolic accusations van Marum came forward with in his recollections

¹⁵⁵ “[Wordt] op voorstel van de Hr van Zeeberg beslooten eene Collectie van Boeken betrekkelijk op de *Historia Naturalis* en weleerst op den Tak der *Fossilia*, bijeentebrengen op kosten deezer Fundatie, aan welke dezelve ook in Eigendom zal blijven behooren, maar aan den Directeur in der tijd ten gebruike en ter beoeffeninge deezer Stoffe zal overgegeven worden”; *Ibid.*

some four decades later. On the contrary, in 1784 the trustees were evidently proud that they were able to provide the resources that enabled van Marum to develop his considerable talents to the full. What's more, the fact that he stayed on as director of Teylers Museum until his death some fifty years later and rejected a number of alternative job offers that came his way, indicates that he too realised that his work on behalf of the trustees was to their mutual benefit, and even suggests a certain sense of appreciation.

12. An Offer They Couldn't Refuse

General satisfaction with van Marum's past efforts for the Foundation's collections and a profound sense of trust at least are pretty much the only way to explain the exact terms and conditions under which van Marum was officially appointed "Director of the Physical and Natural History Cabinets and Librarian of Teylers Museum" (*Directeur van de Physische en Naturalien- Cabinetten en Bibliothecaris van Teylers Musaeum*) on September 25th 1784. Some three months after van Zeebergh's suggestion to take him on as head of collections, van Marum presented the trustees with a draft of his contract – or rather his "instruction", as contracts were always referred to at Teylers. They were accepted almost verbatim, and are worth reproducing here in full. They provide a clear summary of how van Marum saw his role at the new institution in 1784; they illustrate just how much freedom van Marum was given to mould the Foundation's collections according to his own ideal; and finally, they constitute probably the earliest example in history of a museum director's contract.

It is therefore worth quoting in full:

"Instruction for the Director of Teylers Musaeum

Art. 1

The Director shall have to keep in order and to have cleaned by servants, the Fossils, the Physical Instruments and the Models of useful Machines: as well as the Books that belong to the Foundation.

2.

Of all these collections he shall have to draw up the Catalogue, namely a Systematic Catalogue of Fossils, a second one of Physical Instruments and Models, and a third of the Books, and in each of them he shall have to record whatever is placed in the Musaeum from time to time.

These Catalogues always need to be at hand in the Musaeum, so that everybody can see from them what is to be found in the Musaeum and can read a description in them of what he notices in the Musaeum.

3.

The Fossils that can be stored in the drawers, he shall have to arrange in the best Systematical order, and in order to be able to do this so much the better, he shall have to make every effort

to acquaint himself with, and classify as to genus and species, the unnamed Fossils that the Foundation acquires by purchase or that are donated to it. He shall also have to place legends next to the Fossils in the drawers, from which can be read what species they are and where they are found; everything in the same way as he has done with the Fossils that are present in the Musaeum.

4.

Next to the Fossils as well as with the Physical Instruments and the Models that may be presented to the Musaeum, he shall, if they are pieces of considerable value, have to place the names of the benefactors, so that others who visit the Musaeum are tacitly encouraged to donate something as well.

Art. 5

As the compiler of these Collections, the First Director shall have to make special efforts to enrich them and add lustre to them as much as he can.

With that end in view he shall, a) have to find out what Fossils, Physical Instruments, Models and Books that would fit into the Collection can be acquired, and how they can be acquired at the lowest cost.

B) At Public Sales of Fossils, Physical Instruments and Models or Books as well as from what is offered privately, to buy that, in so far as the trustees are willing to authorise him, which according to the plans that have been made should be placed in the Musaeum and which is not excessively expensive.

6.

When it is decided to have Physical Instruments and Models manufactured for the Musaeum, he shall order them from the best instrument makers and in this keep the benefit of the Foundation as much as possible in mind.

And concerning the Instruments ordered he shall have to make sure that the instrument makers manufacture them with the greatest precision. He shall also have to test them before they are accepted and paid for by the Foundation.

7.

The Fossils of which duplicates are acquired at some purchase, he shall attempt to exchange, to the greatest benefit of the Musaeum, for such Objects as are absent in it: and in this matter he shall, in particular, have to keep in mind that he receives such Objects from the Owners or Directors of Cabinets whom he meets in return as cannot be easily acquired in another way.

Art. 8

The first Director in particular shall have to correspond with foreign Physicists, who may be able to assist him in extending the said Collection, in order to obtain in this way rare fossils from all countries, which are otherwise very difficult to acquire.

9.

The Director shall have to make efforts to carry out such experiments with the Physical Instruments as will serve most to the advancement of the Knowledge of Nature and therefore at the same time will add most Distinction to this Foundation.

In particular he shall attempt in this way to advise the Members of the Second Society if, in order to judge the Responses submitted to one of the Physical Questions proposed by them, certain experiments may be needed.

He shall also, as far as possible, make the Collection of Fossils useful in judging such essays as are submitted in response to contests concerning the natural History of the Earth, which have been set by the Second Society.

Art. 10

He shall have to describe the discoveries which he may be able to make with the Physical Instruments of the Musaeum, and, if the Trustees approve of it, he shall have the Instruments with which he has made such Discoveries or Experiments, illustrated and published under his supervision at the expense of the Foundation. The Electrostatic Generator which is being manufactured at the moment at the expense of the Foundation, and its effects will in the first place deserve to be illustrated and described.

11.

The Director shall be required to have illustrated and to describe such Fossils as will from time to time be judged worthy to be made publicly known. The Maastricht Fish Head [mosasaur] for example would be eminently worthy to have an illustration and description made of it, which could suitably be placed after the Prize Essays which the Second Society can expect in response to a question set by them concerning the Natural History of the Earth, the more so as this rare and little known object is most relevant to this topic.”¹⁵⁶

One point that transpires clearly from this document is that van Marum knew what he wanted. Not only had he been placed in charge of the Foundation’s collections, but with this contract the trustees essentially sanctioned his pursuit of his own personal interests. This in itself, as well as the actual phrasing of the document, indicates that van Marum knew which buttons to push with the trustees. It is striking for instance how the entire contract revolves mainly around the geological collection. Although this in itself did not run contrary to van Marum’s interests, what is noteworthy is how the contract gives a scientific reason which even echoes Teyler’s will for the systematic arrangement and expansion of the geological collection – i.e. supporting the Second Society in assessing entries to the prize essay competition – whereas the main reason provided as to why van Marum should perform scientific experiments with instruments from the Foundation’s collection was nothing more than the increase of the Foundation’s “Distinction” (*Celebritet*).

That van Marum chose to emphasise this reason can in turn be seen as one of many indications that the trustees and van Marum did not necessarily see eye to eye where the purpose of the instrument collection and the research performed with it were concerned. Fundamentally different ideas on the value and purpose of the pursuit of knowledge were at the bottom of this, and these differences were still to lead to some serious disputes over the following years.¹⁵⁷ A common interest in geological specimens and all the physico-theological implications of recent fossil finds as yet eclipsed this lingering conflict, but it is remarkable that as early as September 1784 van Marum evidently considered it wise not to provide too much detail concerning his plans for the instrument collection, elaborating instead on the collection closer to the trustees’ heart, thereby perhaps letting sleeping dogs lie.

¹⁵⁶ “Directienotulen”, 25.09.1784, Haarlem, ATS, vol. 5. For the Dutch original see Appendix 1.

¹⁵⁷ Mijnhard, *Tot heil van ’t mensdom: culturele genootschappen in Nederland, 1750-1815*, 366–369.

The document also clearly betrays just how ambitious van Marum was. It is worth noting how his contract already refers to the “the best instrumentmakers”, and geological specimens that “cannot be easily acquired in another way”. The best was just about good enough for van Marum.

Finally, the contract also reveals a little about how van Marum intended to use the museum space he had been entrusted with, i.e. the Oval Room. On the one hand, it was obviously supposed to function as a place where experiments could be performed, for example with the electrostatic generator. On the other hand however, van Marum was clearly equally aware of its aesthetic qualities, and the possibility of showcasing, if not items from the collections themselves, then at least the names of those who had donated the most precious of these items. The only way of explaining paragraph four of the contract is that the general aura of the new institution, i.e. the prestige associated with the disinterested pursuit of knowledge in the name of Teyler, which in turn was bolstered by the Foundation’s considerable financial muscle, was to incite further donations. For van Marum, this was another card he could play not only in his campaign to expand the collections, but simultaneously on his way towards consolidating his position as the head of a prestigious, well endowed research institute. Whatever his motives, he was capitalising on the Oval Room’s splendour.

There are more indications than this one paragraph in his contract that van Marum was well aware of how both the Oval Room and the collection it housed could hardly fail to impress visitors. Recall for instance that he kept geological specimens present in the collection in duplicate at his own house, where he seems also to have conducted all his business with travelling traders. Although he is likely to have done so for pragmatic reasons as well, one can imagine how it would hardly have helped his bargaining position if he had immediately initiated the traders into the magnificent splendour of the Oval Room. And almost ironically, at the same time, and whether he did it consciously or not, van Marum was also dissociating the Oval Room from the “unpleasant” or “filthy business” of day-to-day trading and bartering. Items that had entered and left van Marum’s home as tradable commodities with a (negotiable) price tag in the market for minerals, became something else once they entered the Oval Room: they were now part of a collection serving the purpose of disinterested research, which meant their value lay in their research value, and in the way they complemented other items in the collection. Crucially, this “commodity situation” was not temporary, but permanent.¹⁵⁸ Teylers Museum was here to stay, as van Marum made clear. Ironically, this in turn was precisely the prestige and aura he could then capitalise on in the market. A good example of this occurred in December 1784, when van Marum managed to persuade Pieter Alexander Hasselaer to donate the collection of minerals he had previously promised the Holland Society to Teylers Museum instead. Initially reluctant, Hasselaer was persuaded to

¹⁵⁸ “Commodity situation” is taken here in Arjun Appadurai’s sense of the term: Arjun Appadurai, “Introduction: Commodities and the Politics of Value,” in *The Social Life of Things: Commodities in Cultural Perspective* (Cambridge: Cambridge University Press, 1986), 13–16. In Appadurai’s terms, the objects in Teylers Museum are best described as “ex-commodities”.

support the new institution when van Marum assured him that he “could be assured of the long-term existence of the Museum of the Foundation”.¹⁵⁹

A further example illustrates how van Marum was well aware at least of the mineral collection’s potential to impress visitors: at the same meeting during which his contract was discussed, van Marum suggested to the trustees that two special foldaway showcases should be incorporated into the flat-top cabinet that Viervant was busy constructing for the centre of the Oval Room. As van Marum envisioned them – and as they were soon built – these showcases, situated on both sides of the cabinet, would fold away underneath its table-high surface. Their single purpose was to display “the most beautiful gold- and silver- Gemstones or other Fossils, which display themselves most beautifully to the eye, and as a result draw the greatest attention from the visitors”.¹⁶⁰

13. Open All Hours

The fact that van Marum was taking “visitors” (*bezoekigers*) into account already implies that visitors were a regular phenomenon at Teylers Museum, even during this early stage. Indeed, it is one of the most remarkable aspects of the history of Teylers Museum that, in principle, it was accessible without restriction from the very beginning on, and a little more needs be said at this point about the museum’s early public accessibility.

In his will, Teyler had stipulated that the collections stored in his former house in the Damstraat 21 were to be accessible to the members of both learned societies “at all times”.¹⁶¹ In what probably amounted to a gesture of goodwill towards van der Vinne and an attempt to guarantee that he could enjoy some privacy in the Foundation House, the trustees soon decreed that the members were only allowed to consult the collections “in the daytime, although the will states at all times”.¹⁶² What was more significant in the long term though, was that the way they phrased this apparent restriction on access to the collections, they now explicitly allowed the members to show the collection to interested third parties as well. The minutes record “that the Members have no Liberty to introduce a person or persons who are not Members of the Societies in any way at night to this House; which admission of Strangers the Trustees do not wish to contest in the Daytime.”¹⁶³

¹⁵⁹ “zijn Ed. op de duurzaamheid van het Museum der Fundatie konde staat maken”; Martinus van Marum: “Journaal van mijne verrichtingen ter verkrijging eener verzameling van Fossilia in Teyler’s Museum”, 1782-1790, Haarlem, NHA, Archief van Marum, vol. 529, nr. 11d, 04.12.1784.

¹⁶⁰ “de fraaiste goud- en zilver- Edele Steenen of andere fossilia, die zich het schoonst voor het oog vertoonen, en hier door de meeste attentie [sic] van de bezichtigers tot zich trekken”; Ibid., 25.09.1784.

¹⁶¹ “ten allen tijde”; Sliggers, *De idealen van Pieter Teyler: een erfenis uit de Verlichting*, 201.

¹⁶² “overdag, hoewel in het testament staat ten allen tijde”; “Directienotulen”, 30.10.1778, Haarlem, ATS, vol. 5.

¹⁶³ “dat de Leden geen Vrijheid hebben, om persoon of personen geen Lid of Leden van de Collegien zijnde, bij avond ten dezen Huize op eenigerleij wijze toete laten; welke admissie van Vreemdelingen Directeuren onder ondertusschen den Leden niet willen betwisten bij Dag.” Ibid.

Interestingly enough, the collections soon appear to have attracted some unexpected additional attention – certainly after the Oval Room was constructed. In May 1783 van der Vinne complained about the “many requests” he was receiving to view the museum and the collections.¹⁶⁴ The impression arises that he was talking of strangers not in any way involved in the Foundation’s work. This prompted the trustees to decide on a “provisional Rule” to regulate access to what they referred to as “the Musaeum”: all those in some way affiliated with the Teyler Foundation and anybody accompanying them were to be allowed to enter “at all times” (except at night, presumably); the same rule applied, in principle, for “well-known inhabitants of this City, or other well-known Groups”, although the trustees granted van der Vinne the right to ask them to return at some other time which happened to suit him better; finally, van der Vinne was allowed to send away “strangers or unknown Groups”, and point out to them that “the Musaeum” had not been completed yet.¹⁶⁵

This distinction between three visitor categories – beneficiaries of Teyler’s will, citizens of Haarlem, and “strangers” – was upheld over the course of the following decades, and provides a glimpse of the terms in which the trustees defined “the public”. That interested third parties, i.e. members of the public, were granted access was to gain huge significance as the decades progressed, because even though the basic rule that interested members of the public were to be granted access to the museum essentially never changed, the definition of what constituted that “public” did change profoundly, as did the expectations of members of “the public” as to what a museum was to provide them with. This inevitably had an effect on the entire character of Teylers Museum. As yet however, visitors from outside Haarlem were evidently still turned away.

Once van Marum had been appointed director of the new museum and the electrostatic generator installed in the Oval Room, however, he lost little time in requesting that the trustees decide on fixed opening hours for the new museum.¹⁶⁶ What they came up with in December 1784 was that residents of Haarlem could enter the premises on one day of the week – van der Vinne was allowed to decide which day – between the hours of 10am and 1pm. Visitors from outside Haarlem were to be granted access every day between noon and 1pm, and could obtain special dispensation to enter the building at a different time of day if their sojourn in Haarlem was only brief. No entry fee was required, but tickets had to be picked up at van Marum’s, who could therefore screen the visitors.

On December 24th the trustees convened again. Van der Vinne had let them know that Tuesdays would suit him best as the day on which residents of Haarlem could visit the museum. At the same time, however, he protested strongly about the “burden, difficulty and lack of freedom” the new regulations would cause him, pointing out that he had not expected anything like this when he accepted the position the Foundation had offered him.¹⁶⁷ He therefore requested that the museum remain closed on Sundays, which the trustees complied

¹⁶⁴ “veelvuldige aanzoeken”; “Directienotulen”, 23.05.1783, Haarlem, ATS, vol. 5.

¹⁶⁵ “provisioneelen Regel”; “het Musaeum”; “bekende bewooners van deeze Stad, of andere wel bekende Gezelschappen”; “vreemden of onbekende Gezelschappen”; Ibid.

¹⁶⁶ “Directienotulen”, 17.12.1784, Haarlem, ATS, vol. 5.

¹⁶⁷ “last, moeijlijkheid en onvrijheid”; “Directienotulen”, 24.12.1784, Haarlem, ATS, vol. 5.

with. But his frustration was exacerbated by the fact that van Marum had eagerly started experimenting with the new electrostatic generator – “even at night” (*ook al des avonds*), as van der Vinne lamented. If one takes into account that this electrostatic generator could generate sparks of up to 300.000 volts, one can imagine the noise the discharge must have made, not to speak of the electric field this induced. Van der Vinne must, quite literally, have been bristling, and his complaints were a harbinger of his imminent departure, in May 1785.

14. You Say Musaeum, I Say Museum...

Van der Vinne’s complaints not only reveal his own frustration with van Marum, but of course also prove that van Marum had been serious when he included the passage on conducting experiments as director of Teylers Museum in his contract. Although van Marum was soon forced to postpone his work with the electrostatic generator because of the “humid weather”¹⁶⁸, he eagerly set to work on a series of experiments on electricity whenever he could, wasted no time in getting the results published, and went to great lengths to distribute copies of the resulting treatise amongst even the most famous of his fellow researchers. (He managed to present Benjamin Franklin with a copy of his work, for instance.¹⁶⁹)

This is interesting on two levels. Firstly, van Marum’s work and the electrostatic generator’s sheer size did a lot in putting Teylers Museum on the map. But what is more important here is that, secondly, the museum became known because of the experiments performed there even though it had not originally been conceived as a place where such experiments were to be performed – or at least weren’t supposed to take centre stage. Recall how the building was initially referred to as a “bookhall”, how there was never any question that books were to be included in the collections, how the entire design of the building resembles a library from the late Renaissance more than anything else, and how the trustees were at first reluctant to accept van Marum’s proposal of buying instruments and models for the collection – albeit that they did give their full support to his efforts once they had been approved, and had not hesitated to provide considerable funds for the geological collection.

It has repeatedly been pointed out how there is very little concrete evidence as to what the trustees had in mind when they commissioned the Oval Room. But aside from the snippets of information that have been provided so far, there is one last major point that warrants closer scrutiny. That is the issue of what names were used to refer to the institution that eventually became Teylers Museum.

¹⁶⁸ “vochtige weder”; “Notulen Tweede Genootschap”, 04.02.1785, Haarlem, ATS, vol. 1382.

¹⁶⁹ Martinus van Marum, “Journal Concerning Physics and Natural History, and My Communications with Scholars During My Stay in Paris in July 1785 (*Journal Physique de Mon Séjour à Paris 1785*),” ed. E. Lefebvre, J.G. de Bruijn, and R.J. Forbes, vol. 2, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1970), 221.

The results of such an analysis are interesting in two respects. Even though a confusing variety of names was used to refer to the new institution, within a short period of time the terms “museum” and “musaeum” emerged as the ones that were most frequently used to denote the unit of the collections and the building together, i.e. the institution as a whole. On the one hand that underscores the idea that Teylers Museum had been conceived as a kind of late-Renaissance “temple to the muses”; on the other hand however – and realising this is crucial to an understanding of the museum’s subsequent development – Teylers Museum was actually one of the last of its kind. Just a few years later the political and cultural sea changes that swept Europe were set in motion. One tangible result of these changes was that the word “museum” began to carry completely new connotations, and was increasingly equated with publicly accessible, specialised collections. At the same time the growing specialisation within academia led to a stronger emphasis of the differences between the fine arts and the (empirical) natural sciences. Interestingly, “museums” in the new sense of the word were largely associated with the fine arts. This in turn is important to keep in mind when studying the history of Teylers Museum, because it of course housed both scientific collections and a collection of fine art. As the 19th century progressed, ever more importance was attributed to the collection of fine art at Teylers Museum too – and as the scientific collections’ role diminished and that of the art collections increased, Teylers Museum began to take on a role as a public art “museum” in the modern sense, and lose its role as a “temple to the muses”.

So let us take a look at how the new institution was initially labelled. Many of the terms used to refer to it have in fact already been mentioned above. The new building evidently started life as a “Bookhall”. Then, it was increasingly called a “musaeum”. The first time it is referred to by this name in writing is in the minutes of the Second Society’s meeting on December 10th 1779: this is the meeting at which the trustees officially informed the members of the Society about their new project.¹⁷⁰ However, “musaeum” was by no means the only term used to refer to the building. Very often, in fact, it was simply referred to as the “new building”, or something to that extent (such as *voorgenomen gebouw*, or just “building”). Then, in 1782, the term “Arthall” (*Konstzael*) is used alongside “Bookhall” for the first time, and the separate collections are referred to as pertaining to different “branches of connoisseurship” (*takken van Liefhebberij*).

Then, on January 17th 1783, the term “Musaeum Teylerianum” was first used in the minutes of the trustees’ meetings. One can’t go as far as to say that this constituted the christening of the new institution, because for many years all the other terms continued to be used almost interchangeably. What’s more, seemingly adding to the confusion, by this time the new institution is persistently referred to not as a “musaeum”, but as a “museum” in the Second Society’s minutes. So whereas van Marum referred to himself as the director of “Teylers Museum” in the draft version of his contract as it was drawn up in 1784, the version that was copied out in the minutes of the trustees’ meeting referred to “Teylers Musaeum”. Nevertheless, the usage of the words “musaeum” or “museum” to denote the unit of the collections and the building at this point is highly revealing.

¹⁷⁰ “Notulen Tweede Genootschap”, 10.12.1779, Haarlem, ATS, vol. 1382.

In order to be able to appreciate just how significant this is, one needs to learn a little more about the word “musaeum” itself, i.e. its etymological roots and the connotations it carried before and during the 18th century. Its origins can be traced back to Greek antiquity, and more specifically the *museion* in Alexandria.¹⁷¹ According to the few historical records that remain, this was a meeting place for scholars with a legendary library, all of which was devoted to the muses – hence *museion*. This, at least, was the general consensus at the end of the 18th century, as recorded in dictionaries all over Europe. However, this seemingly ignored the fact that a hill on which poetry was recited in Athens had also been named after the muses and might very well have formed the real origin of the word “museum” in all its varieties.

To the same degree to which Renaissance scholars now returned to the works and values of antiquity, the Alexandrian *museion* was rediscovered as one of the nodal points of the learned world of antiquity and began to gain almost mythical proportions. Soon, the Latin derivative of the Greek word, “musaeum”, was used ever more liberally and no longer just in referring to the Alexandrian institution itself, thereby acquiring broader connotations. In Renaissance Italy, for instance, “*musaeum* was an epistemological structure which encompassed a variety of ideas, images and institutions that were central to late Renaissance culture”, as Paula Findlen has eloquently shown.¹⁷² “Musaeum”, she elaborates, increasingly became “an apt metaphor for the encyclopaedic tendencies of the period”¹⁷³ and was ultimately associated more and more with the collection of knowledge, until “*musaeum* was a locating principle, circumscribing the space in which learned activities could occur”.

At this point it is important to emphasise that any definition of the word “musaeum” was not in any way reduced to – or even necessarily associated with – material collections. Scholarly journals or the collected works of one author for example were denoted as “musaeums” too.¹⁷⁴ In late 18th century France “*muséum*” could essentially be equated with “academy”, i.e. in some sense with a collection of scholars and all the material prerequisites for them to develop their intellect.¹⁷⁵

It is in this sense – i.e. in the sense of a collection of knowledge, rather than a collection of material objects – that one needs to understand the choice of the label “musaeum” for the new institution of which van Marum was appointed the director (i.e. the future Teylers Museum). What is particularly striking in this respect is that the trustees persistently used the Latin spelling when referring to their new project – whether they did so consciously or not is hardly important, because the spelling of this word only highlights how firmly the trustees were rooted in the humanist thought of the late Renaissance. Alongside the examples already mentioned above, this is further underscored by the fact that they had the Oval Room

¹⁷¹ Unless otherwise indicated, the following summary is based on information provided in the articles: Paula Findlen, “The Museum: Its Classical Etymology and Renaissance Genealogy,” *Journal of the History of Collections* 1, no. 1 (1989): 59–78; Paula Young Lee, “The Musaeum of Alexandria and the Formation of the Muséum in Eighteenth-century France,” *Art Bulletin* 79, no. 3 (1997): 385–412.

¹⁷² Findlen, “The Museum: Its Classical Etymology and Renaissance Genealogy,” 59.

¹⁷³ Ibid.

¹⁷⁴ Ibid., 64.

¹⁷⁵ Lee, “The Musaeum of Alexandria and the Formation of the Muséum in Eighteenth-century France,” 386.

decorated with busts of important Greek philosophers, and that they acquired the entire *Encyclopédie* by Diderot and d'Alembert as early as 1780.

If one keeps this in mind, it becomes a little clearer why van Marum's desire to perform scientific experiments was not necessarily perfectly compatible with the trustees' ideals. Although adherents to the various strands of humanist thought were not necessarily opposed to experiments as way of gaining more knowledge, they would surely not have allotted them the same pivotal importance as van Marum did. Before this background it becomes significant that van Marum always referred to the institution of which he had been made the head as a "museum", rather than a "musaeum". It provides a further indication that he might not have felt constrained by the tenets of antique philosophy in the way the trustees did.

Nevertheless it should also be emphasised that with regard to the museum van Marum and the trustees were in agreement more than they were in discord. Significantly, they soon found themselves on the same side of a kind of demarcation line that began to form within the world of collecting as a result of the political and cultural changes that are often described as the advent of "modernity". As was already said above, "museums" were increasingly drawn into the public spotlight and began to be defined as public institutions, sometimes even accessible free of charge. That is not to say that late Renaissance collections didn't have a "public" function too – on the contrary. Findlen for instance summarises: "The museums of the late Renaissance mediated between public and private space, straddling the social world of collecting and the humanistic vocabulary which formed its philosophical base".¹⁷⁶ But with the advent of modernity, "museums" increasingly catered to ever larger audiences and came to be defined primarily through the display of the collections they housed, i.e. through their exhibitionary role. In this sense, they became – and were expected to be – ever less "exclusive", a development both van Marum and the trustees will have seen with some scepticism.

These changes were gradual, they were slow, they were subtle, they are therefore difficult to pinpoint and they are further obfuscated by the fact that in almost all languages the term "museum" was used to refer to both elitist, scholarly centres of the Renaissance, and institutions whose primary function was to provide access to valuable collections to as many people as possible, i.e. to exhibit. Yet there is no denying that fundamental changes were taking place, and one language in which they are reflected in contemporary semantics, is French. As Paula Young Lee has shown, as from the early 19th century the word "musée" was used to describe a new type of institution, and it was clearly distinguished from the word "muséum". As she puts it: "whereas *muséum* was fixed, conservative, "ancient" in meaning, *musée* was fluid, progressive, "modern" in implication."¹⁷⁷ She invokes the work of the classicist Étienne Michon to show how "*musée* designated a general exhibitionary practice, while *muséum* was a particular intellectual project, and that project was first begun in ancient Alexandria".¹⁷⁸

¹⁷⁶ Findlen, "The Museum: Its Classical Etymology and Renaissance Genealogy," 73.

¹⁷⁷ Lee, "The Musaeum of Alexandria and the Formation of the Muséum in Eighteenth-century France," 411.

¹⁷⁸ Ibid.

Interestingly, the emergence of this new type of “museum” – the “musée” in French – coincided with an increasing specialisation of all areas of knowledge. Art and science for instance were increasingly viewed as distinct and mutually exclusive. More importantly, the new type of “museum” was associated first and foremost with the fine arts – far more, at any rate, than with the empirical sciences. Young Lee for instance drew attention to the fact that it was no coincidence that the *Musée du Louvre*, as it was called after 1797, was labelled a “musée”, whereas its counterpart for natural history, the *Muséum d’Histoire Naturelles*, continued to be referred to as a “muséum”, harking back to the Latin origins of the word.¹⁷⁹ For many decades, the latter institution did indeed define itself far more through the experimental research conducted in its name, than through any form of exhibition on natural history.

Before assessing the impact these global developments had on Teylers Museum however, it is important to learn more about van Marum’s activities there. Contextualising his activities, establishing in how far they were rooted in his ideas on the production and consumption of knowledge and assessing what sort of impact he had on the collection and the Oval Room is the topic of the next chapter.

¹⁷⁹ Ibid., 410–411.

Chapter III: Van Marum – Empiricism and Empire

I Van Marum's Work at Teylers Museum

1. You Win Some, you Lose Some

After having spent more than one and a half years helping John Cuthbertson construct the largest electrostatic generator ever to be built and helping him negotiate all the unexpected challenges this brought about – the huge, 65 inch glass discs that are rotated to generate friction were in themselves an extraordinary feat of glass casting – finally seeing the machine installed at Teylers Museum and being able to crank it up for the first time must have made van Marum feel like a child unwrapping an eagerly anticipated birthday present.¹ After much delay this stage was finally reached in December of 1784, just one month after van Marum had been appointed director of Teylers Museum. Conscious of whom he had to thank for this amazing machine, van Marum wasted no time in demonstrating it to the trustees of the Teyler Foundation.²

But as enamoured as van Marum was with this powerful device now at his disposal, his fellow employee of the Teyler Foundation, Vincent van der Vinne, was not. As was already mentioned in the previous chapter, it did not take him long to complain about van Marum's constant experimenting to the trustees. They, however, took van Marum's side in this dispute and explicitly stated that "because of the extensive aims that the Trustees have in mind for the public good, there will necessarily be some nuisance for the Occupant [of the Foundation House]". Because van Marum wanted to perform experiments with the electrostatic generator, he would have to "be present repeatedly in the Musaeum for that purpose both in the evening and in the daytime".³

¹ Van Marum kept notes of the process of its construction: Martinus van Marum: "Journaal van mijne Verrichtingen ter verkrijging eener Verzameling van Physische Instrumenten & Modellen van nuttige Werktuigen in Teylers Museum", 1783-1790, Haarlem, NHA, Archief van Marum, vol. 529, nr. 11d, fol. 1-23. On the machine and its construction see also: Willem D. Hackmann, *John and Jonathan Cuthbertson: The Invention and Development of the Eighteenth Century Plate Electrical Machine* (Leyden: Rijksmuseum voor de Geschiedenis der Natuurwetenschappen, 1973), 29–31.

² "Notulen Tweede Genootschap", 04.02.1785, Haarlem, ATS, vol. 1382.

³ "uit hoofde der uitgebreider oogmerken welke Directeuren zig ten nutte van het algemeen voorstellen, noodwendig eenige meerdere last voor den Bewooner [van het Fundatiehuis] volge"; "ten dien einde meermaalen zo bij avond als bij dag zig in het Musaeum [...] bevinden"; "Directienotulen", 24.12.1784, Haarlem, ATS, vol. 5.

Van der Vinne was granted some respite when damp weather prevented van Marum from continuing with his experiments throughout the winter, but the apparent serenity did not last long. As soon as “an unexpected Frost” befell Haarlem in early February, van Marum took this opportunity to demonstrate the electrostatic generator to his fellow members of Teylers Second Society.⁴ They were suitably impressed, recording that the “experiments [...] have completely answered or even surpassed the expectations that had been formed of this exceptionally large and excellent piece of artisanship”.⁵

Van der Vinne, on the other hand, will hardly have appreciated that this demonstration was given in the evening. Just three months later, in fact, he informed the trustees that he was resigning from his post as caretaker of the Foundation’s art collection and his wife and he were moving out of the Foundation House, citing “the inconveniences of living in this House and in particular those that they have suffered recently from Mr van Marum”⁶ After the trustees’ attempts at persuading van der Vinne to stay on failed, they accepted his resignation and by the end of June had chosen Wybrand Hendriks as his successor. Hendriks was to stay on until 1819.

2. The Bigger the Better

On the very same day that van der Vinne handed in his resignation, van Marum informed the Second Society that he wanted to publish the results of the series of experiments he had been performing with the electrostatic generator in the Society’s Proceedings (*Verhandelingen uitgegeven door Teyler’s Tweede Genootschap*) – the fact that he had enough material to fill an entire booklet in itself already seems to underscore that he had indeed spent every possible moment working with the new machine, and that van der Vinne’s complaints were perhaps not entirely unfounded. Never one to do things by halves, van Marum had even prepared a preliminary version of an introduction to the treatise on his experiments already, and informed his fellow members that the trustee van Zeebergh himself had suggested publishing the results of his experiments as a third volume of the Society’s Proceedings (the first two volumes had contained treatises by the winners of the Society’s prize essay competitions) – clearly, the trustees’ backing had already been secured.⁷

⁴ “Notulen Tweede Genootschap”, 18.02.1785, Haarlem, ATS, vol. 1382.

⁵ “een onverwachte Vorst”; “proef-neemingen [...] allezins hebben beantwoord aan, of zelfs overtroffen de verwachtingen, die men van dit ongemeen groot en voortreflijk konst-stuk had opgevat”; Ibid.

⁶ “de lastigheeden der bewoning van deezen Huize en bijzonder die welke zij zints eenigen tijd door de Hr. van Marum lijden”; “Directienotulen”, 06.05.1785, Haarlem, ATS, vol. 5.

⁷ “Notulen Tweede Genootschap”, 06.05.1785, Haarlem, ATS, vol. 1382.

Roughly a month later, the treatise had been printed, revealing van Marum's ardent labour of the past months. The details of his research have been summarised and discussed elsewhere, so a short overview should suffice for all purposes here.⁸

It is particularly interesting to note that his experiments did "not together form any unified research project".⁹ It seems rather that van Marum applied the unprecedented high voltages the machine could generate to a variety of experimental set-ups that were being controversially discussed at the time. He indicates as much in the preface to the treatise, when he recapitulates:

"[T]he history of Electrical Science teaches us that progress in this science has been made in step with the use of ever larger electrical instruments giving a more powerful electrical force. Reflecting on this, there seemed to me to be every ground for hoping that a still more powerful electrical force than used so far, if such could be produced, would lead to new discoveries."¹⁰

In other words: "the bigger the better", and van Marum was hoping to be able to resolve some controversies about the nature of electricity with Cuthbertson's generator.

It is equally important to note that van Marum was not performing these experiments on his own. This would in fact have been impossible for the simple reason that at least two people were needed to crank up the machine. But van Marum did not only employ mere assistants to perform menial tasks, he was joined by other eminent scholars in performing experiments in the Oval Room. More specifically, he was regularly joined by John Cuthbertson, Adriaan Paets van Troostwijk, Jan Rudolph Deiman and Jan Hendrik van Swinden. For a brief while John Cuthbertson was even paid the handsome sum of f200,- a month to take care of the instrument and its accessories, which put him roughly on par with van Marum in terms of salary.¹¹ Adriaan Paets van Troostwijk and Jan Rudolph Deiman built a reputation as some of the finest chemists of the Netherlands. Together with van Marum they used the electrostatic generator to find out more about the combustion of gases, the oxidation of metals – which was then referred to as calcination – and the conductivity of various metals and other substances. Van Swinden and van Marum focused on the former's longstanding interest in magnetism, testing the effect the charges generated by the electrostatic generator had on permanent and artificial magnets. At one point they saw themselves confronted with – and were puzzled by – electromagnetic effects, but did not pursue these any further, as Oersted famously did some 40 years later.

⁸ Willem D. Hackmann, "Electrical Researches," vol. 3, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1971), 329–378; H.A.M. Snelders, "Martinus van Marum En de Natuurwetenschappen," in *Een Elektriserend Geleerde: Martinus van Marum 1750-1837*, ed. Lodewijk. C. Palm and Anton Wiechmann (Haarlem: J. Enschedé, 1987), 158–168.

⁹ Hackmann, "Electrical Researches," 330–331.

¹⁰ Martinus van Marum, "Description of a Very Large Electrical Machine Installed in Teyler's Museum at Haarlem and of the Experiments Performed with It," ed. E. Lefebvre, J.G. de Bruijn, and R.J. Forbes, vol. 5, *Martinus van Marum: Life & Work* (Leyden: Noordhoff International Publishing, 1974), 4.

¹¹ Gerhard Wiesenfeldt, "Politische Ikonographie von Wissenschaft: Die Abbildung von Teylers 'ungemein großer' Elektrisiermaschine, 1785/87," *NTM* 10 (2002): 226.

On occasion the members of Teylers Second Society were involved in the experiments as well. The minutes of a Society's meeting in early March 1785 contain a graphic description of what they witnessed: Van Marum had crisscrossed the Oval Room with a long, thin wire, through which – in contemporary wording – “electric fire-stuff” (*electric vuur-stof* or phlogiston) was then channelled. The wire immediately started glowing, which in itself must have looked impressive. Although the description is slightly ambivalent and it is not entirely clear what the experiment entailed, what clearly transpires is how spectacular it must have been. The members described how they had the impression that the wire was “surrounded by long fiery fluff”, and that it “as soon as touched with a finger, emitted sparks of fire.”¹²

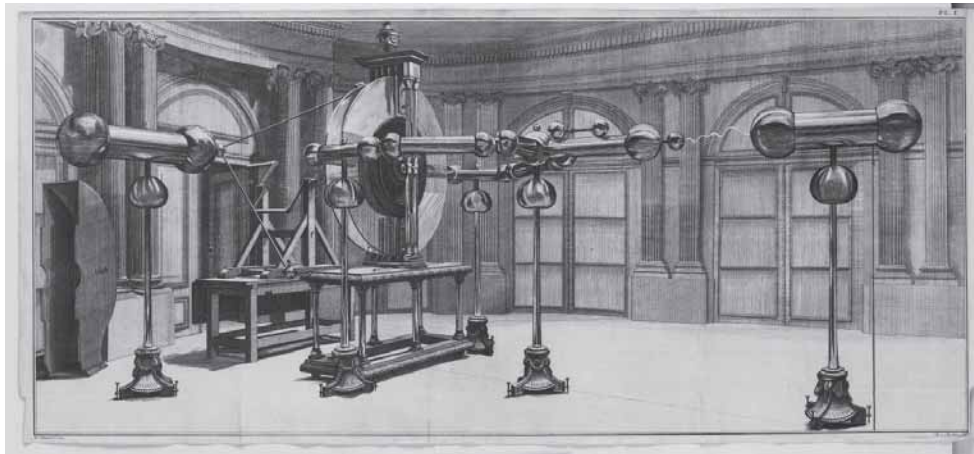


Fig.5. The electrostatic generator as depicted in van Marum's "Description" of 1787 (Teylers Museum, Haarlem)

At one point even van Marum's wife was drafted in to help with an experiment. Van Marum was trying to establish whether an electric charge had any effect on a human's pulse rate, and tried this on all of the above named associates. Finally, he also measured Joanna's pulse rate, as well as that of a young girl, after they had been subjected to a slight electric charge. No connection could be established.

3. A World Wide Web

The way in which the first experiments conducted with Cuthbertson's electrostatic generator were essentially a joint effort – if one that was orchestrated and coordinated by van Marum – is reflected in his frequent use of the pronoun “we” instead of “I” in the 1785 treatise. The team spirit he displayed at this stage of his career in turn reflects his networking skills, which

¹² “met lang pluis van vuur omgeeven”; “bij d'eerste aanraaking met den vinger vonken vuurs van zich gaf; “Notulen Tweede Genootschap”, 04.03.1785, Haarlem, ATS, vol. 1382.

he was about to unleash on the scholarly community beyond the borders of the Dutch Republic. His directorship of the Holland Society's natural history cabinet had already provided him with the means to become acquainted with foreign scholars – Alessandro Volta for instance had visited the cabinet in 1782, and many years of fruitful correspondence between the Italian and van Marum ensued. But the electrostatic generator of course provided an even better way to attract the attention of other researchers, already because of its sheer force. This political angle also helps explain why van Marum was so quick to publish a treatise describing the machine itself and detailing the experiments he had already conducted in the few months of its existence – although a genuine desire to share these results and contribute to the body of scientific knowledge as a whole are, as ever, equally indisputable with van Marum. There is no reason to doubt his statement in the publication's preface that "My principal object in making so great an effort to obtain a greater electrical force and to experiment with it, has been no other than to satisfy my desire to contribute something to the advancement of Natural Science, a science which, as it gives us more than any other human knowledge, some insight into the great wisdom of the Creator, I hold in the highest respect."¹³

Yet it is perhaps equally revealing that an immense budget was reserved for the illustrations accompanying van Marum's descriptions of the electrostatic generator. Amazingly, the costs for the prints that were included in the first treatise ultimately even exceeded those of the machine itself!¹⁴ As the adage goes, "a picture says more than a thousand words", and the more impressive an image, the more likely it will leave an indelible impression on the reader's memory. If the aim of the illustrations accompanying the treatise was indeed not only to help the reader understand the experiments and their results, but also to impress the reader, this was part of a longer term strategy on van Marum's part: in the instructions van Marum had drawn up for himself as director of Teylers Museum in 1784 he had already mentioned such illustrations.

Another point van Marum included in the 1785 treatise probably as much out of a sense of genuine altruism as for the purpose of piquing fellow experimenters' curiosity in an effort to engage with them, was an offer to perform any experiment suggested to him by others. He even promised not to be selective about the experiments he performed, writing:

"[...] I invite every Physicist (and this is the main reason which prompted me to an early publication of the description of this machine and of the experiments with it, demonstrating its great power) to kindly let me know his ideas or views on further experiments, which, with the aid of so great a force as is provided by this machine, may give any hope of leading to some fresh discovery. Any experiments so suggested I will gladly carry out, provided the required equipment is available, and report on the result in the first sequel to this volume, specially mentioning the name of whomsoever has given me the idea for such an experiment."¹⁵

¹³ Marum, "Description of a Very Large Electrical Machine Installed in Teyler's Museum at Haarlem and of the Experiments Performed with It," 7.

¹⁴ Wiesenfeldt, "Politische Ikonographie von Wissenschaft: Die Abbildung von Teylers 'ungemein großer' Elektrisiermaschine, 1785/87," 222.

¹⁵ Marum, "Description of a Very Large Electrical Machine Installed in Teyler's Museum at Haarlem and of the Experiments Performed with It," 7.

Although the actual publication of the description of the experiments suggested by others was delayed for many years, only coming out in 1795, van Marum apparently was contacted by many fellow experimenters in the immediate aftermath of the first treatise, and did keep his promise. As he reported to his fellow members of the Second Society in October 1785, “after the publication of the experiments that had been carried out with the large electrostatic generator belonging to this Foundation” he had been “stimulated from all sides by many prominent men to carry on with these experiments, and to continue them in all possible ways, while they promised to cooperate, and to communicate their own findings”.¹⁶

Van Marum saw to it that his treatise was widely circulated, i.e. sent to academies around the world, from Petersburg to London. What’s more, he did not only wait for other scholars to approach him, but actively sought out other researchers whom he thought might be interested in his results.

That he managed to speak to Benjamin Franklin was already mentioned before. This happened during a trip of van Marum’s to Paris, for which he set out in June 1785. He had already been elected a foreign correspondent of the *Academie Royale des Sciences* two years previously, but now set out to acquaint himself with this illustrious institution, taking with him letters of recommendation from Petrus Camper, and copies of the treatise on the electrostatic generator.¹⁷ Franklin was about to leave France to return to America, but agreed to see the young Dutchman just two days before his departure. In all likelihood the main reason the famous American granted van Marum some of his scarce time was that the latter claimed to have found proof of Franklin’s one-fluid theory of electricity. At the time there was much debate about the nature of electric charges, the general assumption being that there was such a thing as an electric fluid. But whereas many scholars were convinced there were two such fluids, corresponding with the two kinds of mutually exclusive and repelling charges that could be measured, Franklin posited that there was but one such fluid, and that a lack of this substance led to what he labeled as “minus” electrification, whereas an excess of this substance led to “plus” electrification.¹⁸ What van Marum, together with Cuthbertson, had succeeded in doing was to create 24-inch long, “snake-like sparks of the thickness of a fountain-pen”. As has been explained elsewhere, “[t]hese sparks had numerous side branches; by carefully noting their form and direction, they [van Marum and Cuthbertson] found that the latter was the same for all ramifications.”¹⁹ Van Marum, maybe a little hastily, concluded that this proved Franklin’s theory. The great man himself as well as others such as Volta, fully accepted this. Van Marum reported Franklin as saying “C’est donc par là que ma theorie d’un

¹⁶ “na d’uitgaave van de gedaane proeven met de groote electriseer-machine van deeze Fondatie”; “door veele voornaame mannen, van alle kanten [was] aangespoord, met deeze proef-neemingen te continueeren, en die, op alle mooglijke wijzen, voort te zetten, onder belofte van denzelver mede-werking, en mededeeling van hunne bevindingen”; “Notulen Tweede Genootschap”, 27.10.1785, Haarlem, ATS, vol. 1382.

¹⁷ Trevor H. Levere, “Martinus van Marum and the Introduction of Lavoisier’s Chemistry in the Netherlands,” vol. 1, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1969), 183–184.

¹⁸ John L. Heilbron, *Electricity in the 17th and 18th Centuries: a Study of Early Modern Physics* (Berkeley; Los Angeles; London: University of California Press, 1979), 328–330.

¹⁹ Levere, “Martinus van Marum and the Introduction of Lavoisier’s Chemistry in the Netherlands,” 177. See also: Heilbron, *Electricity in the 17th and 18th Centuries: a Study of Early Modern Physics*, 441–442.

fluide electrique simple est prouvee, est maintenant il faut renoncer à la theorie de deux sortes de fluids electriques.”²⁰

4. From Physics to Chemistry

But while his meeting with Franklin – whom he duly presented with a copy of the 1785 treatise – is sure to have constituted one of van Marum’s personal highlights on his trip to Paris, what turned out to be equally, if not even more, important in the long term was van Marum’s acquaintance with Antoine Laurent Lavoisier, some of his acolytes, and their ideas on chemistry.

The full significance lies in the revolutionary character of these ideas. It is too simple to claim that Lavoisier was the sole father of analytic chemistry, but one can hardly overestimate his importance in its establishment. Even if his work was heavily criticised and met with stark resistance by prominent contemporaries such as Joseph Priestley or Henry Cavendish, there is no denying that Lavoisier’s contemporaries had huge respect for his towering intellectual capacities. Over the years he gradually evolved into a figurehead for a new approach to the composition of the material world – even before he tragically achieved ultimate cult status when he was beheaded in 1794, in the prime of his scholarly career, having misjudged the dangers of the Reign of Terror that followed upon the French Revolution.

Tragedy or political revolution was far from anyone’s mind in 1785, however. Lavoisier himself was too busy to be able to engage with van Marum for very long, although that might have been the case if van Marum had been able to dine with Lavoisier upon the Frenchman’s invitation.²¹ Van Marum regretted having to refuse because of a prior appointment. Despite this, van Marum spent lots of time with Gaspard Monge and Claude Louis Berthollet, two eminent and ardent supporters of Lavoisier’s and accomplished experimentalists in their own right.

Van Marum’s own history can serve to illustrate just how groundbreaking Lavoisier’s ideas on chemistry were. Recall how the topic of the treatise van Marum had submitted in reply to Teylers Second Society’s first prize essay competition, and for which he had received a gold medal, had been “phlogisticated and dephlogisticated air”. “Phlogiston” was a hugely important, yet elusive, postulated chemical substance that was invoked in almost every explanation of chemical processes at the time. The idea was that every combustible substance contained this phlogiston, and released it upon combustion. Other processes, which would

²⁰ As quoted in: Levere, “Martinus van Marum and the Introduction of Lavoisier’s Chemistry in the Netherlands,” 177.

²¹ Martinus van Marum, “Journal Concerning Physics and Natural History, and My Communications with Scholars During My Stay in Paris in July 1785 (*Journal Physique de Mon Sejour à Paris 1785*),” ed. E. Lefebvre, J.G. de Bruijn, and R.J. Forbes, vol. 2, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1970), 225.

today be referred to as the oxidation of metals, were explained with the aid of phlogiston as well.

What Lavoisier now did was dispense with this “phlogiston”. Aided by the increasing realisation that there were different types of “air”, the subsequent emergence of pneumatic chemistry and above all the discovery of “dephlogisticated air” (later termed “oxygen”) by Priestley and Scheele in the early 1770s, Lavoisier rendered phlogiston obsolete by postulating that combustion led to a recombination of the combustible substance and some part of “air”, specifically oxygen. Crucially, he underscored this through precise measurements of the substances and the air samples in which controlled combustion took place. This was particularly important because one major issue surrounding phlogiston had always been the question of weight loss: why could substances gain weight during combustion, if they lost phlogiston? Answers were complicated by the elusiveness of phlogiston, with speculation going as far as to attribute negative weight to this mystery substance. Lavoisier now cunningly demonstrated that all weight changes could be attributed to the air involved in combustion, i.e. that the total weight of all substances – air included – remained the same.

All this is not to say that these revolutionary ideas were immediately accepted by Lavoisier’s peers. On the contrary, after years of controversy his form of chemistry was only just beginning to gain traction when van Marum visited Paris. The discovery that water was a compound of oxygen and hydrogen formed a milestone on the way to the general acceptance of Lavoisier’s ideas. At the same time however, many controversial issues remained. Almost ironically, for instance, Lavoisier had dispensed with phlogiston, but introduced a new elusive substance, the “caloric”, which was associated with heat. Caloric theory remained in use until well into the 19th century, before being replaced by a mechanical theory of heat.

What is important here, however, is that van Marum returned from Paris excited by the possibilities and the elegance of what was referred to as the “new chemistry”. The conclusive experimental evidence presented to him by Berthollet and Monge, along with the relative simplicity, i.e. elegance, of Lavoisier’s theory had convinced van Marum that the eminent Frenchman was on to something.²² He now set out to corroborate what he had learnt, and subsequently convince his fellow chemists in the Netherlands of the new theory’s merits.

To this end, he started experimenting with the electrostatic generator again as soon as possible, again drafting in Paets van Troostwijk for help, particularly where the combustion of gases was concerned. Although they were not convinced instantly, Paets van Troostwijk and Dieman soon adhered to the new chemistry as well.

The results of their experiments were published two years later, in what was titled the “First Sequel to the Experiments performed with Teyler’s Electrical Machine”, again published as a

²² For his reasons for accepting Lavoisier’s system see: Levere, “Martinus van Marum and the Introduction of Lavoisier’s Chemistry in the Netherlands,” 190–214; Snelders, “Martinus van Marum En de Natuurwetenschappen,” 167–168.

separate volume of the Proceedings of Teylers Second Society.²³ The final section contained a thirty-page summary of Lavoisier's ideas in Dutch, written by van Marum, and titled "Outline of the Teaching of M. Lavoisier" (*Schets der Leere van M. Lavoisier*). In what can be seen as typical of the incredible speed with which van Marum went to work, this proved to be the world's very first comprehensive, textbook-like overview of Lavoisier's new chemistry.²⁴ Even the Frenchman himself only completed his own – obviously far more detailed and far-reaching – publication titled *Traité élémentaire de chimie* some two years later, in 1789.

5. Less isn't More

On a different level, what is striking about van Marum's experiments at Teylers Museum up until this point is that they were all performed with the electrostatic generator. There is a very simple reason for this: until 1789 the museum's entire instrument collection effectively consisted only of Cuthbertson's machine and some accessories. This machine had of course not come cheap, and it provided van Marum with plenty of opportunities in itself of performing experimental research – but it was not as if he did not want to expand the collection. On the contrary, much to his chagrin, the trustees pretty much refused to allocate the museum any extra funds after 1784. This was not only the case with respect to the instrument collection: when van Marum had exceeded the budget the trustees had granted him for acquiring geological specimens for the museum at an auction in April 1785, he tried to sell them "a Beautiful Piece of petrified Wood" which he had acquired for f100,- without checking with his superiors first, presumably arguing that it fit in well with the rest of the collection. The offer was refused, however. And even more importantly, van Marum was informed that the trustees "have decided [...] for the time being not to spend more money on this Area".²⁵

There were a number of reasons for this tightening of the purse strings. One of these was surely that the trustees had just lost their court case against P. Klaarenbeek, and saw themselves forced to pay out a considerable portion of Teyler's assets to Klaarenbeek as a legal heir. Other reasons were the high costs incurred by the construction of the museum itself and the construction of the new almshouse, which had only just begun. Van Marum recalled

²³ Martinus van Marum, *Eerste Vervolg der Proefneemingen met Teyler's Electrizeer-Machine in 't Werk gesteld*, vol. 4, Verhandelingen uitgegeven door Teyler's Tweede Genootschap (Haarlem: J. Enschedé; J. van Walré, 1787). This has recently been translated into English and republished: Martinus van Marum, "First Sequel to the Experiments Performed with Teyler's Electrical Machine," vol. 5, Martinus van Marum: Life & Work (Leyden: Noordhoff International Publishing, 1974), 59–144.

²⁴ Levere, "Martinus van Marum and the Introduction of Lavoisier's Chemistry in the Netherlands," 188.

²⁵ "een Schoon Stuk versteend Hout"; "oordeelen [...] aan deezen Tak vooreerst niet meerder tekoste te moeten leggen"; "Directienotulen", 29.04.1785, Haarlem, ATS, vol. 5.

later in life that he had once been told by the trustees: “[w]e have built the Museum, we have to leave something for our Successors as well.”²⁶

Yet by 1787 the situation had begun to change again. The almshouse, for one, was completed in that year. Just as importantly, the political turmoil of the previous years came to an end, albeit temporarily. The Patriot uprisings, of which Haarlem had been one of the centres and in which many of the trustees such as van Zeebergh were heavily involved, were put down with the help of the Prussian army, and the House of Orange had been reinstated. As a result, the overall economic and financial situation will have stabilised a little as well. Van Marum’s Orangist sympathies had evidently not gone completely unnoticed at this point, as he was offered a seat on the newly formed town council of Haarlem in 1788 – whereas van Zeebergh was ejected from his. Van Marum however had never shown any real interest in matters of politics, and must also have been acutely aware of the fact that the issue was more than a little sensitive. The director of Teylers Museum sent a letter to the Prince of Orange turning down the offer.²⁷

Van Marum later recalled that he had used this as leverage to increase the budget at his disposal at the museum.²⁸ Whether the trustees, and van Zeebergh in particular, were really susceptible to their employee’s argument that he had now proven that he was devoting his all to Teylers Museum is debatable, all the more so because first indications that the collection could be expanded actually date from before the Prussian army’s intervention in the Dutch Republic.²⁹ But, be that as it may, the fact of the matter is that by the end of 1788 van Marum was indeed being provided with money to expand the collections. And in no small amounts, either, as was soon going to transpire.

6. And then there was More

This of course had a profound effect on the museum. It was particularly relevant in two ways. Firstly, the instrument collection was expanded; secondly, the museum itself expanded when a separate laboratory was constructed for van Marum in 1790.

The reason it is worth focusing on these two developments in particular is because they bear great relevance both to the history of the museum as a whole, and the status of the instrument collection therein. More specifically, one could say the instrument collection itself was not so much expanded as actually only established at this point – it had, after all, essentially only

²⁶ “Wij hebben het Museum gebouwd, wij moeten ook wat voor onze Successeuren overlaten.” Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 26.

²⁷ W. W. Mijnhardt, *Tot heil van ’t menschdom: culturele genootschappen in Nederland, 1750-1815* (Amsterdam: Rodopi, 1988), 310–311.

²⁸ Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 27.

²⁹ “Notulen Tweede Genootschap”, 02.03.1787, Haarlem, ATS, vol. 1382.

consisted of the electrostatic generator before, even if the trustees had given van Marum permission to build an entire collection of scientific instruments as early as 1784. But it was only after 1788 that van Marum could start acquiring instruments systematically. In fact many of the instruments, that are still considered the most prominent of the museum's collection, were all acquired within the space of just a few years.

Whereas building this collection had an immediate impact on the museum, the real significance of the second development – the establishment of separate laboratory premises – lies more in the long term. More to the point, this can be seen as a first step towards “taking the science out of Teylers Museum”. After van Marum had exhausted the electrostatic generator's potential for new discoveries and stopped performing experiments with it in the Oval Room, and after he had been provided with the more suitable premises of a laboratory to conduct further experiments with other instruments, the Oval Room ceased to function as a place of experimental research. This is not to say that it no longer functioned as a place of research – on the contrary, the fossil collection it housed remained the object of detailed and systematic study which could only be performed in the Oval Room itself at least until new premises were built to accommodate the geological collections in 1885; but the Oval Room ceased to function as the kind of premise where sparks could fly or gaseous mixtures explode.³⁰ This was all the more the case after electrostatic generators in general had been rendered obsolete by the discovery of the Voltaic pile at the start of the 19th century.

Some caution and attention to detail is called for here. Van Marum had already performed experiments outside the museum long before 1788. Two years before the Foundation constructed its own laboratory, van Marum performed a series of experiments through which he sought to corroborate Lavoisier's theories – although these experiments were supported financially by the Teyler Foundation, van Marum conducted them “in my own residence [i.e. on the Holland Society's premises], as the requisite facilities were lacking at the time at Teylers Foundation”.³¹ And even before Teylers Museum had been built, van Marum had conducted chemistry experiments as part of his prize competition essay on phlogisticated and dephlogisticated air. Presumably he would have done so at the Holland Society's premises as well.

So, strictly speaking, the Oval Room never functioned as a “laboratory”, in that it was only used for experiments that were connected with the electrostatic generator, and a distinction between the museum and other laboratory premises had already been in place before the addition of a laboratory funded by the Teyler Foundation in 1790. However the crucial point – and the one that was to become especially significant in the long term – is that the Teyler Foundation's organisational structure now included both a museum and a laboratory. As “museums” were increasingly associated with the public display of works of fine art over the course of the nineteenth century, and the exact sciences simultaneously became increasingly

³⁰ On sparks and explosions see: Levere, “Martinus van Marum and the Introduction of Lavoisier's Chemistry in the Netherlands,” 177–181.

³¹ “bij mijne woning, daar hiertoe, bij Teijlers Stichting, toen nog de gelegenheid ontbrak”; Martinus van Marum: “De Geschiedenis van de oprigting van Teyler's Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 36. On the Teyler Foundation's financial support (which amounted to f500,-) see: “Directienotulen”, 31.10.1788, Haarlem, ATS, vol. 5.

specialised and dependent on precise measurement, this distinction became ever more pronounced.

Comparatively little is known about the original laboratory itself. One reason so little information on it has been preserved is probably that it was considered more of a workshop. The relative disdain for the laboratory mirrors the low esteem in which practical labour and research were held in comparison to the scholarly exercise of the mind – as represented by the far more magnificent Oval Room. It is not even clear where exactly the laboratory was installed. It appears to have been situated in one of the houses adjacent to the Foundation House. In his recollections, van Marum wrote that in 1790 “van aangrenzende woningen, een Chemisch Laboratorium, zoo als ik het verlangde, is ingerigt geworden”.³² An announcement from the time of the laboratory’s establishment itself, published in the literary journal *Algemeene Konst en Letterbode* in 1791, provides just a little more detail, and is worth quoting at some length. It says that

“recently, as a result of joining and renovating two adjacent rooms, a spacious and well-appointed *Laboratory* has been attached to the Foundation House, equipped with the requisite instruments for Physical and Chemical Experiments and Investigations: where our Dr. *van Marum*, well-known in the world of learning, to whom the directorship of the Physical and Natural History Cabinets as well as that of the Library of Teylers Museum [...] has been entrusted since 1784, is now in a position to carry out, for the advancement of our knowledge of nature, in particular such Physical investigations as are too expensive or too laborious for most Physicists [*Natuurkundigen*] to do at their own expense.”³³

So the laboratory premises evidently consisted of two rooms or maybe even apartments (the Dutch word *woning*, translated above as “room”, was used ambiguously) that had been conjoined and refurbished.

It is interesting to note that in 1790 there is talk of a “Physical and Chemical Experiments and Investigations”, whereas by about 1820, when van Marum penned his recollections, he only referred to the laboratory as a “Chemical Laboratory” (*Chemisch Laboratorium*). Even though van Marum had certainly not lost interest in physics and used the 1788 windfall to acquire a wide range of instruments relevant to the analysis and demonstration of physical principles (as will be shown below), one can safely assume that van Marum’s primary goal in having the laboratory established was the pursuit of chemical knowledge. Chemistry, after all, was his most recent and foremost interest during this period; What’s more, the term “laboratory” was

³² Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 37-38.

³³ “er is ook, kortlings, door het aantrekken en vertimmeren van twee naast elkanderen gelegene Woningen, een ruim en ongemeen wel ingerigt *Laboratorium* aan het Stichtingshuis gehegt, en met den nodigen toestel tot Physische en Chemische Proefnemingen en nasporingen voorzien geworden: waar door onze, by de geleerde waereld, zo bekende Dr. *van Marum*, aan wien de Directie der Physische en Naturalien Kabinetten, nevens die der Bibliotheek van Teylers Museum [...] zedert 1784 is opgedragen, zich thans in staat gesteld vind, om [...] ter bevordering der Natuurkennis, inzonderheid zodanige Physische nasporingen te doen, als voor de meeste Natuurkundigen te kostbaar of te omslagtig zy, om voor hun eigene rekening ondernomen te worden.” “Berigten, Nederlanden: Haerlem,” *Algemene Konst- en Letter-Bode, voor meer- en min- geoeffenden*, December 23, 1791, 204.

used predominantly in conjunction with chemical research at the time – generally speaking it only began to be associated with physics some decades later; van Marum had also explicitly asked for funds to extend the premises for chemical research at the Holland Society just a year earlier; and after van Marum's death in 1837, his successor, Jacob Gijsbert Samuel van Breda, summarized what his own plans were for the instrument collection, and only then turned to the laboratory, and the "instruments" and the "Chemicals and Reagents" it [the laboratory] housed.³⁴

But if the laboratory was conceived as a chemical laboratory from the outset, then why emphasise its potential for further research in physics? Again, this can be explained at least partially if one sees the argument as part of a larger rhetorical strategy. The point is that the electrostatic generator's successes were indisputable, and not only van Marum, but the Foundation and in a sense the entire town of Haarlem were basking in the glory of playing host to such a famed device as it caught the scholarly community's attention. The idea of continuing on down the same path might have evoked images of fame and glory amongst the literary journal's readers. What's more, analytic chemistry was still in its infancy, whereas electrical research had long been a central part of Dutch scientific culture.³⁵ It has even been said elsewhere that van Marum's "experimental investigations into the new chemistry were initially disguised as electrical researches" because "[e]lectricity was a secure field whence Van Marum could investigate firm territories".³⁶

In fact, this was not the first time van Marum invoked his past successes with the electrostatic generator: he had already done so when he drew up his acquisition policy for the instrument collection together with the Second Society, suggesting "that each instrument that one has manufactured, should be made to the highest specifications possible, flattering oneself that they will then, just like the big Electrostatic Generator, be able to serve the advancement of our Knowledge of Nature."³⁷ Van Marum wrote this in June 1789, and the fact that he is suggesting only the best instruments money could buy should be acquired, provides an indication just how much money really was available at this point.

³⁴ "werktuigen"; "Chemicalia en Reagentia"; Van Breda to Directeuren Teylers Stichting, 28.08.1839, Haarlem, ATS, vol. 23.

³⁵ On electrical research in the Dutch Republic around 1800 see: Lissa Roberts, "Science Becomes Electric: Dutch Interaction with the Electrical Machine During the Eighteenth Century," *Isis* 90, no. 4 (1999): 680–714.

³⁶ Trevor H. Levere, "Teyler's Museum," vol. 4, *Martinus van Marum: Life & Work* (Leyden: Noordhoff International Publishing, 1973), 47.

³⁷ "dat men elk werktuig, het geen men [...] zal laten vervaardigen, zo volkomen liet maaken, als zulks te verkrijgen is, zich vlijende, dat zij dan, even als one groote Electriseer-Machine, ter bevordering der Naturkennis zullen kunnen dienen." "Beredeneerd Plan voor het aanleggen van een Cabinet van Phÿsische en Mechanische Instrumenten in Teyler's Museum", c. 06.1789, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9.

7. Van Marum's Acquisition Policy

It is worth taking a closer look at van Marum's acquisition policy. Not just because it formed the basis upon which the core of Teylers Museum's instrument collection was built over the next few years, but also because it provides more – and more detailed – information on the criteria according to which van Marum went about purchasing items for the collection. However, some caution is again called for here, in the sense that the plans he drew up need to be seen as a snapshot of his interests at this specific point in time. Even though, overall, his range of interests remained remarkably consistent throughout his long life, the way he “discovered” and subsequently championed Lavoisier's analytic chemistry has already shown how the main focus of his interest could shift every few years. It must therefore not come as too much of a surprise that by the end of the 1790s hardly any instruments were still being acquired for the museum. And by the beginning of the new century funding for the museum's scientific collections had been put on hold again for a variety of reasons anyway.

But that was still a long way off when it first became clear that a windfall was coming van Marum's way. As was already mentioned above, the first indication that the trustees were willing to pay heed to van Marum's wish of expanding the collections came in 1787. On March 2nd of that year, van Marum informed his fellow members of Teylers Second Society

“that he had been asked by the Lord Pensionary van Zeebergh to present a plan to the Trustees on the part of this Society according to which, from time to time, Teylers Museum could be provided with Physical Instruments and models of various machines”.³⁸

The crucial words here were still “from time to time”. Nevertheless, van Marum of course did not let this opportunity pass, and upon informing the Second Society of the trustees' offer had already prepared “a plan [...] in which were contained and reported those instruments and models that were judged by Mr van Marum, considering the organisation of this Foundation, to be the most useful and the least dispensable.”³⁹

This “plan” appears not to have been preserved, and no mention of either van Zeebergh's offer or van Marum's plans is made in the corresponding notes of the trustees' meetings. What was recorded by the Second Society, however, is that its members unanimously decided to leave the matter in van Marum's hands, and fully approved the plans he had presented them with. As the minutes read:

“During the general discussion Mr van Oosten de Bruijn, admitting his complete ignorance in physics and mechanics, wished to refer to the opinions of the other Members of this Society, who have unanimously declared their approval of this plan conceived by the said Mr van

³⁸ “dat Zijne W.Ed. door den Heer Pensionaris van Zeebergh was verzocht om aan Heeren Directeuren, van wegens dit Collegie, over te geeven een plan, waarop, van tijd tot tijd, Teijlers Museum van Physische Instrumenten, en modellen van verscheide werk-tuigen, zouwde kunnen worden voorzien”; “Notulen Tweede Genootschap”, 02.03.1787, Haarlem, ATS, vol. 1382.

³⁹ “een ontwerp [...] waarin waren vervat en opgegeven die instrumenten en modellen, welken, naar inrichting van deeze Fondatie, door den Heer van Marum geoordeeld waren 't dienstigste, en minst t'ontbeeren te zijn.” Ibid.

Marum, and it has therefore been decided that it will be presented to the Trustees in the name of the Society.”⁴⁰

All this meant that, when it began to transpire that there was actually a considerable amount of money available for the acquisition of items for the Foundation’s collection, van Marum was not only well prepared, but also in full control of the situation.

In the minutes of the trustees’ meetings first mention of the increase in funds for the museum was made on October 31st 1788. Van Zeebergh had evidently informed both learned societies

“that the Trustees were now, more than before, able to defray some expenses to procure such Machines and Books for the Musaeum as would be most pleasing and useful to the Societies”.⁴¹

The members of the Second Society had discussed this on October 30th – although the “discussion” had again essentially consisted of van Marum’s pre-conceived plans being seconded by the other members of the Society. The initial idea appears to have been to buy some instruments at the auction of the collection of the recently deceased professor Johannes Nicolaas Sebastiaan Allamand from Leiden. Having inspected the instruments available, van Marum however did not consider them suitable, most of them being in bad shape and overpriced.

He therefore informed his fellow members of the Society that he “[het] beter oordeelde aan de Heeren Directeuren van wegens die Collegie voortedragen het laten maaken van nieuwe instrumenten”

He therefore informed his fellow members of the Society that he “judged it better to propose to the Trustees on the part of the Society to have new Instruments made”, and suggested three instruments for research purposes: a vacuum pump, a pressure pump and an “excellent” microscope [*een best microscoop*], “which is sometimes needed even in the examination of the electrical experiments”. The microscope was to be ordered with John Adams in London. Finally, van Marum was hoping to obtain funding for a series of experiments to determine the chemical composition of water, “which, Mr van Marum said, he had expressly been requested to do by the Members of the Royal French Academy”.⁴²

The trustees agreed to all of this the following day. Interestingly, overnight van Marum also appears to have added a telescope to the list he presented the trustees with – maybe he was

⁴⁰ “Waarop omvraage gedaan zijnde heeft de Heer Van Oosten de Bruijn, erkennende zijne volstrekte onkunde in *phÿsics & mechanicis*, verzocht zich te mogen refereeren aan ’t oordeel der andere Heeren Leden van dit Collegie, welken eenpaariglijk hebben gedeclareerd dit door den meer gemelden Heer Van Marum geconcepieerd plan t’approbeeren, en is midsdien geresolveerd, dat ’t zelve in naam van het Collegie aan Heeren Directeuren zal worden overgegeeven.” Ibid.

⁴¹ “dat HH.DD. thans meerder dan sints eenigen tijd in staat waren om eenige Uitgaven goed te maaken ter vervulling van het Musaeum met zodanige Werktuigen en Boeken als der Genootschappen meest aangenaam en nuttig konden zijn”; “Directienotulen”, 31.10.1788, Haarlem, ATS, vol. 5.

⁴² “[het] beter oordeelde aan de Heeren Directeuren van wegens die Collegie voortedragen het laten maaken van nieuwe instrumenten”; “welke zelfs in de beschouwing der electrische proeven zomtjids van nooden is”; “waartoe de Heer van Marum zeide door de Leden der Ko. Franse Akademie zeer te zijn aangezocht”; “Notulen Tweede Genootschap”, 30.10.1788, Haarlem, ATS, vol. 1382.

beginning to sense that there was no shortage of funds, and that the trustees were inclined to spend the excess money available. Perhaps this was also what induced him to suggest obtaining the optical devices from John Dollond's, instead of from George Adams' workshop. John Cuthbertson was to be tasked with constructing the two pumps, for the handsome maximum total of f1000,-.

Both the trustees' goodwill and the available fund appear not to have been reduced over the course of the following months. In fact, the Foundation was not only providing van Marum with money to acquire items for the museum's collection, but also Wybrand Hendriks and a member of the Second Society, Willem Anne Lestevenon, who was residing in Italy to avoid the fallout from the political tension in the Netherlands – he had been a staunch Patriot.

So, in June 1789, the records show that van Marum again approached the trustees with a new, more extensive list of items he wanted to purchase for the museum.⁴³ Again, he was granted everything he had asked for. This list has been preserved amongst van Marum's personal papers, and it is remarkable not only in its scope – a large burning glass, various pyrometers and thermometers, and powerful natural and artificial magnets had been added to the list of research tools drawn up the year before – but also in that it included two further categories of instruments alongside those research tools.

The first of these new categories van Marum described as “models of Machines, that can be used in society to the general benefit, in particular such as are in use abroad”. He wanted to include these specifically “so that such useful machines become better known here, and it will be easier to judge which of them could be imitated here with benefit, or that our machines could be improved after those in use in other countries”.⁴⁴ What he had in mind were water mills, dredging machines, pile drivers, cranes, pumps, fire hoses and steam engines, as well as an assortment “of the best machines that are used in the shipping industry”, such as “Harrison's chronometer, octants, sextants, azimuth-compasses, etc.”⁴⁵

Together with the instruments acquired for research purposes, all of these items could be “easily placed in the available glass cabinets that are present”. Note however that this was before the addition of the laboratory premises.

As far as the instruments' presentation was concerned, it is also interesting to note that van Marum added three items to the list predominantly for aesthetic reasons – these instruments were not placed in a category of their own, but simply added to the enumeration of instruments without stating how they were related to the other categories. The two globes that had already been discussed before the Oval Room was even completed resurfaced, and were

⁴³ “Directienotulen”, 12.06.1789, Haarlem, ATS, vol. 5.

⁴⁴ “modellen van Werktuigen, die in de zamenleving ten algemeenen nutte gebruikt worden, en wel voornaamlijk de zulken, die buiten s'lands in gebruik zijn”; “ten einde zodanige nuttige werktuigen bij ons te beeter kunnen gekend worden, en men dus te beeter zal kunnen beoordeelen, wat men hier van bij ons met voordeel zoude kunnen navolgen, dan of onze werktuigen naar die, welke bij andere Natien in gebruik zijn, zouden kunnen verbeterd worden”; “Beredeneerd Plan voor het aanleggen van een Cabinet van Phÿsische en Mechanische Instrumenten in Teyler's Museum”, c. 06.1789, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9.

⁴⁵ “van de beste werktuigen, die tot de Scheep-vaart gebruikt worden”, such as “Harrison's chronometer, octants, sextants, azimuth-compasses, etc.”; Ibid.

to be placed “near the end of the table [the central flat-top cabinet], opposite the Electrostatic Generator, [...] each on a separate pedestal, on which they should be able to be displaced if the table had to be moved when Electrical experiments were carried out”; there was talk of “a big Telescope of six or seven feet, of the kind that is now manufactured by the famous Herschel” to be placed on “the flat roof of the Museum” (presumably the roof-top observatory), and the Second Society also wished to place “in the middle of the table a large moving orrery, which will there, it is assumed, greatly serve as an adornment”.⁴⁶

Perhaps even more importantly though, the second of the two new categories of instruments, as defined by van Marum, was to complement the other two, and consist of “simple mechanical, hydrostatic, hydraulic and optical machines”. The reason these simple machines were to be included in the museum’s collection was that “the complex machines cannot be understood without knowing the simple ones”.

In other words, there was now clearly an educational component to van Marum’s acquisition policy. Instruments were not only to be purchased for their value as research tools, but also in order to demonstrate state of the art technology and general physical principles. At this point it needs to be stressed however that van Marum was not trying to set up an exhibition – the aim was not to create some kind of educational, self-explanatory display at Teylers Museum, let alone an exhibition that would have been aimed at, and been accessible to, the general populace. As will transpire from an analysis of visitors’ travel reports below, even though Teylers Museum was open to all in principle, all available evidence suggests that access was still comparatively restrictive, and essentially reserved for members of the elite.

So then why include devices from these two new categories in the museum’s collection? In all likelihood, van Marum was trying to establish himself as a popular lecturer. It is highly plausible that he would have seen himself as the last in a long line of famous Dutchmen such as ‘s Gravesande, Musschenbroek, or Fahrenheit, all of whom had become international figureheads of Newtonian experimental science through their immensely successful publications and presentations, devised not just for experts, but for a lay audience as well.

8. Increasing Popularity

Why an up-and-coming and evidently highly talented scholar such as van Marum would aspire to make a name for himself through popular lectures, rather than “pure research”, may sound puzzling to contemporary ears. But in order to understand this it is important to realise

⁴⁶ “gevoeglijk in de tegenwoordige glazen kasten [...] geplaatst worden”; “nabij het eind van de tafel, tegens over de Electrizeer-Machine, [...] elk op een afzonderlijk pedestal, met welk zij verzet moesten kunnen worden, wanneer bij het doen van Electriscche proeven de tafel moet verschoven worden”; “een groot Thelescoop van zes of zeven voeten, van dat soort, het welk thans door den beroemden Herschel vervaardigd wordt”; “het plat van het Museum”; “op het midden van de tafel een groot bewegend Orrerij, hetgeen men oordeelt al daar zeer tot cieraad te zullen kunnen verstrekken”; Ibid.

that the pronounced distinction between amateurs and professionals in science is something that only emerged over the course of the 19th century. At the end of the 18th century, the line between amateurs and specialists had not been drawn as sharply yet. Of course there were differences between amateurs and experts – van Marum for instance was very conscious of his status as an experienced expert in the description and analysis of natural phenomena; the restricted access to the inner sanctum of his studies, Teylers Museum, can be seen as part of an attempt to uphold that status – not so much in the sense that van Marum actively denied others interested in the natural sciences access to the knowledge held at Teylers, but in the sense that a certain sensitivity, etiquette, perhaps even good breeding was requisite to appreciate this workplace, and simply also not to damage the sensitive equipment it contained. Yet even though a certain exclusivity associated with any pursuit of knowledge in the name of science cannot be denied even during this period in history, what is important is that at the end of the 18th century the boundaries which defined that exclusivity were drawn differently from the way they were drawn at the end of the 19th century.

This brings us back to the distinction between amateurs and professionals: by the end of the 19th century the exclusive rights to any meaningful and trustworthy statement about natural phenomena had successfully been claimed by a community of specialists which in turn defined itself through its members' systematic training in the methods of experimental science and the mathematical evaluation of data. Put differently, the domain of "science" had been monopolised by professional "scientists".

The less permeable the boundaries delineating the scientific community became, the more the character of "popular" science changed too. Popular science was increasingly equated with the simplification of the thought patterns and explanatory systems "scientists" had adopted or devised. These simplifications were of no use within the community of specialists themselves; they could only be used whenever such a trained specialist ventured outside the boundaries of the community, or, perhaps, by those who acted as intermediaries between those on either side of these boundaries, i.e. "popularisers".

Now, the crucial point as far as van Marum's ambitions and the history of Teylers Museum are concerned, is that to van Marum – as well as his predecessors such as Fahrenheit or 's Gravesande – giving popular lectures would not have felt like venturing outside the impenetrable boundaries of some sort of community. They would not have considered themselves "popularisers" in the sense described above. They knew of course that they had to take their audience's prior knowledge – or lack thereof – into account, and they would have spoken differently amongst each other than they did in their lectures; but they would not have denied – or at least not as vigorously as "scientists" would by the end of the 19th century – that their audiences could fully grasp what they themselves had understood and were explaining, or perhaps even take up scientific experimenting. Their aim in giving a series of lectures was subtly, but crucially, different from the aims of later "popularisers" too: the aim was to spread the knowledge they had gained so that it could be adopted and applied by others, ideally for the betterment of society; vanity was involved, but to a far lesser degree and in a different manner than with later popularisers, who were far more interested in keeping their listeners in awe of both "science" and "scientists", cultivating the image of

brilliant, almost other-worldly discoverers and inventors. To some extent these changes are reflected in the emergence of “popular” science literature in the 19th century. ‘s Gravesande on the other hand wrote a book on Newtonian mechanics, *Physices elementa mathematica*, which circulated widely amongst fellow researchers and amateurs interested in Newton’s new philosophy.

So, what, apart from the fact that he started acquiring models for Teylers Museum’s collection, supports the idea that van Marum was trying to establish himself as a popular lecturer? Recall, for instance, that he had first built a reputation in Haarlem as a town lecturer. What’s more, the acquisition plan he submitted to the trustees contained a direct reference to ‘s Gravesande, in that van Marum wanted to use the Newtonian’s famous book containing descriptions of devices to demonstrate the laws of mechanics as a blueprint from which to select the models to be purchased for the museum.⁴⁷ Finally, van Marum had himself started giving a series of lectures on his research in the Foundation’s name shortly before submitting this plan: in 1786, he first gave lectures on his research on the geological collection before members of the Second Society. After 1790, his audience included the trustees of the Teyler Foundation. By this time, he had broadened the scope of his lectures to include chemistry, not just geology. His lecturing culminated in a series of lectures before a far larger, general audience between 1795 and 1797. This was after the French Revolutionary Army had occupied the Netherlands, bringing with it a greater appreciation of the common “citoyen”, at least rhetorically. In how far van Marum giving these particular lectures for a general audience was part of a cunning attempt on his part to gain favour with the new government is debatable. He certainly did not have to betray any of his principles in order to give the lectures.

In fact, this is something that needs to be stressed: even though the preceding summary of van Marum’s actions and ideas has been phrased largely in strategic terms and the focus lay on what was at stake for him personally, throughout his life van Marum always displayed a genuine, altruistic desire to pass on and spread whatever knowledge he had gained. This, as much as anything else, will undeniably have motivated him to acquire other instruments for the museum besides those he could use solely for research purposes.

There is one final point that supports the notion that van Marum saw himself as accepting some kind of baton that was handed down from earlier diffusors of knowledge such itinerant lecturers like Fahrenheit: his exquisite acquisition plan prompted him to go on a trip to London. At the time, the British capital was still the centre of the instrument making world, which was the main reason van Marum travelled there.⁴⁸ But in doing so he was also emulating generations of Dutch Newtonians. As has been pointed out by Trevor Levere, travelling to London was “in line both with Van Marum’s own ambitions, and with the great tradition of experimental Dutch Newtonians”.⁴⁹ ‘s Gravesande himself had become an

⁴⁷ Ibid.

⁴⁸ On London’s status as instrument making capital of the world see for instance: Jim Bennett, “Instrument Makers and the ‘Decline of Science’ in England: The Effects of Institutional Change on the Élite Makers of the Early Nineteenth Century,” in *Nineteenth-century Scientific Instruments and Their Makers*, ed. Peter R. de Clercq (Amsterdam: Rodopi, 1985), 13.

⁴⁹ Levere, “Teyler’s Museum,” 53.

adherent to Newtonian mechanics during a sojourn in London. And, in a way that affected van Marum on a more immediate level, his mentor Petrus Camper had recently travelled to Britain as well.⁵⁰ He was therefore able to provide his former pupil with letters of introduction, even though by this time the name van Marum was not unknown across the channel. Jan Ingenhousz, residing in Britain at the time, had suggested the trip and chaperoned van Marum during the first few days of his visit to London. Van Marum had also corresponded with notable British instrument makers and chemists such as Joseph Priestley on a range of issues. At one point his activities had led to a public disagreement with Henry Cavendish, which in turn was one of the main reasons van Marum was only elected to the coveted membership of the Royal Society some eight years after his visit to the illustrious institution.⁵¹

The trustees not only supported this trip of van Marum's, but actually paid for it too. This goes to show that they were willing to go to great lengths in supporting van Marum's activities. In his acquisition plan drawn up in 1789, van Marum had summarised:

"According to this plan Teylers Museum should be able to acquire a Cabinet of Physical and Mechanical Instruments, that has no equal in our country, and that is, as far as we know, also unparalleled in other countries."⁵²

He was serious. And so – evidently – were the trustees in supporting this aim.

9. London and the Aftermath

In July 1790, van Marum thus left for England, "in order to set up permanent contacts there so as to acquire such machines as cannot easily or so well be obtained in this country at the moment", as the trustees' summary of his plans reads.⁵³ What they didn't mention in the minutes of their meetings, but must have been discussed as well, was van Marum's plan of finding an instrument maker who could be employed by the Teyler Foundation and assist him in Haarlem, an idea which the trustees supported.

Interestingly, it was once again van Zeebergh who emerged as van Marum's principal contact and champion amongst the trustees. Although van Marum was permitted to acquire

⁵⁰ Ibid., 63.

⁵¹ On van Marum's campaign to be elected and the difficulties he encountered see: Trevor H. Levere, "The Royal Society of London," vol. 3, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1971), 33–40.

⁵² "Volgens dit plan zoude men in Teylers Museum een Cabinet van Physische en Mechanische Instrumenten kunnen verkrijgen, zo als er niet alleen in ons land geen bekend is, maar waar van ook zo ver wij onderricht zijn, in andere landen geen gelijksoortig schijnt gevonden te worden." "Beredeneerd Plan voor het aanleggen van een Cabinet van Physische en Mechanische Instrumenten in Teyler's Museum", c. 06.1789, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9.

⁵³ "ten einde aldaar eene vaste correspondentie op te rigten om zodanige Werktuigen welke thans hier te Lande niet gemakkelijk of niet zo goed te bekomen zijn, te verkrijgen"; "Directienotulen", 18.06.1790, Harlem, ATS, vol. 5.

instruments up to a certain price on his own, he corresponded with the trustees frequently, securing their backing for his purchases. It is interesting to note that when van Marum had the possibility of acquiring a small camera obscura, van Zeebergh was so taken with the description of this device that he immediately granted van Marum permission to buy it.⁵⁴ This turned out to be the only time that he didn't check with his fellow trustees first. The camera obscura was removed from the museum's collection sometime in 1817.⁵⁵

In London, van Marum visited a number of instrument makers' workshops such as those of Adams and Dollond, he met Joseph Banks, various members of the Royal Society, attended a meeting of that illustrious gathering of men, visited the Royal Observatory in Greenwich, and made a pilgrimage Newton's grave.⁵⁶ He then moved on to Slough, where William Herschel resided and had just had the world's largest telescope constructed, with a 40 foot focal range. This was out of order when van Marum visited, but the Dutchman was already blown away by what he saw when he gazed through one of Herschel's smaller, but still comparatively large, 20 foot telescopes: it was so powerful that nebulae became discernible. Van Marum must have felt he had found a kindred spirit in Herschel, whose philosophy of having ever larger telescopes constructed and thereby successfully pushing the boundaries of astronomy must have chimed well with van Marum's conviction that he would be able to settle various issues with the Cuthbertson electrostatic generator because of the machine's sheer force. Van Marum ordered a seven foot telescope for Teylers Museum. Finally, he travelled on to Birmingham, where he visited the factory of Watt and Boulton, and was hoping to obtain a model of their steam engine. Fearing patent infringements, the inventors however pursued a very strict policy of not distributing any such models, and did not make an exception for van Marum, who began to suffer from a hacking cough caused by the polluted air of this industrial city.

As planned, van Marum had also struck a deal with an instrument maker in London. Frederik Willem Fries, of Swiss origin, had agreed to come to Haarlem if he was provided with at least an equal salary to the one he was earning in London, and if he was provided with the funds to purchase new tools, because trade laws prohibited him from bringing his own to the Netherlands from London. Both demands were considered perfectly reasonable, and in November 1790 van Marum was able to introduce Fries to the members of the Second Society in Haarlem.⁵⁷

Fries immediately went to work, and together with van Marum constructed two devices – in all likelihood in the new laboratory that must have been completed precisely during this period – over the course of the next months that received a lot of praise for many years to come. The first of these was an improved, smaller electrostatic generator. Its most striking

⁵⁴ Levere, "Teyler's Museum," 60.

⁵⁵ I.Q. van Regteren Altena, J.H. van Borssum Buisman, and C.J. de Bruyn Kops, *Wybrand Hendriks 1744-1831* (Haarlem: Teylers Museum, 1972), 11.

⁵⁶ For more detail on his activities in London see: Martinus van Marum, "Notes on a Voyage to London in 1790," vol. 2, Martinus van Marum: Life & Work (Haarlem: Tjeenk Willink & Zoon, 1970), 266–272; Levere, "Teyler's Museum," 53–65.

⁵⁷ "Notulen Tweede Genootschap", 19.11.1790, Haarlem, ATS, vol. 1382. The minutes erroneously state that Fries was originally from Strasbourg.

feature was that it only used one disc, rather than two, as was the case with all of van Marum's previous disc machines. More importantly however, it was the first disc machine that could generate either a positive or a negative charge. Up until that point, this had been the main advantage of the rival cylinder machines that to van Marum's chagrin were more popular than disc machines in England.⁵⁸

The second device was a gasometer, which enabled a far cheaper demonstration of the decomposition of water that was so crucial to Lavoisier's analytic chemistry than was possible with Lavoisier's own devices, which had proved unaffordable for all but a few chemists. Alongside the 1784 electrostatic generator, this gasometer proved to be van Marum's most sensational device. Upon its completion he received many requests for copies to be made from academies across the world.⁵⁹

But even though Fries was clearly excelling at his job, by April 1791 the poor man was feeling so homesick that, as van Marum phrased it three decades later, he had become "melancholy and peevish" and "incapable of continuing his work".⁶⁰ Perhaps this dismissive judgement – even if it was made years later – is indicative of a more general change of atmosphere at Teylers. A general pattern seems to emerge if one takes into account van Marum's relationship with his research associates from the 1780s: by the time van Marum returned from London Cuthbertson, Paets van Troostwijk and Deiman all had broken – or were about to break – their ties with van Marum. Was van Marum's hobnobbing with the elite of his generation going to his head? Cuthbertson became involved in a nasty public dispute on a series of improvements to the electrostatic generator. Having worked together so closely for almost a decade, the two men now flung accusations at each other of withholding information that was vital to the other's work, sullyng each others' reputation. This altercation was carried out through the medium of articles in local scholarly journals. Some years later, Cuthbertson left the Netherlands and returned to his native Britain, after which he left too few traces to say what fate had in store for him. Even the circumstances surrounding his departure are hazy. It is likely that losing his best and by far most lucrative client – Teylers Museum – broke his business.⁶¹ Paets van Troostwijk and Deiman were affected in a less profound manner. Together with other chemists predominantly from the Amsterdam region they set up the *Gezelschap der Hollandsche Scheikundigen*, after they had already shown that water could not only be decomposed, but could also be synthesised from its components, oxygen and hydrogen. They had drawn international attention with their demonstration, but van Marum had been little more than a bystander.⁶²

⁵⁸ Levere, "Teyler's Museum," 65.

⁵⁹ Ibid., 66.

⁶⁰ "droefgeestig en gemelig"; "tot het voortzetten van zijn werk geheel ongeschikt"; Martinus van Marum: "De Geschiedenis van de oprigting van Teyler's Museum", 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 38.

⁶¹ On the available archival material on Cuthbertson see: Hackmann, *John and Jonathan Cuthbertson: The Invention and Development of the Eighteenth Century Plate Electrical Machine*.

⁶² On the Scheikundig Gezelschap see: H.A.M. Snelders, *Het Gezelschap der Hollandsche Scheikundigen: Amsterdamse chemici uit het einde van de achttiende eeuw* (Amsterdam: Rodopi, 1980).

These developments did not mean that van Marum was becoming isolated. On the contrary, he continued to uphold his correspondence with researchers around the world, and remained one of the foremost scholars in his own country. In 1794 he was elected secretary of the Holland Society.⁶³ This was the highest position at the Society, roughly equivalent in status to that of the presidents of other countries' academies. The Holland Society remained the Netherlands only scholarly association of national scope until King Louis Napoleon created what was first known as the Royal Institute in 1808 (it was rechristened the Royal Academy some decades later), a process in which van Marum was intimately involved.

Neither did this mean that van Marum reduced the amount of research he performed. Besides numerous shorter articles, he published two major books before the turn of the century. The first of these, the *Second Sequel to the Experiments with Teyler's Electrical Machine*, came out in 1795.⁶⁴ It delivered pretty much what the title promised. The second book was published in 1798, and contained descriptions of improvements to various scientific instruments and chemical experiments van Marum had devised over the past years, much in the same way he had improved on Lavoisier's gasometer with Fries.⁶⁵

10. Van Marum's Practical Appliances

This second book was testimony to another of van Marum's passions: he was adept at handling and improving scientific instruments and practical appliances, and even devised a range of new apparatus designed for the public good.⁶⁶ In the 1780s and the 1790s for instance he devoted time to the issue of fires. He used the electrostatic generator to find out what shape was best for lightning rods – the question of whether they were to be rounded or pointed was one that was not properly settled for decades to come – and also tried to improve the process by which fires were put out. To this end, he constructed a new, improved fire extinguisher, which he presented to the public in early 1795. His aim was to have such fire extinguishers placed at nodal points all over Haarlem, so that they would be easily accessible in case of fire. The Teyler Foundation, however, refused to finance this scheme. The trustees were most likely convinced this was not what Pieter Teyler had had in mind when he penned his will. What's more, from their neo-humanist outlook they would not necessarily have been enamoured with van Marum's proposal. Nevertheless, van Marum's ideas did not go unnoticed. To some extent, this was perhaps inevitable, given the spectacular nature of the

⁶³ Johan A. Bierens de Haan, *De Hollandsche Maatschappij der Wetenschappen, 1752-1952* (Haarlem: Tjeenk Willink & Zoon, 1970), 56.

⁶⁴ Martinus van Marum, "Second Sequel to the Experiments with Teyler's Electrical Machine," vol. 5, *Martinus van Marum: Life & Work* (Leyden: Noordhoff International Publishing, 1974), 145–240.

⁶⁵ Martinus van Marum, "Description of Some New or Perfected Chemical Instruments Belonging to Teyler's Foundation and of Experiments Carried Out with These Instruments," vol. 5, *Martinus van Marum: Life & Work* (Leyden: Noordhoff International Publishing, 1974), 239–298.

⁶⁶ For a detailed analysis of van Marum's work on practical appliances, see: R.J. Forbes, "Applied Technology," vol. 3, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1971), 278–328.

demonstration he organised in order to demonstrate how he would put out fire: a hut was constructed outside Haarlem and then set on fire, only so that it could be extinguished. News of the demonstration appears to have carried far. To his own surprise, van Marum was asked to restage the demonstration on a trip to Germany in 1798. He had explained and demonstrated the mechanism on a smaller scale at various other stops on the same trip, but on one of his last stops, in Gotha, upon returning to the town after having visited researchers in other places, he recorded: “I learned to my surprise that in my absence the Duke [of Weimar] had caused a hut to be made of the same size as the one I had set on fire and extinguished at Haarlem.” Arrangements were then made to fill the hut with flammable substances in the same way as had been done in Haarlem – and van Marum seems to have miscalculated a little. “For want of tar I caused about 40lbs. of molten resin to be thrown into the straw” he reports, then laconically stating that “as a result the fire was much fiercer than in the Haarlem experiments”. He then immediately adds, perhaps proudly: “however, I succeeded in extinguishing it with 4 to 5 buckets.”⁶⁷

Around the same time he was developing his ideas for a fire extinguisher, van Marum also came up with a ventilation system which would improve the quality of the air in enclosed spaces. It was initially devised for buildings – van Marum tested it on the Foundation’s laboratory in 1796 – but he soon adopted it for use on ships too.⁶⁸ This can be seen as the culmination of a long-standing interest of his in the quality of air. As early as 1783 van Marum had devoted time to a treatise on unhealthy fumes and gases – together with Adriaan Paets van Troostwijk – which was published by the Batavian Society of the Experimental Sciences in 1787.⁶⁹

Finally, van Marum’s medical background showed on a number of other devices he constructed. In 1801 for instance he improved the design of a “Papin” cooking pot, with the aim of improving the poor’s nourishment. During this period many inhabitants of Haarlem were dependent on charitable soup kitchens for sustenance. He also devised a bath that was supposedly to help cholera patients. And van Marum sought to apply the knowledge he had gained about the properties of air when he studied the best way to resuscitate victims of drowning.

By the time the 1798 treatise on improved chemical devices came out however, the focus of van Marum’s interest had again begun to shift. Again, it is not that he had lost interest in the nature of electricity or the chemical composition of the material world. Van Marum in fact set the electrostatic generator in motion again at least twice during the early years of the 19th

⁶⁷ Martinus van Marum, “Journey to Kassel, Göttingen, Gotha, Erfurt, Weimar and Jena in 1798,” vol. 2, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1970), 311.

⁶⁸ “Bericht van Doctor van Marum betreffende onlangs gedaane proefneemingen ter verbetering der luchtzuivering op groote schepen,” *Nieuwe Algemene Konst- en Letterbode, voor meer- en min-geoeffenden*, May 31, 1799. I am grateful to Huib Zuidervaat for drawing my attention to this article.

⁶⁹ Martinus van Marum and A. Paets van Troostwijk, *Antwoord op de vraag: Welke is de aart van de verschillende, schadelijke en verstikkende uitdampingen van moerassen, modderpoelen, secreeten, riolen, gast- of zieken- en gevangenhuisen, mijnen, putten, graven, wijn- en bierkelders, doove koolen etc? En welke zijn de beste middelen en tegengiften om de schadelijkheid dier uitdampingen, naar haaren verschillenden aart, te verbeteren, en de verstikten te redden?*, vol. 8, *Verh. Bataafsch Genootschap Proefonderv. Wijsbegeerte* (Rotterdam: Dirk en Ary Vis, 1787).

century. The first time was after Volta had discovered the eponymous Voltaic pile which, upon being perfected and in modern terms, was capable of creating a steady current.⁷⁰ Through his network of correspondents, particularly through Joseph Banks and Volta himself, van Marum was one of the first to be privy to the Italian's milestone discovery. Upon Volta's request, van Marum then soon set out to establish whether the electricity – or, to use the contemporary term, the electric fluid – generated by the pile was the same as that generated by a disc machine. What better disc machine to use than the huge one built by Cuthbertson in Haarlem? Together with an associate of Volta's, the professor from Kiel Christoph Heinrich Pfaff, van Marum spent ten days in late 1801 conducting a series of experiments in Haarlem. They came to the conclusion that the machine and the pile did indeed generate the same kind of electricity.⁷¹

The second time was almost twenty years later, after Hans Christian Oersted had discovered the phenomenon of electromagnetism. Van Marum lost little time in recreating the groundbreaking experiments that had led to this discovery.⁷² But by this time, he was a septuagenarian, and although in good health, he must have started feeling the physical strain of working the electrostatic generator – together with assistants that were not getting any younger either.

So these two instances were exceptions. In his *Second Sequel* published in 1795 van Marum had in fact already stated that he felt electrical science was in a “stationary period”, and that he did “not see for the present that there is any train of promising investigations which offer the prospect of interesting results”.⁷³ And even though, at that point, he was still busily working on chemistry experiments, he recalled later how by 1798 he wanted to devote more time to the earth sciences and the museum's geological collection, “having completed the collection of physical and chemical instruments, as far as it seemed possible to me at the time”. As he summarised in 1810: “Geology was then my favourite study.”⁷⁴ It was to remain so until a huge row erupted between him and van Zeebergh in 1802. Before the turn of the century, however, apparently all was still well.

11. Down to Earth

Although Teylers Museum's instrument collection has been chosen as the vantage point from which to approach the history of the entire museum and this specific collection's history is

⁷⁰ Heilbron, *Electricity in the 17th and 18th Centuries: a Study of Early Modern Physics*, 494.

⁷¹ Hackmann, “Electrical Researches,” 362; Christoph Heinrich Pfaff, Carl Friedrich Kielmeyer, and Gregor Wilhelm Nitzsch, *Lebenserinnerungen* (Kiel: Schwers'che Buchhandlung, 1854), 134.

⁷² Hackmann, “Electrical Researches,” 369.

⁷³ Marum, “Second Sequel to the Experiments with Teyler's Electrical Machine,” 147.

⁷⁴ “ayant achevé alors la collection des appareils physiques et chimiques, autant qu'il me parût possible dans ce tems là” ; “La Geologie fut alors mon étude chérie.” Martinus van Marum, *Catalogue des plantes, cultivées au printemps 1810; dans le Jardin de M. van Marum à Harlem* (Haarlem, 1810), v.

therefore disproportionately emphasised throughout this study, for a full appreciation of Teylers Museum's history and the changes it underwent over the course of the 19th century it is also of pivotal importance to gain a sense of the importance and the general status of the museum's other collections – such as its geological collection. As far as the geological collection is concerned this is all the more so during van Marum's tenure, because all of the museum's scientific collections were still intimately linked in that they all fell under van Marum's purview – by the time Volkert Simon Maarten van der Willigen was put in charge of the instrument collection in the second half of the 19th century the geological collection and the instrument collection were no longer conjoined, but formed entirely distinct entities, albeit not yet spatially.

Moreover, as with the instrument collection, it was van Marum who essentially laid the groundwork for the subsequent curators' work in that he determined the focal points of the collection through his early acquisitions. Subsequent curators' own interests are clearly reflected in the collection's later development, but it is no exaggeration to say that if van Marum had not been in charge, the museum might never have established a fossil collection in the first place. His acquisitions for the geological collection therefore need to be seen in relation to his other activities, and, vice versa, in any assessment of the instrument collection's overall status within the context of Teylers Museum one needs to take the geological collection into account as well.

There are two crucial points one needs to be aware of when trying to understand the genesis of the fossil collection during van Marum's tenure. The first of these is that the earth sciences were undergoing fundamental changes around the turn of the century. The second point is van Marum's physico-theological approach to the study of nature.

As far as the first point is concerned, perhaps the most striking development was that the study of fossil bones was emerging as an area of research in its own right.⁷⁵ This in turn led to an increasingly narrow definition of "fossils": whereas at the end of the 18th century they were still defined as pretty much any solid material the earth divulged – van Marum stated that he wanted to build a collection of "Fossilia" – they were increasingly associated with the fossilized remains of living creatures by the early 19th century.

This in turn reflected the way, over the course of van Marum's lifetime, various branches of the earth sciences started to emerge in their current form. In fact the term "geology" itself only began to be used during this period. This had everything to do with a far more fundamental shift in the general thought pattern of earth scientists. More specifically, they began to historicise the earth. The Earth itself began to be seen as a product of nature, i.e. subject to nature's laws, and subject to the fluctuations of nature. This showed in two different ways. Firstly, the timeframe within which practitioners of the earth sciences considered the object of their study changed. The Earth itself need neither be eternal, nor the product of some fairly recent catastrophe or process of creation. Rather, there was now room for an intermediate timescale. That period of time might have included numerous catastrophic events

⁷⁵ The following paragraphs in this section are based on: Martin J.S. Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago: University of Chicago Press, 2005).

and revolutions, or – even though this notion was still a long way off – might have seen an evolutionary process. Secondly, that history now needed to be taken into account when studying the earth. As Martin Rudwick has summarised: “It can hardly be emphasized too strongly that this was a radically new feature on the conceptual landscape of the natural sciences: understanding and explaining the natural world began to be seen to entail its contingent past history as much as its directly observable present”.⁷⁶

Within the context of this study it would go too far to address the many intricacies and subtleties of this process of the historicization of the earth, but some caveats are called for: It would be far too simplistic for instance to frame these developments within some sort of opposition between “Science” and “Theology”, or as a process through which the shackles of the biblical story of Creation were overcome. So too would it be to reduce these developments to the polemic that was raging between “Vulcanists” and “Neptunists” – this was, essentially, only about the puzzles basalt structures posed.

The area in which the issues surrounding the historicization of the earth came to the fore was the study of fossil bones. Perhaps the single most pivotal character in these developments was Georges Cuvier. He was a Frenchman who had spent a large part of his childhood in Southern Germany, began to make a name for himself as a promising scholar before the French Revolution, survived the ensuing political turmoil unscathed, and ended up as a professor at the Muséum d’Histoire Naturelle in Paris. There, after 1795, he drew on his superior knowledge of anatomy and studied a number of fossil bones, comparing them with similar known species, and came to the conclusion that many of these fossil bones were from unknown species. Crucially, he argued that these species were extinct. This idea was not entirely new in itself, but Cuvier’s anatomical analysis proved far more solid and persuasive than what had been presented before. His publications sent ripples through the international scholarly community, being translated into many foreign languages.

The second of these publications contained a study of the bones of African and Indian elephants, and a comparison with similar, elephant-like fossilized remains that had been discovered in Siberia, i.e. mammoths. Interestingly, the specimens of the elephants Cuvier used had originally formed part of the collections of the Dutch Stadthouder in The Hague, and had only recently been brought to Paris from the Netherlands, alongside many other prize specimens from almost all of the public – and often also private – collections of the countries that had been defeated by the French Revolutionary Army.

12. The Prying Eyes of the French

It has already been pointed out in the previous chapter how the transferral of many European collections to Paris – and even more so their return upon Napoleon’s final defeat – proved to

⁷⁶ Ibid., 6.

be a watershed in the history of collections and museums, and how in the Netherlands too this prompted the establishment of some of the first national museums. At this point it is therefore worth dwelling briefly on the question of how the French interest in Dutch collections affected Teylers Museum. Intriguingly, the prying eyes of the French turn out to have had no direct effect whatsoever on the collections at Teylers Museum. No items were removed from the Foundation's collections. Not that van Marum wasn't worried this might happen – on the contrary, as he recalled about three decades later:

“The arrival of the French, in January 1795, inspired not a little fear in me for the preservation of everything that had been brought together by me at Teylers Foundation, as I knew of several Cabinets either of Natural History specimens or of other things in Countries equally occupied by them, how much they had suffered by their requisitions.”⁷⁷

He might have had Francois-Xavier de Burtin's fossil collection in mind, which had been brought to Paris shortly before, after Burtin had fled Belgium.⁷⁸ Van Marum had met, corresponded with, and planned a joint acquisition with de Burtin in the early 1780s. And indeed, according to van Marum's account, it did not take long for two of the three French commissioners that had been dispatched to the Dutch Republic in order to oversee the annexation of the Stadtholder's collections to show up on his doorstep, “early in the morning”, once the Stadtholder had fled the Netherlands and the French Armies had occupied the country. These two were Claude Roberjot and Barthélemy Faujas de Saint-Fond. (The third commissioner was André Thouin.) Both were no strangers to van Marum: He had gotten to know them on his journey to Paris ten years earlier, before the Revolution, and with Faujas he had corresponded since.

So, early in the morning of this unspecified day sometime in January 1795, they asked to see both Teylers Museum and the collections of the Holland Society. Van Marum of course obliged, but recalled how he was not able to conceal his worries: “When they looked at these collections, they perceived my fear that they would inspect some rare specimens with all too desirous eyes.” Anxious to prevent the collections' annexation, by his own account van Marum then began to emphasise how he used the resources he was provided with for the general good, and argued how the removal of any part of the collections would seriously undermine his efforts. His old friends assured him they came with no bad intentions, and they would do everything in their power to preserve the collections in Haarlem. And indeed, nobody laid a finger on any of the items in the collections under van Marum's purview in Haarlem. Nevertheless, van Marum recalled how he had remained apprehensive: “From time to time one or another of these Commissioners return, sometimes alone, sometimes

⁷⁷ “De komst der Franschen, in Januarij 1795, verwekte bij mij niet weinig vrees voor het behoud van al het geene door mij, bij Teijlers Stichting, was bijeengebracht, daar het mij van verscheidene Kabinetten van Naturalia of andere zaken, in Landen, door hun op gelijke wijzen bezet, bekend was, hoeveel dezelve, door hunne requisitien, geleden hadden.” Martinus van Marum: “De Geschiedenis van de oprigting van Teyler's Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 57.

⁷⁸ Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*, 360.

accompanied by one or two other representatives, which occasionally renewed my fear for requisitions”.⁷⁹

Van Marum’s written correspondence with the three commissioners supports his later account of the events. Although there is no mention of their initial visit, the letters show that van Marum was clearly aware of what was going on in The Hague. The Frenchmen kept him up to date on their efforts to pack up the former Royal collections and ship them to France – a total of 150 crates was eventually sent to Paris – and van Marum’s tone suggests he was clearly willing to oblige wherever necessary in order to pacify the occupiers.⁸⁰ On the other hand, the letters also suggest a certain intimacy and trust amongst the correspondents, and certainly a high degree of respect for van Marum and his achievements on behalf of the French. Rather than obstruct his work, they seem to have supported their old acquaintance, and treated him like a Dutch brother-in-arms. In February Roberjot saw to it that van Marum was exempted from billeting, for instance.⁸¹ And they appear to have carried no animosity in later years either. When van Marum travelled to Germany in 1798 and spent some days in Kassel, Faujas happened to be in town as well, and repeatedly suggested visiting collections or going on excursions together. Reading van Marum’s account of this journey, one gets the impression he almost had to fend off his French friend. His last entry in Kassel for instance reads: “Faujas tried to persuade me to remain a few days with him at Cassel, to visit the Meissner again with him, and to go together to Göttingen; but I did not agree to this.”⁸²

Yet in assessing van Marum’s account of events in 1795 one also has to bear in mind that the overall aim of his recollections was essentially to badmouth the trustees. As has already been pointed out this did not mean that he gave a false account of events, and all factual evidence he presents can be corroborated – but it would have been in his interest to dramatise the situation he found himself in as director of both major scientific collections in Haarlem, and then emphasise how it was he who had ensured Teylers Museum survived the political turmoil unscathed. And even if his personal acquaintance and general standing undoubtedly raised the threshold for any possible interference with his work or Teylers Museum, there was another significant and ultimately perhaps even far more important reason why Teylers Museum remained unaffected by the change in government, a reason which van Marum fails to mention in his recollections: Teylers Museum was a private collection – the Stadholder’s

⁷⁹ “’s morgens vroegtijdig”; “Zij bemerkten, onder het beschouwen dezer verzamelingen, mijne vrees, dat zij sommige zeldzame voorwerpen, met te begeerlijke oogen zouden aanzien”; “Van tijd tot tijd kwam de een of ander dezer Commissarissen alhier terug, dan eens een alleen, en dan weder een of twee andere representanten mede brengende, het geen ook wel eens weder mijne vrees voor requisitien vernieuwde”; Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 59.

⁸⁰ The correspondence between van Marum and the commissioners has been preserved amongst van Marum’s papers: For Faujas see: Haarlem, NHA, Archief van Marum, vol. 529, nr.16. For Thouin see: Haarlem, NHA, Archief van Marum, vol. 529, nr. 22b. For Roberjot see: Haarlem, NHA, Archief van Marum, vol. 529, nr. 20a. On the commissioners’ work in the Netherlands see: Bert Sliggers and Marijke H. Besselink, eds., *Het verdwenen museum: natuurhistorische verzamelingen 1750-1850* (Haarlem: Teylers Museum, 2002), 37–39.

⁸¹ Roberjot to van Marum, 02.03.1795, Haarlem, NHA, Archief van Marum, vol. 529, nr. 20a. The letter has been translated and published in: vol. 6 of E. Lefebvre, J.G. de Bruijn, and R.J. Forbes, eds., *Martinus van Marum: Life & Work* (Leyden: Noordhoff International Publishing (formerly Tjeenk Willink & Zoon, Haarlem), 1976), 300.

⁸² Marum, “Journey to Kassel, Göttingen, Gotha, Erfurt, Weimar and Jena in 1798,” 287.

collections in The Hague, on the other hand, were public property in the sense that they had belonged to the defeated Stadholder. In this sense, and more importantly by international convention, the collections in The Hague were legitimate booty for an occupying army, whereas Teylers Museum was off limits. What underscores this is that in the Dutch Republic the Stadholder's collections were pretty much the only collections that were transferred to Paris. All private cabinets remained untouched – with one notorious exception: the fossil collection of the Dean Godding in Maastricht.

Almost ironically, this one exception – which proved to be almost strangely traumatic for Maastricht and the Netherlands – seems to underscore van Marum's worst fears, and at the same time provides an outstanding example of the indirect impact the French occupation had on Teylers Museum.

13. One Mosasaur, two Mosasaur...

As for van Marum's fears, the point is that it was Faujas himself who was intricately involved in this somewhat dubious annexation, although he himself was not even in Maastricht yet when six French soldiers removed the fossil from the home of the Dean Godding, on whose grounds it had been discovered sometime around 1770.⁸³ Faujas published an extensive account of all the Maastricht fossils in 1799, and chose a somewhat dramatised depiction of the mosasaur for the frontispiece of his treatise.⁸⁴

As for the indirect impact of the political developments on Teylers Museum, it is important to realise that the fossil specimen brought to Paris by Faujas was in fact the second of its kind to be found in the quarries around Maastricht – and the first was in the possession of Teylers Museum. As was already mentioned in the previous chapter, this was even one of the very first significant acquisitions undertaken by van Marum, when he bought it off Major Drouin in 1782. So one can see why his worries that Faujas would want to take the mosasaur from Haarlem to Paris as well might have been amplified; but what is in fact far more significant with regard to the museum's collection as a whole is the research that was performed on both these fossils in the years before and after the confiscation of the mosasaur from Maastricht, as well as by whom that research was performed. A simple list of names of the main researchers that undertook research on, and were involved in controversies surrounding, the fossils besides van Marum himself provides an indication of why van Marum was drawn to this fossil – and any interest of his was of course reflected in the museum's collections. The four

⁸³ F.J.M. Pieters, "Natural History Spoils in the Low Countries in 1794/95: The Looting of the Fossil Mosasaurus from Maastricht and the Removal of the Cabinet and Menagerie of Stadholder William V," in *Napoleon's Legacy: The Rise of National Museums in Europe*, Berliner Schriftenreihe Zur Museumsforschung 27 (Berlin: G+H Verlag, 2009), 59–60.

⁸⁴ Barthélemy Faujas de St. Fond, *Histoire naturelle de la Montagne de Saint-Pierre de Maestricht* (Paris: Chez H.J. Jansen, 1799).

other researchers were: Petrus Camper, Adriaan Gilles Camper, Faujas de Saint Fond, and Cuvier.

Petrus Camper and his son Adriaan Gilles performed a detailed analysis of the specimen that was eventually to end up in Paris in 1782.⁸⁵ Locals had identified it as the remains of a crocodile, but some years later, when Camper was in London, he could compare further specimens he had collected around Maastricht with crocodile bones from the Royal College of Surgeons' collection, and concluded that there were significant differences with the Maastricht animal.⁸⁶ In Camper's opinion, what had been found in Maastricht were the remains of a sperm whale. He published his findings in the Royal Society's *Philosophical Transactions* in 1786. Four years later van Marum followed his mentor and concluded that the fossil in the Teyler Foundation's possession also stemmed from a whale.⁸⁷ Then, in his 1799 treatise on the fossils of Maastricht, Faujas suddenly claimed that the elder Camper had changed his mind shortly before his death in 1789, and started to claim the fossil consisted of the remains of a crocodile – which happened to coincide with Faujas' own assessment. Faujas' claim now in turn caught the attention of the younger Camper, who had established an intense correspondence with Cuvier just a while before.⁸⁸ Adriaan Gilles was convinced that Faujas had obtained the wrong impression from his father, and had his unpublished papers and correspondence to prove it. This in turn was of great interest to Cuvier, who was at odds with Faujas over many things, including Faujas' notion that fossil bones did not stem from extinct species, but represented creatures that had simply not been discovered yet because they were now at home in unexplored areas of central Africa. The renewed study of the Maastricht fossil along with other specimens from the elder Camper's exquisite collection – now in his son's possession – led Adriaan Gilles to conclude in 1800 that the mosasaur was neither a whale nor a crocodile, but in fact some sort of marine lizard. This, in turn, bolstered Cuvier's – rather than Faujas' – views on extinction and the status of fossil bones because it indicated that “the Maastricht fauna contained no mammals at all and no crocodiles; it belonged more clearly than ever to a distinct former world”.⁸⁹

So how is all this relevant to van Marum's handling of the fossil collection at Teylers? First and foremost, it helps to understand why van Marum's interest in the earth sciences was reignited during the last years of the 18th century. In a nutshell, one could say that he first acquired the mosasaur in 1782 at least in part because of Petrus Camper's interest in the fossil bones of Maastricht, and then, when Cuvier practically rose to stardom with his ideas on extinction and the mosasaur itself even moved centre stage in these debates following Faujas' studies of the Maastricht fossils, van Marum's scientific curiosity would inevitably have been

⁸⁵ Pieters, “Natural History Spoils in the Low Countries in 1794/95: The Looting of the Fossil Mosasaurus from Maastricht and the Removal of the Cabinet and Menagerie of Stadholder William V,” 57.

⁸⁶ Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*, 255.

⁸⁷ Martinus van Marum, “Beschryving der beenderen van den kop van eenen visch: gevonden in den St. Pietersberg by Maastricht, en geplaatst in Teylers museum,” vol. 8, *Verhandelingen uitgegeven door Teyler's Tweede Genootschap* (Haarlem: J. Enschedé; J. van Walré, 1790), 383–389.

⁸⁸ On this see: Bert Theunissen, “De briefwisseling tussen A. G. Camper en G. Cuvier,” *Tijdschrift voor de Geschiedenis der Geneeskunde, Natuurwetenschappen, Wiskunde en Techniek* 3, no. 4 (1980): 155–177; Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*, 381–384.

⁸⁹ Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*, 384.

piqued, and he would have wanted in on the action. What's more all these developments would have resonated with him on many levels: he was for instance well acquainted personally with some of the key figures in these debates, such as both of the Campers (van Marum corresponded extensively with Adriaan Gilles too) and Faujas. As a result, he was privy to the latest developments – for example he provided Faujas with exquisite depictions of some fossils for his book, which were carefully crafted by Wybrand Hendriks.⁹⁰ Van Marum was also well acquainted with some of the key collections important in any discussion – such as Petrus Camper's, the former collections of the Dutch Stadhouder, and of course his own – besides the mosasaur Teylers Museum was home to many other specimens from the Maastricht region. What's more, through his own background and training van Marum was uniquely qualified to participate in the debates that were raging – he had after all completed his training at university with comparative studies, and in some sense Cuvier had picked up where van Marum's mentor had left off: alongside John Hunter in London and Buffon in Paris, Petrus Camper had been “among the most significant contributors to the debate [on fossil bones]”.⁹¹ Finally, the buzz Cuvier created coincided with van Marum's loss of interest in electricity and chemistry.

14. A Rekindled Love Affair

The most spectacular fossil van Marum subsequently purchased for Teylers Museum – one of the museum's highlights to this day – needs to be seen against the background of these discussions: when he travelled to Switzerland in 1802 in search of geological specimens, van Marum acquired the “homo diluvii testis”, a fossil that had previously been acquired by the earth scientist Johann Jacob Scheuchzer after it was unearthed in Southern Germany in 1725.⁹² Scheuchzer then classified this fossil as the remains of a human who had not survived the deluge. This was sensational, because by this time one of the nagging doubts about the biblical account of the catastrophic flood was that no remains of humans could be found, even though the deluge had of course purportedly been intended as a final punishment for all those sinners that didn't make it onto the Ark. Scheuchzer's fossil therefore had the potential to serve as strong evidence in favour of the biblical account.

By the time van Marum visited Switzerland, Scheuchzer had been dead for a long time and his assessment of the homo diluvii had largely been discredited – Petrus Camper had already argued persuasively that what this fossil in fact constituted were the remains of a lizard – but the fossil itself was of renewed interest in light of all the recent discussion concerning extinction. In fact it required all of van Marum's persuasive charm to buy this specimen off Scheuchzer's grandson. But back in Haarlem, all efforts proved worthwhile when it garnered

⁹⁰ Bert Sliggers, “Krijtfossielen teruggevonden,” *Teylers Magazijn* 114 (2012): 12–14.

⁹¹ Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*, 351.

⁹² On this fossil and van Marum's acquisition of it see: Bert Sliggers, *De zondvloedmens: van catastrofe naar evolutie* (Amsterdam: Nieuw Amsterdam, 2009).

renewed interest some ten years later: in 1811 Cuvier visited Haarlem on a tour through the Netherlands – he was on an assignment from the French government to assess the Low Countries’ educational system – and spent some time at Teylers Museum studying the collection; van Marum permitted him to analyse the *homo diluvii testis* and verify the hypothesis that further excavation of the fossil would reveal the creature’s two leg-like paws – a lighter colour still reveals where Cuvier chipped away at the stone surrounding the fossil. And indeed, two small legs were laid bare, thereby making even more plausible that these were the remains of some kind of salamander.

Other examples that reflect van Marum’s interest in the issues surrounding fossil bones and extinction from this period abound. On his journey to Germany in 1798 for instance he was presented with one of the “Lying Stones” the unfortunate Professor Beringer had been coaxed into believing were real fossils about seventy years earlier – having collected hundreds of such “fossils” purportedly from a specific region over many years and even having published scientific treatises on his “findings”, Beringer only realised he had become the victim of an elaborate prank when he was presented with a fossil that had his own name written on it.⁹³ Van Marum’s successor van Breda later purchased more of these Lying Stones. Another example is provided by a letter van Marum sent to J.R. Coxe of the American Philosophical Society in Philadelphia in 1802. He was writing in his function as secretary of the Holland Society, but the letter is also a good example of how, on occasion, van Marum was able to capitalise on this to the benefit of Teylers Museum. Having exchanged periodicals with the American Philosophical Society, van Marum now added: “Comme je suis le directeur d’une collection très étendue des minéraux et des pétrifications, et des parties animales fossiles » - by which he of course meant Teylers – “qui est ce qui m’intéresse beaucoup d’acquérir quelques ossements du mammouth, ou de l’animal qui se trouve près de l’Ohio.”⁹⁴ The “Ohio animal”, a mastodon then still thought to be a mammoth, had been found in the North American region it was named after, and had been one of the most contested fossils before Cuvier presented his theories.

But even though van Marum’s interest in the earth sciences evidently increased around the turn of the century, it would be wrong to assume he was not interested in them before. The opposite was in fact the case, as his early acquisition of the mosasaur and the publication of his analysis thereof in 1790 already suggest. It is only that this area of research had been eclipsed by electricity and chemistry before. It is equally important to recall that initially van Marum had actually been appointed by the Foundation to take care of the growing fossil collection and to keep it accessible to interested third parties – and that the trustees had only reluctantly agreed to his establishing an instrument collection alongside the fossil collection. Van Marum had, in fact, continued to purchase geological specimens such as minerals and rocks throughout the 1780s.

⁹³ See for example: *Ibid.*, 8.

⁹⁴ M. van Marum to J.R. Coxe, 18.04.1803, Philadelphia, APS, Archives, Record Group IIa.

15. A Matter of Faith

This brings us to the second main point that was mentioned above as important to keep in mind when trying to understand the history and overall status of Teylers Museum's geological collection: that van Marum was a deeply religious person. More to the point, it was his physico-theological approach to nature that shows more strongly in this area of collecting and research than in any other. Time and time again he emphasised how he believed that a systematic analysis of the earth and its properties would lead to a better understanding of God's work. What's more, the idea was to pass on any insights gained in this way. During a lecture on the earth sciences he gave before the trustees in 1798 van Marum himself summarised what he saw as "the aim [...] for which this collection had been made at this Foundation: namely, to give every philosophical observer the opportunity to enlarge his insight into the works of the Creation."⁹⁵

Admittedly this remark was made within the context of a lecture on extinction, i.e. van Marum's newest interest at the time, and other passages from the lecture clearly reflect the impact Cuvier's ideas had had on van Marum's view of the earth sciences – but, far more crucially, van Marum's physico-theological approach to nature is already abundantly clear in his inaugural lecture as town lecturer which he gave in 1777, and his strong belief had certainly not waned by 1810 when he published his *Catalogue des Plantes* and quoted Priestley saying "A life spent in the contemplation of the productions of Divine power, wisdom, and goodness, would be a life of devotion".⁹⁶ One can safely assume that the sentiments expressed in 1798 had indeed guided van Marum all along, and also that they continued to do so.

There can be no doubt that these sentiments would have resonated well with the trustees, all the more so because this chimed with the tenets set out by Pieter Teyler in his will. With this in mind it is perhaps easier to understand why van Marum was able to acquire items for the geological collection even during the period in which no money was available for the expansion of the instrument collection in the 1780s – although money was tight here too, and van Marum was initially told that he could not expand the geological collection any further.⁹⁷ It was only because van Marum argued that it would look strange and possibly tarnish the Foundation's reputation if he suddenly ceased acquiring geological specimens at auctions after hitherto having spent large amounts of money in the Foundation's name, that the trustees provided him with the resources that had become available from the sale of some of Pieter Teyler's books.⁹⁸ And even after that they don't appear to have cut his budget for acquisitions to zero, because a journal van Marum kept of his acquisitions lists numerous and regular

⁹⁵ "het oogmerk [...] waar toe deeze verzameling bij deeze Stichting is aangelegd: om namelijk, aan elken wijsgeerigen beschouwer, gelegenheid te geeven zijne inzichten in de werken der Schepping uit te breiden." "Geologische Leszen bij Teylers Stichting 1798-1803", 02.11.1798, Haarlem, NHA, Archief van Marum, vol. 529, nr. 6.

⁹⁶ Marum, *Catalogue des plantes, cultivées au printemps 1810; dans le Jardin de M. van Marum à Harlem*, viii.

⁹⁷ "Directienotulen", 29.04.1785, Haarlem, ATS, vol. 5. (cf. footnote 25.)

⁹⁸ Martinus van Marum: "Journal van mijne verrichtingen ter verkrijging eener verzameling van Fossilia in Teyler's Museum", 1782-1790, Haarlem, NHA, vol. 529, Archief van Marum, nr. 11d, 15.04.1785.

smaller purchases over the course of the following years.⁹⁹ Most of these were made through mineral dealers, chiefly through one Mr. Voight from Amsterdam. It was Voight, too, to whom van Marum turned as soon as it became clear that the museum's budget had been increased significantly in 1788, instructing him to acquire whatever he considered suitable for Teylers Museum on a journey to Hanover.¹⁰⁰ Van Marum did so with van Zeebergh's full support. The trustee had even explicitly stated that van Marum "could make it clear to the said Voight, that if he bought something of only minor interest for Teylers Museum, we [the Teyler Foundation and van Marum] would not leave him saddled with it."¹⁰¹ The trustees' support became equally clear when they explicitly allowed van Marum to spend more than f2000,- on geological specimens without prior consultation on his trip to London in 1790.¹⁰²

So if one takes the entire period of van Marum's tenure into account it becomes clear that fossils – in the modern, narrow sense of the word – were just one aspect of van Marum's collecting activities, albeit the one that received the most attention and subsequently gained far more prominence for the simple reason that van Marum's successors focussed almost exclusively on fossil bones, rather than what would today be classified as minerals and rocks. This had everything to do with the major changes in the earth sciences that were mentioned above, and particularly the emergence of what is today denoted as palaeontology as an area of research in its own right.

With an eye to understanding the genesis of the scientific collections at Teylers Museum and what was ultimately put – and remained – on display in the Oval Room, it can however hardly be stressed enough that van Marum had a far more generalistic approach to the earth sciences than any of his successors. In fact, even by contemporary standards his activities covered pretty much all the subfields of the earth sciences.¹⁰³ Van Marum was not, for instance, a mineralogist in the traditional sense, who restricted his studies to the description, classification, and analysis of specimens brought to him at the museum by others. Although this clearly constituted a major part of van Marum's work, he was just as clearly a believer in the value of field studies. During his trip to Switzerland in 1802 for instance he went on excursions to the Alps, and had himself rowed out onto a lake in order to be able to make sketches of the mountain formations surrounding him from a greater distance, in the hope of gaining a better understanding of their overall structure. In doing so, he revealed his fascination not just for the surface structure of the earth (following Martin Rudwick its study could be termed physical geography), but also for what was hidden below the surface (geognosy, in Rudwick's terms). This had only recently begun to interest scholars, before the end of the 18th century it had been the reserve of mining engineers.

⁹⁹ For this see: Martinus van Marum: "Journal van mijne verrichtingen ter verkrijging eener verzameling van Fossilia in Teyler's Museum", 1782-1790, Haarlem, NHA, vol. 529, Archief van Marum, nr. 11d.

¹⁰⁰ Ibid., 21.11.1788.

¹⁰¹ "gemelden Voight konde te verstaan geeven, dat indien hij het een en ander van minder belang voor Teylers Museum aankocht, wij er hem niet meede zouden laten zitten [last word unreadable: rusten?]." Ibid.

¹⁰² "Directienotulen", 18.06.1790, Haarlem, ATS, vol. 5.

¹⁰³ I am following Rudwick in his distinction here: Mineralogy, physical geography & geognosy. See: Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*, 59–132.

His belief in the importance of field studies is also reflected in his fascination with Horace-Bénédict de Saussure, who became the first to mount a scientific expedition to the top of Mont Blanc in 1787. In 1799 van Marum not only purchased a large plaster model of the Mont Blanc on which a dotted line marked de Saussure and his companions' passage, but some years later he also bought a rock that Horace-Bénédict himself had claimed to have chipped off the very top of the French mountain.¹⁰⁴

15. Gee, but You're Pretty

So, as a result of van Marum's broad definition of the earth sciences and his profound interest in a range of issues connected with them, as well as the fact that pursuing these interests was encouraged by the trustees, the museum's collections include – in modern terms – a palaeontological as well as a mineralogical collection, the latter of which was not significantly expanded after van Marum's tenure.

This of course is relevant in itself to the history of Teylers Museum, but it is particularly interesting and important with regard to the changing function of the Oval Room. This is all the more the case because the geological collection's heyday – during van Marum's tenure – coincides with the addition of laboratory premises and with the receding importance of the electrostatic generator, which, as was mentioned above, in themselves already brought about changes in the usage of the Oval Room.

More to the point, two facets of the work with geological specimens come to the fore here: firstly, any systematic classification of geological specimens requires a comparison with other specimens. On the one hand this requires that other specimens are available for such a comparison, i.e. the size and scope of a collection as a whole becomes relevant; but at the same time any such comparison is greatly facilitated if the collection as a whole is visually easily accessible, i.e. if the specimens can be spread out, or already are spread out. Secondly, many of these specimens are pleasing to the eye – precious stones are not called “precious” without reason. Cherished for their aesthetic qualities, throughout the ages gems have always been incorporated into various forms of decorative art. Minerals, and to a certain extent even fossils, can therefore be seen as intermediate between “Art” and “Science”, to use these anachronistic terms.

Examples, showing that both van Marum and the trustees were well aware of the geological specimens' aesthetic qualities, abound. It has already been mentioned how van Marum

¹⁰⁴ *Hoogtepunten uit Teylers Museum: Geschiedenis, Collecties en Gebouwen* (Haarlem: Teylers Museum, 1996), 66. Recent study has shown that this rock specimen (referred to as the *topje van de Mont Blanc*) indeed stems from the highest region of the mountain (Personal communication with Bert Sliggers, Teylers Museum). But at the same time, de Saussure presented a member of the APS with “a specimen of rock from the highest pinnacle of Mont Blanc” too. On this see: *Proceedings of the American Philosophical Society*, vol. 2, 16, 1841, 101.

consulted with the architect Leendert Viervant to have special showcases for the most striking minerals incorporated into the flat-top cabinet at the centre of the Oval Room.

Another example is provided by the way the total sum van Marum was provided with for geological specimens in London in 1790 was broken down: out of the total amount of f2300,-, f300,- were earmarked “to be spent on the purchase of Fossils still missing in the Systematic Arrangement of the Fossils presently made in the Musaeum”, and the remaining f2000,- was earmarked “to be spent on some outstandingly beautiful Pieces which would be an adornment of the Collection of Fossils”.¹⁰⁵

Similarly, in 1798 van Marum chose to arrange all the samples of fluorspar from England and Saxony in the collection in two pyramid-shaped showcases.¹⁰⁶ Although the design of the showcases was by no means unusual during this period, their shape apparently did not serve any scientific function.¹⁰⁷

Almost ironically, minerals’ aesthetic qualities could also prove to be a hindrance to their systematic study. In 1802 van Marum for instance explained to the trustees why he had to travel to Switzerland personally in pursuit of a certain class of minerals he needed:

“The minerals and the pieces which are most instructive in this respect, are mostly less pleasing to the eye of superficial observers. They are therefore not supplied by the Dealers in minerals, and they can therefore only be obtained by ordering from the places where they are to be found.”¹⁰⁸

Finally, perhaps the single most important decision of van Marum’s concerning the mineral collection’s display in the Oval Room was made in the aftermath of his journey to Switzerland: in order to allow for an adequate arrangement of the entire mineral collection, he had showcases constructed that covered the flat-top cabinet at the centre of the room.¹⁰⁹ As a result, the emphasis in the Oval Room shifted towards the visual, and away from the experimental. Put simply, this meant people now came to the Oval Room to “look at things”, whereas if they wanted to handle an instrument or perform an experiment they would have gone to the adjacent laboratory.

¹⁰⁵ “te besteeden tot aankoop van Fossilia nog ontbreekende aan de Systematische Schikkinge der Fossilia thans in het Musaeum gemaakt”; “te besteden aan eenige uitmuntend schooner Stukken welke tot cieraad der Verzameling van Fossilia kunnen strekken”; “Directienotulen”, 18.06.1790, Haarlem, ATS, vol. 5.

¹⁰⁶ W. Nieuwenkamp, “The Geological Sciences,” vol. 3, Martinus van Marum: Life & Work (Haarlem: Tjeenk Willink & Zoon, 1971), 210.

¹⁰⁷ Similar showcases can be seen on depictions of other 18th century cabinets. See for example the depiction of Johann Christoph Richter’s Museum in Leipzig, made in 1743 for Johannes Ernst Hebenstreit’s *Museum Richterianum*, reproduced in: Friedrich Klemm, *Geschichte der naturwissenschaftlichen und technischen Museen*, vol. 2, Deutsches Museum: Abhandlungen und Berichte 41 (München: Oldenbourg Verlag, 1973), 37.

¹⁰⁸ “De delfstoffen en stukken die ten deeze opzichte het leerzaamste zijn, zijn grootdeels minder behaaglijk voor het oog van oppervlakkige beschouwers. Zij worden deswegens door de Handelaars in delfstoffen niet aangebracht, en zijn dus niet te bekomen, dan door ze te ontbreiden [unreadable: ontbieden?] van de plaatsen waar zij gevonden worden.” “Geologische Leszen bij Teylers Stichting 1798-1803”, 14.11.1800, Haarlem, NHA, Archief van Marum, vol. 529, nr. 6.

¹⁰⁹ Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 94-95.

This is of course a slight oversimplification: the items from the geological collections were still “handled”. In fact, handling them was necessary if they were to be analysed or compared. What’s more, the primary purpose of the collection and its arrangement was scientific research. Nevertheless, they now had their fixed places in showcases, and the installation of these showcases also meant that the only flat surface in the Oval Room – a prerequisite for any serious experimenting – had disappeared.¹¹⁰

At the same time, van Marum was voicing his intentions of making the geological collections more widely accessible. In his introductory remarks to a lecture before the trustees in November 1802, he stated that he wanted to tell them more about

“what is being collected by me for this Foundation, in order that these collections, which, as they increase in perfection, I will try to open to general inspection more and more, may serve all the more to give superficial spectators the opportunity to extend their insights into the works of the Creation.”¹¹¹

He reiterated these intentions some months later, in March 1803, saying that his aim was “to expose [the specimens] more and more to inspection and to provide them with proper labels”, so that they could help demonstrate the beauty of Nature to “the Members of this Foundation and further to anybody who asks admittance.”¹¹²

17. No Happy End

Early in 1803, however, van Marum had a huge row with van Zeebergh. Only van Marum’s account of the disagreement has been preserved. He describes it as originating from an “unexpected change” of Zeebergh’s “way of thinking”. More specifically, the trustee declined to provide more funds for the expansion of the geological collection in the aftermath of van Marum’s journey to Switzerland. This shattered van Marum’s plans for the future and put him in an awkward position, as he had just devised plans for a final major expansion of the collections to complete them, and appears to have announced to Werner in Freiburg that he was going to purchase a large amount of items from the famous geologist’s collection – prematurely, as it now turned out. Van Marum describes how he desperately tried to change

¹¹⁰ Julia Noordegraaf has previously pointed out that the installation of these showcases constituted a watershed in the history of Teylers Museum. However, she does not pay heed to the mineral collection’s scientific function in her assessment. Julia Noordegraaf, *Strategies of Display: Museum Presentation in Nineteenth- and Twentieth-century Visual Culture* (Rotterdam: NAI Publishers, 2004), 9–10.

¹¹¹ “het geen door mij bij deeze Stichting verzameld wordt, ten einde deeze verzamelingen, die ik meer en meer, naarmate zij in volkomenheid toeneemen zal, ter algemeene beschouwing tracht opentestellen des te meer dienen mogen om om aan [unreadable short word: men?] oppervlakkige beschouwers gelegenheid te geeven hunne inzichten in de werken der Schepping uittebreiden.” “Geologische Leszen bij Teylers Stichting“, 19.11.1802, Haarlem, NHA, Archief van Marum, vol. 529, nr. 6.

¹¹² “[de stukken] meer en meer ter beschouwing bloot te stellen, en van behoorlijke bijschriften te voorzien”; “de Leeden deezer Stichting en wijders een iegelijk die hier voor den toegang vraagt”. “Geologische Leszen bij Teylers Stichting“, 25.03.1803, Haarlem, NHA, Archief van Marum, vol. 529, nr. 6.

van Zeebergh's mind, but to no avail. On the contrary, relations subsequently seem to have hit rock bottom, and van Marum quotes van Zeebergh as crying out "that if he had been able to surmise that my plan had been to elevate the collections of Minerals in Teylers Museum to such a (as he most improperly called it) colossal height, he should never have given his permission to bring it together."¹¹³

Whatever way van Zeebergh might have told the story, the fact remains that van Marum thereafter reduced his activities at Teylers Museum to a minimum – although he did remain its director for many more years, until his death in 1837.

It is interesting to note that van Marum never severed his ties with the museum. Even after 1803 he continued to welcome important visitors for instance, such as the Emperor Napoleon in 1811; he still oversaw the occasional acquisition for the museum's collections; and above all he continued to purchase books for the library – its premises were even expanded and it was made more easily accessible to the general public in 1825.

Nevertheless van Marum's main focus now was on botanical studies. To this end, he had acquired a house with grounds which he christened "Plantlust" just outside the gates of Haarlem, and began cultivating the plants he catalogued in 1810. As usual, he was not one to do things by halves, and in this area too he corresponded with elite botanists from all over the world, many of which – such as Joseph Banks – he had become acquainted with during his previous travels. In 1816 he had an orangery built on his premises, and in 1817 a hot-house.¹¹⁴ At the same time, van Marum was still the secretary of the Holland Society as well, and as such became heavily involved in science policy at a national level, particularly during the Napoleonic period and the establishment of the Dutch monarchy during the Restoration.

Even the politics however only had an indirect impact on the daily running of Teylers Museum, certainly in the short term. What was far more important at this stage was van Marum's relative inactivity, which in turn meant that the collections he had built entered a kind of "sleeping beauty" phase – they remained virtually unchanged for decades. And at the same time, van Marum's absence gave the *kastelein* more room to implement his own ideas for the collection. This became all the more relevant when Wybrand Hendriks retired in 1819. He was replaced by Gerrit Jan Michaëlis, who took the fateful decision of purchasing paintings – not just prints and drawings – for the museum. This paved the way for it to gradually take the shape of a modern, public art museum.

Meanwhile, van Marum's interest in botanical studies fit perfectly into his general approach to the study of nature – to which we shall now turn.

¹¹³ "onverwachte verandering van denkwijze"; "dat indien hij had kunnen vermoeden dat mijn plan zoude geweest zijn de verzamelingen van Delfstoffen, in Teijlers Museum tot zulk eene (zoals hij het zeer ongepast noemde) colossal hoogte te verheffen hij nimmer tot derzelver aanleg, zijne toestemming zoude gegeven hebben." Martinus van Marum: "De Geschiedenis van de oprigting van Teyler's Museum", 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 99-100.

¹¹⁴ For botanical activities see: M.J. van Steenis Kruseman, "Botany and Gardening," vol. 3, Martinus van Marum: Life & Work (Haarlem: Tjeenk Willink & Zoon, 1971), 127-174; Andreas Weber, *Hybrid Ambitions: Science, Governance, and Empire in the Career of Caspar G.C. Reinwardt (1773-1854)* (Leiden: Leiden University Press, 2012), 98-100.

II Van Marum's "Philosophy of Science"

1. He Kant be Serious

Van Marum, it seems, had little good to say about Immanuel Kant's philosophy. So much at least can be inferred from the transcription of a public lecture on mechanics van Marum gave to a lay audience, in all likelihood consisting of more than 100 listeners, in 1796. As was his habit, van Marum wrote out these lectures in their entirety. One can almost picture him preparing this particular lecture, leafing through his German copy of Kant's "Metaphysical Foundations of Natural Science" which had been published some ten years earlier, and feeling utterly stumped. Referring to one particular claim about attractive and repellent forces, van Marum jotted down:

"It is utterly incomprehensible to me how a proposition that is so obviously in contradiction to what common sense so clearly teaches, can have found any advocates."¹¹⁵

This, he then evidently decided, was perhaps a little too harshly worded, because he subsequently struck out this passage. But the words that followed, although slightly more diplomatic, were no less scathing, as he pondered:

"Whether Kant with all his cleverness really convinced himself by his ratiocinations of the truth of this Proposition, has often seemed very doubtful to me."

In other words, he considered all he read so incredulous that he doubted Kant himself actually believed what he had written.

Van Marum's statements are interesting for a number of reasons. Firstly, the fact that van Marum devoted a considerable portion of his lecture to discussing – and deriding – this new philosophy goes to show that Kant's ideas were hotly debated in the Netherlands too, even just a few years after their initial publication. Secondly, it might be reassuring to scholars through the ages that Kant's publications were considered both equally complex and puzzling in their own time as they are by almost all subsequent students of Kant. Finally and most importantly however, this episode reveals a lot about van Marum's own views on knowledge, and how one should approach the study of nature. More to the point, van Marum's rejection of Kant's arguments is not surprising if one realises that throughout his life, van Marum was a strict adherent to the principles of empiricism, in the sense that he rejected any form of speculation or any extensive body of theory that was not spawned by experimentation and observation. In his eyes, even the mathematical formulation of theories could be more of a hindrance than an aid. As he explained in his introductory remarks to another series of lectures on physics which he gave before a different audience in 1779:

¹¹⁵ "Het is mij ten eenemaal onbegrijpelijk hoe eene stelling zo blijkbaar aanlopende tegens het geen het gezond verstand zo duidelijke leert, nog eenige verdedigers kan gevonden hebben."; below: "Of de schrandere Kant door zijne redeneering zich zelven waarlijk van deeze Stelling kan overtuigd hebben, is mij meermaalen zeer twijfelachtig voorgekomen." "Openbare lessen in 1795 & 1796", 12.12.1800, Haarlem, NHA, Archief van Marum, vol. 529, nr. 12.

“In developing these sciences I shall not follow the example of those who, in order to seem learned, count a large number of ground rules, prove these, however simple they may be, with great display of mathematics and in this way fill entire volumes with so-called fundamental principles. I think such an approach is most suited to keep science to itself, and to scare others away from its study.”¹¹⁶

Although van Marum was probably speaking to a lay audience here, he doesn't appear to have been trying to pander to his listeners with this statement, and neither does he appear to have changed his opinion on mathematics over the course of the next decades: some years later, he refused a professorship in Utrecht, one of the reasons being that the teaching obligations involved too much mathematics; and none of his publications contain any elaborate mathematical reasoning.

Clearly, if van Marum already considered mathematics too much of a hindrance to a clear understanding of the workings of nature, Kant's loftily worded theories must have been anathema to this die-hard experimentalist.

Van Marum's belief in the values of empiricism and observation is in fact just one of three major facets of van Marum's overall approach to the study of nature, although of the three it is perhaps the most important, because this, above all, informed his methodological approach to research. The other two bore more relevance to his underlying motivation, i.e. what inspired him and gave him the energy to carry out his research activities. More to the point, the two other facets are, firstly, his strong religious beliefs – which are reflected in his physico-theological approach to nature – and, secondly, a clear utilitarian streak in his character. All of these, however, are of course connected, and each one of them will be addressed in a little more detail in the following.

2. You Better Believe It

As for his physico-theological approach to nature, this is perhaps the most surprising to modern ears. However, it is important to understand that the apparent opposition and mutual exclusivity of “science” and “religion” is largely a late 19th century construction, a myth that was born out of the necessity to forge the identity of the nascent scientific community as much as it was brought forth by the opposition to any form of genuine attempt at suppressing

¹¹⁶ “In 't ontvouwen van deze wetenschappen zal ik niet volgen het voorbeeld van hun, die, om geleerd te schijnen, een grot aantal van grondregels tellen, dezelve, hoe eenvoudig zij ook zijn mogen, met veel toestel van wiskunde bewijzen en op deze wijze gehele boekdelen met zogenaamde grondbeginselen vullen. Deze handelwijze oordeel ik de geschikste om de wetenschap voor zich zelve te behouden, en anderen van derzelver beoeffening afteschrikken.” “20 Lectiones Hydrostaticae, Hydraulicae, Aerostaticae ut et de proprietatibus Aëris, Aquae & Vaporis aënei, 1779, 1780”, 10.11.1779, Haarlem, NHA, Archief van Marum, vol. 529, nr. 13.

the analytical sciences by theologians or “the Church”.¹¹⁷ The rapid acceptance of what has been termed the “Draper-White thesis” subsequently eclipsed any attempts at a more nuanced assessment of the interrelation between theology and the study of nature. Yet the Netherlands are a prime example of how, until almost the end of the 19th century, many scientists’ strongly held religious beliefs informed their scientific studies.

This was certainly the case with van Marum. In fact, his belief suffuses all his areas of research. Time and time again he emphasised how he believed a better understanding of the workings of nature would incontrovertibly lead to a greater appreciation of God’s creation, and therefore, by proxy, the Creator himself as well. What’s more, throughout his life – certainly throughout his most active period at Teylers Museum – he appears to have been unwavering in his belief.

In his very first public lecture, his inaugural as town lecturer in 1777, van Marum already hammered this point home. Only a few pages into the published transcription for instance he professed:

“My aim is to show to you the suitableness of Physics [*Natuurkunde*] to evoke in us a reverence for the infinite omnipotence and wisdom of the GREAT CREATOR, as its first usefulness.”¹¹⁸

He reiterated these sentiments at various other points during his lecture. Halfway through his presentation for instance he said:

“Numbers and words fail us to express the vastness of the works of the GREAT CREATOR. [...] Therefore you see, most eminent and most honoured Listeners! that even a superficial contemplation of the works of the GREAT MAKER, convinces us emphatically of HIS infinite omnipotence.”¹¹⁹

It did not matter whether he was speaking of his electrical researches, chemistry, or the earth sciences either. In van Marum’s opinion, all of them helped reveal the Creator’s absolute superiority. In 1797, explaining items from the geological collection to the trustees for instance, van Marum stated that he didn’t just want to show them the specimens, but that it was also his aim

¹¹⁷ David C. Lindberg and Ronald L. Numbers, “Introduction,” in *God & Nature: Historical Essays on the Encounter Between Christianity and Science*, ed. David C. Lindberg and Ronald L. Numbers (Berkeley; Los Angeles; London: University of California Press, 1986), 1–18.

¹¹⁸ “Myn oogmerk is, UL. de gepastheid der Natuurkunde, om ons tot eerbieding des GROOTEN SCHEPPERS oneindige Almacht en Wysheid optewekken, als derzelve eerste nuttigheid, voor te stellen.” Martinus van Marum, *Intree-rede over het nut der natuurkunde in ’t algemeen, en voor de geneeskunst in ’t byzonder* (Haarlem: J. Bosch, 1777), 6.

¹¹⁹ “Getalen en woorden ontbreken ons, om de wyduitgestrektheid der werken des GROTEN SCHEPPERS uit te drukken. [...] Dus ziet gy, zeer aanzienlyke en zeer geëerde Toehoorders ! dat zelfs ene maar oppervlakkige beschouwing van de werken des GROTEN MAKERS, ons van ZYNE oneinige almacht op ’t nadrukkelykst overtuigt.” Ibid., 14.

“to bring to your attention, what essential knowledge can be derived here by philosophical observers, and what additional insights into the very early works of the creation they may occasion in us.”¹²⁰

Tellingly, van Marum did not restrict such statements to situations in which he might have felt obliged to make them in order to pacify his audience. As was described in the previous section, van Marum for instance gave a series of lectures before a larger audience after the French Revolutionary Armies had conquered the Dutch Republic. Although he emphasised the utilitarian aspects of his research and science in general in these lectures, he did not omit frequent references to the Creator. (Although, interestingly, they became ever more frequent as the years progressed and French influence began to wane.) During his second lecture for instance, after having demonstrated an experiment concerning the properties of air, he stated:

“You [unreadable] see therefore from this first example (and you will many times be able to observe the same in the following lessons), You see therefore, I say, from this first example of the limitation of our mind that the study of Physics [*Natuurkunde*] is particularly suited to induce man to form humble [unreadable] conceptions of his intellectual powers, and thus to guard him from priding himself overmuch in his cleverness or his deep insight into the true nature of things.”¹²¹

And while this could still be construed as a general appeal to be humble in view of nature’s complexity, just a few sentences later van Marum left no doubt as to whom he thought was behind this complexity:

“The Creator has endowed Man with such intellectual powers, to be able to understand the Nature of things to such an extent as can be useful for the satisfaction of his needs and the augmentation of his pleasures in the present life.”

Although he was then quick to emphasise how the study of nature could lead to practical applications, perhaps also in view of the French occupiers’ penchant for utilitarianism:

“Let us therefore continue to devote part of our time to this science, and in particular to the most useful and the most applicable parts of it.”

¹²⁰ “UE onder het oog te brengen, welke wezentlijke kennis hier uit voor wijsgeerige beschouwers te verkrijgen is, en tot welke verdere inzichten in de zeer vroege werken der schepping, zij ons aan leiding geven kunnen.” “Geologische Leszen bij Teylers Stichting 1798-1803”, 22.03.1799, Haarlem, NHA, Archief van Marum, vol. 529, nr. 6, fol. 39.

¹²¹ “GijE [unreadable] ziet dus uit dit eerste voorbeeld (en dergelijken zult Gij in ’t vervolg van deeze lessen veelmaalen kunnen op merken) GijE ziet dus zeg ik, uit dat eerste voorbeeld der beperktheid van ons vernuft dat de beoeffening der Natuurkunde eigenaardig geschikt is om den mensch zich van zijne verstandlijke vermogens nedrige [unreadable] begrippen te dien vormen, en hem dus te behoeden van zich niet al te veel op zijne schranderheid of diep doorzicht in den waaren aart der dingen te laten voorstaan.”; below: “De Schepper heeft den Mensch wel zo veel verstandlijke vermogens ingelegd, om de Natuur der dingen in zo verre te kunnen inzien, als ter vervulling zijner behoeftens, en ter vermeerdering zijner genoegens in dit tegenwoordige leven kan nuttig zijn.”; “Laat ons dan voortgaan een gedeelte van onzen tijd aan deeze wetenschap, en bijzonderlijk aan de nuttigste en meest toepasselijke deelen van dezelve te besteeden.” “Openbare lessen in 1795 & 1796”, 11.11.1795, Haarlem, NHA, Archief van Marum, vol. 529, nr. 12.

Similarly, van Marum would not have had to quote Priestley in the closing remarks of his short autobiography, which he published as the introduction to the catalogue of his plants in 1810. In addition to what was already quoted in the previous section, van Marum adopted the following words by the English chemist:

“The more we see of the wonderful structure of the world, and of the laws of Nature, the more clearly do we comprehend their admirable uses to make all the percipient creation happy: a sentiment, which cannot but fill the heart with unbounded love, gratitude, and joy.”¹²²

In fact the only indication that at some point during his life van Marum might have had second thoughts about his Christian beliefs can be found in the diary of a fellow member of the Second Society and prominent resident of Haarlem, Adriaan van der Willigen. Writing after the death of van Marum, he summarised: “The deceased was actually a sceptic, as he showed many times, but he tried to convince himself of the main tenets of Christianity.”¹²³ It is of course conceivable that van Marum grew ever more sceptical as he grew older, but at the same time van der Willigen emerges from his diaries as an opinionated man, whose statements naturally have a very personal ring to them, and therefore occasionally need to be taken with a pinch of salt.

3. What You See is What You Get

What makes van Marum’s professions of faith even more plausible is the fact that a physico-theological stance chimed well with his empiricism. The point is that at heart van Marum appears to have been an 18th century natural historian in the sense that his approach to the study of nature was a predominantly descriptive and classificatory one, and did not include any kind of search for a final cause of the patterns and laws governing the natural world – on the contrary, he would have put this off as “speculation”. Put differently, van Marum’s empiricism manifested itself in two ways: firstly, he believed in the value of observation and experiments as the basis for any claim about the workings of nature, and secondly, he deplored any form of speculative theorising.

It should be emphasised that van Marum was not alone in adopting such views. In fact he fits in well with a typically Dutch tradition of focusing on empirical data and adopting a sceptical stance towards all forms of speculative theorising, which had already been propagated by

¹²² Marum, *Catalogue des plantes, cultivées au printemps 1810; dans le Jardin de M. van Marum à Harlem*, viii.

¹²³ “De overledene was eigenlijk een scepticus, zooals hij meermalen deed blijken, maar poogde zich van de voornaamste stellingen des christendoms te overtuigen.” As quoted in: Bert Sliggers, “De kwalen van Van Marum: uit het dagboek van Adriaan van der Willigen (1831-1839),” *Teylers Magazijn* 33 (1991): 10. The statement is taken not from the published diary of van der Willigen’s, but from some separate, personal remarks and reminiscences on the Second Society which he had penned, and which were published in the aforementioned article.

scholars such as 's Gravesande, Musschenbroek, or van Marum's contemporary Jan Hendrik van Swinden.

As for the first point, the clearest statements on this matter stem from the early phase of his career, and in them he emphasises the importance of experiments. From what amounts to a summary of his view of the history of science which he gave during a lecture in July 1777, it clearly transpires how van Marum situated his activities within the tradition of what later came to be labelled as the "Scientific Revolution".¹²⁴ He granted that "entirely correctly [...] the ancient Greeks [may] be viewed as the true founding fathers of several sciences", yet he lamented that all their theories were no more than mere assumptions, adding: "testing them with special experiments, was not the fashion of that time". He then pointed out how Aristotle's "propositions" had above all been indisputable, but only "until finally in the preceding Century Man began to question Nature with the help of experiments." According to van Marum, this was a watershed. He describes the impact thus (in a handwritten note that is partially indecipherable, but the gist of which is readily understandable):

"Erelong it was seen that the Propositions of the Scholastic Philosophers, which had been taught so long and had been so much extolled, were pure fabrications; and discoveries were made that shed much light on many phenomena and that were of great importance for society. And at the same time people became convinced that the only way to discover things in Physics [*Natuurkunde*] was to perform Experiments."¹²⁵

In other words, real progress had only become possible once Aristotle's system of knowledge was overturned and scholars came to rely on experimental research. There is no doubt either as to whom van Marum identified as the heroes in this story: in other lectures he speaks of "The great Newton", and "the sagacious Italian Philosopher Galileo".¹²⁶

Van Marum also left no doubt as to the limitations of this experimental approach, which brings us to the second point, his opposition to extensive theorising. In an early lecture on the compressibility of gases and liquids – in which he had alluded to "the great Newton" as well – he concluded in the following manner:

¹²⁴ For a historiographical approach to this term see: Marcus Hellyer, ed., *The Scientific Revolution: The Essential Readings* (Malden: Blackwell, 2003).

¹²⁵ "[m]et het grootste regt [...] de oude Grieken voor de waare grondleggers van verscheidene wetenschappen gehouden worden [mogen]"; "dezelve door opzettelijke Proefneemingen te toetsen, was de smaak van die tijd niet"; "[t]ot dat men eindelijk in de voorgaande Eeuw begonnen is de Natuur door Proeven raadteplegen."; "Wel haast zag men, dat de zolang geleerde, en zo zeer opgebiede [unreadable] Stellingen der Scholastike Wijsgeren loutere verdichtselen waren; en men deed ontdekkingen, die zeer veel lichts omtrent verscheidene verschijnselen geven, en voor de zamenleving van veel belang waren. En men wierd te gelijk overtuigd, dat de enighe [unreadable word: manier?] om in de Natuurkunde te leren kunnen [precise sequence of words unclear] was Proefneemingen in het werk te stellen." "12 Lectiones publicae, varii argumenti, 1777, 78, 79, 80", 21.07.1777, Haarlem, NHA, Archief van Marum, vol. 529, nr. 13.

¹²⁶ "De groote Newton"; "[d]e scherpzinnige Italiaansche Wijsgeer Galilaeus". For statements on Newton see: "20 Lectiones: de proprietatibus corporum, de legibus motus, et de machinis simplicibus, 1778, 79", 25.11.1778, Haarlem, NHA, Archief van Marum, vol. 529, nr. 13; Ibid., 09.12.1778; "20 Lectiones Hydrostaticae, Hydraulicae, Aerostaticae ut et de proprietatibus Aeris, Aquae & Vaporis aquei, 1779, 1780", 17.11.1779, Haarlem, NHA, Archief van Marum, vol. 529, nr. 13. For statements on Galileo see: Ibid., 12.01.1780. Other statements of van Marum's from which he emerges as a clear proponent of the idea of a "Scientific Revolution" abound. In 1779 for instance he gave an account of the importance of the air pump in his "eighth lesson": Ibid., 29.10.1779.

“You see how far the compressibility of the invisible elastic fluids, of airs (I mean), extends. To want to explain this and to want to derive this, like others, from certain shapes of their particles seems reckless to me, as these particles themselves are entirely outside the reach of our senses. We have to confess our ignorance again here – It seems that Man is not allowed to know the causes of the general properties of bodies – Let us therefore be satisfied with the knowledge of the properties themselves.”¹²⁷

So, at this point at least, he was not at all enamoured with atomistic models, for the simple matter that granular particles could not be perceived. He voiced similar sentiments many years later, in 1799, in a different context, when he spoke of competing theories to explain the formation of rocks. He concluded his lecture to the trustees by saying:

“Here we stand and we can find no ground to choose, out of so many conjectures that can be made on this matter, one conjecture over the others. Let us therefore rather recognize the limitations of our insights, and not occupy ourselves here, like other philosophers, with conjectures about matters that are entirely outside the reach of our observations – Let us now acquiesce in the knowledge we have gained about the initial formation of the Earth’s Crust, in so far as it is based on incontrovertible observations and experiences. Here our knowledge is already very extensive”.¹²⁸

It is important, however, not to equate van Marum’s rejection of far-reaching speculation with indifference, or with a superficial approach to nature. Perhaps, if one only took van Marum’s strong adherence to natural theology and his clear warning of the restrictions of experimental science into account, one could suspect something akin to superficiality in his philosophy, in the sense that his research might have constituted little more than a detailed description of nature with the aim of underscoring its beautiful complexity. However, doing so would constitute the grave error of overlooking van Marum’s utilitarian streak.

¹²⁷ “Gij ziet, hoe verre de samenpersbaarheid der onzichtbare veerkrachtige vloeistoffen, der luchten (meen ik) zich uitstrekke. Dezelve te willen verklaren, en met anderen van zekere gedaantens hunner deeltjes te willen afleiden is, dunkt mij vermetel [unreadable: vermekel?], vermits die deeltjes zelve geheel buiten het bereik van onze zinnen zijn. Wij moeten dan hier weer onze onkunde bekennen – Het schijnt den mensch niet geoorloofd de oorzaaken van de algemeene eigenschappen der lichaamen inte zien – Laaten wij ons dan met de kennis der eigenschappen zelve vergenoegen.” “20 Lectiones: de proprietatibus corporum, de legibus motus, et de machinis simplicibus, 1778, 79”, 25.11.1778, Haarlem, NHA, Archief van Marum, vol. 529, nr. 13.

¹²⁸ “Hier staan wij en weten geen grond te vinden om van zo veele gissingen die hier omtrent kunnen gemaakt worden, de eene gissing boven de andere te verkiezen. Laat ons dan hier liever de beperktheid van onze inzichten erkennen, en ons hier niet nevens andere [unreadable] wijsgeren met gissingen ophouden over zaaken die geheel buiten het bereik onzer waarneemingen geleegeen zijn – Laaten wij ons nu te vrede houden met de thans verkregene kunde omtrent de eerste vorming van de Korst der Aarde, zo verre zij op onbetwistbaare waarneemingen en ondervindingen gegrond is. Wij vinden hierbij onze inzichten reeds zeer verre uitgebreid”; “Geologische Leszen bij Teylers Stichting 1798-1803”, 29.11.1799, Haarlem, NHA, Archief van Marum, vol. 529, nr. 6.

4. The Practical Turn

First of all it needs to be said that, here, “utilitarianism” is understood in a fairly broad sense. It is perhaps best described as the belief that the production of knowledge is not so much an end in itself or an exercise of the mind, but rather that its purpose lies in the formation of a reservoir of strategies, principles and experiences from which to draw whenever some kind of practical problem needs to be solved. Because the application of knowledge – its “utilisation” – hinges on the availability or accessibility of such a reservoir, a key component of any utilitarian approach to science – alongside the application of knowledge itself – is the diffusion of the knowledge that has been accumulated, and particularly in such a manner that those to whom this knowledge is conveyed can apply it.

As might already have become clear from the previous description of van Marum’s activities, he spent considerable time and energy both on the application of knowledge, and its diffusion. As for its application, recall that van Marum devised a number of practical appliances, such as a fire extinguisher, a ventilation system, and an improved “Papin” cooking pot. That he developed these devices in itself already underscores how van Marum was all for the application of knowledge. In all of these cases, his contrivances can be seen as having been spawned by van Marum’s earlier research, too, i.e. on electricity, the quality of air, or his medical studies. To express in the terms of the analogy introduced above: he was drawing from the reservoir of knowledge he himself had created in devising these appliances, with the aim of improving people’s daily lives.

And van Marum did not only let his deeds speak for themselves, he constantly stressed how much importance he attached to the use value of knowledge. Again, he already emphasised this in his inaugural lecture in Haarlem. In fact, the title of the lecture itself constituted something of a programmatic statement: “Introductory lecture on the use of the study of nature [*natuurkunde*] in general, and of medicine in particular”. Bearing in mind that at this point van Marum was still a registered and practising doctor, it becomes clear how important “the use of the study of nature” was to him. And although he identifies a better appreciation of the Creator as one of the benefits of the natural sciences, in van Marum’s view that did not preclude further, practical benefits. As he phrased it:

“When we fix our attention on the useful applications which the pursuit of the Study of Nature offers in society, [we see that] it towers above many other sciences in this respect as well.”¹²⁹

And, just as with his Christian beliefs, he was no less convinced of the potential benefits the study of nature held for society as a whole in later years. In a series of lectures for the trustees on chemistry, which commenced in 1794 for instance, van Marum explained that he had first turned to chemistry because of

¹²⁹ “Intree-rede over het nut der natuurkunde in ’t algemeen, en voor de geneeskunst in ’t byzonder”; “Vestigen wy onze aandacht op de nuttigheden, welke de beoeffening der Natuurkunde in de samenleving aanbiedt, niet minder verheft zy zich in dit opzicht boven vele andere wetenschappen.” Marum, *Intree-rede over het nut der natuurkunde in ’t algemeen, en voor de geneeskunst in ’t byzonder*, 19–20.

“the extensive insight it gives us into the works of the Creator and the benefits it has provided in society, and seems to promise in future”.¹³⁰

As has repeatedly been indicated before, once the French Armies had unexpectedly occupied the Dutch Republic just a few weeks later, van Marum began to emphasise the past and potential future benefits of his research even more. In his very first lecture before a larger audience for example, given a year after the previous statement was made, he opened with the words:

“Physics [*De Natuurkunde*] is a science, which, when it is more generally known and practised, can bring many benefits in society. I have expressly demonstrated this when I began to give lectures on Physics here in this city more than 18 years ago in a public address, and experience has since then abundantly confirmed that I have not exaggerated the usefulness of this science or have said too much in my recommendations of it.”¹³¹

Although van Marum was most likely adapting to political circumstances here, this statement is not even stretching the truth. In fact the only manner in which his statements on the purpose of his research during the French period seem to differ from any other period in his life, is that he always mentions potential benefits to society first, and then the physico-theological aspect, rather than the other way around. And neither did van Marum stop mentioning potential practical benefits in later years. In the recollections he penned in the 1820s he repeatedly chides the trustees for not having attached enough importance to these benefits. By this time, Napoleon was literally history.

A further indication that van Marum would have been the last to denounce utilitarian ideals, is that throughout his long life he displayed an immense desire to communicate any knowledge he had acquired, i.e. to spread it, make it available, and make it understandable. Van Marum was anything but the reclusive, inaccessible, lonely scholar. The host of lectures he gave, and from which all the quotes above have been taken, are testimony to this; so is his host of publications through a wide range of media, i.e. not only in specialists’ journals such as the *Proceedings of Teylers Second Society*, but also in more widely read journals such as the *Algemeene Konst en Letterbode*; finally, his copious correspondence underscores his desire to communicate.

What’s more, even though Teylers Museum was still a far cry from an educational centre that conveyed knowledge through its displays, van Marum attached some importance to the fact that it should serve as a possible resource for those who wanted to learn more about nature

¹³⁰ “het uitgebreide inzien het geen zij ons in den werken van den Schepper geeft en het nut het geen zij in de zamenleving heeft aangebracht, en verder schijnt te belooven hebben”; “*Lectiones Physico-chemicae, juxta Fourcroy Philos. Chem., ut et De inflammatione et combustione legni, alcorumque combustulium et de extinctione incendiorum*”, 08.11.1794, Haarlem, NHA, Archief van Marum, vol. 529, nr. 12.

¹³¹ “De Natuurkunde is eene wetenschap, die, wanneer zij meer algemeen gekend en beoeffend worde, veelvuldige voordeelen in de zamenleving kan aanbrengen. Dit heb ik, voor ruim 18 Jaaren, toen ik aanving hier ter steele Natuurkundige Leszen te houden, door eene openbaare redenvoering, opzetlijk aangetoond, en de ondervinding heeft sederd overvloediglijk bevestigd, dat ik toen geenzins de nuttigheid deezer wetenschap te groot heb opgegeeven of ter aanprijzing van diezelfde [unreadable] te veel gezegd heb.” “Openbare lessen in 1795 & 1796”, 11.11.1795, Haarlem, NHA, Archief van Marum, vol. 529, nr. 12.

and its workings. Recall how the acquisition plan for the instrument collection which he drew up in 1789 included models with the express purpose of enabling visitors to understand various principles of technology that had a bearing on everyday life; or, how around the turn of the century van Marum was striving to make the geological collections as accessible as possible. Finally, in a similar vein, what has not been mentioned yet is a plan that van Marum devised in 1810 upon the behest of Napoleon's representative in the Netherlands. The entire country had been annexed by this time and formed part of the French Empire. Van Marum's plan basically proposed transforming Teylers Museum into something akin to an *école polytechnique*. These plans had no impact whatsoever, because Napoleon's retreat from the Low Countries soon after appears to have led to the plans being discarded almost immediately, and it is perhaps even doubtful whether van Marum really wanted to see them pursued himself, given that he had drawn them up by order of the French – but, if anything, what they do clearly demonstrate is that van Marum had no difficulty whatsoever thinking in utilitarian terms.

So van Marum clearly was an advocate of utilitarian ideals – but at the same time, one has to be careful not to go too far in one's conclusions. Put simply, van Marum had a pronounced utilitarian streak, but he wasn't a die-hard radical in this respect. The crucial point is that he was clearly of the opinion that knowledge should serve some practical purpose, i.e. should contribute to the improvement of people's daily lives or it would be wasted, but at the same time the primary focus of all his work lay with the systematic accumulation of knowledge, i.e. research, on the workings of nature. Put differently, van Marum did not consider it beneath him to involve himself with practical appliances – in actual fact the whole idea that a distinction between “applied sciences” and “pure science” was somehow justified, as well as the idea that the latter was in some way superior to the former and therefore also more prestigious only emerges during a later period in history – but his main interest lay with the experimental study of nature.¹³²

This in turn helps explain some of the things he did – or rather some of the things he didn't do – which might otherwise seem puzzling. There is his apparent lack of interest in the *Oeconomische Tak* for instance, which had been formed in 1777 as part of the Holland Society, with the purpose of the “promotion of Trade, Arable Farming and Agriculture, Shipping and Fisheries, etc. in our Country and in the Colonies of this State”.¹³³ Its ties with the Holland Society were cut early during the French period, and by the second half of the 19th century, the *Oeconomische Tak* had evolved into the Manufacturers' Society. Van Marum doesn't seem to have been particularly bothered by the fact that it was separated off from the Holland Society, and did not for instance attempt to merge the two associations while he was secretary of the Society – although later in life he did repeatedly accept a seat on the jury that

¹³² On the lack of distinction between “applied sciences” and “pure sciences” see: Bert Theunissen, “*Nut en nog eens nut*”: *wetenschapsbeelden van Nederlandse natuuronderzoekers, 1800-1900* (Hilversum: Verloren, 2000), 13–36.

¹³³ “bevordering van den Koophandel, Land- en Akkerbouw, Zeevaart Visscheryen, enz. in ons Vaderland en in de Volksplantingen van dezen Staat”; Bierens de Haan, *De Hollandsche Maatschappij der Wetenschappen, 1752-1952*, 167. An earlier attempt to reform the entire Society had been thwarted by the Directors.

was tasked with assessing contributions to a national manufacturers' fair, in 1809, 1820 and 1825. (The fairs were held in Amsterdam, Ghent and Haarlem respectively.)¹³⁴

What is even more striking though is that van Marum showed no interest in the *Oeconomische Tak*'s cabinet of models (*Modellen Kabinet*), which was established in 1783 with the aim of storing models that illustrated technological principles and models that were part of patent applications. Its budget appears to have been a lot smaller than Teylers Museum's and it was never prominent enough to attract much attention, but nevertheless the minutes of the *Oeconomische Tak*'s meetings suggest it was upheld and expanded for many decades, even being opened to the general public in 1825.¹³⁵

Similarly, it has been noted previously that while van Marum did get into contact with many members of the Royal Society during his trip to London in 1790, he completely neglected the "Society for the Encouragement of Arts, Manufactures and Commerce". This is all the more striking because the Society of Arts, as it was referred to, had just moved to new premises near the boarding-house where van Marum was staying. As has been pointed out before, "[o]ne might conclude from Van Marum's behaviour in London that he was less intensely interested in these social and economic possibilities of the natural sciences [as propounded by the Society of Arts and the *Oeconomische Tak*] than in the actual internal development of science and research".¹³⁶

All this is worth keeping in mind when trying to understand how van Marum would have defined the position of Teylers Museum within the topography of Dutch collections.

5. This Way Up

One final point needs to be addressed in trying to understand what van Marum wanted to achieve through his research, as well as what motivated him, and that is that van Marum was perfectly aware of how his research could help him establish and maintain a position in the upper echelons of society.

This was a reciprocal process: attaining a certain status, reputation, and level of prestige helped van Marum attain his own research objectives. In Bourdieu's terms, he was acquiring cultural capital that he could spend on his research. So it would be far too simple to depict van Marum as "career-hungry" and obsessed with his social status – but at the same time one

¹³⁴ Forbes, "Applied Technology," 324–326.

¹³⁵ For a very brief summary of the cabinet's history and function see: Titus M. Eliëns, *Kunst, nijverheid, kunstnijverheid: de nationale nijverheidstentoonstellingen als spiegel van de Nederlandse kunstnijverheid in de negentiende eeuw* (Zutphen: Walburg Pers, 1990), 38. For transcripts of the meetings in which the cabinet was discussed between 1783 and 1840 see: "Modellen Kabinet, besluiten daaromtrent", 1783–1840, Haarlem, NHA, Nederlandsche Maatschappij voor Nijverheid en Handel te Den Haag, vol. 609, nr. 844.

¹³⁶ R.J. Forbes, "Introduction," vol. 2, *Martinus van Marum: Life & Work* (Haarlem: Tjeenk Willink & Zoon, 1970), 7.

cannot deny that he was a social climber, and his ascension was in large part due to the success of his scientific activities.

That he was aware of all this transpires from a variety of his activities and statements. One example is what can almost only be described as his vigorous campaign to be elected to the Royal Society.¹³⁷ Another instance in which it becomes clear that van Marum was aware of the wider implications of his statements is provided by the fact that he is the only member of the Second Society ever to remonstrate the minutes of a previous meeting.¹³⁸

Perhaps the best example, however, is again provided by the series of lectures he gave over the course of the years. All of these could in fact be construed as serving as the means to an end – the end, more precisely, of ensuring potential patrons' goodwill and enhancing the lecturers', i.e. van Marum's, reputation.

His appointment as town lecturer for instance ensured that he could build a network amongst all those interested in experimental science in Haarlem, many of which, such as Barnaart or even van Zeebergh, were members of the town's elite.

His series of lectures for the trustees and members of Teylers Second Society ensured that they did not lose interest in the collections van Marum was acquiring – and hoping to expand – with their support, and that they understood – or were at least susceptible to – his arguments as to why specific acquisitions would have to be made in the future.

Finally, considered from a political standpoint, van Marum's public lectures given between 1795 and 1797, i.e. in the aftermath of the French occupation of the Dutch Republic, are the most intriguing. It has already been mentioned how it is noticeable that he emphasises the potential practical benefits of all research more than he does in any of his other lectures. However, it has also been made clear that in doing so van Marum did not have to betray any of the principles he had previously held. So in how far his advocacy of utilitarian ideals in these lectures was genuine, and in how far it was a matter of circumstance, is difficult to determine exactly.¹³⁹

What is clear, however, is that van Marum was well aware of the changes in the political climate around him, and what potential impact they had on the overall status of research. It is interesting to chart his reaction in the immediate aftermath of the French Army's arrival: he had started giving a series of lectures on chemistry to the trustees in November 1794.¹⁴⁰ He had even gone to the bother of having parts of something akin to a textbook on chemistry by Fourcroy translated and printed in instalments, so that all of his listeners were, literally, on the same page.

¹³⁷ Levere, "The Royal Society of London."

¹³⁸ "Notulen Tweede Genootschap", 12.02.1790, Haarlem, ATS, vol. 1382.

¹³⁹ Others have tried before. Mijnhardt for instance does not agree with Levere's assessment that van Marum emphasised the benefits of his research for society first and foremost out of opportunism: Mijnhardt, *Tot heil van 't mensdóm: culturele genootschappen in Nederland, 1750-1815*, 321.

¹⁴⁰ "Lectiones Physico-chemicae, juxta Fourcroy Philos. Chem., ut et De inflammatione et combustione legni, alcorumque combustulium et de extinctione incendiorum", 1794-1795, Haarlem, NHA, Archief van Marum, vol. 529, nr. 12.

By the end of January 1795, van Marum had given six, presumably one-hour long, lectures – and the French had occupied Haarlem. During the last two lectures van Marum had already started talking about his newly devised methods for extinguishing fires rather than chemistry, and perhaps he was thereby preparing the ground for what was to come: on February 1st, van Marum radically changed the tone of his lectures. According to the transcript, he now addressed the trustees as “fellow citizens” (*Medeburgers*); and rather than printed, translated excerpts from Fourcroy’s book, the lecture notes now consisted of what seem to be hastily written sheets of paper; finally, van Marum blatantly emphasised the benefit his fire extinguisher had brought society, even professing that anyone who wanted to could come and see the model he kept at home with his own eyes – perhaps he was trying to show he had absolutely nothing to hide.

So van Marum was clearly no longer just addressing the trustees through his lectures. It is worth bearing this in mind when considering what is perhaps the most interesting aspect of the series of lectures van Marum began to give later that year: the unprecedented (for van Marum) size of the audience. The exact size is difficult to determine, although his listeners must have numbered about a hundred, because the venue of his lectures is known: the Reformed church in Haarlem at the Helmbrekerssteeg; the building has since been demolished.¹⁴¹ (Interestingly, van Marum had asked the Mennonite parish first whether he could use a church of theirs at the Peuzelaarsteeg as a venue but his request was rejected.¹⁴²) Another indication that the audience was not only large but also diverse is provided by a slip of paper that has been preserved between van Marum’s notes, with a statement evidently prepared by him that is worth quoting in full:

“As some Young people have abused the freedom granted to them to attend these lectures, and have behaved improperly during recent lectures, to the annoyance of many Citizens, in future no young people under 15 years old will be admitted to these lectures even if they have tickets, except only those who are brought along by their Father or their Guardian or by one of their relatives, who keep them near them and under their supervision. Young people under 15 years old, who are not accompanied by a father, guardian or relative, who keep them near them and under their supervision will therefore, to prevent further disorder and disturbances, be held back at the door by the stewards.”¹⁴³

Note how “tickets” were evidently required to attend the lectures.

¹⁴¹ On this building see: P. L. Slis, *De Remonstrantse Broederschap: biografische naamlijst, 1905-2005: gemeenten, landelijke organen, predikanten en proponenten, publicaties* (Delft: Eburon, 2006), 61.

¹⁴² Simon Leendert Verheus, *Naarstig en vroom: Doopsgezinden in Haarlem 1530-1930* (Haarlem: Rombach Boek en Beeld, 1993), 129.

¹⁴³ “Vermits eenige Jonge lieden misbruik gemaakt hebben van de hun verleende vrijheid om deeze lessen bij te woenen, en zich bij de laatste lessen, tot hindernisse voor veele Burgers, onbehoorlijk gedraagen hebben, zo zullen voortaan geene jonge lieden beneden de 15 Jaaren ofschoon zij billets hebben, tot deeze lessen worden toegelaaten, dan alleen die geenen, die meegebracht worden of door hun Vader of door hun Gouverneur of door iemand van hunne naastbestaanden, die hun bij zich en onder hun opzicht houden. De Jonge leeden beneden de 15 Jaaren, welke niet vergezeld zijn van vader voogt of nabestaand vriend, die hun bij zich en onder zijn opzicht wil houden, zullen derhalven, ter voorkooming van verdere stoornisse en ongeregeldheid, door de oppassers bij de deure worden teruggehouden.” “Openbare lessen in 1795 & 1796”, 20.01.1796, Haarlem, NHA, Archief van Marum, vol.529, nr.12.

Given the circumstances under which this series of lectures was conceived, the novelty of the size and of the composition of the audience begs the question of whether van Marum was now availing himself of the political climate to implement a dream he had had for a long time, or to what extent he felt he had to expand the audience of his lectures in order to bolster his utilitarian credentials, thereby making sure he would be able to continue with his private research activities. Given that there is no more than circumstantial evidence surrounding this matter, a fully satisfactory answer to this question is unfortunately not possible. In later years van Marum at least kept claiming that he had repeatedly requested a large auditorium be constructed by the Foundation, so that he could give lectures to larger audiences. He mentions this in the recollections he penned in the 1820s, he explicitly says so in a letter to Charles-François Lebrun in 1811, the matter seems to arise during a discussion on the possible uses of the first annex to the Oval Room that was completed in 1824, and in his 1795 lectures van Marum appears to complain about the fact that he had not been provided with premises that would allow for a large audience by the Foundation.¹⁴⁴

However, it is striking how all of these claims are made after 1795, and the minutes of the meetings of the trustees, as well as the minutes of the meetings of Teylers Second Society, contain no evidence to support the notion that the idea of a large auditorium was either floated by van Marum or seriously discussed and rejected by the trustees before the French occupation – even though that does remain perfectly plausible. What’s more, in the introductory remarks to his 1795 lectures van Marum seems to be explaining that the reason he had never given lectures before such a large audience on behalf of the Teyler Foundation before, was that there were no adequate premises available in the vicinity of the Foundation’s chemical laboratory, which made lectures on chemistry – van Marum’s main interest at the time – impossible.¹⁴⁵

Finally, there is the fact that van Marum terminated his lectures in 1797, apparently earlier than he had originally planned. He explained to his audience that he would not continue giving them because of the inadequacy of the premises, which is again perfectly plausible.¹⁴⁶ Yet it also fits what seems to be a more general pattern: the termination of all three of van Marum’s lecture series coincide with the moment they ceased to benefit him in the ways described above. The lectures before a large audience ended in 1797, when French influence was beginning to wane; no records revealing that he might have continued on as town lecturer after his appointment to the directorship of Teylers Museum have been found; and he never gave lectures for the trustees or the Second Society anymore once he had had the major row with van Zeebergh early in 1803.

¹⁴⁴ Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 131-132; on the letter to Lebrun see: Mijnhardt, *Tot heil van ’t menschedom: culturele genootschappen in Nederland, 1750-1815*, 337. On the discussions in the 1820s see: Michiel Kersten, “Een schilderijenzaal of een gehoorzaal,” *Teylers Magazijn* 13 (1986): 9–12. He complains most vociferously during his last public lecture: “Openbare lessen in 1795 & 1796”, 11.11.1795, Haarlem, NHA, Archief van Marum, vol. 529, nr. 12.

¹⁴⁵ Ibid.

¹⁴⁶ Ibid., 08.03.1797.

Van Marum's status and reputation might also help explain why he never cut his ties with Teylers Museum, despite a number of offers to become a professor he received over the years, despite his relative independence as secretary of the Holland Society (a salaried post), and despite the fact that he almost wasn't on speaking terms with the trustees after 1803 – the point being that van Marum had not only made Teylers Museum, but Teylers Museum had essentially made van Marum too. Apart from his undeniable talent, it was the fact that it was generally known that the Teyler Foundation had considerable financial muscle, and that van Marum's opinion on how to invest the Foundation's money bore heavily on the trustees' decisions, which opened many doors for him. Van Marum must have known that it was his position as director of Teylers Museum, as much as his qualities as a researcher, that had enabled him to build his network and reputation.

6. Bottom Line

By placing all these snippets of circumstantial evidence next to each other, the vague outlines of van Marum's ideas on the production and the consumption of knowledge begin to emerge, and by extension one also begins to obtain an idea of what role "the public" played in any of his considerations.

It is clear that van Marum was a deeply religious man, was an empiricist, and considered it a waste not to apply the fruits of research to the overall benefit of society. As far as van Marum was concerned, the benefits of his research could be twofold: on the one hand his findings could bring about a better understanding of God's creation, or rather a realisation of the beauty that lay beneath its complexity, and secondly his findings could help improve every citizen's quality of life.

In this sense his aim was to serve the general populace. Yet at the same time he sort of kept his distance from that general populace, setting himself off from the masses: he was perfectly comfortable for instance with giving his lectures to a select, small audience – the only time he demonstrated scientific principles to a large and diverse audience of complete laypeople was under some political pressure, in the aftermath of the French Revolution, just one year after Lavoisier had been guillotined, and during a period in which the Dutch were forced to emulate their French neighbours in referring to each other as "citizens", rather than any other title that might suggest non-meritocratic social privilege.

So in no small part van Marum was perhaps still rooted in a tradition of science as a gentlemanly pastime, and perfectly comfortable with that too; but he was equally capable of using the general populace to further his own ends – in a way that actually benefitted the populace, it has to be said – once this began to emerge as the main political category through which any form of power, influence, or privilege had to be legitimised.

Of course, interaction with “the public” was more than an abstract idea in the sense that the museum was, in principle, open to visitors from the very beginning on. What archival sources reveal about these visitors and what they experienced on a visit to Teylers Museum is the topic of the following section.

III Open All Hours: Public Accessibility of Teylers Museum 1780-1840

1. The Tourist Trap

The first railway connection in the Netherlands was inaugurated in 1839. From that point on, steam engines ran between Haarlem and Amsterdam, immensely speeding up travel between these two towns. One can be pretty sure that van Marum would have been ecstatic about this newest development. He had already tried to obtain a model of Boulton and Watt’s steam engine on his trip to England in 1790, and some thirty years later he was still lamenting the fact that his efforts had not been successful, stating that the steam engine was “the most excellent and useful machine that has been devised by human ingenuity”.¹⁴⁷ Alas, he did not live to see the establishment of a railway network in the Netherlands: he passed away in 1837.

In some way it is almost symbolic that van Marum passed away so soon before he could have taken a train to Amsterdam: it drives home the point that van Marum belonged to an era of travel that was rapidly drawing to a close by the time he grew old.

As in every other country at the time, it is hard to underestimate the changes brought about by the establishment and rapid expansion of the Dutch railway network. Less than ten years after the first trains had rolled into Haarlem for instance, a guidebook was published providing information on the landscape surrounding Haarlem. It was aimed at

“the Inhabitants of *Rotterdam*, *Schiedam*, *Delft* and other towns located close to the Holland Railway, who might now wish to make a one-day trip to Haarlem and to stay there for about twelve hours”.¹⁴⁸

Ironically, the immediate impact for Teylers Museum of the establishment of the rail network appears to have been minimal. It is not, for example, mentioned in the guidebook from which the quote is taken. The aim of the daytrips suggested in this book was to escape city life, and spend time in the countryside. Haarlem itself was therefore not recommended to its readers.

¹⁴⁷ “het voortreffelijkste en nuttigste werktuig gewis, hetgeen door het menschelijk vernuft is uitgedacht”; Martinus van Marum: “De Geschiedenis van de oprigting van Teyler’s Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 34.

¹⁴⁸ “de Inwoners van *Rotterdam*, *Schiedam*, *Delft* en andere zich in de nabijheid des HOLLANDSCHEN SPOORWEG bevindende plaatsen, die thans op éénen dag uit en thuis, een uitstapje naar Haarlems dreven zouden wenschen te doen, en aldaar omtrent twaalf uren vertoeven”; *Wegwijzer in Haarlems Omstreken* (Haarlem: Erven F. Bohn, 1848), 1.

But on a more general level, and in the long term, the railway's effects were of course huge. And here, the guidebook can help to illustrate some of the developments.

The entire concept of "leisure time", for instance, would not have been understood at the end of the 18th century. Let alone the idea of "tourism". The late 18th century was still the era of the Grand Tour: young members of the nobility and others who could afford it would spend a year or more travelling Europe – Italy was the destination of choice for most – in what amounted to a sort of self-exploratory exercise. Mass tourism on the other hand only emerged towards the end of the 19th century, brought about by a combination of larger sections of the population earning "time off" and travel becoming easier, faster, and more affordable.

All this inevitably had an impact on the public role of museums. Put simply, museums could only become tourist attractions once there were tourists.

That there were no tourists during van Marum's active period at Teylers Museum and, on a more general level, just how different travel was from what we know today during the early decades of Teylers Museum's history, is important to keep in mind when assessing the museum's public role during this period. For one, it has implications for the museum's accessibility, i.e. who could actually come to visit it. Secondly, and perhaps more importantly, it can serve as a reminder of just how profound the changes to society and the average citizen's outlook on life were that were brought about around the turn of the century. Both these points, in turn, are important to take into account when trying to shed some light on the question of who visited the museum, and what brought visitors there, i.e. what these visitors' expectations were and what they hoped to gain from a visit to the museum.

There are a number of sources that one can draw upon in trying to find answers to these questions. Firstly, there are the rules and regulations that were put in place for visitors by the trustees and van Marum. Secondly, there are the museum's visitor's books: as from 1789, every visitor was asked to sign his name upon visiting the museum and record where he came from. Unfortunately however from a historian's perspective, very few visitors included their occupation, and if the signatures themselves are decipherable, the signees are often hard to identify. Finally, there are travel reports published by visitors upon their return home. They can be particularly revealing because they not only contain the author's personal experiences, but often doubled as guidebooks for future travellers. Impersonal guidebooks such as those published by Baedeker or the one that was quoted above only came up around the middle of the 19th century. About a dozen reports covering the first forty years of the museums' history have been found.

2. Open Office

It was already mentioned in the previous chapter that in principle Teylers Museum was open to the public from the very beginning on. This seems to have been a real priority of the

trustees', given that they essentially chided van der Vinne for complaining about the burden of visitors. Interestingly, the museum's general accessibility was important to the trustees despite Pieter Teyler not mentioning that his collections should be open to anyone besides those associated with the Foundation. It has also been shown how the new museum evidently generated some interest among strangers even before the Oval Room had been completed and how, once the electrostatic generator had been installed in the museum, fixed opening hours were set by the trustees following a suggestion by van Marum. Visitors from outside Haarlem were welcome for one hour every day of the week except Sunday, residents of Haarlem could see the collections every Tuesday between 10am and 1pm.

Every visit followed the same procedure, which was to remain in place throughout van Marum's lifetime: tickets could be picked up either at van Marum's home or at the home of one of the trustees on the day of the visit. They were free of charge, although it appears visitors were expected to tip the servants of the Foundation House, especially the *kastelein's* servant who would accompany visitors through the museum and show them around. This can be deduced from the fact that these gratuities were discussed in 1790, and the servants were forbidden to accept them after 1826 – although they were then compensated for their loss of income by the trustees.¹⁴⁹

Aside from the opening hours, some rules restricting access were in place. Obtaining tickets from van Marum or the trustees meant potential visitors could be screened. No instance in which a person showing interest was turned down was ever recorded, but one visitor who arrived on van Marum's doorstep in 1803, the German civil servant Kaspar Heinrich von Sierstorpff, did record how he was critically examined by the director. He describes the experience as follows:

"The first thing I did the next morning was to visit Professor van Marum. Hoping to get acquainted with this Physicist and Co-Director of the famous Taylor Museum, I had obtained letters of reference to him. He did not however welcome me with the politeness which I had become accustomed to after dealing with French scholars, but more like a custodian of such an institution who has tired of endlessly giving strangers guided tours. After a formal exam to assess whether I had read any of his works and how much of these I might understand, I received a written referral to the so-called servant of the museum and was allowed to come back a few hours later."¹⁵⁰

Van Marum also suggested the amount of visitors that were allowed to enter the museum at the same time should be restricted, to fourteen. The aim was clearly to prevent any damage to the valuable instruments housed in the Oval Room, but this formed a restriction nonetheless.¹⁵¹

¹⁴⁹ "Directienotulen", 24.09.1790, Haarlem, ATS, vol. 5. On the change of rules in 1826 see: "Directienotulen", 24.10.1826, Haarlem, ATS, vol. 7. I am grateful to Geert-Jan Janse for drawing my attention to this passage in the minutes of the trustees' meetings.

¹⁵⁰ Kaspar Heinrich von Sierstorpff, *Bemerkungen auf einer Reise durch die Niederlande nach Paris im eilften Jahre der großen Republik*, vol. 2, 1804, 559. Published anonymously, later attributed to von Sierstorpff.

¹⁵¹ "De Heeren Directeuren van Teijlers Fundatie gelieven te overweegen ...", c. 1784, Haarlem, ATS, vol. 20. This is clearly van Marum's handwriting.

Interestingly, in June 1790 another amendment to the rules was introduced. The minutes of the trustees' meetings read:

“As visits to the Museum can often not be allowed in the morning because of Experiments being performed or arrangements being made, it is decided, on such occasions and because of other circumstances that may arise, to restrict visits to the Museum to the afternoon from 3 to 4 o'clock with notes from the Director and accompanied by the servant.”¹⁵²

In other words, the museum was first and foremost a place of research, and visitors were occasionally getting in the way – or rather van Marum's way. Note that this is before his trip to London, and before the addition of a separate laboratory to the premises. It is not that visitors were not welcome: upon van Marum's return from London and the start of the instrument maker Fries's employment by the Foundation some three months later, the rules were amended again, and the opening hours were actually extended. Fries, rather than the “servant”, was now entrusted with accompanying visitors during their tour through the museum – although he had to share any gratuities he received with the servant girls at the Foundation House – and received instructions that he was to grant visitors access to the Oval Room not only between noon and 1pm, but also between 3pm and 4pm. A provision was added that if experiments or other work was being conducted that did not allow for the presence of visitors, they could be told to return at 3pm.¹⁵³

This entire episode drives home the point that during this stage of its history, Teylers Museum was not a public institution that sought to actively attract visitors, but a research centre that was open to the public. It is all the more notable how adamant the trustees remained, however, that the museum should be open to anyone who showed an interest, for example by extending the opening hours to accommodate for van Marum's research activities in 1790.

The rules and the admission procedure essentially didn't change over the course of the next decades. Tickets were no longer written out by hand, but printed as from 1805.¹⁵⁴ That same year, the decision was taken to announce in advance through local newspapers whenever the museum needed to be closed for cleaning, so that visitors “will not be disappointed”.¹⁵⁵ Clearly, visitors were still being taken into account.

The fact that in 1810 the trustees emphasised that the museum was only accessible “under certain conditions” in a letter to the mayor of Haarlem most likely has to do with the fact that they were wary of the mayor's intentions. Perhaps worried that the town could stake a claim to some form of influence on the Foundation's decisions if some of the institutions the Foundation funded (such as the almshouse or the museum) were classified as “public”, they

¹⁵² „Alzo te meermaalen door het neemen van Proeven of maaken van Schikkingen in het Museum de bezigtiging van hetzelfde des voormiddags niet kan toegelaaten worden, word beslooten, bij zodaanige gelegenheden en om andere voorkomende Omstandigheden, het Musaeum des namiddags van 3 tot 4 uren te laaten bezigtigen met briefjes van den Directeur en onder geleide van den Knecht.” “Directienotulen”, 04.06.1790, Haarlem, ATS, vol. 5.

¹⁵³ “Directienotulen”, 24.09.1790, Haarlem, ATS, vol. 5.

¹⁵⁴ “Directienotulen”, 06.09.1805, Haarlem, ATS, vol. 6.

¹⁵⁵ “niet teleurgesteld worden”; as quoted in: Geert-Jan Janse, “Uit nieuwsgierigheid en ter onderricht,” in *Teylers Museum 1784-2009: een reis door de tijd*, ed. Marjan Scharloo (Haarlem: Teylers Museum, 2009), 16.

emphasised that all of the Foundation's organisations were "according to the express wish of the Testator, administrated and treated as private property".¹⁵⁶

At the same time, as the years progressed, the trustees were willing to go to greater lengths to enable more people to benefit from the collections. In July 1825 the National Manufacturers' Fair was held in Haarlem, and Teylers Museum was open every day except Sunday from noon to 3pm throughout the entire month. In a move that provides an indication of just how many visitors were expected, the amount of tickets was limited to 100 per day.¹⁵⁷

As has been mentioned before, by 1826 the museum's premises had been extended, so that they now included a reading room and extra shelf space for the library. Rules were set up for the library's usage in 1825. It was to be open to citizens of Haarlem every Wednesday and Saturday between 1pm and 4pm, and every day except Sunday from 1pm to 2pm to visitors from out of town. Users had to be above the age of 18. Tickets to the library could be obtained from either the trustees or van Marum and his assistant librarian. These tickets were handed out independently of those for the museum, which "remains accessible to each and everybody", as was explicitly stated.¹⁵⁸ Books were not available on loan, smoking was strictly forbidden, and a "proper silence" was to be kept in the reading room. In case the librarian was not present, it was up to the assistant librarian to ensure that visitors behaved adequately.¹⁵⁹ Finally, a limited number of tickets was made available – 80 upon the reading room's opening – "in order to prevent as much as possible an all too great influx of inhabitants of this city at the opening of the Library".¹⁶⁰

Determining exactly how many visitors came to Teylers Museum over the course of the first decades of its existence is, unfortunately, impossible. The restrictions listed above provide an indication, but one cannot know for sure whether they were called for or met. The visitor's books contain between 300 and 400 signatures per year.¹⁶¹ They include the signatures of all those who published detailed travel reports that leave no doubt they actually visited the museum, but it is of course impossible to determine whether every visitor to the museum really signed the book.¹⁶² Those who were keeping a diary with intention of publishing their experiences and those who had come from far afield might have been more inclined to leave a trace of their visit anyway, and citizens of Haarlem might have been less inclined to do so. Either way, one can safely say that at least a few hundred visitors came to see Teylers Museum every year. This sounds as if one did not exactly have to queue to obtain a ticket or

¹⁵⁶ "onder zekere bepalingen"; "volgens den uitdrukkelijken wil van den Testateur, als een particulier eigendom bestuurd en behandeld wordende"; "Directienotulen", 31.08.1810, Haarlem, ATS, vol. 6. Cf. Mijnhardt, *Tot heil van 't mensdom: culturele genootschappen in Nederland, 1750-1815*, 331.

¹⁵⁷ Janse, "Uit nieuwsgierigheid en ter onderricht," 18.

¹⁵⁸ "voor elk en een iegelijke toegankelijk blijft"; "Directienotulen", 20.05.1825, Haarlem, ATS, vol. 7.

¹⁵⁹ "behoorlijke stilte"; Ibid.

¹⁶⁰ "ten einde zoo veel mogelijk bij de opening van de Bibliotheek, den alte grooten toevloed van bewoners dezer stad te voorkomen"; "Directienotulen", 14.04.1826, Haarlem, ATS, vol. 7.

¹⁶¹ I am grateful to Geert-Jan Janse for sharing with me the precise amount of annual signatures, which he established as part of the research for his article "Uit nieuwsgierigheid en ter onderricht". Cf. Janse, "Uit nieuwsgierigheid en ter onderricht," 14–18. Geert-Jan Janse, pp. 14–18.

¹⁶² Such as, for example, Georg Forster, Kaspar Heinrich von Sierstorpff and August Hermann Niemeyer.

to get in, but at the same time this is no inconsiderable number for what had started out as the repository of two private learned societies.

3. Eyes Wide Open

A sense of what visitors experienced during a visit to Teylers Museum can be obtained from the travel reports some of them published upon returning home. They are revealing in many ways. It is reassuring to any student of Teylers Museum for instance to see that almost all of the dozen or so travellers who visited Teylers during the first decades of its history were stumped by the Foundation's organisational structure – almost none of them gives a correct summary of Pieter Teyler's intentions in writing his will, or the history of the institutions under the Foundation's purview. More importantly though, their descriptions of the museum provide snapshots of developments at the museum, unbiased in the sense that they are provided by outsiders, rather than anyone affiliated with the Teyler Foundation.

It is remarkable how all of the visitors were impressed by the magnificence of the Oval Room. An anonymous English gentleman who arrived at Teylers Museum in 1790 for instance described it as “extremely lofty, spacious, and handsome”, another anonymous visitor who came to Haarlem that same year spoke of an “excellent round Hall”, the German physics teacher Johann Friedrich Droysen who visited in 1801 considered the building “worthy of its rich founder, beautiful and elegant”, the aforementioned Sierstorpff spoke of a “magnificent and very spacious building”, the co-director of the Franckesche Stiftungen in Halle August Hermann Niemeyer echoed his compatriot's sentiments in describing the Oval Room as a “magnificent building” upon seeing it in 1806, and so on.¹⁶³ Many were also struck by the contrast of the building's unassuming outer façade, and the glamour of its interior – recall that visitors entered the museum through the Foundation House, and had to pass through the trustees' meeting room before entering the Oval Room. The anonymous traveller from 1790 for instance stated “the access [is] somewhat poor” before praising the interior, and Sierstorpff recounted how “[o]ne is first led through a succession of rooms, which serve as meeting places for the five Conservators [trustees] and for similar events. Here everything is nicely furnished and richly decorated”.¹⁶⁴

¹⁶³ “vortrefflichen runden Saal”; “seines reichen Stifters würdig, schön und geschmackvoll”; “prächtiges und sehr geräumiges Gebäude”; “prächtiges Gebäude”; *An Entertaining Tour, Containing a Variety of Incidents and Adventures, in a Journey through Part of Flanders, Germany & Holland* (London: H.D. Symmonds, 1791), 243; *Bemerkungen auf einer Reise nach Holland im Jahre 1790* (Oldenburg: Gerhard Stalling, 1792); Johann Friedrich Droysen, *Bemerkungen, gesammelt auf einer Reise durch Holland und einen Theil Frankreichs im Sommer 1801* (Göttingen: Heinrich Dieterich, 1802), 109; Sierstorpff, *Bemerkungen auf einer Reise durch die Niederlande nach Paris im elften Jahre der großen Republik*, 2:556; August Hermann Niemeyer, *Beobachtungen auf Reisen in und außer Deutschland*, vol. 3 (Halle: Buchhandlung des Waisenhauses, 1824), 151.

¹⁶⁴ “der Zugang [ist] etwas ärmlich”; “[m]an wird zuerst in einige Zimmer geführt, die zu den Zusammenkünften der fünf Conservatoren, und bey ähnlichen Gelegenheiten gebraucht werden. Hierin ist alles

The building is not all the visitors were impressed by. All of them spoke of the museum's collections in the highest terms – the instrument collection above all was singled out for praise. The German explorer Johann Georg Forster – who travelled with his teacher Jeremias David Reuss and his young and soon-to-be-famous friend Alexander von Humboldt – was led around the museum by van Marum himself, and recorded how he and his companions had seen “the library, a collection of prints, an incomparable assembly of physical instruments and an already very substantial and beautiful natural history cabinet.”¹⁶⁵ To quote just a few others, Sierstorpff described how “[A]ll shelves are full of the best and most expensive physical instruments”, and the books were “all arranged in the finest bindings”; Niemeier wrote of the “most exquisite minerals” and “all kinds of the most valuable physical instruments”.¹⁶⁶

It is also interesting to see how the collections' gradual expansion is reflected in these travel reports. The anonymous Englishman who visited in 1786 for instance pointed out that “the library indeed seems quite in its infancy”.¹⁶⁷ The German author Sophie LaRoche, who published a description of the Netherlands in 1788, summarised that Haarlem would “soon” attract “scholars and strangers thirsty for knowledge”, once what she wrongly thought was Teyler's last will and testament had been fully implemented.¹⁶⁸ Two years later, while van Marum was still in England buying as many instruments as he could, another German author, Nina d'Aubigny von Engelbrunner, recorded in her travel diary that “[t]his institute is far from completed”.¹⁶⁹

Almost ironically, many of the visitors were as critical of the museum's and its collections' splendour as they were impressed by it. Initially their surprise at the wealth they encountered appears to have been expressed by repeating what they heard about Pieter Teyler being stingy and greedy.¹⁷⁰ As time progressed, however, the Foundation itself was increasingly chided for its financial policies. Forster for instance wrote:

“The executors of this estate could undoubtedly, if they were inspired by true zeal for science, spend even larger amounts of money in the spirit of the founder without having to worry to find themselves lacking in funds, or even exhausting the annual interest of the enormous

schön meublirt und reich verziert”; *Bemerkungen auf einer Reise nach Holland im Jahre 1790*; Sierstorpff, *Bemerkungen auf einer Reise durch die Niederlande nach Paris im elfften Jahre der großen Republik*, 2:557.

¹⁶⁵ “die Bibliothek, eine Kupferstichsammlung, einen unvergleichlichen Apparat von physikalischen Instrumenten und ein bereits sehr ansehnliches und prächtiges Naturalienkabinet.” Georg Forster, *Ansichten vom Niederrhein, von Brabant, Flandern, Holland, England und Frankreich im April, Mai und Junius 1790*, vol. 9, Georg Forsters Werke (Berlin: Akademie-Verlag, 1958), 325.

¹⁶⁶ “Alle Schränke stehen voll der besten und theuersten physikalischen Instrumente”; “alle in den prächtigsten Einbänden aufgestellt”; “ausgesuchtesten Exemplare der Mineralien”; “kostbarsten physikalischen Instrumenten aller Art”. Sierstorpff, *Bemerkungen auf einer Reise durch die Niederlande nach Paris im elfften Jahre der großen Republik*, 2:558 & 560; Niemeier, *Beobachtungen auf Reisen in und außer Deutschland*, 3:151.

¹⁶⁷ *An Entertaining Tour, Containing a Variety of Incidents and Adventures, in a Journey through Part of Flanders, Germany & Holland*, 243.

¹⁶⁸ “Gelehrte und wißbegierige Fremde”; Sophie La Roche, *Tagebuch einer Reise durch Holland und England* (Offenbach: Ulrich Weiß & Carl Ludwig Brede, 1788), 108.

¹⁶⁹ “Dit hele instituut is alles behalve af”; Nina d'Aubigny von Engelbrunner, “*Niet zo erg Hollands*”: *dagboek van een reis naar Nederland (1790-1791)* (Hilversum: Verloren, 2001), 72.

¹⁷⁰ See chapter 2.

capital. But when there is such an amount of money, the temptation to multiply and accumulate is difficult to resist”.¹⁷¹

He might have been repeating what he had heard from the museum’s director – although van Marum would in actual fact have had little to complain about in this year – but thirteen years later Sierstorpff did not get to meet van Marum, and still concluded that the Foundation was not spending its money sensibly. As he put it:

“Incidentally this institute is a rare example that in some cases overly large expenditures can become a disadvantage. The annual income of this museum is supposed to be so large, that, although the trustees, stewards, [as well as] more mechanics and similar people receive very generous salaries, one is often at a loss as to how to spend the money appropriately!!”¹⁷²

The two exclamation marks emphasise his indignation, which he summed up in the following, scathing way: “Thousands are wasted here on things, which would have been more useful and practical if they had cost at most one tenth”.¹⁷³ Sierstorpff’s judgement is all the more striking because he came to the museum full of enthusiasm. Perhaps he was put off by the way he had been treated by van Marum. Yet his sentiments were echoed by the Dutch author Margaretha Jacoba de Neufville, who visited Teylers Museum in July 1812. She was taken with what she saw, but complained that she would have enjoyed it even more and even spent a few days at the museum

“if for an ignorant visitor like myself, there would be more opportunity to receive some instruction concerning the various objects that one sees, but this is lacking entirely.”¹⁷⁴

She found it frustrating that

“even the books one can see externally and touch through a fairly dense lattice, but apart from the title on the spine one cannot read anything, because the cupboards in which they stand are closed, and the steward who accompanies you hasn’t got the key.”¹⁷⁵

¹⁷¹ “Die Administratoren dieses Vermächtnisses könnten ohne Zweifel, wenn wahrer Eifer um die Wissenschaft sie beseelte, noch weit größere Ausgaben in dem Geiste des Stifters bestreiten, ohne Besorgniß, sich von Mitteln entblößt zu sehen, oder auch nur die jährlichen Zinsen des ungeheuren Kapitals zu erschöpfen. Allein die Versuchung bei einer solchen Geldmasse ist zu groß zum Vermehren und Anhäufen, als daß man ihr widerstehen könnte“. Forster, *Ansichten vom Niederrhein, von Brabant, Flandern, Holland, England und Frankreich im April, Mai und Junius 1790*, 9:325–326.

¹⁷² “Uebrigens ist dieses Institut ein seltenes Beyspiel, dass auch gewissen Dingen eine zu grosse Kostenverwendung nachtheilig werden kann. Es soll die jährliche Einnahme dieses Museums so beträchtlich seyn, dass, obgleich die Directoren, Aufseher, mehr Mechaniker und dergleichen Leute sehr ansehnliche Besoldungen davon geniessen, man oft verlegen ist, das Geld zweckmässig anzubringen!!“ Sierstorpff, *Bemerkungen auf einer Reise durch die Niederlande nach Paris im elfften Jahre der großen Republik*, 2:562.

¹⁷³ “Tausende werden hier für Dinge verschwendet, welche nützlicher und brauchbarer seyn möchten, wenn sie höchstens den zehnten Theil gekostet hätten“. Ibid., 2:558–559.

¹⁷⁴ “indien er voor een onkundigen bezigtiger zoo als ik, beter gelegenheid ware om eenig onderrigt aangaande de verschillende voorwerpen welke men ziet, te bekomen, maar hier aan ontbreekt het geheel.” Margaretha Jacoba de Neufville, *De kleine pligten: eene oorspronkelijke zedelijke voorstelling in brieven uit het begin der negentiende eeuw*, vol. 3 (Amsterdam: P. den Hengst en zoon, 1824), 175. I am grateful to Geert-Jan Janse for drawing my attention to this publication.

De Neufville therefore concluded: “Therefore such a collection of all kinds of beautiful things that have been brought together there is, I think, of much less use than it might be”, albeit adding that by the time she published this, the library’s reading room had been opened, and her criticism had been met.¹⁷⁶

Similarly, it is striking that not one of the visitors that published a travel report saw the electrostatic generator in action. The Englishman who was shown the museum in 1786 already stated that “All the philosophical instruments are kept in cases, which are not opened to strangers”.¹⁷⁷ The anonymous visitor in 1790 wrote of the “Electrostatic generator, which I should have liked to see in operation”.¹⁷⁸ Droysen was given a long list of dubious reasons as to why it could not be set in motion for him (this was only possible in the trustees’ presence, for example), and suspected there was some truth to rumours he had heard in Amsterdam that one of the discs was actually broken.¹⁷⁹ Sierstorpff asked van Marum for a demonstration, but to no avail. As he recalled:

“Expressing my wish to witness the effects of the large electrostatic generator, I received the blunt and typically Dutch answer: one would have a lot to do if one set the machine in motion for each and every stranger.”¹⁸⁰

As his compatriot Karl Asmund Rudolphi noted upon visiting Teylers Museum one year later: „It is no good arguing with van Marum, for he seems to be a hypochondriac”.¹⁸¹ Together with the electrostatic generator’s reputed cost of more than f8000,-, this will have had some bearing on van Sierstorpff’s conclusion that this instrument was “because of the many attached brass ornaments and sharp corners more of a magnificent scientific furniture piece [*physikalisches Meuble*] than a tool that could be usefully applied”. With what almost amounts to biting sarcasm, he added: “It is displayed in a beautiful case, and it is at most turned around a few times when some bigwig wants to see all these things with eyes on stalks.”¹⁸²

¹⁷⁵ “zelfs de boeken kan men uitwendig zien en door een vrij digt traliwerk met den vinger aanroeren, maar behalve den titel op den rug gedrukt, kan men er niets van te lezen bekomen, want de kassen in welke zij staan zijn digt gesloten, en de oppasser die met u rondgaat, heeft den sleutel niet.” Ibid.

¹⁷⁶ “Zoodoende is, dunkt mij, zulk eene verzameling van veelsoortig fraais als daar te zamen is, van veel minder nut dan die zou kunnen wezen”. Ibid.

¹⁷⁷ *An Entertaining Tour, Containing a Variety of Incidents and Adventures, in a Journey through Part of Flanders, Germany & Holland*, 243.

¹⁷⁸ “Elektrisirmaschine, deren Wirkung ich wol hätte sehen mögen”; *Bemerkungen auf einer Reise nach Holland im Jahre 1790*.

¹⁷⁹ Droysen, *Bemerkungen, gesammelt auf einer Reise durch Holland und einen Theil Frankreichs im Sommer 1801*, 110.

¹⁸⁰ “Auf meinen ihm geäußerten Wunsch die Wirkung der grossen Electrisirmaschine zu sehen, bekam ich aber ohne weitere Umstände die kurze echt Holländische Antwort: dass man viel zu thun haben würde, wenn man die Maschine für jeden Fremden in Bewegung setzen sollte.” Sierstorpff, *Bemerkungen auf einer Reise durch die Niederlande nach Paris im eilften Jahre der großen Republik*, 2:553.

¹⁸¹ “Es ist mit van Marum nicht gut zu streiten, da er hypochondrisch scheint”; Karl Asmund Rudolphi, *Bemerkungen aus dem Gebiet der Naturgeschichte, Medicin und Thierarzneykunde, auf einer Reise durch einen Theil von Deutschland, Holland und Frankreich*, vol. 1 (Berlin: Realschulbuchhandlung, 1804), 123.

¹⁸² “der vielen daran befindlichen Bronzeverzierungen und scharfen Ecken halber mehr ein prächtiges physikalisches Meuble, als ein nützlich zu gebrauchendes Werkzeug”; “Sie steht in einem schönen Kasten zur Schau, und wird höchstens ein paar Mal umgedreht, wenn etwa ein Hochmögender einmal alle diese Dinge wie

4. History in the Making

Sierstorpff's travel report is especially noteworthy for another reason. It has already been stated that he was struck by the immense value of the instrument collection. Because the instruments were so valuable, he went on to observe, they "had mostly never been used, because it is too much of a fuss to have to clean everything in the Dutch manner, and put it back on display again." What's more, he added: "[e]verybody who knows the practical sides of this field, has certainly experienced how soon the best instruments become redundant, because even better and more convenient instruments have been invented and many experiments can always still be performed in a more proper manner, and how little a really useful physics laboratory [therefore] lends itself to being turned into a dainty exhibition."

This, crucially, brought him to the following conclusion about the instrument collection at Teylers Museum: "the entire collection will someday only serve as testimony to the history of physics".¹⁸³

Given that the earliest currently known example of a museum explicitly stating that it would preserve instruments for their historical value is that of the Conservatoire des Arts et Métiers in Paris, in 1801, Sierstorpff's statement from 1804 is remarkably early.¹⁸⁴ What is all the more stunning is that Niemeyer came to exactly the same conclusion, although he does not elaborate on it. In his report, Niemeyer wrote:

"All along the walls are mahogany cases with all kinds of the most valuable physical instruments, which, as the collection is steadily completed, will be able to serve as testimony to a history of physics."¹⁸⁵

The fact that the visitor's books contain both these men's signatures proves Niemeyer was not just copying off Sierstorpff, despite the remarkable similarity of their choice of words. More importantly, while Sierstorpff was obviously critical of the way Teylers Museum was run, and perhaps spiteful about the way he had been treated by van Marum, this was definitely not the case with Niemeyer. In fact, Niemeyer is one of the few visitors to defend van Marum, whom he visited at his home after having been shown through the museum by the *kastelein's* manservant. As Niemeyer put it:

die Kuh das rothe Thor anstaunen will." Sierstorpff, *Bemerkungen auf einer Reise durch die Niederlande nach Paris im elfften Jahre der großen Republik*, 2:557–558.

¹⁸³ "grösstentheils noch gar nicht gebraucht worden, weil es zu viel Umstände macht, alles demnächst wieder Holländisch zu putzen und zur Schau aufzustellen."; "Jeder, der dieses Fach practisch kennt, hat auch gewiss erfahren, wie bald die bessten Werkzeuge bey Seite gestellt werden müssen, weil noch bessere und bequemere erfunden, und viele Dinge immer noch auf eine richtigere Weise experimentirt werden, und wie wenig sich ein eigentlich nützliches physicalisches Laboratorium zur zierlichen Ausstellung schickt."; "diese ganze Sammlung wird dermaleinst nur als Belag zur Geschichte der Physik dienen können." Ibid., 2:558–559.

¹⁸⁴ Arthur MacGregor, *Curiosity and Enlightenment: Collectors and Collections from the Sixteenth to the Nineteenth Century* (New Haven; London: Yale University Press, 2007), 227.

¹⁸⁵ "Rings um her laufen Mahagonysschränke voll der kostbarsten physikalischen Instrumente aller Art, die einst, bey der stets fortschreitenden Vervollkommenung, als Belege zu einer Geschichte der Physik werden dienen können." Niemeyer, *Beobachtungen auf Reisen in und außer Deutschland*, 3:151.

“Mr van Marum, whom I visited at his country house, shouldn’t be blamed for withdrawing from the tedious business of showing people around, as many travelers have done. Who can demand of the man of science that he should go to the effort of entertain every inquisitive person? Unfriendly and disagreeable, as he has been made out, I didn’t find him.

It may be true that the institute itself is, in light of the enormous amounts it has cost and still costs, more of a showpiece than a charity of public benefit. But should the public benefit be made into the only criterion of what is meritorious? The lectures on science held every winter, the treatises that have been published, even the numerous visits to such a rare collection, complemented by a second natural history cabinet, Mr van Marum’s private property, and several other collections of the Society of Sciences founded earlier in Haarlem, have surely evoked many ideas in susceptible minds, and have in addition made visible many things, known only from descriptions.”¹⁸⁶

Clearly, Niemeyer was making a balanced assessment.

Finally, the fact that Sierstorpff and Niemeyer already saw the scientific instruments as potentially more than just research tools within the setting of Teylers Museum is all the more striking in view of one final feature all known travel reports on Teylers Museum share: with the exception of just one, they all don’t provide any detail concerning the museum’s art collection.

Even the single exception is not very informative. It is provided by Samuel Ireland, in his book “A Picturesque Tour through Holland, Brabant, and part of France”, detailing a journey he undertook in 1789. His declared interest were the paintings and painters of the regions he travelled through. Accordingly, he didn’t mention Teylers Museum’s scientific collections – all he in fact did was recommend the cabinet “formed by the late Mr. Teyler Vander Hulst, for the accommodation of young artists and connoisseurs in general”.¹⁸⁷ Given that, as was mentioned before, a large part – if not even all – of Teyler’s prints and drawings had been sold to van der Vinne early during the Foundation’s history, this is not even a factually accurate statement.

Nevertheless, just one year later, the Foundation purchased a valuable collection of drawings which included works by famous artists such as Michelangelo, Rembrandt and Raphael. And just two months before van Marum passed away, the trustees decided to extend the museum’s

¹⁸⁶ “Daß Herr van Marum, den ich auf seinem Landsitz besuchte, sich des lästigen Geschäfts des Herumführens überhebt, sollte ihm nicht, wie von manchem Reisenden geschehen ist, verübelt werden. Wer kann dem wissenschaftlichen Manne anmuthen, sich mit jedem Neugierigen abzuquälen? Unfreundlich und zurückstoßend, wie man ihn schilderte, habe ich ihn wenigstens nicht gefunden. // Daß das Institut selbst mehr ein Prachtstück, als, im Verhältnis des ungeheuren Aufwands den es gekostet hat und fortdauernd kostet, gemeinnützig ist, mag gegründet seyn. Aber soll man denn das Gemeinnützige zum einzigen Maaßstabe des Verdientlichen machen? Gewiß haben die in jedem Winter gehaltenen naturwissenschaftlichen Vorlesungen, die ans Licht getretenen Abhandlungen, selbst der häufige Besuch einer so seltenen Sammlung, der noch ein zweytes reiches Naturalienkabinett, das Privateigenthum des Herrn van Marum, und mehrere andre Sammlungen der in Haarlem schon früher gegründeten Gesellschaft der Wissenschaften, zur Seite stehen, in empfänglichen Geistern schon eine Menge von Ideen geweckt, auch daneben so vieles, was man nur aus Beschreibungen kannte, zur Anschauung gebracht.“ Ibid., 3:152.

¹⁸⁷ Samuel Ireland, *A Picturesque Tour through Holland, Brabant, and Part of France; Made in the Autumn of 1789*, vol. 1 (T. Egerton: London, 1796), 123.

premises. Crucially, the sole purpose of the new annex to the Oval Room was to display paintings the Foundation had started acquiring in the 1820s.

It is time to address this aspect of the history of Teylers Museum.

IV The Forgotten Art

1. No Great Connoisseur of Pictures

During his stay in Kassel in 1798 one of van Marum's new acquaintances there, a certain Mr. Traszychi from Poland, suggested they visit the "Bilder Galerie" together. Van Marum agreed, but Traszychi soon found himself alone at the gallery. As van Marum recorded in his travel diary:

"I left him there because, being a great connoisseur of pictures, he remained looking at many pictures longer than pleased me."¹⁸⁸

Clearly, van Marum did not consider himself a "great connoisseur of pictures" – which is not to say that he did not appreciate the fine arts. The fact that he accompanied Traszychi in itself shows that he did. He was no philistine, and even records which paintings he liked in Kassel:

"I was specially attracted by two landscapes with cows by Potter, in one of which, a cow appears to be making water, and which specially bears the name of *La Vache qui pisse*, and by some pictures of flowers and fruit by Hussem."¹⁸⁹

For all of his previous journeys his travel diaries reveal that he always took plenty of time to visit art galleries and churches, as well as scientific collections. Yet it is also perfectly clear that, throughout his entire life, van Marum's primary interest lay with the natural sciences. Indeed he was known to deride all other branches of science as "sciences de parages".¹⁹⁰

It is these clear priorities that go a long way towards explaining the relative lack of attention Teylers Museum's collection of fine art received during the first decades of the museum's history. Or, more accurately, why the museum appears to have been associated first and foremost with the natural sciences during this period. It is not that the art collections received no attention at all. On the contrary, the trustees saw to it that equal amounts of money were spent on prints and drawings as were spent on the scientific collections. But van Marum's activities and his forceful personality eclipsed everything else at the museum.

¹⁸⁸ Marum, "Journey to Kassel, Göttingen, Gotha, Erfurt, Weimar and Jena in 1798," 281.

¹⁸⁹ Ibid.

¹⁹⁰ As quoted in: Mijnhardt, *Tot heil van 't menschedom: culturele genootschappen in Nederland, 1750-1815*, 323. The quote is taken from the recollections of H.W. Tydeman.

Van der Vinne's early departure can be seen as symbolic in this respect. Although his complaints were legitimate at least to some extent, van der Vinne and van Marum's disagreements bear all the characteristics of an "incompatibilité d'humeur". Van der Vinne's own behaviour seemed to suggest he was hoping to lead a comfortable life at the Foundation (recall he was loth to compile an inventory of Pieter Teyler's art work, for instance). This would not have chimed well with the energetic van Marum. What's more, van Marum's ambition of taking charge of the Foundation's collections was potentially at odds with Pieter Teyler's wording of his last will and testament, according to which van der Vinne had still been appointed, long before there was even any talk of a museum.

Yet van Marum's lack of interest in the fine arts was just as much a prerequisite for the successful cohabitation with the *kastelein* – who could, after all, not be dispensed with if Pieter Teyler's final wishes were to be respected. There are no signs of any conflict between van der Vinne's successor Wybrand Hendriks and van Marum. On the contrary, they cooperated repeatedly, with Hendriks supplying the images to van Marum's publications on the electrostatic generator for instance, or helping with the depictions van Marum sent to Faujas for the Frenchman's book on the fossils of Maastricht.¹⁹¹

It may have helped that van Marum's directorship was a *fait accompli* by the time Hendriks arrived at the Foundation House in 1785. What's more, although very little is known about this painter, the sporadic evidence that is available indicates that he was a jovial and gregarious character, who would most likely have known how to "handle" van Marum. J.H. van Borssum Buisman for instance wrote in 1972 (when he himself was *kastelein*): "There are still anecdotes that confirm the traditional account of his cheerful nature";¹⁹² one of the very few letters to have been preserved by Hendriks' hand, containing an appeal to the Royal Institute to support a struggling artist who had come to him for help, is written with charm;¹⁹³ and the fact that many notables of Haarlem had their portrait painted by Hendriks over the years indicates that he was adept at assessing people's character.¹⁹⁴

It would not do Hendriks justice to see him as inferior to van Marum, or as some sort of assistant to the director of the museum. Hendriks was an accomplished artist in his own right. He was one of the first to be elected a member of the Fourth Class of the Royal Institute for instance, and his talent as an artist was generally recognised.¹⁹⁵ And as far as the museum was concerned, Hendriks was regularly supplied with ample funds to acquire prints and drawings at auctions. When the Foundation's financial fortunes improved in the late 1780s for instance, enabling van Marum to expand the instrument collection and travel to London, Hendriks too was provided with large amounts of money to expand the Foundation's collection of fine art.

¹⁹¹ On Hendriks' depictions of the electrostatic generator see: Wiesenfeldt, "Politische Ikonographie von Wissenschaft: Die Abbildung von Teylers 'ungemein großer' Elektrisiermaschine, 1785/87." On his depictions of fossils from the Museum's collection see: Sliggers, "Krijtfossielen teruggevonden," 14.

¹⁹² "Er zijn nog anecdotes die de overlevering van zijn vrolijke aard bevestigen"; Altena, Buisman, and Kops, *Wybrand Hendriks 1744-1831*, 13.

¹⁹³ W. Hendriks to C. Apostool, 27.11.1813, Haarlem, NHA, vol. 175, nr. 127. The same file contains another letter of his, in which he only thanks the Institute for electing him a member of its Fourth Class: W. Hendriks to C.S. Roos, 17.10.1809.

¹⁹⁴ On his activities as a portrait painter see: Altena, Buisman, and Kops, *Wybrand Hendriks 1744-1831*, 14–18.

¹⁹⁵ See: *Ibid.*, 10.

Just as van Marum had returned from London in 1790 for example, Hendriks was granted the handsome sum of f3000,- “to be spent on Drawings, among them one Capital one at the sale of the Curiosities of the late Mr Jonas Witzen”.¹⁹⁶

2. Christina of Sweden’s Collection of Drawings

By this time, the decision had long been taken to acquire what constitutes one of the most important acquisitions in the entire museum’s history: the collection of prints and drawings formerly belonging to Christina of Sweden.¹⁹⁷ Although it was still to grow in value over the next two centuries, it was already a prize collection at the end of the 18th century, and included drawings by famous artists such as Michelangelo, Rembrandt, Raphael and Claude. The trustees paid a total of f10.000,- to be able to call this collection their own. (For comparison, they could have acquired two electrostatic generators for this money.) The collection was spotted by Willem Anne Lestevenon, a member of the Second Society who, fearing repercussions from his staunch support for the Patriots, had left for self-imposed exile in Italy after the House of Orange was restored to power in the Netherlands. He remained in correspondence with his compatriots who had remained in Haarlem, and first reported the collection was available in March 1789.¹⁹⁸

(Incidentally, Lestevenon also reported he might be able to lay his hands on a collection of fossils, as well as anatomical wax models by Felice Fontana, and the trustees referred him to van Marum concerning these matters. The former medical doctor was definitely interested, and corresponded with Lestevenon about the possible purchase of all these items.¹⁹⁹ However, for unknown reasons, no deal was ever sealed. Nevertheless, it remains intriguing – but of course purely speculative – to entertain the idea of how the acquisition of Fontana wax models might have had an impact on the character of Teylers Museum, had it included such a prominent medical collection.)

Lestevenon was instructed to acquire Christina of Sweden’s collection a few weeks later. The trustees arrived at the decision to purchase these drawings “after having consulted Mr Hendriks about the suitability of such a collection for the Museum”.²⁰⁰ Once the deal had been closed and the collection had found its way to Haarlem in 1790, Hendriks spent the next

¹⁹⁶ “te besteden aan Tekeningen waaronder ééne Capitale op de Verkoping der Liefhebberijen van wijlen de Heer Jonas Witzen”; “Directienotulen”, 13.08.1790, Haarlem, ATS, vol. 5.

¹⁹⁷ On the history of this collection, the veracity of the claim that it once belonged to Christina of Sweden, its peregrinations and its acquisition by the Teyler Foundation see: Carel van Tuyll van Serooskerken, *The Italian Drawings of the Fifteenth and Sixteenth Centuries in the Teyler Museum* (Haarlem; Ghent; Doornspijk: Teylers Museum, 2000), 22.

¹⁹⁸ “Directienotulen”, 13.03.1789, Haarlem, ATS, vol. 5.

¹⁹⁹ For translations of the relevant letters see vol. 6 of: Lefebvre, Bruijn, and Forbes, 197–219.

²⁰⁰ “na den Her Hendriks geraadpleegt te hebben over de geschiktheid van zodanige Verzameling voor het Musaeum”; “Directienotulen”, 29.05.1789, Haarlem, ATS, vol. 5.

two years sorting and “restoring” these drawings and placing them in specially made folders.²⁰¹

Where exactly they would have then been kept is not clear. Most likely in the flat-top cabinet in the Oval Room. Either way, they and the other prints and drawings from the museum’s collection would not have been displayed prominently, simply because that would not have been deemed adequate storage for this type of art. This, in turn, provides another reason why the art collections were initially eclipsed, despite their high quality: beside the expansive scientific instruments and glittering minerals, they would not exactly have constituted eye-catchers. In addition to this, they were at least as fragile as the instruments, and it would have been a burden for the manservant showing visitors around the museum to take these works of art out of their folders and show them to visitors.

Interestingly, early during the museum’s history the idea of creating a cabinet of art in an adjacent building was launched, yet not implemented. In June 1786 the tenants of the house next to the Foundation House appear to have moved out, because the trustees decided not to put it on the market again. One of the reasons for this decision was that it would have needed a complete and costly overhaul to make it “habitable for respectable people”. But, more importantly, the trustees also decided against renting out the house “because an, at the moment admittedly distant, aim of the Trustees always remains to bring together in this House a Cabinet of Paintings, or to employ this house for some other purpose for the benefit of this Foundation”.²⁰² In all likelihood this house was where van Marum’s chemical laboratory was installed four years later.

3. Changing Definitions of “Art”

The plans for a cabinet of paintings seem to have then been shelved, for they are not mentioned again for the next decades. They actually only resurface after Wybrand Hendriks had resigned from his post because of old age in 1819. He was succeeded by Gerrit Jan Michaëlis, another painter, who moved to Haarlem from Amsterdam.

By the time Michaëlis was appointed as *kastelein* by the Foundation, the world of fine art had undergone a profound transformation. This was the result of a variety of complex and interconnected developments, the roots of which often lie in far earlier periods of history, and the effects of which only came to the fore far later, in the second half of the 19th century. The causes underlying these historical processes are hard to pinpoint, in fact it is often impossible to distinguish between the causes and the effects of these developments. For the purposes of

²⁰¹ Altena, Buisman, and Kops, *Wybrand Hendriks 1744-1831*, 13.

²⁰² “voor fatsoenlijke Lieden bewoonbaar”; “alzo steeds een, schoon thans nog ver afgelegen oogmerk bij Directeuren blijft stand houden, om in dit Huis een Cabinet van Schilderijen bijeenbrengen, of hetzelfde huis tot eenig ander einde ten dienste deezer Fundatie te emploieeren”; “Directienotulen”, 16.06.1786, Haarlem, ATS, vol. 5.

this study, a brief and ultimately no more than superficial sketch of the outlines of the developments surrounding the transformation of the art world around 1800 will therefore have to suffice.

In the most general of terms, what was happening was that “art” was increasingly equated with “fine art” – painting in particular – and was ever more frequently pitted against “science”. The origins of a dichotomy that came to dominate the cultural world throughout the 20th century can be perceived, with on the one hand “art” being associated with an individual’s creative, imaginative, unpredictable, irreproducible travails, and on the other hand “science” carrying connotations of sober, disinterested, methodologically plodding yet highly complex and programmatic work. Lorraine Daston has studied the status of the “imagination” in the intellectual landscape. “Between about 1780 and 1820”, she summarises, “[p]ut in the briefest of terms, facts hardened, the imagination ran riot, and art and science diverged in their aims and in their collective personae”.²⁰³

These developments were clearly felt in the Netherlands too, and are not just an “after the fact” assessment by historians. In 1809, for instance, Johan Meerman, who at the time carried the title of “Director-General of the Sciences and Arts” in the Kingdom of the Netherlands (the Emperor Napoleon’s younger brother Louis had been crowned king in 1806), made the following appeal in a speech during which the King himself was present:

“One errs greatly, if one views the fine arts only as a luxury of a people. They are closely connected with national prosperity, they are in particular linked with the promotion and the splendour of the factories, and with a number of the sciences; *and to pay tribute to the latter, while despising and rejecting the former would be nothing but to want to tear two inseparable things apart* [emphasis MW], and to deprive the sciences of what in so many respects not only may serve to their adornment, but even to their elucidation and development, and sometimes to disfigure them to a withered and ungainly body.”²⁰⁴

Just as interesting as the statement itself is the context within which it was made: Meerman was speaking at the presentation of the “Royal Prize of Painting and Etching”, which was presented at the town hall of Amsterdam, where all the contestants’ works were exhibited in a public art show. This serves to illustrate three crucial points. Firstly, the government (the King) was trying to impose a sense of taste on his subjects (i.e. “the public”) by stimulating and encouraging the production of a particular kind of fine art (whatever was eligible for and won the prize). This marks a shift away from the formative role of private patronage in the art

²⁰³ Lorraine Daston, “Fear & Loathing of the Imagination in Science,” *Daedalus* 134, no. 4 (2005): 22.

²⁰⁴ “Men dwaalt ten zeersten, wanneer men de schoone kunsten alleenlijk als den luxe van een volk beschouwt. Zij staan met den geheelen nationaalen voorspoed, zij staan inzonderheid met de bevordering en den luister der fabrieken, en met eene reeks van wetenschappen in het naauwste verband; *en aan deeze te willen hulde doen, met minachting en verwerping van geene, zou niet anders zijn, dan twee onafscheidelijke dingen van één te willen scheuren* [emphasis MW], en de wetenschappen van 't geen in zoo veel opzigten tot haar cieraad niet alleen, maar zelfs tot haare opheldering en ontwikkeling strekken kan, te beroven, en somwijlen haar tot een dor en onbevallig ligchaam te misvormen.” Johan Meerman, *Aanspraak van den Directeur-Generaal der Wetenschappen en Kunsten, bij de uitdeeling der koninklijke prijzen van schilder- en graveerkunst, op het Raadhuis te Amsterdam, den 18 van herfstmaand 1809: voorafgegaan door deszelfs rapport aan Zijne Majesteit, wegens de ten toon stelling des voorigen jaars en de toewijzing der prijzen* (Amsterdam; 's-Gravenhage: Gebroeders Van Cleef, 1809), 6–7.

world, towards the formative role of a government's cultural policy. Secondly, this example serves to illustrate how public art exhibitions were emerging as cultural policy tools. The exhibition in the town hall sought to attract visitors and imbue them with a certain message. Thirdly, it is indicative of the growing importance of "the public" – in the sense of large crowds – in the art world, and also how, on various levels, the general public was rapidly becoming at least as important as individual rich patrons.

With regard to the third point, it is important to realise that the changing composition of the art world coincided with profound changes in the art market. These changes are epitomised in the abolishment of painters' guilds. In the Netherlands, this happened in 1798. Their dissolution needs to be seen as the culmination of long-standing developments, and in the Netherlands did not constitute as much of a rupture with the past as it did in other countries, because it had a long tradition of a thriving and comparatively free art market – despite his "superstar" status even amongst contemporaries, Rembrandt for instance had notoriously spent the final years of his life in poverty because he had never become a member of a guild. Nevertheless, with the dawn of the 19th century, painters and other fine artists saw themselves forced to cater to the markets, i.e. "the public", in order to guarantee a sustainable livelihood. This in turn had an impact on the way they defined their profession, and how they saw fit to fashion themselves within the market. In the long term, this contributed to the inimitability of their work being emphasised, and everything that inimitability entailed. By the end of the 19th century, painters in the Netherlands were therefore increasingly eager to be labelled bohemian.²⁰⁵

4. Paintings by Contemporary Artists

On a more immediate level, in the aftermath of the abolishment of guilds and the increasing involvement of the government in cultural matters, the first decades of the 19th century saw a booming expansion of the market for contemporary paintings.²⁰⁶ All over Europe, whoever had the money bought modern paintings, and whoever had the time saw to it that he hobnobbed with other connoisseurs of the arts at public exhibitions. This was reflected in the birth of a new literary genre: that of art criticism. It can be taken to have arisen from the confluence of art history and aesthetic theories of taste, both of which began to be

²⁰⁵ Mayken Jonkman, "Couleur Locale: Het schildersatelier en de status van de kunstenaar," in *Mythen van het atelier: werkplaats en schilderpraktijk van de negentiende-eeuwse Nederlandse kunstenaar*, ed. Mayken Jonkman and Eva Geudeker (Zwolle; Den Haag: d'jonge Hond; RKD, 2010), 26; Chris Stolwijk, *Uit de schilderswereld: Nederlandse kunstschilders in de tweede helft van de negentiende eeuw* (Leiden: Primavera Pers, 1998), 274–275.

²⁰⁶ Annemieke Hoogenboom, *De stand des kunstenaars: de positie van kunstschilders in Nederland in de eerste helft van de negentiende eeuw* (Leiden: Primavera Pers, 1993), 139; Francis Haskell, *The Ephemeral Museum: Old Master Paintings and the Rise of the Art Exhibition* (New Haven; London: Yale University Press, 2000), 67–68.

systematically developed in the 18th century.²⁰⁷ In the Netherlands, prominent art critics began to establish a reputation and a following after the Restoration.²⁰⁸

Given that it was highly fashionable to buy and collect contemporary paintings during the second quarter of the 19th century, it must not come as too much of a surprise that the trustees' plans for a cabinet of paintings, last mentioned in 1786, resurfaced during this period. This was prompted by the acquisition of just such paintings after 1824.²⁰⁹ Reasons as to why the decision was taken to purchase such works of art are not recorded. One can be sure, however, that the new *kastelein*, Michaëlis, was involved in this decision. To what extent however, again remains a mystery.

As does, in fact, the man himself. Very few traces that would reveal anything about his life or his interests can be found in the archives.²¹⁰ The only direct form of evidence that indicates he was intimately involved in the acquisition of paintings comes from the diary of Adriaan van der Willigen, a prominent writer, critic, civil servant and member of Teylers Second Society. He lamented that the members of the Second Society were never involved in the purchase of new paintings and elaborated:

"It is mainly if not only the Director, Mr W. van der Vlugt, who acts in this respect, availing himself of the services of the caretaker and superintendent of paintings, drawings and prints, Michaelis, when he, as the director, approves of it."²¹¹

The choice of paintings indeed does not appear to have followed any particular system. As far as discernible, the trustees' personal taste – or perhaps only van der Vlugt's and Michaëlis's – formed the guiding principle.

What was ultimately more important though, was the fact that paintings were being acquired on a large scale at all – the crucial point being that paintings, unlike prints and drawings, need to be hung in order to be appreciated properly. As the collection of paintings was expanded, it was therefore essentially only a matter of time before adequate premises became desirable, and all the more so because the Oval Room is not in any way suited to hang paintings. The first such opportunity presented itself in the 1820s.

In 1824, the board of trustees of Teylers Foundation took the decision to add a first annex to the Oval Room.²¹² Detailed reasons are not provided. This annex was complete two years later, and it consisted of two stories, each with a large room. As was already mentioned

²⁰⁷ See for instance: Regine Prange, *Die Geburt der Kunstgeschichte: Philosophische Ästhetik und empirische Wissenschaft* (Köln: Deubner, 2004), 28–36.

²⁰⁸ Annemiek Ouwerkerk, *Tussen kunst en publiek: een beeld van de kunstkritiek in Nederland in de eerste helft van de negentiende eeuw* (Leiden: Primavera Pers, 2003), 50–68.

²⁰⁹ Annemiek Ouwerkerk, *Romantiek aan het Spaarne: schilderijen tot 1850 uit de collectie van Teylers Museum Haarlem* (Haarlem: Teylers Museum, 2010), 25–27.

²¹⁰ Catherine de Jong, "Gerrit Jan Michaëlis: Beperkingen En Vrijheden van Een Kastelein in Het Teylers Museum" (bachelor thesis, Utrecht University, 2011).

²¹¹ "Het is hoofdzakelijk zoo niet alleen de heer directeur W. van der Vlugt, die in dit opzigt handelt, zich bedienende van den concierge en opzigter der schilderijen, teekeningen en prenten, Michaelis, waneer hij directeur zulks goedvint." As quoted in: Sliggers, "De kwalen van Van Marum: uit het dagboek van Adriaan van der Willigen (1831-1839)," 8.

²¹² "Directienotulen", 09.04.1824, Haarlem, ATS, vol. 7.

before, one part of this building – the first floor – was furnished as a reading room for the library, which was then opened to the public. Two years later the room below on the ground floor however was still empty. One can only make an uneducated guess as to what had already been discussed in the meantime, but in 1828 the trustees must have decided to finish off what they had begun, as they sent a letter to the members of the Learned Societies in an attempt to garner support for the trustees' plan of furnishing the empty room as a small lecture theatre (i.e. something of a seminar room). The idea was that once a year every member of the Societies could and should give a short presentation on the results of whatever research he had been devoting his time to for the other members and the trustees.²¹³

However, to cut a long story short, the trustees failed to gain enough support for their plans. Despite their repeated efforts, only four out of the twelve members of the Societies agreed to give annual lectures. (One can be sure that one of these was van Marum.) Incidentally, in one revealing passage, the trustees stated quite clearly how they saw the museum's collections, and whom they should serve. They stated that with the auditorium they hoped

“...to show to the educated world, that Teylers Foundation not only has hidden treasure in its rich collections, but that the Members of its Societies feel amply capable of using these treasures in a way that is appropriate, and useful and beneficial for the promotion of the Arts and Sciences”.²¹⁴

In other words, “the public” was essentially equated with “the educated world”.

As far as the paintings were concerned however, the outcome of this exchange of letters was more important – and, perhaps ironically, was ultimately a major prerequisite on the way to Teylers Museum becoming a “public” museum in the sense of being explicitly intended to be accessible to a larger and more diverse segment of the population in later years. More to the point, the trustees decided to exhibit their newly acquired collection of contemporary paintings in the room in question. Interestingly, the visitor's books now regularly contained more than 400 signatures per year.²¹⁵

Van Marum was not enamoured with the trustees' decision, and would clearly have preferred the room to be used for public lectures. In an addendum to his recollections he noted that the ground floor of the new annex was now used as a “place for the display of Paintings of living Dutch masters, which have been bought by the Trustees since 1825 for considerable sums.”²¹⁶ He struck out some further comments which clearly reveal he would have preferred a

²¹³ On this exchange of letters see: Kersten, “Een schilderijenzaal of een gehoorzaal.”

²¹⁴ “...aan de geleerde wereld te toonen, dat Teylers Stichting niet slechts verborgene schatten in hare rijke verzamelingen bezit, maar dat de Leden van dezelve Genootschappen zich ruimschoots in staat gevoelen, om van die schatten een doelmatig, en aan der Kunsten en Wetenschappen bevordering, nuttig en heilzaam gebruik te maken”; as quoted in: Ibid., 11.

²¹⁵ For the visitor's book for the years 1827-1836 see: “Album van Teylers Museum”, 1827-1836, Haarlem, ATS, vol. 151.

²¹⁶ “vertoonplaats van Schilderijen van levende Nederlandsche meesters, welke door Directeuren, sedert het jaar 1825 tot aanzienlijke prijzen zijn aangekocht.” Martinus van Marum: “De Geschiedenis van de oprigting van Teyler's Museum”, 1823-1833, Haarlem, NHA, Archief van Marum, vol. 529, nr. 9, fol. 146.

different solution, complaining that the room “will be hung with precious paintings, and as a result be made entirely unsuited for having Physical lectures in it”.²¹⁷

The trustees, however, evidently took a liking to this exhibition of their paintings. Less than ten years later, and just two months before van Marum passed away, they took the decision to build a new annex to the museum, which was completed in 1839.²¹⁸ Crucially, the sole purpose of this new extension to the premises was to exhibit the Foundation’s collection of fine art. In fact, the entire character of the museum changed once this new exhibition area had been completed, simply because it was roughly equal in size to the Oval Room, yet its sole purpose was the aesthetic contemplation of works of fine art – it did not contain as much as a trace of any scientific experiment or research.

As a result, Teylers Museum gradually began to gain a new function, as a public art museum – without, however, losing its function as a place of research, rooted in its initial role as the repository to Teylers Learned Societies. The increasing importance of Teylers Museum’s role as a public museum and how its hybridity began to lead to tensions is the topic of the next chapter.

²¹⁷ “met kostbare schilderijen zal worden behangen, en hierdoor, voor het houden van Physische lessen in dezelve geheel ongeschikt zal worden gemaakt”; Ibid., fol. 147-148.

²¹⁸ On the decision see: “Directienotulen”, 20.10.1837, Haarlem, ATS, vol. 8. As usual, detailed reasons were not given, although inadequate lighting and space is referred to. In addition to this the fact that the initial exhibition room was inadequate for the preservation of the paintings may have played a role as well. In 1831 special cases had been constructed for the prints and drawings to shield them from the damp. See “Directienotulen”, 25.11.1831, Haarlem, ATS, vol. 8.

Chapter IV: Van der Willigen – Precision and the Discipline of Physics

I. An Unexpected Guessing Game (Intro)

One year after Elisa van der Ven had been appointed the new curator of Teylers Museum's scientific instrument collection, he sent his first detailed report on his activities and future plans for the collection to the trustees of the Teyler Foundation. It was April 1880, and van der Ven reported that he had spent a great deal of time trying to gain an overview of what instruments he had inherited from his predecessors, and trying to figure out what exactly they had acquired them for. This, he stated, had been far more difficult than he had expected for a number of reasons: his predecessors appeared not to have been particularly eager to record their thoughts and plans in writing, for instance, and the instruments did not appear to have been stored in a particularly orderly fashion. As van der Ven complained:

“In the museum the strangest objects were then to be found together, so that often from a cupboard that seemingly served for the storage of similar instruments, different ones emerged, that had nothing to do with the others scientifically.”¹

But while this delayed his compiling a catalogue of the collection, what completely stumped van der Ven was a small building in the garden behind the museum that had been constructed by his immediate predecessor, Volkert Simon Maarten van der Willigen, sometime between March 1866 and February 1867.² The report to the trustees contains a remarkably frank admission that he didn't have a clue why this building – which was roughly the size of a large hut, was built in stone, had a large slit in its roof and was referred to as the “observatory” – had been erected. Van der Ven literally wrote about this building in the garden: “For what purpose it has been put there is difficult to guess.”³

¹ “In het museum toen stonden vrij wel de meest vreemdsoortige zaken bij elkander, zoodat dikwijls uit een kast, die schijnbaar geheel ter berging van gelijkwaardige instrumenten diende, andere te voorschijn kwamen, die wetenschappelijk daarmede niets hadden te maken.” E. van der Ven: “Verslag, betreffende den toestand van en de werkzaamheden van Teylers Physisch Kabinet, voor het jaar 1879/80”, 02.04.1880, Harlem, ATS, vol. 191.

² Gerard L'E. Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum* (Haarlem: Teylers Museum, 1996), 16. The approximate construction date can be deduced from the costs incurred by the building activities. The relevant bills are to be found in: “Kasbewijzen”, 1866-1867, Haarlem, ATS, vol. 698. I am grateful to Marijn van Hoorn for drawing my attention to these sources.

³ “Voor welk doel het daar is neergezet is moeilijk te gissen.” E. van der Ven: “Verslag, betreffende den toestand van en de werkzaamheden van Teylers Physisch Kabinet, voor het jaar 1879/80”, 02.04.1880, Harlem, ATS, vol. 191.

The only thing that was clear was that the building had been used for measurements of some sort. One promising clue seemed to be that no iron had been used in the building, which suggested that any sort of electromagnetic induction was to be avoided. However, van der Ven pointed out that this, too, failed to explain why he had found a Universal Instrument “with thick iron axles” in the building.⁴

To this day the mystery of the “observatory’s” exact purpose has never been solved completely. Van der Willigen’s publications, together with other sources from the archives of the Teyler Foundation – e.g. on their bookkeeping or the trustees’ meetings – do not provide any conclusive evidence. Nevertheless there are a few good clues (such as the lack of iron in the building): the positioning of the slit in the building’s roof for instance indicates that the passage of stars through the meridian might have been determined from this building – which would also help explain why it was labelled the “observatory”. At one point during his career van der Willigen was trying to establish a standard length, and Gerard Turner for one has argued that this aim “establishes the link between the small building in the Museum grounds and many of the instruments acquired by Teyler’s from 1865”.⁵ This is certainly not at odds with van der Ven’s own summary in his report to the trustees:

“It is most likely that in the course of the years the intention has changed and that the instruments brought together there [in the observatory] were given the destination of keeping track through them of the true time.”⁶

But what is of course most striking about all this confusion is that the trustees themselves were literally not aware of what was going on in their backyard, i.e. in the backyard of one of the institutions they were financing. Yet, as strange or even ignorant as this may sound at first, it is in fact indicative of something far more fundamental, and ultimately highly crucial to the overall status of the instrument collection: by the second half of 19th century science in general – and physics in particular – had become so specialised and complicated that it had become both incomprehensible and inaccessible to laypeople. Science was becoming something of a “black box”: on the one hand technology and, by extension, science were affecting people’s everyday lives on an unprecedented scale (think of the steam engine and photography); but on the other hand science itself, or, to phrase this more precisely, the research process through which the body of knowledge that was then deemed “scientific” was obtained, was becoming ever more incomprehensible and thereby also ever more puzzling to the general populace. Just as importantly, because all sciences – and, again, physics in particular – were increasingly relying on precise, quantitative measurement as the sole legitimate basis of all knowledge claims, the places where scientific research was being performed were becoming increasingly inaccessible to those not involved in the measurements themselves.

⁴ “met dikke ijzeren assen”; Ibid.

⁵ Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum*, 17.

⁶ “Allenwaarschijnlijkst is men in den loop der jaren van denkbeeld veranderd en heeft men aan de daar bijeengebrachte instrumenten de bestemming willen geven door hunne bemiddeling zich steeds rekenschap te kunnen geven van den waren tijd.” E. van der Ven: “Verslag, betreffende den toestand van en de werkzaamheden van Teylers Fysisch Kabinet, voor het jaar 1879/80”, 02.04.1880, Harlem, ATS, vol. 191.

Viewed in these terms, one begins to understand why the trustees were not able to provide van der Ven with any detailed information of what had been going on in the “observatory”: it would have been a lot to ask for them to understand their curator’s research; and they would not have been welcome to pass by the observatory while van der Willigen was working there, for fear they might upset the sensitive instruments. Bearing this in mind one realises that their lack of comprehension should not be seen as a sign of ignorance, but rather of the immense freedom and complete independence van der Willigen had enjoyed as an employee of the Teyler Foundation. The trustees were obviously not interfering with, or trying to exert control over, his work.

What’s more, the growing divide between amateurs and trained specialists would in fact have been exacerbated at Teylers, because in the Netherlands van der Willigen was one of the most ardent proponents of the idea that precise, quantitative measurement should serve as the basis of all physics. Precision was something of a mantra for him and he had built his formidable reputation amongst the Dutch physics community on the discipline with which he conducted his experimental research. Soon after the “observatory” had been built he himself grandiloquently stated: “Physics has definitively entered a new phase, [...] the phase of exactitude and precision.”⁷ This was reflected in his choice of instruments to be acquired for Teylers Museum. As van der Ven mentioned in his report, the newest instruments in the collection indicated that “recently the intention has been to collect equipment in various areas for carrying out quantitative investigations”.⁸

Crucially, however, it would of course not only have been the trustees who no longer understood what kind of research was being performed on the premises of Teylers Museum, but the visitors to the museum as well. It is highly symbolic that under van der Willigen’s watch parts of the museum’s scientific instrument collection were being removed from the original museum edifice to a separate building that was apparently off limits to anyone but van der Willigen himself. Admittedly this can be seen as the logical culmination of a gradual dissociation of laboratory premises from the museum building that had already begun with van Marum’s construction of a separate laboratory in a building adjacent to the museum – but even so, the construction of the “observatory” and the fact that the trustees and van der Ven were unable to establish its exact purpose in even the most general of terms shows just how large the division between Teylers Museum as a publicly accessible collection on the one hand and the cutting edge research performed by the curators associated with the museum’s scientific collections on the other hand had actually become since the museum had originally been conceived and van Marum had performed experiments with the electrostatic generator in the Oval Room.

⁷ “La physique est entrée définitivement dans une phase nouvelle, [...] la phase d’exactitude et de la précision.” Volkert Simon Maarten van der Willigen, “Mémoire sur la détermination des indices de réfraction et sur la dispersion des mélanges d’acide sulfurique et d’eau,” vol. 1, Archives du Musée Teyler (Harlem: Les Héritiers Loosjes, 1868), 74.

⁸ “men vooral in den laatsten tijd op menig gebied zich heeft willen toerusten voor het doen van kwantitatieve onderzoekingen”; E. van der Ven: “Verslag, betreffende den toestand van en de werkzaamheden van Teylers Fysisch Kabinet, voor het jaar 1879/80”, 02.04.1880, Harlem, ATS, vol. 191.

This is all the more striking if one takes into account that at the very same time van der Ven was writing his report to the trustees in 1880, construction had already begun on what was to be the largest extension to Teylers Museum – crucially, this extension included a huge new entrance to the museum, which ensured passers-by could not miss this institution, and clearly put out a signal that visitors were welcome.⁹ After having entered the museum through Teyler's former town house for more than a hundred years, visitors were now led through a two-storey high, neo-classical, monumental entrance, which emulated the design of other public cultural institutions such as theatres, opera houses, or of course other museums. This overt embrace of the public did not fail to serve its purpose: visitor numbers to the museum increased dramatically after 1885.¹⁰

These seemingly opposed developments – i.e. on the one hand the way in which the area where experimental research was performed was cordoned off and on the other hand the embrace of the public and conscious attempt to increase the accessibility and the number of visitors coming to Teylers Museum – form a crucial component in any attempt to understand the history and hybrid character of this institution. They are particularly important to keep in mind when assessing the scientific instrument collection's overall status within the larger organisational structure in which it was embedded. Put differently, these divergent factors are important in understanding what role the instrument collection played within Teylers Museum.

What's more, these developments as they occurred on a very local level in Haarlem mirrored more general developments that were taking place on a far larger scale. On the one hand the relocation of the newest instruments to the observatory, away from the Oval Room, mirrors the demise of the cabinets of physics as they had been so popular at the end of the 18th century.¹¹ By the second half of the 19th century they had essentially become obsolete, or at best relics of the past, as laboratories run by trained physicists increasingly became the reserve of physical research. On the other hand the construction of the new annex to Teylers Museum mirrors the museum boom that swept the Western hemisphere during the second half of the 19th century. Not only were international exhibitions held on a frequent basis, but permanent museums established in practically every town, with the express purpose of serving and educating the population at large. Interestingly, however, these museums were mostly art museums, museums devoted to a community's cultural heritage, arts and crafts museums, or natural history museums – science museums, i.e. museums devoted to physical or chemical research and technology, were a far later phenomenon, and only really emerged at the beginning of the 20th century.

⁹ On the construction of this new annex see: T. van Gestel and A.W. Reinink, "Het 'nieuwe museum' van Teyler (1877-1885)," in *"Teyler" 1778-1978* (Haarlem; Antwerpen: Schuyt, 1978), 223–322.

¹⁰ Geert-Jan Janse, "Uit nieuwsgierigheid en ter onderricht," in *Teylers Museum 1784-2009: een reis door de tijd*, ed. Marjan Scharloo (Haarlem: Teylers Museum, 2009), 24.

¹¹ On the popularity and subsequent demise of 18th century cabinets of physics see: Huib J. Zuidervart, "Natuurkundige instrumentenkabinetten: De opkomst en ondergang van een cultureel fenomeen," in *Druk bekeken: collecties en hun publiek in de 19e eeuw*, ed. Martin Weiss and Lieske Tibbe, vol. 3, *De Negentiende Eeuw* 34 (Hilversum: Verloren, 2010), 209–231.

The curious state of Teylers Museum's scientific instrument collection, roughly speaking after the demise of the 18th century cabinet and before the advent of science museums in their own right, is the main topic of this chapter. It will be addressed from the vantage point of Volkert Simon Maarten van der Willigen's life and career, which encompassed and reflected many of the changes that had a bearing on the way instrument collections were perceived and handled towards the end of the 19th century.

II. Volkert Simon Maarten van der Willigen (I): Early Years

1. Rockanje, Delft and Leiden

Volkert Simon Maarten van der Willigen was born in Rockanje, a small village about 30 kilometres south of Delft, on May 9th 1822 at 6 o'clock in the morning.¹² His father, Johannes van der Willigen, had been appointed pastor for the Dutch Reformed parish there in 1817 after having previously led a parish in Simonshaven, and was already about 45 years old.¹³ The newborn's mother, Johannes' wife Gerarda Maria Elsabé Bodde, was about 27 years of age.¹⁴ Volkert Simon Maarten – in all publications and letters he is always referred to by his full name – was not the couple's first child. He had two elder sisters, and a younger one was born seven years later.¹⁵ One of his two elder sisters appears to have passed away in 1836 in Rotterdam. It is conceivable that this had something to do with the fact that Johannes van der Willigen asked to be retired from his parish in 1837, whereupon he appears to have moved to Delft with his entire family.¹⁶ According to the 1839 census, the remaining five members of the family and a young housekeeper lived in Oude Delft 56.¹⁷ The family was not rich, but by no means poor either. When Gerarda Maria died in 1865, her entire estate was valued at about f42.000.¹⁸ Taking into account that a professor's annual salary was about f3000,- at the time, this was no small amount.

The next thing that is known about Volkert Simon Maarten is that he enrolled at the Philosophical Faculty of the University of Leiden in 1841.¹⁹ It is not clear what school he had gone to before either in Delft or in Rockanje, his matriculation papers in Leiden only reveal

¹² "Geboorteakte", 09.05.1822, Streekarchief Voorne-Putten en Roozenburg, vol. 364, nr. 9.

¹³ F.J. Hoozevee, "Willigen, Johannes van der," ed. P.C. Molhuysen and K.H. Kossmann, vol. 10, Nieuw Nederlandsch Biografisch Woordenboek (Leiden: Sijthoff, 1937), 1218.

¹⁴ Her age can be inferred from the age stated in the town registry after the family had moved to Delft. Archief Delft, "Bevolkingsregister Delft 1839", Wijk 15, blad 8.

¹⁵ 27.01.1818: Dina van der Willigen, 18.04.1819: Samuela van der Willigen, 17.12.1829: Maria Arendina van der Willigen.

¹⁶ On his early retirement see: Hoozevee, "Willigen, Johannes van der," 1218.

¹⁷ Archief Delft, "Bevolkingsregister Delft 1839", Wijk 15, blad 8.

¹⁸ "Boedeldeling", 13.02.1866, Streekarchief Voorne-Putten en Roozenburg, Notarissen, vol. 110, nr. 115.

¹⁹ "Volumina Inscriptionum 1816-1862", 17.07.1841, Leiden, UBL BC, Archieven van Senaat & Faculteiten, nr. 18.

that he came from Delft. His name does not however appear on the list of pupils of the Latin School of Delft. It is conceivable that he received private schooling, either at home or at a so-called *Fransche School*, a type of secondary school that placed more of an emphasis on practical and applied knowledge than the Latin Schools did.

That might help explain why he enrolled at the Philosophical Faculty in Leiden. This was unusual – he was one of only three students out of a total of 139 that signed up in 1841 who chose this faculty.²⁰ All the others opted either for the faculty of law, theology, or medicine. It suggests that he already had a strong interest in the natural sciences at this point in his life, because the only place to study all those areas of knowledge associated with the experimental study of nature was the Philosophical Faculty. The range of subjects it covered included physics, mathematics, astronomy, chemistry, botany, natural history, and agronomy.

2. A New Methodology

Van der Willigen's student days coincided with a period of profound change at the University of Leiden. To paraphrase university historian Willem Otterspeer, around 1840 each of the four faculties appointed at least one new professor who essentially shook things up.²¹ Arguably the most famous of these was Johann Rudolph Thorbecke at the faculty of law. His name would soon be associated with the new, liberal Dutch constitution he helped draw up in 1848 in response to the wave of democratic protests that swept Europe in that year. But at the Philosophical Faculty, it was the astronomer Frederik Kaiser who introduced some far-reaching changes.

Kaiser had actually been working at Leiden Observatory ever since 1826.²² He had been a childhood prodigy, and enjoyed little formal training before coming to the Observatory, where he worked as a mere assistant for many years before being awarded an honorary doctorate in 1835. It was only then that his career began to take off, no longer hindered by his total dependence on his direct superior, the professor Petrus Johannes Uylensbroek. One year later Kaiser was appointed director of the Observatory and in 1840, a year before van der Willigen arrived and four years before Uylensbroek passed away, he was given a professorship. Kaiser zealously spent the rest of his long career until his death in 1872 doing everything in his power to take Dutch astronomy to new levels and to make it internationally competitive. His efforts were highly successful, and became physically manifest with the construction of Leiden's very own, state-of-the-art Observatory between 1858 and 1861.

²⁰ *Album Studiosorum, Academiae Lugduno Batavae, 1575-1875, Accedunt Nomina Curatorum et Professorum* (Den Haag: Martinus Nijhoff, 1875), 1325–1328.

²¹ Willem Otterspeer, *De werken van de wetenschap: de Leidse universiteit, 1776-1876*, vol. 3, Groepsportret met Dame (Amsterdam: Bert Bakker, 2005), 310–314.

²² For biographical details on Kaiser see: Huib J. Zuidervaart, "Frederik Kaiser (1808-1872), een gekweld man met een missie," *Studium: tijdschrift voor wetenschaps- en universiteitsgeschiedenis* 4, no. 2 (2011): 62–84.

But Kaiser was not only important to the department of astronomy in Leiden, his impact on Dutch science was far more profound. This had everything to do with the fact that he was an ardent proponent of a new methodology: taking his cue from German astronomer Friedrich Bessel, Kaiser insisted that precise, quantitative measurement should serve as the basis of astronomy.²³ The astronomer's task then lay in the computational and statistical analysis of this data.

This shift in focus of the astronomer's work, away from observation of the skies towards apparently more mundane calculation and number-crunching on the basis of observational data that had been obtained through standardised methods of observation – which could therefore also be obtained by less well-trained observers – was taking place throughout the astronomical community.²⁴ The Astronomer Royal George Biddell Airy for instance took a similar stance.

The emergence of this new methodological approach coincided with a period of gradual specialisation of the natural sciences, and the rise of disciplinary borders between the specialised communities of researchers. In the Netherlands this was only fully reflected in the organisational structure of the universities long after van der Willigen had completed his studies, after a series of educational reforms in the 1860s and 1870s. However, in the same way that those involved in the (experimental) study of nature in the Anglo-Saxon world began adopting the label “man of science” or even “scientist” as a badge of honour as early as the 1830s, their Dutch counterparts were equally eager to gain recognition of the fact that their field of study was not only expanding rapidly, but also becoming so vast that specialisation was becoming necessary. In an – ultimately unsuccessful - attempt to push through reform of the Dutch universities' rules of examination, the deans of the faculties of philosophy drafted a joint letter suggesting reform, which contained the following key argument:

“The practice of those branches of science associated with Mathematics and Physics [*Natuurkunde*] is increasing more and more, as is, correspondingly, the size of these fields. While as a result some parts of the larger whole increasingly grow closer and need each other's support, the whole of science is in the meantime growing so large that a single person can no longer be familiar with it. On the contrary, because of the nature of the situation, a subdivision is, more and more, urgently required.”²⁵

²³ On this see: Elly Dekker, “Een procesverbaal van verhoor,” *Gewina* 15 (1992): 153–162; and also: Hans Hooijmaijers, “Een passie voor precisie: Frederik Kaiser en het instrumentarium van de Leidse Sterrewacht,” *Studium: tijdschrift voor wetenschaps- en universiteitsgeschiedenis* 4, no. 2 (2011): 109.

²⁴ On the situation in England see for instance: Simon Schaffer, “Astronomers Mark Time: Discipline and the Personal Equation,” *Science in Context* 2, no. 1 (1988): 115–145.

²⁵ “De beoefening der taken van wetenschap welke tot Wis- en Natuurkunde gebragt worden, neemt steeds meer en meer toe, en in dezelfde mate ook de uitgebreidheid van elk deel der wetenschappen hetwelk hiertoe behoort. Terwijl hierdoor sommige deelen van het groote geheel elkander meer en meer naderen, en elkanders hulp behoeven, wordt het geheel intusschen veel te groot, dan dat één mensch daarmede goed vertrouwd zou kunnen worden. Integendeel eene splitsing wordt door den aard der zaak hoe langer hoe meer met dringende noodzaakelijkheid geboden.” “Aan Zijne Excellentie den Minister van Binnenlandsche Zaken”, 11.03.1842, Leiden, UBL BC, Archieven van Senaat & Faculteiten, nr. 488.

Even more important than this latent dissatisfaction with a lack of formal specialisation within the sciences – certainly as far as van der Willigen was concerned – was the fact that Kaiser’s methodological approach began to affect other areas of science as well. Physicists in particular began to apply these methods, pioneered by their close colleagues the astronomers, to their own research. It has been shown that almost all the main proponents of quantitative methods in physics in Germany and the Netherlands during the 19th century were strongly influenced by what Bessel (in Germany) and Kaiser (in the Netherlands) had initiated in astronomy.²⁶ In many cases, they had received some training in astronomy as part of their scientific education, before specialising in physics.

This brings us back to the future physicist van der Willigen. All evidence suggests that Kaiser was a good teacher, and van der Willigen evidently was impressed and enamoured with this energetic young professor’s groundbreaking ideas.²⁷ Inspired by Kaiser, van der Willigen adopted the same approach to all of his scientific studies throughout his career, i.e. insisting that precise, quantitative measurements could serve as the only basis for any legitimate claim in physics. As such, he provided an important and largely overlooked contribution to the development of physics in the Netherlands. His impact becomes tangible through his own pupil and acolyte Johannes Bosscha, who has been identified as one of the pioneers of experimental physics in the Netherlands alongside Herman Haga and Heike Kamerlingh Onnes.²⁸ Bosscha’s interest in scientific instruments and the precision that could be achieved with them is sure to have been rooted at least to some extent in the classes given by van der Willigen which he attended.

The two first met shortly after van der Willigen had completed his studies in Leiden. He graduated with a final dissertation on the aberration of light, in which he discussed the theories of Stokes and Challis.²⁹ He had chosen Kaiser as his supervisor. He graduated in 1847 with the highest distinction (*magna cum laude*), which was exceptional.³⁰ That same year he received a job as a teacher of physics at the Latin School in Amsterdam – which Bosscha attended.

²⁶ Frans van Lunteren, “‘Van meten tot weten’: De opkomst der experimentele fysica aan de Nederlandse universiteiten in de negentiende eeuw,” *Gewina* 18, no. 2 (1995): 102–138.

²⁷ On Kaiser as a teacher see: Zuidervaat, “Frederik Kaiser (1808-1872), een gekweld man met een missie,” 72–73. On the impression he made on his student van der Willigen see: Hendricus Gerardus van de Bakhuyzen, “Nekrolog: Volkert Simon Maarten van der Willigen,” *Vierteljahrsschrift der astronomischen Gesellschaft* 14 (1879): 98. Van der Sande Bakhuyzen also mentions other teachers (Verdam and Uyenbroek), but singles out Kaiser as having impressed van der Willigen the most. For a specific example in which van der Willigen acknowledges that he was strongly influenced by Kaiser’s methodology see: Willigen, “Mémoire sur la détermination des indices de réfraction et sur la dispersion des mélanges d’acide sulfurique et d’eau,” 75.

²⁸ On Bosscha’s reputation as a pioneer and his interest in instruments and precise measurements see: Lunteren, “‘Van meten tot weten’: De opkomst der experimentele fysica aan de Nederlandse universiteiten in de negentiende eeuw,” 73 & 54; Bastiaan Willink, *De tweede Gouden Eeuw: Nederland en de Nobelprijzen voor natuurwetenschappen, 1870-1940* (Amsterdam: Bert Bakker, 1998), 30.

²⁹ Volkert Simon Maarten van der Willigen, *Dissertatio inauguralis de aberratione lucis* (Leiden: C.G. Menzel, 1847).

³⁰ On his final graduation see: “Catalogus candidatorum qui gradum adepti sunt 1813-1850”, 1847, UBL BC, Archieven van Senaat en Faculteiten, nr. 351, fol. 329-330.

Van der Willigen did not stay in Amsterdam for long. In 1848 he was offered a professorship in physics, mathematics and speculative philosophy (*bespiegelende wijsbegeerte*) at the Athenaeum in Deventer, which he accepted. Tellingly, Bosscha followed him to the new institution.

3. The Athenaeum in Deventer

As far as van der Willigen was concerned, he most probably only saw his professorship at the Athenaeum in Deventer as an intermediate step in his career. Although he could now carry the title of professor and his position did not preclude his being accepted in the highest circles of the Dutch physics community – he was elected a member of the highly exclusive Dutch Royal Academy (*Koninklijke Nederlandse Akademie van Wetenschappen, KNAW*) in 1857 for instance – a professorship at a university would have been far more prestigious. By the 19th century, both the town of Deventer and its Athenaeum were in fact on the decline. Deventer had been a major Dutch port in the late middle ages, but had since been overtaken by other cities. The Athenaeum had once been one of Holland's finest academic institutions, but by the 19th century, in a move that gives a sense of how a position in Deventer was ranked in relation to comparable positions at a university, at least one of van der Willigen's teachers, Pieter Johannes Uylenbroek, had turned down a professorship in Deventer in 1822 and chosen to become a "mere" lecturer (*Lektor*) at the University of Leiden instead. Three other physicists are known to have moved on to a professorship at the University of Groningen from Deventer.³¹

But despite all this, the chair for mathematics and physics and speculative philosophy to which van der Willigen was appointed was probably the most prestigious academic post Deventer had to offer, for one very simple yet for van der Willigen most likely even crucial reason: the holder of this chair had access to a comparatively well-equipped collection of scientific instruments. This collection had been acquired over a period of about 30 years by the Deventer Society for Physics and Chemistry (*Natuur- en Scheikundig Genootschap*), an amateur learned society.³² Essentially its cooperation with the Athenaeum and particularly with the holder of the chair in physics, mathematics and speculative philosophy constituted a sort of public-private partnership: instruments were acquired with the Society's funds, but placed at the disposal of the physics professor, as well as any members who showed an interest. This construction was inspired by a similar cooperative venture in Utrecht.

³¹ Carel de Goeij, "Het Deventer Natuur- en Scheikundig Genootschap en de opleving van de natuurwetenschap in Nederland in de tweede helft van de negentiende eeuw," in *Deventer jaarboek*, vol. 19 (Nieuwegein: Arko, 1993), 29–30.

³² On the Society's history see: Goeij, "Het Deventer Natuur- en Scheikundig Genootschap en de opleving van de natuurwetenschap in Nederland in de tweede helft van de negentiende eeuw."

What's more, van der Willigen had surely also heard of the fact that a small observatory had been installed in one of the towers of the town fortifications in the 1839 and was equipped with some of the Society's instruments.³³

In fact the collection of instruments that now fell under van der Willigen's purview appears to have been the Athenaeum's pride: when it was criticised by a government committee charged with inspections of educational institutions in 1849, articles that were published by the Athenaeum in order to refute the committee's criticism contained frequent references to this collection. And just a year earlier, the year in which van der Willigen was appointed, the Athenaeum's curators had proudly stated:

"In richness of instruments for some areas of Physics [*Natuurkunde*], in particular as far as modern machines are concerned, this collection can compete with larger institutions. It is housed in good order in the fine building of the Athenaeum."³⁴

Given the knack for precise measurement he displayed throughout the rest of his career, it is highly plausible that van der Willigen came to Deventer in the hope of being able to perform more and better experimental research there than he might have been able to do at other, comparable, but less well equipped institutions.

4. Amateurs, Specialists and True Physics

Having taken up his new position at the Athenaeum, van der Willigen now found himself in a position of authority for the first time in his young career. It is of course interesting to see how he used the room to manoeuvre he was given, and more importantly to address the question of what this tells us about his own views on the overall role of science. What purpose could it serve and what defined good research, in his opinion?

Two features that characterised van der Willigen's work at Deventer stand out in this respect. The first of these has already been mentioned repeatedly: his steadfast belief that precise, quantitative measurement was the only legitimate path to an incontrovertible body of physics. The second feature is perhaps more surprising, but in some sense also related to the first: his unprecedentedly clear distinction between specialists and amateurs in physics.

³³ Ibid., 25 & 27.

³⁴ "In rijkdom van werktuigen voor sommige deelen der Natuurkunde, vooral wat nieuwere werktuigen aangaat, kan deze verzameling met grootere inrigtingen wedijveren. Zij is ook in het fraaye gebouw van het Athenaeum in goede orde geplaatst." As quoted in: Ibid., 30.



*Fig.6. Volkert Simon Maarten van der Willigen (1822-1878), c. 1860
(Teylers Museum, Haarlem, FF010)*

Both these points can be deduced from a variety of instances. The most revealing of these is van der Willigen's inaugural lecture at Deventer.³⁵ This is perhaps the clearest synopsis of his own view of the field of study he had chosen to devote his career to. Interestingly, it reads almost like a positivist's credo. The lecture is suffused with statements such as "observation precedes and theory follows".³⁶ What's more, van der Willigen repeatedly stresses the point that "observation is more than superficial examination; it implies precision;"³⁷ He repeatedly stresses that this "precision" can be achieved only through a mathematical formulation of what was observed, and the subsequent statistical analysis of the data gathered through observation. As he phrases it: "All results of observations, whatever they refer to, can be represented as measures and numbers."³⁸ Statistical evaluation was then necessary in order to avoid or minimize any sources of error, particularly those effected by the observer himself. As van der Willigen lamented: "The first source of disturbance, the influence of which can never be eliminated, is the observer himself", although he pointed out that one had to be equally wary of an instrument's imprecision.³⁹

Although Kaiser is not mentioned by name, his influence on van der Willigen clearly transpires from this inaugural lecture, certainly if one bears in mind that it had been only a year since van der Willigen had left Leiden. The new professor left no doubt as to how much more sophisticated he considered astronomy to be in comparison with physics. He was in no doubt as to the reason for astronomy's superiority, either: "it is certain, that greater precision in the observations was the first cause of this vigorous development of astronomy."⁴⁰ In embracing statistics as the means to dispense with imprecision, he was emulating Kaiser's methodology.

Another remarkable aspect to van der Willigen's inaugural lecture was how he defined his role with regard to his students. In his opinion, his task was to train researchers, capable of their own meaningful contribution to physics. His idea was that "all *education* has to end in *training for research* and all *practice of science* results in *research*."⁴¹ This was in stark contrast with the humanist ideals held by a large majority of van der Willigen's colleagues in similar positions throughout the Netherlands, according to which they defined their task as building their students' character – what subject they taught was actually only of secondary importance. It was only towards the end of the century that a majority of Dutch physics

³⁵ Volkert Simon Maarten van der Willigen, *Over natuur- en sterrekundig onderzoek: redevoering bij de plegtige aanvaarding van het hoogleeraarsambt in de wis- en natuurkunde en de bespiegelende wijsbegeerte aan de doorluchte school te Deventer, op Maandag den 16 October 1848, in de gehoorzaal van het Athenaeum uitgesproken* (Deventer: J. de Lange, 1848).

³⁶ "waarneming gaat vooraf en theorie volgt"; Ibid., 36.

³⁷ "waarneming is meer dan eene oppervlakkige beschouwing; zij sluit naauwkeurigheid in zich;" Ibid., 13.

³⁸ "Alle uitkomsten van waarnemingen nu, wáártoe zij ook betrekking hebben, kunnen in maat en getal worden voorgesteld." Ibid., 22.

³⁹ "Als eerste bron van stoornis, die nimmer haren invloed zal missen, komt de waarnemer zelf in aanmerking"; Ibid., 14 & 17.

⁴⁰ "het is toch zeker, dat grooter naauwkeurigheid in de waarnemingen de eerste oorzaak van die krachtiger ontwikkeling der sterrekunde was." Ibid., 36.

⁴¹ "toch alle *onderwijs* in *opleiding tot onderzoek* moet eindigen en alle *beoefening* in *onderzoek* opgaat." Ibid., 9.

professors would have agreed with what van der Willigen was propagating in 1848, i.e. that their task was to train physicists.⁴²

With regard to his ideas on the propagation of knowledge, van der Willigen's views become discernible through two other occurrences at Deventer. The first is his curt rebuttal of an invitation to teach mathematics at the former Latin School of Deventer that had just been converted into a Gymnasium. Van der Willigen stated that he would consider this a "loss of time through this insipid and monotonous work."⁴³ Significantly, however, he did accept a position as one of the three curators of the school. Unsurprisingly, this was far more prestigious a post: the curators were essentially in charge of the school's daily running. Even the Gymnasium's director was effectively no more than an administrator who had to report to the curators.⁴⁴

Status was evidently important to van der Willigen, a character trait that helps explain the way he handled the members of the amateur society for chemistry and physics. He was not as dismissive of them as he was of the idea of teaching mathematics at the Gymnasium. On the contrary, he seemed to embrace them and signalled his willingness to meet the members' thirst for knowledge through his willingness to hold regular lectures on physics and astronomy. What's more, he insisted that more listeners than before should be able to attend these lectures.⁴⁵ He even insisted that women be allowed to attend these lectures too, which was not self-evident at the time.⁴⁶ No precise numbers of attendance are given, but a note from the minutes of the Society that was struck out suggests that van der Willigen had an audience of about 30 in mind.⁴⁷ He appears to have been an engaging lecturer too. After the first one he gave in 1848, the minutes of the Society's meetings at least read:

"The first mixed meeting that was organised can be called successful. A considerable group of ladies, members and guests had arrived and followed the speaker in his disquisition on the Moon with undivided attention and great interest."⁴⁸

Van der Willigen's commitment did not wane over the years, either. Upon leaving Deventer in 1865 to take up his post as curator in Haarlem he was made an honorary member of the

⁴² Lunteren, "'Van meten tot weten': De opkomst der experimentele fysica aan de Nederlandse universiteiten in de negentiende eeuw," 115 & 134.

⁴³ "verlies van tijd aan dien insipide en geestdoodenden arbeid." As quoted in: Goeij, "Het Deventer Natuur- en Scheikundig Genootschap en de opleving van de natuurwetenschap in Nederland in de tweede helft van de negentiende eeuw," 30.

⁴⁴ On the history of this Gymnasium and its organisational structure see: G.J. ter Kuile and J. Stam, *Stedelijk Gymnasium te Deventer 1848-1948: Gedenkboek* (Deventer: Stedelijk Gymnasium, 1948).

⁴⁵ "Notulen Natuur- en Scheikundig Genootschap 1817-1853", 05.10.1848, Archief Deventer, ID972, nr. 1.

⁴⁶ Bakhuyzen, "Nekrolog: Volkert Simon Maarten van der Willigen," 98. Van de Sande Bakhuyzen's phrasing suggests van der Willigen held separate lectures for women, but the quote from the Deventer Society's meeting on 26.10.1848 given below suggests van der Willigen's lectures were attended by both men and women, and only after he started giving them.

⁴⁷ "Notulen Natuur- en Scheikundig Genootschap 1817-1853", 05.10.1848, Archief Deventer, ID972, nr. 1.

⁴⁸ "De eerste proeve van eene gemengde vergadering mogt gelukkig heeten. Eene aanzienlijke schaar van dames, leden en gasten was opgekomen en volgde met ongedeelte [unreadable: ongedeelde?] aandacht en groote belangstelling den spreker in zijne beschouwing van de Maan." "Notulen Natuur- en Scheikundig Genootschap 1817-1853", 26.10.1848, Archief Deventer, ID972, nr. 1.

Society “because of his exceptional assiduity and the interest shown by him in the Society over a number of years”.⁴⁹

Through his involvement and by holding lectures, van der Willigen proved he was serious about something he had professed towards the end of his inaugural lecture:

“What was obtained with indefatigable endeavour by few, belongs to *everybody* and is a *common* good; and it is a bounden duty of the practitioners of science, to make everybody share in these results. What has been learnt through research, must be spread and made known; then the material world and creation will contribute abundantly to development and education, to enlightenment and civilisation. Thus every opportunity that offers itself to cultivate true and pure knowledge of nature among you, shall find me disposed to work to that purpose according to my ability.”⁵⁰

One such “opportunity” were of course his lectures at the Society. But while the young professor was obviously not loth to let others participate and profit from the fruits of his and others’ research, it is also worth noting the distinction he makes between “practitioners of science” and “everybody”. This is crucial: a number of examples in fact indicate how van der Willigen was of the opinion that while untrained amateurs were welcome to act as the recipients of knowledge handed down to them by specialised researchers, they should not think that they were capable of participating in the actual research process, and should not imagine that they were on an equal footing with trained researchers. In this sense, he did have a certain disdain for the members of the Society. This makes it all the more significant that he clearly stated in his inaugural lecture how he thought one of the reasons astronomy was ahead of physics was that it was free of the meddling influence of amateurs, or to use van der Willigen’s term, “een ieder”. The passage is worth quoting in full:

“Astronomical observations were always further beyond the reach of many people and require special application; striking physics experiments on the other hand are within the range of everybody. While a wide field of study and contemplation remains, many occupy themselves with experiments and try to make discoveries; they produce imprecise observations, where the most perfect ones are required, and incorrect assumptions, which require new study to destroy them; in this way they imagine they render excellent services to science. And as a result those

⁴⁹ “uit aanmerking van den buitengewonen ijver van en de belangstelling door Zijn Hooggel. gedurende een reeks van jaren in het Genootschap behoord”; “Notulen Natuur- en Scheikundig Genootschap 1853-1908”, 05.10.1865, Archief Deventer, ID972, nr. 2.

⁵⁰ “Hetgeen door onvermoeid streven van weinigen erlangd werd, behoort *allen* en is *algemeen* goed; en het is een dure pligt van de beoefenaars der wetenschap, een ieder daarin te doen deelen. Wat onderzoek leerde, moet worden verspreid en gekend; dan zal ook de stoffelijke schepping rijkelijk het hare toebrengen tot ontwikkeling en vorming, tot verlichting en beschaving. Zoo zal dan ook elke gelegenheid, die zich aanbiedt, om ware en zuivere kennis der natuur onder U te kweeken, mij bereid vinden, om, naar mijne krachten, ook hieraan te arbeiden.” Willigen, *Over natuur- en sterrekundig onderzoek: redevoering bij de plegtige aanvaarding van het hoogleeraarsambt in de wis- en natuurkunde en de bespiegelende wijsbegeerte aan de doorluchte school te Deventer, op Maandag den 16 October 1848, in de gehoorzaal van het Athenaeum uitgesproken*, 43–44.

inaccuracies and superficial determinations and all those explanations creep in, under the burden of which science is weighed down.”⁵¹

It is even conceivable that this was a subtle but programmatic statement aimed at any members of the Society who happened to be in the audience. Because – even though there is no reason to assume van der Willigen did not give his lectures at the Society with the best of intentions – they did mark a break with the past in the sense that during the previous decades of the Society’s existence, any member had – in principle – been allowed to give presentations on any topic or recent finding deemed interesting.⁵² By effectively monopolising the right to hold these lectures (although he shared this duty together with his colleague who held the chair for chemistry), van der Willigen was relegating the members to the status of mere recipients of knowledge that he – the expert – would break down and “diffuse” for them. This reflected the growing status of science, and by extension the status claimed by and accorded to researchers – “scientists” – such as van der Willigen.

At this point it is worth noting too, however, that van der Willigen’s penchant for precise measurement and his clear distinction between trained, specialised researchers on the one hand and amateurs on the other hand did not go uncontested. His contemporary Christophorus Henricus Didericus Buys Ballot, a professor of mathematics at the University of Utrecht, was a particularly outspoken opponent. The origins to the two men’s dispute again lay in van der Willigen’s inaugural lecture: in order to illustrate how important precise measurement was to serious research van der Willigen had referred to studies of the earth’s atmosphere as an example of the gathering of data that would not be of much use because it was imprecise and would yield little more than qualitative results. Buys Ballot however took this as a personal attack on his research efforts – most likely this was not unjustified – and published a rebuke in the popular weekly magazine *Algemene Konst- en Letterbode*.⁵³ Interestingly, in the same way that van der Willigen was basically helping define a methodology that in turn defined physics, Buys Ballot was at the time in the process of establishing meteorology as a fully fledged science.⁵⁴ To this end he was in the process of constructing an immense, “Humboldtian”, network of observers – which explicitly included amateurs. In fact, his rebuke to van der Willigen was delivered in an article in which he called upon those amateurs to provide him with as many measurements as possible. He was convinced that absolute measurements were not needed to establish a margin of errors in his measurements, but that

⁵¹ “Sterrekundige waarnemingen waren te allen tijde meer boven het bereik van velen verheven en vorderen bijzonderen toelag; treffende natuurkundige proeven daarentegen vallen binnen den kring van een ieder. Terwijl nu nog een ruim veld van onderzoek en bespiegeling overblijft, houden velen zich met proefnemingen bezig en gaan op ontdekkingen uit; zij leveren onnauwkeurige waarnemingen, waar reeds de volkomenste worden gevorderd, en valsche onderstellingen, die tot hare vernietiging nieuw onderzoek eischen; zoo wanen zij der wetenschap uitstekende diensten te bewijzen. En hierdoor sluipen dan die onjuistheden en oppervlakkige bepalingen en al die verklaringen binnen, onder wier last de wetenschap gebukt gaat.” Ibid., 37.

⁵² Goeij, “Het Deventer Natuur- en Scheikundig Genootschap en de opleving van de natuurwetenschap in Nederland in de tweede helft van de negentiende eeuw,” 31–32.

⁵³ Christophorus Henricus Didericus Buys Ballot, “Sterre- en Weerkundige Waarnemingen: Iets over de Meteorologische Waarnemingen aan het Observatorium te Utrecht,” *Algemene Konst- en Letterbode*, August 12, 1848.

⁵⁴ On this see: Frans van Lunteren, “Geinstitutionaliseerde deskundigheid: Buys Ballot en het KNMI,” in *De opmars van deskundigen: Souffleurs van de samenleving*, ed. Frans van Lunteren, Bert Theunissen, and Rienk Vermij (Amsterdam: Amsterdam University Press, 2002), 59–74.

relative values were sufficient for what he sought to achieve. As he said some years after his public exchange with van der Willigen, he considered it “infinitely better to make simple observations in a hundred places, not too far from each other, than very complete ones in ten places.”⁵⁵

Yet despite this small but nasty public feud, both men continued unperturbed. Van der Willigen could not resist a jibe at his detractor before the members of the Deventer Society in 1851, stating that meteorology was “more of a descriptive than an explanatory science, closer to geography than to physics”.⁵⁶

Van der Willigen remained in Deventer for the better part of 16 years – after which he was appointed curator at Teylers. Notable and formative events during these years include his marriage in 1856 (when he died suddenly in 1878 he left his widow with six children) and, as was already mentioned, his being elected a member of the Dutch Royal Academy. Whatever time he had van der Willigen devoted to research – although he complained at least once that the equipment and facilities at his disposal were actually insufficient.⁵⁷ But he evidently overcame such restrictions and busied himself with a variety of research projects. In 1852 for instance he established Deventer’s exact latitude by taking a series of measurements at the observatory that had been installed in a tower of the town’s former fortifications. This resulted in the publication of a small booklet with his findings.⁵⁸ Between 1857 and 1859 he published a series of articles in the Dutch Royal Academy’s Journal on spectrographic research he had performed on light that was created through the discharge that occurs between two electrodes in a variety of gases. This research in turn allowed him to develop methods of testing the quality of materials on the basis of spectrography. He was able to establish whether solutions of soluble bases contained any contamination from other materials. His research on electric discharge also led him to cooperate with Friedrich Wilhelm Florenz Geissler – the brother of Heinrich – and van der Willigen suggested to him that he introduce platinum wires into the Torricellian vacuum tube of a barometer, sealing off the junctions and thereby producing “the best possible vacuum known at the time”.⁵⁹ According to van de Sande Bakhuyzen, van der Willigen became disheartened with this line of research after Fraunhofer and Bunsen had published far more precise results on the same topic, and spent his last years in Deventer performing small-scale experiments related to electricity and the interference and diffraction of light.

By this time, major change was looming on the horizon. More specifically, the year 1863 saw a substantial reform of the Dutch education system. Following suggestions by the first minister Rudolf Thorbecke – the former professor of law in Leiden who had already been first

⁵⁵ “oneindig beter op honderd plaatsen, niet te ver van elkander, eenvoudige waarnemingen te doen, dan op tien plaatsen hoogst volledige.” As quoted in: *Ibid.*, 63.

⁵⁶ “meer beschrijvende wetenschap dan verklarende, dichter bij geografie dan bij physica”; “Notulen Natuur- en Scheikundig Genootschap 1853-1908”, 06.11.1861, Archief Deventer, ID972, nr. 1.

⁵⁷ See the introductory remarks to: Volkert Simon Maarten van der Willigen, *Bepaling der poolshoogte voor Deventer* (Deventer: J. de Lange, 1852). I am grateful to Marijn van Hoorn for having drawn my attention to this publication.

⁵⁸ *Ibid.*

⁵⁹ Karl Eichhorn, “Heinrich Geissler (1814-1879): His Life, Times and Work,” *Bulletin of the Scientific Instrument Society* 27 (1990): 19.

minister once before in the 1840s – a new type of school was introduced, the so-called *Hogere Burgerschool* (HBS).⁶⁰ In contrast to the traditional *Gymnasium*, the HBS focused on the skills required in science and engineering, as well as modern languages. The idea was to train graduates for a career in trade or industry. Every HBS was therefore also required to have a fully equipped laboratory for training purposes. Although graduates of the HBS would have been the same age as those leaving the *Gymnasium*, this new type of school was initially accorded a far lower status. Only graduates of the *Gymnasium* were qualified to attend university. Those that had completed their schooling at a HBS could only move on to an engineering school in Delft. By the time a disproportionately high amount of Dutch scientists were awarded a Nobel Prize at the beginning of the 20th century, however, the reforms of 1864 and therefore by extension also the HBS were considered one of the major factors that had helped bring about the successes of what has been referred to as the “Second Golden Age”.

This was of course not foreseeable in 1864 yet. As far as van der Willigen was concerned, the establishment of a HBS in Deventer had a far more immediate impact: The scientific branch of the Athenaeum was separated from its other departments and reorganised to form the core of the town’s first HBS. The Athenaeum itself was even dissolved in 1878.⁶¹ Needless to say, these changes would have had a profound effect on van der Willigen’s position – had he not left just as they were being implemented. It so happened that in that very same year, Martinus van Marum’s successor at Teylers Museum, Jacob Gijsbert Samuël van Breda, resigned from his post in Haarlem, creating a vacancy van der Willigen must only have been too glad to fill.

III. The Art of Presenting

1. The Rise of Public Art Exhibitions

Strictly speaking, van der Willigen was not van Breda’s successor. Van Breda had been in charge of all the museum’s scientific collections, i.e. the instrument collection and the geological collection. After his departure in 1864, however, it was decided to entrust two curators with these collections: one curator of physics, and one of geology. Van der Willigen therefore only took over a part of van Breda’s duties. His official title upon being appointed in January 1865 was “Director of the Physics Cabinet of the Teyler Foundation”.⁶²

⁶⁰ On the HBS and its position within the Dutch system of education see: Willink, *De tweede Gouden Eeuw: Nederland en de Nobelprijzen voor natuurwetenschappen, 1870-1940*, 27.

⁶¹ On this see: Jacob Cornelis van Slee, *De Illustre School te Deventer 1630-1878: hare geschiedenis, hoogleeraren en studenten, met bijvoeging van het Album Studiosorum* (s’Gravenhage: Nijhoff, 1916).

⁶² “Directienotulen”, 20.01.1865, Haarlem, ATS, vol. 9. A draft version of his contract (instructions) was approved at this meeting.

First and foremost this development reflects the way the sciences had specialised since van Marum's times and also how the museum's collections had continually expanded over the years. It was clearly considered too much to ask one expert to cover both areas of research and look after the collections to any meaningful degree; and according to the contract that was drawn up for van der Willigen, looking after the collections and performing research were his most important tasks at Teylers.⁶³ Besides keeping a tidy inventory of the collection and accompanying "foreigners of distinction, or famous scientists, who apply for a visit or investigation of objects in the collection under his purview", all that was essentially asked of him in return was to give "four to six lectures [...] on topics concerning the physical sciences" during the winter before a small audience consisting of the trustees, the members of Teylers Learned Societies and a select number of other guests.

At the same time, however, the fact that both van der Willigen and a curator of geology were taken on to replace van Breda (the geology department fell under the purview of Tiberius Cornelis Winkler) is indicative of another development that came to shape Teylers Museum and is important to take into account when assessing the state of the museum upon van der Willigen's arrival: the art collection was beginning to take centre stage at Teylers Museum. Put differently, Teylers Museum was increasingly perceived as a public art museum.

In contrast to van Marum's times it was therefore also the curator of the fine art collection who gradually took on more responsibilities for the museum as a whole. Van der Willigen's contract stated that the only person he had to answer to was the one trustee of the Teyler Foundation who had been chosen amongst the five to deal with all matters relating to the scientific collections – so the art curator did not act as head of the museum; yet it is not insignificant that, when all three curators and the librarian were required to submit annual reports to the trustees after 1876, it was the curator of the art collection who included visitor numbers in his report. Clearly, he was acting as the trustees' main contact for all matters regarding the museum's role as a public institution.

Throughout van der Willigen's tenure at Teylers the curator of the museum's collection of fine art was Hendrik Jacobus Scholten. He had arrived about a year before van der Willigen and Winkler, in October 1863.⁶⁴ Like all of his predecessors, he too was a painter by training and continued to paint while working for the Teyler Foundation.⁶⁵ He had come to Haarlem to replace Adrianus Johannes Ehnle, who had died unexpectedly in April of the same year, after only having spent the better part of seven years at the museum.⁶⁶ Ehnle, in turn, had replaced

⁶³ Below: "vreemdelingen van aanzien, of beroemde geleerden, die zich tot bezigtiging of onderzoek der voorwerpen inde verzameling onder zijn bestuur aanmelden"; "vier à zes voorlezingen [...] over onderwerpen de natuurkundige wetenschappen betreffende"; Ibid.

⁶⁴ "Directienotulen", 10.07.1863, Haarlem, ATS, vol. 9.

⁶⁵ For a short summary of Scholten's life and work see: Pieter A. Scheen, *Lexicon Nederlandse Beeldende Kunstenaars 1750-1950*, vol. 2 ('s-Gravenhage: Pieter A. Scheen, 1994), 314. However, Scheen wrongly states that Scholten arrived in Haarlem in 1872.

⁶⁶ On his appointment see: "Directienotulen", 24.10.1856, Haarlem, ATS, vol. 9. On his death see: "Directienotulen", 17.04.1863, Haarlem, ATS, vol. 9. He died on 04.04.1863.

the ailing, 80-year old Michaëlis.⁶⁷ Scholten outlived both of his fellow new arrivals at the museum and passed away in 1907, at age 82.

To some extent the fact that Teylers Museum was increasingly perceived as an art museum can be seen as the result of the trend that was already described in the introductory section to this chapter, i.e. the increasing incomprehensibility and inaccessibility of scientific research to laypeople, which in turn led to a gradual removal of science from the public domain. This meant visitors would inevitably have focused more on that part of the museum which they found comprehensible, i.e. the display of fine art. But what is just as important – and only served to enhance this trend – is that at the very same time art exhibitions and public museums were increasingly taking on a role as core constitutive elements of the overall fabric of public life.

It was already mentioned in the previous chapter that collecting paintings by contemporary artists became fashionable in the early 19th century; presumably as a result, the 1830s and even more so the 1840s saw a significant increase in the amount of public art exhibitions held in the Netherlands. Whereas, on average, about one exhibition per year with works of art by contemporary artists from all over the Netherlands had been held in the aftermath of the first art exhibition organised by Louis Napoleon in 1808, avid art lovers could have attended about two every year between 1830 and 1840 and a total of 32 such exhibitions between 1840 and 1850.⁶⁸ Interestingly, some of these exhibitions were purely commercial, i.e. had the express purpose of attracting custom for painters, whereas others were organised or at least coordinated with the help of the government.⁶⁹ The aim of the exhibitions in which the government was involved was more educational in nature, i.e. to provide the public with an opportunity to keep abreast of the newest developments in the art world.⁷⁰ These exhibitions thereby inevitably also provided a benchmark for taste, and could serve to inspire other artists.

In addition to these temporary exhibitions of contemporary paintings, permanent public displays of works by living artists were becoming more common too. The first such exhibition was actually the display of the Teyler Foundation's collection of paintings at Teylers Museum after 1826 – although this only took on serious proportions upon the completion of the First Art Gallery in 1839. Even if it was not huge, the Gallery at Teylers Museum did not have to fear comparison with the venues where the official (i.e. non-commercial) temporary exhibitions were held, such as for example the premises of the Academy of Arts in The Hague.⁷¹

But that very same year also saw the transferral of all paintings by contemporary artists from the collection of the Rijksmuseum in Amsterdam – where up until then they had been on display alongside all the other paintings at the *Trippenhuis*, a former merchant's house that was also home to the Dutch Royal Academy and is situated on one of Amsterdam's most

⁶⁷ "Directienotulen", 24.10.1856, Haarlem, ATS, vol. 9.

⁶⁸ Annemieke Hoogenboom, *De stand des kunstenaars: de positie van kunstschilders in Nederland in de eerste helft van de negentiende eeuw* (Leiden: Primavera Pers, 1993), 147.

⁶⁹ For examples see: Ibid., 142ff.

⁷⁰ Ibid., 143.

⁷¹ For a depiction of these premises in 1839 see for instance: Ibid., 82.

prestigious canals – to Haarlem. More specifically, they were put on display at *Paviljoen Welgelegen*, the country manor where the banker Henry Hope had stored his extensive art collection at the end of the 18th century and which had subsequently served as Louis Napoleon's palace for a few months.⁷² This choice of venue was later mocked as having arisen from purely financial considerations and not being at all suitable for an appropriate hanging of the pictures on display, and they were returned to Amsterdam in 1885.⁷³ Nevertheless, after 1839 the town of Haarlem was home to two permanent, public museums of contemporary art.

So around the middle of the 19th century both temporary and permanent displays of contemporary art were in no way out of the ordinary. Exhibitions were no longer the reserve of large towns either, with many of the temporary ones being held in smaller towns too. In 1849 for instance one of the first provincial museums of the Netherlands opened in Dordrecht and was dedicated to works of living local artists.⁷⁴

It is worth noting that the rising popularity of art exhibitions coincided with a change in status of the artist's profession. The most pertinent symbol of these changes was the setting up of a monumental statue to Rembrandt in Amsterdam in 1852. This underscored a romanticised image of him as a genius who had brought fame and glory to the Dutch nation with nothing more than his inspired handling of the paintbrush, canvas and palette. It also ensured this image was spread beyond the artists' community, giving its members a reference point and symbol to rally around.

There were other, less abstract manifestations of a new found confidence amongst artists as well, such as the establishment of artists' associations. *Arti et Amicitiae* in Amsterdam and *Pulchri Studio* in The Hague are the most prominent examples. They were founded in 1839 and 1847 respectively, having evolved out of a series of earlier, less successful societies.⁷⁵ Interestingly, both associations maintained premises where they could hold exhibitions of their own, usually featuring the work of members.

⁷² M.W. Kok, "De musea in Paviljoen Welgelegen," in *Paviljoen Welgelegen 1789-1989: Van buitenplaats van de bankier Hope tot zetel van de provincie Noord-Holland* (Haarlem: Schuyt, 1989), 139–150.

⁷³ Frederik J. Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed* (The Hague: Staatsuitgeverij, 1975), 59–60 & 141–143. Despite the apparent inadequacy of the premises, figures provided by Duparc suggest that around 1880 almost three times as many visitors attended the exhibition in the Paviljoen as did Teylers Museum. However, it is questionable just how reliable the available source material on visitor numbers really is.

⁷⁴ Hoogenboom, *De stand des kunstenaars: de positie van kunstschilders in Nederland in de eerste helft van de negentiende eeuw*, 88.

⁷⁵ *Ibid.*, 22–23. Hoogenboom gives 1848 as the year in which Pulchri Studio was founded on these pages, but 1847 on p. 86.

2. The First Art Gallery, a Permanent Exhibition?

Having now established that art exhibitions had become far more common when van Breda left his post at Teylers than they had been when he arrived, the crucial point is of course to try and understand how the display at the First Art Gallery of Teylers Museum needs to be seen in relation to other publicly accessible exhibitions during this period. What characterised the display at Teylers Museum and therefore, by extension, Teylers Museum itself?

Two points are particularly striking. The first is that it was a privately funded, yet non-profit and publicly accessible museum. As such it differed from the other major exhibitions and museums, because neither was the government or any other public body involved, nor was the exhibition's aim that of making money. What's more, the exhibition at Teylers was permanent. As was already mentioned in the previous chapter, no statements or clues as to exactly what purpose the trustees of the Teyler Foundation saw in presenting their art collection to the general public in such a magnificent manner have been preserved – although one can safely assume that the trustees would have felt their decisions needed to be in accordance with Pieter Teyler's last will and testament. One could therefore perhaps say that the First Art Gallery was the result of personal interest and preferences on the one hand and a tradition of public service in the Mennonite sense on the other hand.

More specifically, on the one hand the collection of paintings itself has an innately private character – no clear principle according to which the paintings were acquired is discernible. The only constant criterion appears to have been that the paintings had to be Dutch. (This argument at least was brought forward in a polite refusal to acquire a painting that had been offered for sale in 1854.⁷⁶) One also can't help but notice that some paintings were bought in pairs, which would have been in line with a fashion coined by collectors of Romantic art.⁷⁷ One of the very first acquisition for instance – “*Storm op Zee*” (“Storm at Sea”) by Johannes Christiaan Schotel – evidently prompted the trustees to ask the artist to paint another work of equal size depicting a calm sea. Finally, some of the paintings the Foundation acquired had been praised by critics at exhibitions of contemporary art, which would have made them desirable in itself – but not cheaper, and therefore not really suitable as a financial investment either, ruling out another possible motive for acquiring these paintings.⁷⁸ So, in all likelihood, it was the trustees' personal taste which formed the main determining factor in selecting new acquisitions.

Yet, on the other hand, the trustees were ultimately not acquiring the paintings for themselves, but for the Teyler Foundation. And not only had Teyler clearly stated that the arts and sciences were to be stimulated with his bequeathal, but Teylers Museum had also had the decade-long tradition of allowing access to whoever was interested in the collections housed

⁷⁶ “Directienotulen”, 24.02.1854, Haarlem, ATS, vol. 9.

⁷⁷ Annemiek Ouwerkerk, *Romantiek aan het Spaarne: schilderijen tot 1850 uit de collectie van Teylers Museum Haarlem* (Haarlem: Teylers Museum, 2010), 49–51.

⁷⁸ On the acquisition of works praised by critics see also: Ibid., 25; Terry van Druten, “Waarheid om bij weg te dromen: De Nederlandse Romantiek in Teylers Museum en de Collectie Rademakers,” unpublished manuscript (Haarlem, 2013).

there, free of charge. All this would inevitably have had a profound impact on how the trustees handled the Foundation's collection and helps explain why they had the First Art Gallery constructed for such an innately private collection.

This accessibility brings us to the second point that is of crucial importance in understanding the museum's character around the time van der Willigen arrived there: this is the fact that it was not intended to function as a venue for practical studies. Copying the works on display was forbidden – explicitly so after 1852. The minutes of a meeting of the trustees held in July of that year read:

“The question comes up whether the one or the other painter might be allowed to make copies of pieces [paintings] in the Museum of this Foundation. Because of the many inconveniences which would arise from this, it is decided not to grant permission.”⁷⁹

Although this was not extraordinary for temporary exhibitions of contemporary art – after all, copies would inevitably also have affected the pictures' market value – this kind of prohibition was not usual at museums. On the contrary: copying the old masters was considered part of every aspiring painter's basic training, and the most suitable place to do so was a museum. In 1906 the painter Jozef Israëls – by then he was more than 80 years old and one of the most respected artists of his generation – recalled how, when he arrived in Amsterdam in the early 1840s, his teacher, Jan Adam Kruseman, had sent him to the Rijksmuseum to make copies – even though Israëls would much rather have copied paintings from his master's private collection. Israëls described this in the following words:

“It was around the middle of the previous century, that I went to Amsterdam to train as a student of the art of painting under the direction of the then renowned portraitist Kruseman. I was soon admitted to the studio of my master and I looked with great admiration at the portraits of distinguished persons in Amsterdam that he was working on.

The pink colour of the complexions and the delicate treatment of fabrics and clothes, sometimes standing out against a background of dark red velvet, pleased me greatly.

However, when I expressed my desire to be allowed to copy some of these portraits, I was not given permission by the master; no, he replied, if you want to make copies, then go to the museum in the *Trippenhuis*.”⁸⁰

⁷⁹ “Komt ter spraak de vraag, of aan deze of gene schilders vergund zou kunnen worden om stukken van het Museum dezer Stichting te kopiëren. Uit hoofde van de vele bezwaren, die daaraan verbonden zijn, wordt besloten, zoodanige vergunning niet te verleen.” “Directienotulen”, 30.07.1852, Haarlem, ATS, vol. 9.

⁸⁰ “Het was zoo wat tegen de helft der vorige eeuw, dat ik naar Amsterdam ging om als studiosus in de schilderkunst mij onder de leiding van den toen zeer gerenommeerden portretschilder Kruseman te bekwamen. Al spoedig werd ik toegelaten in het atelier van mijn meester en zag met groote bewondering de portretten, die hij naar voorname personen van Amsterdam onder handen had. // De rose kleur der aangezichten en de fijne behandeling der stoffen en kledage, soms uitkomende tegen een achtergrond van donker rood fluweel behaagden mij zeer. // Toen ik echter het verlangen te kennen gaf eenige dier portretten te mogen copieeren, werd mij dat door den meester niet toegestaan; neen, was zijn antwoord, als gij copieeren wilt, ga dan naar het museum in het Trippenhuis.” Jozef Israëls, “Rembrandt,” *De Gids* 24, no. 3 (1906): 1–2.

Incidentally, Israëls adds that he was loth to go the Rijksmuseum with its display of old masters because he was far more excited by the works of contemporary, living artists. As he put it:

“The exhibitions at Arti [et Amicitiae] seemed much more beautiful to me, and I admired in particular Pieneman, Gallait, Calame and Koekoek [19th century Dutch painters].”⁸¹

3. The More Visitors, the More Exclusive?

If those were his criteria, then one can safely assume that he would have enjoyed the display at Teylers Museum too. (He is known to have visited at least once because he signed the visitor’s book, although this was some years later, in 1866.⁸²) And even if he would not have been allowed to copy the paintings that hung there, he would still have been very welcome. At any rate there is nothing that indicates that the Teyler Foundation’s trustees did not embrace the public and welcome any interest in the museum’s collections. On the contrary, in 1845 for instance Teylers Museum’s opening hours were changed so as not to coincide with the times during which the famous cathedral organ was demonstrated, so that visitors to Haarlem could enjoy both of these attractions.⁸³ Even before this measure was taken visitor numbers had been rising steadily for some time, so that in 1836 the ailing van Marum had even asked the trustees to set up a new rule that tickets to the museum could only be obtained early in the morning, “in order to discourage to some extent the all too great influx of persons wanting to visit Teylers Museum”.⁸⁴ The amount of visitors did not go down after 1840 – on the contrary, noticeably more artists, presumably attracted by the newly opened First Art Gallery, signed the visitor’s book.⁸⁵

What’s more, over the course of the subsequent decades the trustees never hesitated to enable the members of other Learned Societies or professional associations to visit the museum. In 1861 they even briefly took on an “additional servant [...] to help with the supervision”, after having agreed to open the museum every day for a whole week in July, while the Dutch national arts and crafts fair was being held in Haarlem.⁸⁶ Other examples for requests that

⁸¹ “Mij kwamen de tentoonstellingen op Arti veel mooier voor en ik bewonderde vooral Pieneman, Gallait, Calame en Koekoek.” Ibid., 2.

⁸² Janse, “Uit nieuwsgierigheid en ter onderricht,” 19.

⁸³ “Directienotulen”, 11.07.1845, Haarlem, ATS, vol. 8.

⁸⁴ “om den al te grooten toevloed van personen ter bezigtiging van Teylers Museum, eenigermate tegen te gaan”; “Directienotulen”, 08.07.1836, Haarlem, ATS, vol. 8.

⁸⁵ Janse, “Uit nieuwsgierigheid en ter onderricht,” 19. During this period some visitors may also have been attracted by the fact that J.G.S. van Breda was appointed as van Marum’s successor in 1839. He evidently continued the tradition of letting visitors sign the visitor’s book – although he did not do so at the Holland Society, where, just like van Marum, he was put in charge of the natural history. Incidentally, in the years after van Breda’s departure in 1864 there is a sharp decline in signatures in the visitor’s book at Teylers Museum, although this picks up again in the late 1870s.

⁸⁶ “extra-bediende [...] om mede toezigt te houden”; “Directienotulen”, 15.03.1861 & 07.06.1861, Haarlem, ATS, vol. 9.

were readily granted include ones by the Haarlem section of the Society for the Abolition of Strong Liquor (*Maatschappij tot afschaffing van den sterken drank*) in 1858 and 1867, the Haarlem section of the Dutch Society for the Advancement of Medicine (*Nederlandsche Maatschappij tot Bevordering van Geneeskunde*) in 1855, or the Dutch Agrarian Society (*Hollandsche Maatschappij van Landbouw*) in 1863.⁸⁷ The latter had organised the national agrarian exhibition in Haarlem in that year. In a move that betrays the overall status of women in late 19th century society, the trustees of the Teyler Foundation explicitly noted that members of the Society who wanted to visit the museum “with a lady” were allowed to do so.⁸⁸

But while visitors were obviously welcome, what transpires equally clearly from the trustees’ actions is that they considered Teylers Museum a place where visitors were to behave in an orderly, civilised manner. In June 1838 for instance they decided to close the museum for the duration of the annual Haarlem funfair. In doing so they wanted to prevent a repeat of the “far-reaching abuse” they had had to experience the year before.⁸⁹ No details of what exactly happened or was damaged were recorded, but the events were evidently traumatic enough for the trustees to continue closing the museum during the funfair period for many years to come.⁹⁰ A similar decision was taken in May 1850, when the trustees recorded how they had decided “on the occasion of the big music festival, which will take place here in the City, to grant no access to Teylers Museum”, which meant the museum was closed for an entire week.⁹¹

As the explanation given in 1838 suggests, the trustees’ primary – if not even sole – motive in coming to these decisions was most certainly a legitimate concern for the safety of the museum’s valuable collections. Their decision to close the museum must therefore not be seen as an expression of some sort of disdain they harboured for laypeople who had not had the privilege of any form of “high-brow” education – as anybody who has ever been in charge of a publicly accessible collection can tell you, valuable, unique objects on the one hand and as large as possible a crowd of people from all walks of life on the other hand are not necessarily a match made in heaven.

But at the same time the trustees’ decision to restrict access to the museum to those whose credentials (such as their membership of a professional association) suggested they could be trusted to behave in a civilised manner, chimes well with a certain aura of exclusivity that public displays of art in particular were beginning to acquire and sometimes even cultivate. Crucially, both by accident and by design, public art exhibitions were becoming places where

⁸⁷ “Directienotulen”, 04.06.1858 & 02.08.1867 & 25.05.1855 & 13.02.1863, Haarlem, ATS, vol. 9.

⁸⁸ “Directienotulen”, 13.02.1863, Haarlem, ATS, vol. 9. “Op verzoek van de Commissie voor de in September aanst. hier ter stede te houden algemene Landbouw-tentoonstelling, wordt de toegang tot de Musea van T.St. aan de leden der Hollandsche Maatschappij van Landbouw, met eene dame, op vertoon van hun diploma toegestaan, van 24-30 September, van 2-4 ure.”

⁸⁹ “Directienotulen”, 01.06.1838, Haarlem, ATS, vol. 8. “Directeuren, in aanmerking nemende, dat in het vorige jaar, gedurende de Kermis, een verregaand misbruik is gemaakt van de vergunning, ter bezigtiging van het Museum, hebben besloten den gewonen toegang tot hetzelfde dit jaar niet te verleen [..]”

⁹⁰ “Directienotulen”, 03.05.1839 & 25.06.1841 & 17.06.1842, Haarlem, ATS, vol. 8.

⁹¹ “ter gelegenheid van het groote muziekfeest, ’t welk te dezer Stede zal plaats hebben, den toegang tot Teylers Museum niet te verleen”; “Directienotulen”, 31.05.1850, Haarlem, ATS, vol. 9.

visitors could shore up their credentials as fully fledged members of the bourgeoisie through the aesthetic contemplation of works of art in public. Put differently, exhibitions – and by extension, as they were increasingly defined by the public display of their collections, museums too – were turning into places to “see and be seen”.



*Fig.7. The First Art Gallery depicted by Johan Conrad Greive, 1862
(Teylers Museum, Haarlem, DD042d)*

At this point it is necessary to stress that this aura of exclusivity is not in any way at odds with increasingly high numbers of visitors to these exhibitions, or with the notion that exhibitions were increasingly visited and perhaps even “dominated” by members of the lower, non-bourgeois classes, or that this was even at odds with conscious attempts by the designers of exhibitions to encourage attendance by non-bourgeois visitors. On the contrary: all of these developments might very well even have necessitated the establishment of tacit codes of conduct, i.e. behavioural patterns, through which it became possible to send out a signal to other attendants of an exhibition that one was part of a more exquisite and exclusive circle of visitors. More specifically, by demonstrating that one was able to appreciate the art on display on an intellectual level, one could prove that one was a member of the educated bourgeoisie.⁹²

⁹² This new emphasis on such tacit and subtle forms of distinction was perhaps also filling a void that had been brought about by the mass production of clothes and other items that determined one’s everyday appearance,

This is also where the new genre of art criticism comes in. It was already mentioned in the previous chapter how in the Netherlands this genre had emerged in the 1820s and provided the tools through which to distinguish oneself as a true connoisseur of art. By the 1840s, there were not only far more art critics, mirroring the increase in the number of art exhibitions, but they were also beginning to gain status within the established art world itself – albeit not so much as critics, but as experts in the theory of art and art historians. A good example is provided by the changing membership of the Dutch Royal Institute’s Fourth Class, which was devoted to the fine arts. When it was established by Louis Napoleon at the beginning of the 19th century, the majority of its members had been practising artists; by the middle of the 19th century, the entire Institute had been reorganised – more specifically, it had been dissolved, then re-founded and re-christened as the Royal Academy of Sciences (KNAW). Significantly, though, instead of four “classes” the Academy now comprised two sections: one for the Sciences and one for the Arts (in the broadest sense of the word); even more importantly, the artists that had belonged to the Fourth Class of the Institute were now effectively barred from regaining their membership of this national institution. Instead of being welcomed as members of the section for the Arts, they were being replaced by art experts.⁹³

In a sense these experts were filling a void left by the artists themselves, as their overall social status and the way they fashioned themselves changed and they increasingly adopted bohemian manners.⁹⁴ Gradually, this distinction between the creative but unpredictable artist and the more sober art expert was reflected at art museums too, as by the end of the 19th century art experts and historians rather than painters were usually entrusted with looking after an institution’s collection. Providing a clear indication of its 18th century roots, this was not the case at Teylers Museum, where even Scholten’s successor John Frederik Hulk, who arrived in 1907, was first and foremost a painter.

But let us return to the specific matter of behaviour at an art exhibition. A detailed analysis and full characterisation of the public that attended 19th century exhibitions and museums is, unfortunately, far too complex for the confines of this particular study. The exact origins of art exhibitions’ exclusive aura is therefore hard to pinpoint, just as the verdict is still out as to whether this aura was actually in any way justified;⁹⁵ far more importantly though, the fact that this aura arose and that specific behavioural patterns for the exhibition and museum-going public had been established and become recognisable by the middle of the century is incontrovertible. Some of these rules were explicit and actively encouraged, whilst others

because this in turn meant that public appearances were less obviously revealing. On this see: Richard Sennett, *The Fall of Public Man* (New York; London: W.W. Norton, 1992), 20.

⁹³ Klaas van Berkel, *De Stem van de Wetenschap: Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen*, vol. 1 (Amsterdam: Bert Bakker, 2008), 357–361.

⁹⁴ Mayken Jonkman, “Couleur Locale: Het schildersatelier en de status van de kunstenaar,” in *Mythen van het atelier: werkplaats en schilderpraktijk van de negentiende-eeuwse Nederlandse kunstenaar*, ed. Mayken Jonkman and Eva Geudeker (Zwolle; Den Haag: d’jonge Hond; RKD, 2010), 26; Chris Stolwijk, *Uit de schilderswereld: Nederlandse kunstschilders in de tweede helft van de negentiende eeuw* (Leiden: Primavera Pers, 1998), 274–275. (See previous chapter.)

⁹⁵ For first attempts at coming to terms with this phenomenon see: Annemiek Ouwerkerk, *Tussen kunst en publiek: een beeld van de kunstkritiek in Nederland in de eerste helft van de negentiende eeuw* (Leiden: Primavera Pers, 2003); 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).

were implicit; many were almost ritualistic. They included dressing properly, buying a catalogue, and sporting one's knowledge of both art and other exhibitions.

Alongside the obvious increase in demand for art critics, the clearest indication that codes of conduct to set oneself off from the uninitiated and therefore "common" visitors had emerged, is that these codes of conduct were mocked. There are numerous caricatures portraying the stark contrast between the slightly snobbish connoisseur of the arts and the common visitor who behaves in an uncivilised manner.⁹⁶

Crucially, this in turn reflects how art exhibitions had become venues to stake a claim to social status. Far more than just places to study the art on display, they became a nodal point of public social life. At exhibitions, visitors could not only demonstrate and improve their own credentials as cultured members of society, they could also find other likeminded citizens.

A telling example is provided by an essay published by the well-known Dutch author Nicolas Beets, who wrote under the pseudonym of Hildebrand. In the late 1830s, around about the time of the construction of the First Art Gallery at Teylers, he published an essay in the national journal *De Gids* (comparable in status to *Punch* in Great Britain) in which he mockingly caricaturised imaginary visitors to the annual state exhibition of fine art in The Hague. He described one mother's disappointment at having unwittingly arrived too early: "This upsets the somewhat fashionable lady; nobody to see! nobody to see her lovely daughter!"⁹⁷

In the same essay Beets mentions the Teyler Museum too: a painter who is exceedingly frustrated that the work he has contributed to the exhibition in The Hague is badly hung and not appropriately admired by both critics and visitors, complains that he had initially dreamed that "Teylers museum will want to acquire it; the Princess of Orange will need to own it; a connoisseur will offer to invest in it with gold!"⁹⁸

And while, strictly speaking, this example only shows that by this time Teylers Museum was clearly considered part of the established Dutch art scene, another example from some twenty years later indicates that it was increasingly being held accountable for its role as a public institution too. In 1860, after the Foundation had acquired a painting of an historical scene by Koster, a newspaper article drew attention to the fact that Koster's painting was not historically accurate, while another one by Gruyter depicting the same scene that had been sold at the same auction, was. The author of the article feels he has to say the following:

"It is not our custom to draw parallels between artists: however, in this case we feel compelled to do so, because the Painting by Koster, bought by Teylers society [the Teyler

⁹⁶ See for example: Ouwerkerk, *Tussen kunst en publiek: een beeld van de kunstkritiek in Nederland in de eerste helft van de negentiende eeuw*, 106–107.

⁹⁷ "Dit valt de nog wel eenigszins wereldsche dame tegen; niemand om gezien te worden! niemand om hare lieve dochter te zien!" Hildebrand, "Eene tentoonstelling van schilderijen," in *Camera obscura*, vol. 1 (Amsterdam: Athenaeum-Polak & Van Gennep, 1998), 325–326.

⁹⁸ "Teylers museum zal het willen aankopen; de Prinses van Oranje zal het moeten bezitten; een liefhebber zal aanbieden het met goud te beleggen!" Ibid., 322.

Foundation], gives a false representation of a memorable subject to both contemporaries and following generations; *after all, that society displays its collection publicly* [emphasis MW]; the painting by GRUYTER on the other hand will probably find its way into some private collection, and we therefore advise the trustees of Teylers society to investigate the matter, and to invite the erring painter to correct these flaws, if there are grounds for doing this.”⁹⁹

This is indicative of how influential public exhibitions were considered to be by this time and how they were increasingly attributed an educational function as well (more on this will be said in the next section of this chapter) – and that Teylers Museum was not considered an exception.

A final indication that Teylers Museum was increasingly taking on a role as a public art museum is provided by its description in travel guides. As the tourist trade increased, travel reports as they had been published in the 18th century were replaced by travel guides, tailored to the specific needs of tourists and written in an impersonal style. The most famous and popular of these was “the Baedeker”, a series of guides covering various countries and named after the author and publisher of the series’ first edition, Karl Baedeker. Incidentally, the characteristic red binding of the travel guides published under his name is even discernible on some 19th century depictions of art gallery interiors.¹⁰⁰

An early edition of the guide to Holland, published in 1854, stated that Teylers Museum included “a number of paintings of the modern Dutch school, [and] valuable drawings of old masters” besides the other collections (which were described with the bywords “considerable” and “well equipped”); but by 1880, although the updated edition still contained almost exactly the same information on the scientific collections, the authors had expanded their section on the collections of fine art considerably.¹⁰¹ Other early guidebooks, such as one published by John Murray in 1858, already placed a far larger emphasis on the art collection than on the scientific ones. This guide mentions the art collections first, and subsequently says next to nothing about the collection of scientific instruments, only drawing attention to “two curious specimens” in the collection of fossils.¹⁰²

This is in stark contrast with travel reports from half a century earlier. Recall how during van Marum’s times the scientific instruments had been cited as the reason to visit the museum and how the art collections were not even mentioned in the majority of travel reports.

⁹⁹ “Het is onze gewoonte niet, om parallelen tusschen kunstenaars te trekken: in dit geval echter rekenen wij er ons toe verplicht, omdat de Schilderij van Koster, door Teylers genootschap aangekocht, tijgenoten zoowel als nakomelingen, van een gedenkwaardig voorwerp eene valsche voorstelling zal geven; *immers dat genootschap laat zijne verzameling publiek bezichtigen* [emphasis MW]; de schilderij van GRUYTER daarentegen krijgt waarschijnlijk eene plaats in een of ander particulier kabinet, en wij zouden dus de directie van Teylers genootschap aanraden, de zaak te onderzoeken, en den fautieven schilder uitnoodigen, die gebreken te herstellen, indien daartoe termen zijn.” *Nieuw Amsterdamsch Handels- en Effectenblad*, No. 265, 24.09.1860.

¹⁰⁰ An example is Johann Lorenz Maaß’s painting of the Rubenssaal at the *Alte Pinakothek* in Munich, c. 1880.

¹⁰¹ “eine Anzahl von Gemälden der neuern holländischen Schule, [und] werthvolle Handzeichnungen älterer Meister”; “ansehnlich”; “gut ausgerüstet”; *Holland: Handbuch für Reisende*, 3rd ed. (Koblenz: Karl Bädeker, 1854), 104–105; *Belgien und Holland, nebst den wichtigsten Routen durch Luxemburg: Handbuch für Reisende*, 15th ed. (Leipzig: Karl Bädeker, 1880), 286.

¹⁰² *A Handbook for Travellers on the Continent: Being a Guide to Holland, Belgium, Prussia, Northern Germany, and the Rhine from Holland to Switzerland*, 12th ed. (London: John Murray, 1858), 45.

IV. Changing Definition of Museums

1. From Scholarly Musaeum to Educational Museum

Having now illustrated how the sciences were becoming ever more specialised and how Teylers Museum was increasingly being perceived as a public art museum and purveyor of social status, attention needs to be drawn to another area that was changing fundamentally and which is important to keep in mind when trying to understand the overall development of Teylers Museum and the status of its scientific instrument collection around the time of van der Willigen's curatorship in particular: the connotations the term "museum" carried were changing profoundly – throughout the Western hemisphere, and in all languages.

This is obviously a generalisation, and some caution is of course called for; to what extent this word's connotations changed where – and when – was of course largely dependent on local circumstance. A comprehensive analysis of the word's etymological development across all Western countries around the middle of the 19th century would perhaps shed some light on the complexity and the idiosyncrasies of these developments, but such a survey obviously lies far beyond the scope of this study of Teylers Museum's history.

Crucially however, despite the immense complexity of these developments, there is no denying the fact that a fundamental shift was taking place during this period – by the 1860s the associations any usage of the term "museum" evoked would have been very different from those just a few decades earlier or during, say, van Marum's lifetime. Put differently, the expectations that visitors would have had of any institution sporting the label "museum" were changing. It is of pivotal importance to be aware of this when coming to terms with any aspect of the history of Teylers Museum.

More specifically, the general consensus as to what role "museums" were to play within society was increasingly divorced from the late Renaissance notion of a "musaeum": rather than being seen as centres of scholarly study, museums were increasingly equated with the public display of the collections they housed.

What's more – and perhaps even most importantly – the whole point of their displays began to be an educational one: visitors to any museum were supposed to "take home" a certain lesson or message. In the case of arts and crafts museums for instance, visitors were supposed to be inspired by, take as an example and subsequently emulate what was deemed to be the beautiful design – undertaken according to aesthetic principles – of the objects and tools on display. Increasingly, the aim of a museum was therefore also to attract as many visitors as possible.

All of the changes just described are most clearly discernible in Victorian Great Britain. This may seem far-removed from events in Haarlem, but what was happening across the channel is more relevant than one might expect and certainly provided the relief against which developments at museums across the rest of the world need to be seen.

2. The Great Exhibition, “Albertopolis” and the South Kensington Museum

In fact many of the changes just summarised are not only discernible in Great Britain, but their origins are to be found there too – more precisely in the flurry of activity unleashed by Prince Albert. He successfully tried to use his position as Consort to the Queen (although he was only officially granted that title long after Victoria acceded to the throne) to ensure that British culture and technology not only remained competitive, but should also be seen to be in the vanguard of progress.¹⁰³ Interestingly, Albert had clear ideas as to how this was to come about, many of which echo the cultural ideals with which he would have been infused during the formative years of his youth and his studies at university in Germany.¹⁰⁴ His serious commitment therefore brought about a confluence of German and British traditions and approaches to cultural matters. But it was the sheer scope of Albert’s efforts as Prince and the scale of their success that ensured the effects were felt way beyond the borders of the British Isles – i.e. in places like Haarlem, too.

Albert’s *pièce de résistance* was the “Great Exhibition of the Works of Industry of All Nations”, held in London in 1851.¹⁰⁵ The name essentially said it all: it was basically a huge international industrial trade fair. But its impact can hardly be overestimated. It was held for several months in the spectacular glass and iron building nicknamed the “Crystal Palace” in Hyde Park and not only was it unprecedented in its scale, but it also attracted an unexpectedly huge amount of visitors from all over the world. So many, in fact, that the Exhibition turned a profit. Within no time the Exhibition had become an iconic symbol of modernity and progress, an image which was only enhanced by the fact that this spectacular showcasing of mankind’s most recent groundbreaking achievements provided a stark contrast with the bloody revolts that had gripped Europe just a few years earlier, during the democratic uprisings of 1848 with their nationalist undercurrent. The Exhibition soon eclipsed all previous fairs of a similar nature, such as the national expositions in Paris.¹⁰⁶

The Great Exhibition, as it was referred to, inevitably had a huge impact on the way exhibitions were held and displays were designed throughout Europe and North America. Three ways in which its impact manifested itself are particularly relevant.

Firstly, over the course of the following decades a myriad of exhibitions emulating the one in London was held throughout the world. Many more World’s Fairs were held in different countries over the course of the next decades – such as, for instance, the Exposition universelle in Paris in 1867, the Weltausstellung in Vienna in 1873 or the Centennial in

¹⁰³ See for instance: Julius Bryant, “‘Albertopolis’: The German Sources of the Victoria and Albert Museum,” in *Art and Design for All: The Victoria and Albert Museum*, ed. Julius Bryant (London: V&A Publishing, 2011), 26.

¹⁰⁴ *Ibid.*, 27–29.

¹⁰⁵ On this see for instance: Jeffrey A. Auerbach, *The Great Exhibition of 1851: a Nation on Display* (New Haven: Yale University Press, 1999).

¹⁰⁶ For a very brief summary of these fairs see: Bruno Giberti, *Designing the Centennial: a History of the 1876 International Exhibition in Philadelphia* (Lexington: University Press of Kentucky, 2002), 3.

Philadelphia in 1876.¹⁰⁷ Meanwhile, many smaller ones were organised in all countries for all branches of trade and industry. The Netherlands were no exception and can also serve as an excellent example of just how much of an impact the Great Exhibition had and how it had captured everyone's imagination: one need only take a look at a depiction of the so-called *Paleis van Volksvlijt* (Palace of the People's Diligence), which was set up in 1865, to see that it was clearly modelled on the Crystal Palace.¹⁰⁸ The Amsterdam *Paleis* – basically a huge exhibition area – was founded upon the initiative of Samuel Sarphati, who unsurprisingly appears to have developed and first started pitching the idea for this project shortly after he returned from the Great Exhibition in London. His efforts having born fruit, the building's cornerstone was laid in 1859 in the presence of King William III. Six years later its first exhibition – on agriculture – was opened to the public.

Secondly, it became fashionable to attend these fairs and to be seen at the places where they were held. As was already said, the Great Exhibition was essentially a trade fair, in that it provided manufacturers from all over the world with an opportunity to present their products and allowed for a comparison with similar products from other nations. The subsequent World's Fairs were no different. But after 1851, they started to acquire the same sort of high-brow, exclusive aura that temporary exhibitions of fine art already had during the previous decades, as was described above. In other words World's Fairs – or trade exhibitions – became places to “see and be seen” as well. The reason this is relevant is that some of this inevitably rubbed off on the industrial products on display and, by extension, technology and engineering itself. There was now less of a difference between a painting that was lauded by the art critics at an art exhibition and an industrial product that was singled out for praise by the expert juries that were always assembled to award prizes to individual manufacturers. Note however that this is still a long way off from defining science or engineering itself as an “art” and a cultured activity and that the World's Fairs' primary purpose was still to aid and abet trade and business. Technology could lead to progress, but it was not an art.

Thirdly and perhaps most importantly, Albert used the impetus provided by the Great Exhibition to establish what is considered to be, “in respect of its content, its functioning and the public that it targeted, the first modern museum” – the South Kensington Museum, rechristened in 1899 as the Victoria & Albert Museum.¹⁰⁹ This was possible because the Great Exhibition had turned a profit. Even before the exhibitors left Hyde Park, Albert had acquired land in South Kensington and started debating his vision of erecting a cultural centre for the public in this area of London.¹¹⁰ Over the course of the next years he had elaborate plans drawn up for a huge set of buildings by the German architect Gottfried Semper, who

¹⁰⁷ On the Centennial see for instance: Giberti, *Designing the Centennial: a History of the 1876 International Exhibition in Philadelphia*. This book also contains brief summaries of the other fairs mentioned: Ibid., 7–15.

¹⁰⁸ For 19th century industrial trade fairs held in the Netherlands before and after the Great Exhibition see: Titus M. Eliëns, *Kunst, nijverheid, kunstnijverheid: de nationale nijverheidstentoonstellingen als spiegel van de Nederlandse kunstnijverheid in de negentiende eeuw* (Zutphen: Walburg Pers, 1990). On the *Paleis* see: Emile Wennekes, *Het Paleis voor Volksvlijt (1864-1929): “Edele uiting eener stoute gedachte!”* (Den Haag: Sdu, 1999).

¹⁰⁹ Krzysztof Pomian, “The South Kensington Museum: A Turning Point,” in *Art and Design for All: The Victoria and Albert Museum* (London: V&A Publishing, 2011), 41.

¹¹⁰ Bryant, “‘Albertopolis’: The German Sources of the Victoria and Albert Museum,” 25–27.

had seen himself forced to flee the German town of Dresden following his support for the Democratic uprisings there in 1849. Albert's scheme proved to be too ambitious – it was mockingly referred to as “Albertopolis” by his detractors – but did yield the South Kensington Museum. This museum of the applied arts was a major achievement in and of itself. It first opened to the public in 1857 and was housed in the so-called “Brompton Boilers”. Although the building itself heralded what was to come – it was the first permanent exhibition hall to sport gas lighting, enabling longer opening hours and was also the first museum to include a restaurant¹¹¹ – it proved to be only temporary, with construction immediately commencing on the more imperial building that houses the Victoria & Albert Museum to this day and which was completed in 1909.¹¹²

The museum's initiators – Albert entrusted Henry Cole (later Sir Henry Cole) with overseeing the implementation of his plans – were hoping for it to operate on a number of levels. Early on Albert for instance emphasised that any cultural centre in South Kensington should underscore cooperation and peace amongst the nations of the world.¹¹³ On a more palpable level, the aim of the South Kensington Museum as it was opened in 1857 was to provide craftsmen with examples of good design – both technical and aesthetic – in order to provide them with inspiration for their own work. In the long term this was to yield some economic benefit by ensuring British industrial products remained competitive.¹¹⁴

3. The Public Museum in Support of Public Mores

Perhaps most importantly, though, the museum was also supposed to instil visitors with moral values. Cole for one explicitly stated as much, taking the view that a visit to a museum was far preferable to a visit to the pub. In 1875 for instance he adopted an almost missionary tone, saying:

“[O]pen all museums of Science and Art after the hours of divine service; let the working man get his refreshment there in company with his wife and children, rather than leave him to booze away from them in the Public House and Gin Palace. The Museum will certainly lead him to wisdom and gentleness, and to Heaven, whilst the latter will lead him to brutality and perdition.”¹¹⁵

¹¹¹ Pomian, “The South Kensington Museum: A Turning Point,” 42.

¹¹² Bryant, ““Albertopolis”: The German Sources of the Victoria and Albert Museum,” 34–35.

¹¹³ *Ibid.*, 26–27.

¹¹⁴ Edward P. Alexander, *Museum Masters: Their Museums and Their Influence* (Nashville: American Association for State and Local History, 1983), 158.

¹¹⁵ As quoted in: Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London; New York: Routledge, 1995), 21. Parts of this specific speech of Cole's are also quoted and contextualised in: Andrew McClellan, “A Brief History of the Art Museum Public,” in *Art and Its Publics: Museum Studies at the Millennium*, ed. Andrew McClellan (Malden: Blackwell, 2003), 10.

What's more, Cole was not just a lone eccentric in this respect. Similar views were vociferously put forward by contemporaries of his such as the writer and critic Matthew Arnold or the art critic John Ruskin.¹¹⁶

It is also worth pausing to realise that a museum's message for its visitors did not necessarily have to be all too explicit. While Cole for one was obviously perfectly open about this, it is unlikely that most of the visitors he was aiming for would have been aware of these moral overtones to the South Kensington Museum. Bearing this in mind, it is all the more striking how behavioural patterns that first arose at temporary art exhibitions (in the way described above) were soon adopted at museums in general and eventually even encouraged. It is significant that Ruskin and Arnold were literary or art critics, i.e. defined themselves through the genre that had arisen simultaneously – and not coincidentally – with the codes of conduct that were to be adhered to during a visit to an exhibition, as illustrated in the previous section.

In addition to this it also does not seem coincidental that the 19th century – particularly the later 19th century – saw the emergence of a specific set of architectural styles which gradually made museums instantly recognisable. The design of newly constructed museums was usually reminiscent of what were considered pinnacle achievements of past cultures – constructions echoing the temples of antiquity or fashioned in a neo-Gothic style spring to mind.¹¹⁷ More importantly, though, these buildings suggested and encouraged a certain type of behaviour – running, talking loudly, or touching the items on display for instance was all not desirable.

One can easily take this one step further and define the museums that sprang up all over Europe during the second half of the 19th century as nothing other than lessons in “civility” – i.e. good behaviour in the public domain – paid for and encouraged by those who shaped and ran these institutions.

It is important to keep in mind however that this, too, is a generalisation. What's more, most studies on the history of collections that couch developments in these terms have inevitably focused on the designers of exhibitions, rather than the visitors.¹¹⁸ Even if there is no denying the fact that Cole and others touted the idea of museums as tools of cultural engineering, the verdict is still out as to how effective their efforts were. Furthermore, all evidence seems to suggest that this notion of a museum as an educational tool only caught on in the Netherlands a lot later than it did in other countries.¹¹⁹ However, that does not mean that these undeniable developments weren't at least noticed in the Netherlands too and helped bring about the

¹¹⁶ See for example: McClellan, “A Brief History of the Art Museum Public,” 7–16.

¹¹⁷ For an analysis of the architectural principles underlying the design of newly constructed museums as well as contemporary discussions surrounding the choice of particular designs, see for instance: Carla Yanni, *Nature's Museums: Victorian Science and the Architecture of Display* (New York: Princeton Architectural Press, 2005); Sophie Forgan, “Building the Museum: Knowledge, Conflict, and the Power of Place,” *Isis* 96, no. 4 (2005): 572–585; Bennett, *The Birth of the Museum: History, Theory, Politics*, 48–58.

¹¹⁸ This has a lot to do with the fact that the primary sources that would allow one to conduct any meaningful survey of the effect exhibitions had on visitors are only now starting to become available for systematic analysis through digitization. Tony Bennett was already listed as an example of an author who saw himself forced to focus on the makers of exhibitions in the introductory section to this study.

¹¹⁹ Tibbe and Weiss, *Druk beken: collecties en hun publiek in de 19e eeuw*, 3:191–192.

gradual shift in connotations the word “museum” carried. The Dutch situation will be addressed in a little more detail in section IV of this chapter.

4. Prince Albert and the History of Art

As for Great Britain, Prince Albert’s efforts were one of the main factors ensuring that “the focus of museum innovation, which had been centred in France since the 1790s, was now shifting to Great Britain, Germany and Scandinavia, with America close behind”.¹²⁰ Indeed, he was involved in far more projects than the Great Exhibition and the South Kensington Museum. He took a great interest in the future of the National Gallery, for instance, proposing that it be moved to South Kensington when the question of whether new premises were to be built was being debated. Here, too, his German background is discernible: it has been pointed out that the whole idea of a “cultural centre” reflects Wilhelm von Humboldt’s “more integrated, comprehensive approach to universal education” in that the conglomeration of scholarly institutions prevented academics working as recluses.¹²¹ What’s more, one can say that “[t]he German concept of a ‘cultural centre’ for the public, in contrast to Paris’s preference for distributing its great public institutions, was due to the smaller regional territories of sovereign rule in Germany before the foundation of the Kaiserreich in 1871”.¹²²

In the case of the National Gallery, Albert’s involvement was ultimately unsuccessful – it remained at Trafalgar Square. But he was able to exert far greater influence on two other projects that are of great importance both to art history and the history of exhibitions.

The first of these is the exhibition *Art Treasures of the United Kingdom* which was held in Manchester in 1857.¹²³ It could be seen as the fine art-equivalent to the Great Exhibition. It was held in a similar type of industrial-style exhibition hall, expressly constructed for the purpose of the exhibition. The initiative for this project had originally been taken by a group of Manchester manufacturers and businessmen, who were hoping to enhance their city’s image by associating it with some of the masterpieces fine art had produced over the past centuries. (This is also yet another indication of how art exhibitions had acquired an aura of cultured exclusivity.) They sought Prince Albert’s support, well aware that this would help persuade other members of the nobility with an art collection to loan the organisers of the Manchester exhibition some of their works of art. Prince Albert, interestingly enough, then insisted that the exhibition should serve more than “the gratification of public curiosity, and the giving of intellectual entertainment to the dense population of a particular locality [Manchester]”. Rather, he suggested (read: insisted) that “national usefulness might [...] be found in the educational direction which may be given to the whole scheme”. He was even

¹²⁰ Pomian, “The South Kensington Museum: A Turning Point,” 41.

¹²¹ Bryant, “‘Albertopolis’: The German Sources of the Victoria and Albert Museum,” 28.

¹²² Ibid.

¹²³ On this exhibition see: Francis Haskell, *The Ephemeral Museum: Old Master Paintings and the Rise of the Art Exhibition* (New Haven; London: Yale University Press, 2000), 82–89.

more specific, pointing out: “If the collection you propose to form were made to illustrate the history of Art in a chronological and systematic arrangement, it would speak powerfully to the public mind”.¹²⁴

This goes to show how Albert was well aware of the latest developments in art history. A chronological hanging had first been introduced at the Belvedere in Vienna at the end of the 18th century, but was by no means usual by the second half of the 19th century.¹²⁵ Although it was more recently being espoused by Albert’s former compatriot, Gustav Waagen, the director of the Berlin picture gallery. It was Waagen – perhaps not coincidentally – who had also exerted some influence over the presentation of British collections through the publication of his thoughts on the National Gallery during the period of its reorganisation in the early 1850s and who had compiled a three-volume book “Treasures of Art in Great Britain” which had in turn incited the Manchester businessmen to organise “their” exhibition.¹²⁶

Albert’s suggestions were followed up and – whether this had anything to do with it or not – the exhibition was a major success, with many (later) celebrities such as Karl Marx, Charles Dickens, Florence Nightingale and even the Queen of The Netherlands attending.¹²⁷ More exhibitions devoted to Old Masters were organised in its wake – before the Manchester show, the word “exhibition” had apparently been associated primarily with the display of paintings by contemporary artists.¹²⁸ Finally, what is once again striking is the confluence of British and German traditions. It has even been said that the Manchester exhibition “was a German exhibition”, in that “it set out to challenge many of the principles that had governed the fashionable exhibitions organised over the previous forty years by the British Institution and its galleries in Pall Mall”.¹²⁹

The second example of Prince Albert’s importance for the discipline of art history is his idea to compile a collection of copies of all works of Raphael. He came up with the idea in late 1852, having decided that the collections at the Royal Library at Windsor Castle – which included far more works by Old Masters apart from some by Raphael, such as a large number of works by Michelangelo – required thorough reordering so as “to afford increased facility of reference to these various valuable art treasures, and thus to render them available for a thorough and critical illustration of the history of painting”.¹³⁰ The idea was to start by focusing on one Old Master, and “the Prince chose that master for who he has always

¹²⁴ As quoted in: Ibid., 84.

¹²⁵ On developments in Vienna in the late 18th century see: Debora J. Meijers, *Kunst als Natur: Die Habsburger Gemäldegalerie in Wien um 1780* (Wien: Kunsthistorisches Museum Wien, 1995). On later trends concerning the design of art exhibitions see: Charlotte Klonk, *Spaces of Experience: Art Gallery Interiors from 1800 to 2000* (New Haven; London: Yale University Press, 2009).

¹²⁶ Christopher Whitehead, *The Public Art Museum in Nineteenth Century Britain: The Development of the National Gallery* (Aldershot: Ashgate, 2005), 17–20; Haskell, *The Ephemeral Museum: Old Master Paintings and the Rise of the Art Exhibition*, 83.

¹²⁷ Haskell, *The Ephemeral Museum: Old Master Paintings and the Rise of the Art Exhibition*, 88.

¹²⁸ Ibid.

¹²⁹ Ibid., 83.

¹³⁰ Carl Ruland, *The Works of Raphael Santi Da Urbino as Represented in The Raphael Collection in the Royal Library at Windsor Castle, Formed by H.R.H. The Prince Consort, 1853-1861 and Completed by Her Majesty Queen Victoria, 1876*, viii.

entertained the strongest predilection”, as was later explained.¹³¹ In February 1853 Albert’s librarian, Carl Ruland, began to acquire whatever engravings, lithographs or photographs of works by Raphael were available. This task was greatly facilitated by the fact that a complete catalogue of Raphael’s oeuvre had recently been compiled by Johann David Passavant.

Soon, however, Ruland saw himself confronted with the problem that, in the case of many of Raphael’s works, copies had never been made. As he later remembered, “[i]n these instances the newly-invented art of photography was resorted to”.¹³² Indeed, what was considered to be the first photographic image depicting some level of detail had only been taken in 1838 by Louis Daguerre. Using Albert’s influence, photographers were subsequently dispatched across the Continent to take photographs of Raphael’s works. The task proved Herculean, and a catalogue was only published two years after Albert’s untimely demise, in 1863.

5. London Calling Haarlem

Aside from the fact that this was “one of the first attempts to build up a complete collection of illustrations of the works of a single artist”¹³³, it is this compilation of copies of all of Raphael’s works that can serve to illustrate how the ripples caused by the flurry of activity unleashed by Albert in London eventually reached Teylers Museum in Haarlem.

As was already mentioned in the previous chapter, Teylers Museum’s art collection contained drawings by Raphael, acquired as part of Christina of Sweden’s collection in 1790. They had not been forgotten by Passavant and therefore did not go unnoticed by Ruland either. In July 1859 the Dutch King’s Commissioner for the province of North Holland approached the trustees of the Teyler Foundation, passing on a request from Albert “to obtain, for the benefit of H.R.H., photographs of drawings by Raphael that are in the art collection of T.F. [the Teyler Foundation]”, as the minutes of the trustees’ meetings read.¹³⁴ The trustees promptly replied that they were “most pleased” to do this, although they did ask that the photographs be taken “under the supervision of the custodian of Teylers Art Collection in the building of T.F.”¹³⁵

Interestingly enough, the Commissioner soon added a request of his own: in September he enquired whether it would be possible that the “photographic depictions [...] were made

¹³¹ E. Becker and C. Ruland, “The ‘Raphael Collection’ of H.R.H. The Prince Consort,” *The Fine Arts Quarterly Review* 1 (1863): 28.

¹³² *Ibid.*, 29.

¹³³ Jennifer Montagu, “The ‘Ruland/Raphael Collection’,” in *Art History through the Camera’s Lens*, ed. Helene E. Roberts (Australia: Gordon and Breach, 1995), 37.

¹³⁴ “om ten behoeve van Z.K.H. photographien te erlangen van teekeningen van Raphaël, die zich in de kunstverzameling van T.St. bevinden”; “Directienotulen”, 08.07.1859, Haarlem, ATS, vol. 9.

¹³⁵ “gaarne bereid”; “onder toezigt van den bewaarder van Teijlers Kunstverzameling in het gebouw van T.St.”; *Ibid.*

public by the photographer".¹³⁶ No explanation as to what exactly was meant by "making them public" was added to the minutes of the meeting at which the trustees discussed this – they only reveal that the trustees agreed to the Commissioner's proposal. Maybe he was thinking of an exhibition, or a publication. The fact that the trustees did agree was not self-evident. Many other owners of works by Raphael who had been approached by Ruland or Albert were far more restrictive, sometimes demanding that they could keep the negatives of the photographs taken, or explicitly demanding that impressions of the negatives should not be sold.¹³⁷ This is an interesting example of how the advent of photography brought about a recalibration of the status of "original" works of art with regard to their reproducibility. In an article describing the efforts he had undertaken, which was published after the completion of the catalogue, Ruland included a list of the many institutions that had allowed photographs to be taken of the works in their possession and marked those from which copies could be obtained with an asterisk. Strangely enough the Teyler Foundation is listed as having allowed photographs of "about 25" drawings to be taken, but there is no asterisk beside their entry.¹³⁸ Perhaps the Commissioner had dropped the entire idea by the time the photographs were actually taken, because this appears to have taken some time. In fact it is only in August 1861 that one finds the following passage in the minutes of a meeting of the trustees:

"From Mr C. Ruland, private secretary of H.R.H. the Prince Consort of England, two Series of photographs of drawings by Raphael present in Teylers Museum have been received, with an attendant letter missive, in which on behalf of the Prince gratitude is expressed to the Trustees for the permission to have photographs made of those drawings, & also [unreadable] the particular satisfaction of the Prince about the way these photographs have been produced by Mr Tinker [name unreadable], a local photographer."¹³⁹

The trustees duly sent a reply thanking Ruland two weeks later. And whether impressions of the photographs were "made public" or not, the entire episode does demonstrate how, on the one hand, Teylers Museum, too, was directly affected by what was happening in London and, on the other hand, how Teylers Museum's collection of fine art was considered to be of international importance. And it is yet another indication that in the Netherlands as well, attitudes towards the public had changed in so far that it was not considered out of the ordinary for a King's Commissioner to try and let the public share in the fruits of technological advance that had made possible the reproduction of some masterpieces of fine art, by enquiring whether the photographer could make these images public – whatever that meant, exactly. So, having obtained an impression of what was going on in Great Britain, it is

¹³⁶ "photografische afbeeldsels [...] door den fotografist publiek worden gemaakt"; "Directienotulen, 23.09.1859, Haarlem, ATS, vol. 9.

¹³⁷ Montagu, "The 'Ruland/Raphael Collection'," 38–40.

¹³⁸ Becker and Ruland, "The 'Raphael Collection' of H.R.H. The Prince Consort," 32.

¹³⁹ "Van den Heer C. Ruland, particulieren Secretaris van Z.K.H. den Prinsgemaal van Engeland, zijn ontvangen twee Serien van photographien van in Teylers Museum aanwezige teekeningen van Raphaël, met eene geleidende missive, waarin namens den Prins aan Directeuren dank betuigd wordt voor de verleende vergunning om photographien van die teekeningen te laten maken, & tevens [unreadable] de bijzondere tevredenheid van den Prins over de wijze waarop die photographien door den Heer Tinker [unreadable] fotograaf alhier, vervaardigd zijn." "Directienotulen", 02.08.1861, Haarlem, ATS, vol. 9.

time to take a closer look at what role museums were ascribed in the Netherlands halfway through the 19th century.

IV. Jacob Gijsbertus Samuël van Breda at Teylers Museum

1. Mid-Century Dutch Liberalism

From what was described in the previous section it clearly transpires that the connotations the term “museum” carried were changing profoundly around the middle of the 19th century and that the effects of this were reflected by events in the Netherlands on a number of levels. It is important to have at least an inkling of what huge shifts were taking place even before the last quarter of the 19th century in order to be able to contextualise what was happening at Teylers Museum in Haarlem. However, as was already suggested above, one also needs to realise that a profound impact resulting from what was happening in countries such as Great Britain and Germany with regard to the public display of collections was only really felt towards the end of the 19th century in the Netherlands. Despite such obvious connections with international developments like the *Paleis van Volksvlijt* in Amsterdam or the photographs taken of Raphael’s drawings at Teylers upon Prince Albert’s request, the direct effect of all these developments was initially more tangential in nature – certainly in Haarlem. The kind of cultural ideal espoused by Prince Albert and others did not catch on in the Netherlands until the final quarter of the 19th century.

There are two main reasons that there is no sign of the changes taking place elsewhere immediately being embraced in Haarlem or, for that matter, in the rest of the Netherlands. The first of these is the strictly liberal approach of successive Dutch governments in all matters pertaining to cultural policy. Their attitude inevitably played a significant part in setting the boundaries within which the role of museums in Dutch society – including Teylers Museum – was determined. The second reason is more directly relevant to the situation at Teylers Museum: van Marum’s successor and van der Willigen’s predecessor, Jacob Gijsbertus Samuël van Breda, proved not to be open to the kind of innovation taking place in Great Britain and other surrounding countries. He had something of a patrician attitude concerning his role at the museum and adopted more of an “old school” approach as to what public role the collections under his purview were to fulfil. Although van Breda expanded the collections and used his considerable reputation and clout to ensure they remained of a high quality, the overall role they fulfilled was still much the same when van Breda left as it had been when van Marum passed away.

Both points deserve more scrutiny. Let us start with the first. Without exaggerating much, the Dutch government’s policy with regard to museums up until the 1870s can be easily summarised: it essentially rejected all calls for it to get involved in any significant way, no

matter who was in charge of government as first minister. A good example is provided by the state's art collections, distributed across three venues: paintings and other works of art were on display in Amsterdam at the Trippenhuys, in Haarlem at Paviljoen Welgelegen, and in The Hague at the Royal Cabinet of Paintings (*Koninklijk Kabinet van Schilderijen*). The core of the collections in Amsterdam and The Hague was formed by former Royal collections, and many of the paintings on display in The Hague had in fact already been accessible to the general public at the so-called Prince William Gallery (*Galerij van Prins Willem V op de Buitenhof*) even before the French Revolution.¹⁴⁰ However, after 1832, up until the 1870s, practically not a penny was spent on any new acquisitions to expand or update these collections, let alone any kind of new premises in which they could be displayed.¹⁴¹ There was, therefore, no leeway for any sort of transformation of these museums into educational institutions even if that had been deemed desirable. They essentially retained the same guise which they had been given shortly after their establishment in the aftermath of the Restoration period.

Again, there were two main reasons for this pertinent lack of funding for state museums: the first was that there really simply was no money to go around. The Belgian secession of 1830 and King William I's subsequent denial of that fact that his kingdom had been diminished left the state coffers bare – all the more so because the King had taken the fateful decision of focusing on what now became Belgium in his efforts to stimulate the transformation of his kingdom's economy from a predominantly agrarian to an industrialised one; put differently, around the middle of the 19th century the Netherlands were a backwater of industrialisation.¹⁴² The second reason was the long tradition of decentralised governance in the Netherlands, as described in the first chapter of this study. This in turn meant that any form of policy that was perceived to originate from The Hague was eyed a lot more critically and was therefore also far more difficult to implement than any similar form of policy might have been in, say, France if it was authored in Paris. A good case in point are the Dutch King William I's attempts at emphasising a sense of national pride by, for example, founding all sorts of institutions such as national museums. This reflected his desire to build a strong Dutch monarchy on par with other monarchies in Europe. Yet the end result shows the whole futility of his activities: he ended up leaving his son, King William II, with a diminished and financially decrepit kingdom and William II was only narrowly able to avert the state's complete insolvency through a number of radical measures implemented in 1843 and 1844.¹⁴³ And as for the national museums, it has already been recounted how at least two of these, the National Museum of Natural History and the *Rijksmuseum* in Amsterdam, clearly belied their origins as a private collection and a municipal collection respectively. They were nowhere near as glamorous as their counterparts in other nations. What's more, the idea that

¹⁴⁰ For an overview of the history of these collections, their display and the way they were related to each other see: Theodor H. Lunsingh Scheurleer et al., *150 jaar Koninklijk kabinet van schilderijen, Koninklijke Bibliotheek, Koninklijk Penningkabinet* (The Hague: Staatsuitgeverij, 1967); Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 49–70.

¹⁴¹ Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 53 & 56.

¹⁴² For a summary of events during this period of Dutch history see for instance: Michael North, *Geschichte der Niederlande* (München: Beck, 1997), 80–93.

¹⁴³ R.A.M. Aerts et al., *Land van kleine gebaren: een politieke geschiedenis van Nederland 1780-1990* (Nijmegen: SUN, 2010), 93.

any central government's role needed to be minimised was seemingly perpetuated in the new Dutch constitution as it was drawn up in 1848, with its strong liberal overtones. In fact, without wanting to caricaturise this complex character, radical liberalism was pretty much epitomised by the principal architect of the new constitution, Rudolf Thorbecke. His own political views, in turn, were discernible in his attitude towards museums. As a young professor in Leiden, for instance, he once left no doubt about the fact that he was not an avid fan of his University's Archaeological Cabinet – the later National Museum of Antiquities. He disparagingly referred to the collection as “dolls and sarcophagi”, and stated that he would see them moved to another town “without shedding a tear”.¹⁴⁴

2. Some Critics of Official Dutch Museum Policy

Yet the fact that cultural ideals such as those espoused by Prince Albert did not prevail in the Netherlands and the fact that the state only got involved in cultural matters in any meaningful way after the 1870s does not mean that the role of museums was not critically debated, or the government's liberal stance in cultural matters was never criticised. On the contrary, over the years there were a number of high-profile attempts at stimulating Dutch culture through public, state-funded museums – except that, ultimately, they were all futile.

Take Caspar Reuvers for instance, the first director of the Cabinet of Antiquities in Leiden. He had spent part of his youth in Paris.¹⁴⁵ (Incidentally, upon returning to the Netherlands in 1814 he spent some time with his uncle Jean Henri van Swinden, along with van Marum one of the most prominent Dutch physicists of his generation.¹⁴⁶) The talented and prolific Reuvers was later appointed the first professor of archaeology at the University of Leiden and simultaneously entrusted with the care of the newly created Cabinet.¹⁴⁷ It soon transpired that he had far-reaching plans for this institution. His aim was to create a collection that would rival those in other major European cities. As much can be inferred from his correspondence with officials in The Hague, in which at one point he insisted that “his” Cabinet's purpose be clearly defined.¹⁴⁸ This in itself is of course a clear indication that the purpose and public role

¹⁴⁴ “poppen en sarkophagen”; “zonder een traan te storten”; as quoted in: Chris Sol, “Mummies op de Schopstoel,” *Leids Jaarboekje* 90 (1998): 101. The quote is taken from a report written in 1834. Interestingly, Sol also points out that Thorbecke later vociferously – and perhaps ambivalently – demanded that someone with proper scientific credentials should be placed in charge of the Archaeological Cabinet. I am grateful to Pieter ter Keurs for drawing my attention to the article by Sol.

¹⁴⁵ On Reuvers' early biography see for instance: 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), 21–30; Mirjam Hooijink, “Caspar J.C. Reuvers en de Musea van Oudheden in Europa (1800-1840)” (PhD-thesis, Universiteit van Amsterdam, 2009), 1–40.

¹⁴⁶ Hooijink, “Caspar J.C. Reuvers en de Musea van Oudheden in Europa (1800-1840),” 8.

¹⁴⁷ On this see for example: Mirjam Hooijink, “Een Rijksmuseum in wording: Het Archaeologisch Cabinet in Leiden onder het directoraat van Caspar Reuvers (1818-1835),” in *Het Museale Vaderland*, ed. Ellinoor Bergvelt and Lieske Tibbe, vol. 4, *De Negentiende Eeuw 27* (Rotterdam: Werkgroep 19de eeuw, 2003), 227.

¹⁴⁸ Halbertsma, *Scholars, Travellers, and Trade: The Pioneer Years of the National Museum of Antiquities in Leiden, 1818-1840*, 34–43.

of collections was being debated at a high, ministerial level. In fact Reuvers developed detailed plans for a “Museum of Antiquities” at the end of the 1820s, with plans for a whole new building in neo-classical style already being drawn up – even the Royal architect Tieleman Franciscus Suys was involved upon the minister of education’s request.¹⁴⁹ According to Reuvers’ plans, this Museum was not just to serve scholars of antiquities, but open every day of the week for better accessibility.¹⁵⁰ But alas for Reuvers, despite the fact that he enjoyed the King’s support – the monarch had acknowledged the need for a new museum building, to be built either in Leiden or in Brussels in May 1830 – his plans never materialised.¹⁵¹ They were essentially thwarted once the Belgians declared their independence in October 1830. The economy was already in the doldrums and the King and his government were preoccupied with other matters. Reuvers died just five years later, suddenly and unexpectedly at the young age of 42.

Another example of the role of museums being critically debated is provided by a public lecture delivered in 1840 by the writer Johannes Bosscha sr. – incidentally and yet intriguingly he was the father of van der Willigen’s acolyte Johannes Bosscha jr. – which he gave as president of the Holland Society for Liberal Arts and Sciences (*Hollandsche Maatschappij van fraaie kunsten en wetenschappen*, not to be confused with the *Hollandsche Maatschappij der Wetenschappen* or Holland Society in Haarlem that has been mentioned frequently before). According to the author of Bosscha’s obituary, the Society’s board of trustees subsequently saw to it that “this important piece directly [be] made available separately, in the hope that this would ‘promote the flourishing of the arts and sciences in the Netherlands’”.¹⁵² It was published under the revealing title “Address, containing an attempt at answering the question: what obligations do governments have with regard to the arts and sciences?” Crucially, it contained the following passage – as summarised in Bosscha’s obituary – which is worth quoting at some length to understand the context within which the crucial last sentence was uttered:

“There is in Man an irresistible need to increase his vital sensations. When he doesn’t feel alive, he looks for stimuli to rouse himself and to feel that he is alive. Therefore people should be given nobler stimuli than those which, driven by a need inherent in man’s nature, they seek in liquor. To cultivate a sense of elegance, beauty and euphony among people, to make them susceptible to enjoyment of art and to provide them with the means to taste this pleasure – this will, although slowly, but in the long run more effectively, be more successful against alcohol abuse than prohibition or excise duty. Our era finds little pleasure in what does not speedily

¹⁴⁹ On these plans see: Hoijtink, “Een Rijksmuseum in wording: Het Archaeologisch Cabinet in Leiden onder het directoraat van Caspar Reuvers (1818-1835)”; Hoijtink, “Caspar J.C. Reuvers en de Musea van Oudheden in Europa (1800-1840),” 145–147. On a drawing of the museum as Reuvers imagined it in 1826 he wrote “Voorlopige Schets van een Museum van Oudheden”. On this see: Hoijtink, “Een Rijksmuseum in wording: Het Archaeologisch Cabinet in Leiden onder het directoraat van Caspar Reuvers (1818-1835),” 232.

¹⁵⁰ Hoijtink, “Caspar J.C. Reuvers en de Musea van Oudheden in Europa (1800-1840),” 143.

¹⁵¹ On the King’s support see: Ibid., 145.

¹⁵² “dit belangrijk stuk onverwijld afzonderlijk verkrijgbaar gesteld [werd], in de hoop dat daardoor ‘de bloei van kunsten en wetenschappen in Nederland zou bevorderd worden’”; “Redevoering, bevattende een proeve van beantwoording der vraag: welke verplichting rust er op de regeringen ten aanzien van kunsten en wetenschappen?”; Arnold Ising, “Johannes Bosscha,” vol. 5, *Mannen van Beteekenis* (Haarlem: Kruseman & Tjeenk Willink, 1875), 362.

achieve results; but governments, whose task is not confined to one human lifetime, should place a proper appreciation of the long-lasting interests of the people without being carried away by quick results. Our Museums should therefore not just be considered as luxury items, and our public colleges for prospective artists should not be treated as if they were only a means to provide part of the nation with a decent income.”¹⁵³

This proposal to establish museums as a good alternative to the escapism offered by liquor is all the more remarkable in that it was put forward many years before Henry Cole expressed the same sentiments.

A third example is provided by an article published in 1844 by Johannes Potgieter, the founder of the hugely popular and influential journal *De Gids*, on the hanging of paintings at the Rijksmuseum in Amsterdam, i.e. at the Trippenhuis. Invoking memories of a time when “the Dutch flag was greeted as the mistress of the sea” and the Netherlands had been a major political power, Potgieter lamented how the museum did not serve to underscore any sense of national pride.¹⁵⁴ In his opinion, focusing on depictions of historical events and hanging them in a chronological order in a manner that did their glorious depictions justice, would go a long way towards cultivating an appropriate sense of nationhood amongst Dutch citizens. Needless to say, his suggestions fell on deaf ears at the Rijksmuseum itself.¹⁵⁵

A final example of a discussion about the public role of museums involved the Rijksmuseum’s collections as well: in 1862 a group of artists and other connoisseurs of the arts took on the task of lending a little more urgency to the idea of constructing a new building for the nation’s paintings, as the Trippenhuis was increasingly perceived to be inadequate.¹⁵⁶ The new museum should act as a memorial as well, celebrating 50 years of Dutch monarchy in 1863. It was therefore to carry the name “Museum Koning Willem I”, in honour of the first Dutch King. A competition was held in 1863 and 21 architects submitted proposals. The Germans Ludwig and Emil Lange from Munich, who had already designed the museum of fine arts in Leipzig, won first prize. Pierre Cuypers came second. Again, however, these plans never materialised; yet, in this case, many of the members that formed the commission for the proposed new museum were later intimately involved in drawing up plans

¹⁵³ “[E]r is in den Mensch een onweersaanbare behoefte naar verhooging zijner levensgewaarwordingen. Wanneer hij zich niet leven voelt, zoekt hij naar prikkels om zich op te wekken en zich te voelen leven. Men geve dus aan het volk edeler prikkels dan die welke het, gedreven door een behoefte in het wezen van den mensch gelegen, in sterken drank zoekt. Gevoel voor welstand, schoonheid en welluidendheid bij het volk aan te kweeken, het vatbaar te maken voor kunstgenot en het de middelen te verschaffen om dit genot te smaken – dat zal, wel langzaam, maar op den duur beter dan verbods- en belastingwetten tegen het misbruik van sterken drank werken. Onze tijd schept wel geen behagen in hetgeen niet met spoed tot eene uitkomst leidt; doch de regeeringen, wier werkkring zich niet tot één menschenleeftijd bepaalt, behooren een juiste waardeering van de duurzame belangen des volks te stellen boven het wegsleepende van snelle resultaten. Men beschouwe dan onze Musea niet alleen als voorwerpen van louter welde, en behandelde onze openbare kweekscholen voor toekomstige kunstenaars niet alsof zij enkel middelen waren om aan een gedeelte der natie een eerlijk bestaan te verschaffen.” Ibid., 364.

¹⁵⁴ “de hollandsche vlag werd begroet als de meesteres der zee”; Everhardus Johannes Potgieter, “Het Rijks-Museum te Amsterdam,” in *De werken van E.J. Potgieter*, ed. Johan C. Zimmerman, vol. 2 (Haarlem: H.D. Tjeenk Willink & Zoon, 1903), 100.

¹⁵⁵ Ellinoor Bergvelt, *Pantheon der Gouden Eeuw: van Nationale Konst-Gallerij tot Rijksmuseum van Schilderijen (1798-1896)* (Zwolle: Waanders, 1998), 154–158.

¹⁵⁶ On this project see: Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 53–55.

for the new Rijksmuseum building as it was completed in 1885 – according to a design by Cuypers. In this sense at least, the commission’s work had not been futile.

3. Jacob Gijsbertus Samuël van Breda

Having illustrated how, on the one hand, there were debates on the public role of museums in the Netherlands and how, on the other hand, the Dutch government resisted all calls to get involved more deeply in cultural matters up until the 1870s, it is time to turn to the second, more immediately relevant reason that Teylers Museum – or more precisely the public role of its scientific collections – underwent very little change until after the arrival of van der Willigen in Haarlem. As was already noted above, this had everything to do with van der Willigen’s predecessor, van Breda.

More to the point, van Breda’s whole demeanour stood for a very traditional way of defining the overall value of the production and consumption of knowledge and therefore also his own role as a “scientist”. This was reflected in the way he handled the collections he was entrusted with at Teylers.

In this sense – as arguably in many others – van Breda was a worthy successor to van Marum. The two could be described as kindred spirits. Indeed, they had been friends during van Marum’s lifetime. A rare case of van Breda expressing his feelings in an almost melancholy manner shortly after the death of his first wife in 1834 can be found in a letter of his to van Marum.¹⁵⁷ Incidentally, she had been a granddaughter of van Marum’s mentor Petrus Camper.¹⁵⁸

But van Breda and van Marum had a lot to talk about anyway. Both were trained as doctors – van Breda attended university in Leiden – but displayed an even keener interest in the natural sciences. Van Breda was in contact with many of the same researchers van Marum had known before him. Shortly before completing his studies in 1811 for instance, van Breda went on a journey through Germany, visiting many prominent scientific collections and researchers, such as Blumenbach.¹⁵⁹ In 1812 he and two of his friends spent many months in Paris (they may have remained there until 1813), watching and learning from great names such as Thouin or Cuvier. The latter they sought out shortly after arriving in the French capital and van Breda’s diary reveals how they found the eminent researcher “in a filthy short coat engaged in the dissection of a Lizard or a Crocodile”.¹⁶⁰ Recall that Cuvier had visited van Marum at

¹⁵⁷ A. S. H. Breure, “Biografie,” in *Leven en werken van J.G.S. van Breda (1788-1867)*, ed. A.S.H. Breure and J.G. de Bruijn (Haarlem: H.D. Tjeenk Willink, 1979), 15.

¹⁵⁸ *Ibid.*, 13.

¹⁵⁹ On a summary of these journeys see: 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), 59–75.

¹⁶⁰ “in een smerig jasje met de ontleding van een Hagedis of Crocodil bezig”; as quoted in: *Ibid.*, 67.

Teylers just two years earlier and they had discussed the classification of the mosasaur in the collection.

In 1816 Sebald Justinus Brugmans ensured that van Breda was appointed professor of botany, chemistry and pharmaceuticals at the Athenaeum in Franeker, about 80km west of Groningen. It was here that he got to know his first wife. They married in 1821, shortly before van Breda took up a more prestigious professorship in botany, zoology and comparative anatomy at the University of Ghent. In 1830, however, he saw himself forced to leave – almost flee – from the city following the Belgian secession. Along with many of his colleagues he found “refuge” as a professor by special appointment at his alma mater in Leiden. In 1835 he was appointed to the chair in geology and botany.

By this time he had established a reputation for himself as one of the finest minds in Dutch science, judging at least by the company he kept. He had been elected a member of the Royal Institute – the later Royal Academy – in 1827.¹⁶¹ A fellow professor of his in Ghent was Thorbecke, who saw himself forced to move to Leiden in 1830 too – not unlikely, this was a key event in the lawyer’s life that shaped his political outlook and his determination to push through reform in 1848. Either way, some degree of trust appears to have existed between van Breda and his colleague from the faculty of law, because when Thorbecke initiated a complete reorganisation of the Royal Institute in 1851 – in the process of which it was dissolved and re-established as the Royal Academy – van Breda was one of the two members who advised Thorbecke on how to revise the Academy’s structure.¹⁶² (The other was Gerrit Simons.)

By this time van Breda had taken on two other prestigious functions: he had not only succeeded van Marum as director of Teylers Museum in 1839 (after a lengthy squabble with the trustees on the exact terms of his contract and whether he was able to retain his chair in Leiden) but also as secretary of the Holland Society and director of its natural history cabinet.¹⁶³ Particularly his position as secretary would only have added extra clout to the advice he gave Thorbecke on the Royal Academy – much as van Marum’s advice had been sought by Louis Napoleon when he established the Royal Institute some decades before.

At the same time, however, by the middle of the 19th century van Breda’s star was beginning to wane. By the end of his career he was becoming something of an unloved dinosaur amongst Dutch scientists. Perhaps his behaviour as he got older had something to do with the fact that his life was marred by personal tragedy – his second wife died young, too, and four of his six children did not reach adulthood;¹⁶⁴ but two disputes at the Royal Academy go a long way towards explaining how van Breda lost much of his credibility and, perhaps even more importantly, his colleagues’ goodwill later in life.

¹⁶¹ Carel J. Matthes, “Levensbericht J.G.S. van Breda,” in *Jaarboek van de Koninklijke Akademie van Wetenschappen* (Amsterdam: C.G. van der Post, 1867), 29.

¹⁶² Berkel, *De Stem van de Wetenschap: Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen*, 1:285.

¹⁶³ For a contextualization and assessment of van Breda’s work at the Holland Society see: Bert Theunissen, “Wetenschapsbeelden en de Hollandsche Maatschappij,” in *Geleerden en leken: de wereld van de Hollandsche Maatschappij der Wetenschappen, 1840-1880* (Haarlem: Hollandsche Maatschappij der Wetenschappen, 2002), 33–46.

¹⁶⁴ Breure, “Biografie,” 14.

The origins of the first dispute lay in van Breda's appointment to a commission that was tasked with drawing up a geological map of the Netherlands.¹⁶⁵ The commission was appointed by Thorbecke in 1852 and consisted of three of the Netherlands' most eminent scientists: the botanist Friedrich Anton Wilhelm Miquel, van Breda's former student of geology Winand Carel Hugo Staring and van Breda himself. Despite a promising start, they had reached an impasse in 1855. After a bitter and nasty dispute in public and vitriolic discussions at the Royal Academy – van der Willigen attended a meeting as a new member for the first time at the height of the animosities – it was decided that the only solution was to disband the commission.¹⁶⁶ Staring subsequently finished the work on his own, to great acclaim. As for the root causes of this bitter dispute, it has been suggested that the members' differences related “to diverging views on the scientific status of geology, its aims and its methods”.¹⁶⁷

The second dispute started in 1856, when the members of the Academy were asked to decide what the best shape was to give a lightning conductor that was to be placed on the roof of a mental institution.¹⁶⁸ Van Breda, who had not been included in the team of Academy members who were to find a solution, assailed their proposal. Eventually, this scientific dispute descended into something of a farce, with other members – not unjustly – accusing van Breda of merely invoking the authority of foreign physicists to support his criticism. His criticism was ignored, the device that was eventually fitted to the roof of the institution worked perfectly and van Breda was humiliated.

Even at Teylers, van Breda eventually left his position in discord with the trustees. Van Breda left because of old age, but the discord came about after he had left, because the trustees began to suspect that he had appropriated items from the Foundation's collections. These, of course, were quite serious allegations. The jury is still out as to whether they rang true. All that is known is that when van Breda's successor Winkler went to inspect his predecessor and former boss's collection in 1867, he could not find the specimens that were missing at Teylers and were supposedly now being stored at van Breda's, so that certainly gives van Breda the benefit of the doubt.¹⁶⁹

If the trustees' suspicions were founded, it is almost bitterly ironic that van Breda's son subsequently tried to sell his father's geological collection to the Teyler Foundation after van

¹⁶⁵ On the commission, its work and the way it was disbanded see: Berkel, *De Stem van de Wetenschap: Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen*, 1:344–350; M. van den Bosch, “J.G.S. van Breda en de Commissie voor de Geologische Kaart 1852-1855,” in *Leven en werken van J.G.S. van Breda (1788-1867)*, ed. A.S.H. Breure and J.G. de Bruijn (Haarlem: H.D. Tjeenk Willink, 1979), 267–402; Patricia E. Faasse, “W.C.H. Staring's Geological Map of the Netherlands,” in *Dutch Pioneers of the Earth Sciences*, ed. Jacques L.R. Touret and Robert P.W. Visser, vol. 5, History of Science and Scholarship in the Netherlands (Amsterdam: KNAW, 2004), 129–138.

¹⁶⁶ For the final report on these altercations see: “Nota betreffende het Geologisch onderzoek van Nederland”, 1855, Haarlem, NHA, Archief KNAW, vol. 64, nr. 213, fol. 26. For van der Willigen's election see: “Notulen Afdeling Natuurkunde”, 29.03.1856, Haarlem, NHA, Archief KNAW, vol. 64, nr. 4, fol. 332.

¹⁶⁷ Faasse, “W.C.H. Staring's Geological Map of the Netherlands,” 130.

¹⁶⁸ On the details of this dispute and its effects see: Berkel, *De Stem van de Wetenschap: Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen*, 1:350–353.

¹⁶⁹ A.S.H. Breure, “J.G.S. van Breda als Paleontoloog, privé en in Teylers Museum,” in *Leven en werken van J.G.S. van Breda (1788-1867)*, ed. A.S.H. Breure and J.G. de Bruijn (Haarlem: H.D. Tjeenk Willink, 1979), 187.

Breda passed away in 1867. Because of the high asking price the trustees initially rejected the offer and most of the items ended up in the British Museum in London, although the Teyler Foundation did later purchase some of the specimens that were still available.¹⁷⁰

4. “La collection, c’est moi” (and maybe Logeman and Winkler)

The fact that these allegations could surface and van Breda could not refute them offhand is indicative of another matter: van Breda did not see any real necessity to define a clear boundary between the Foundation’s and his own, i.e. private, interests. He evidently did not feel he was fulfilling a job, but identified himself with the collection. One could perhaps caricaturise his attitude as “la collection, c’est moi”. This way of identifying oneself with a collection would not have been at all unusual in the 18th and even at the dawn of the 19th century. But as collections were increasingly seen to fulfil a public – educational and identity-forming – function and were thereby seen to serve a set of ideals that transcended the personal, van Breda’s attitude became increasingly out of date.

That van Breda made no distinction between his own interests and those of the Foundation is not to say that he did not care for the collection and the museum. On the contrary, he expanded them immensely and used his considerable intelligence and clout to their advantage, ensuring that they remained of high quality. It also doesn’t mean he did not render them accessible: In March 1852 for instance he asked for and was granted

“permission [...] to have access to the Museum & the Library of this Foundation, with four trainees of the R. Academy at Delft [...] to enable them to complete their studies, and to use the Great Hall with these young men during the winter period, and to have this hall heated, to enable them to see selected objects.”¹⁷¹

Van Breda also spent plenty of time on research of his own. He performed a series of physics experiments for instance and acquired the necessary equipment for this.¹⁷²

He conducted these experiments together with Willem Martinus Logeman. Logeman is a somewhat enigmatic yet in all likelihood highly underrated figure, both in the history of Teylers Museum and in the history of Dutch physics. He is remembered chiefly for his skills as an instrument maker and the strong magnets he produced together with N. van Wetteren;

¹⁷⁰ Ibid., 187–188. For the initial offer and the trustees’ refusal see: “Directienotulen”, 04.10.1867 & 18.10.1867, Haarlem ATS, vol. 9.

¹⁷¹ “toestemming [...] om met vier kweekelingen van de Kon. Akademie te Delft [...] den toegang te mogen hebben tot het Museum & de Bibliotheek dezer Stichting, tot voltooiing hunner studien, en gedurende dit winter getijde met die jongelieden, ter bezigtigin [sic] vande hun aantewijzen voorwerpen, gebruik te mogen maken van de Groote Zaal en dit vertrek alsdan te mogen laten verwarmen.” “Directienotulen”, 05.03.1852, Haarlem, ATS, vol. 9.

¹⁷² On these experiments see: H.A.M. Snelders, “De bijdragen van J.G.S. van Breda tot de Natuurkunde,” in *Leven en werken van J.G.S. van Breda (1788-1867)*, ed. A.S.H. Breure and J.G. de Bruijn (Haarlem: H.D. Tjeenk Willink, 1979), 91–131.

but not only his instruments, he himself was evidently also of incalculable value to research efforts like those of van Breda. In fact, for many years, he was an employee of the Teyler Foundation in all but name and “customarily submitted a monthly account for his time and expenses”.¹⁷³ Yet almost no documents that could shed some real light on this individual’s activities and his personality have been preserved.¹⁷⁴ What is known is that he taught mathematics and physics at various schools in Haarlem and went to great lengths to provide as many people as possible with access to scientific knowledge. He was a teacher at the local *Gymnasium* as from 1850 and later, after 1864, at the newly established HBS as well as at an evening school. He set up the association “Weten en Werken” in Haarlem, which had the aim of providing members of the working classes with possibilities to enhance their education. He also acted as the prime mover in the establishment of a number of popular science journals, the most prominent of which was a monthly publication with the title *Album der Natuur*. Logeman founded this together with Pieter Harting and Douwe Lubach.

Interestingly, he doesn’t appear to have worked for the Teyler Foundation anymore after van der Willigen was placed in charge of the instrument collection. In 1876, when van der Willigen had been elected a member of Haarlem’s town council, he appears to have voted against Logeman being appointed to a panel of experts who were supposed to advise the town’s gas board.¹⁷⁵ This might point towards some kind of animosity between the two men.

But let us return to van Breda. Just like van Marum, he was a polymath and while he was obviously well-versed in the physics of his day, his main interest appears to have been geology. A comparison of his overall expenditures during his tenure at Teylers with the costs incurred by van Marum as director of the museum reveals that van Breda spent roughly the same amount of money as his predecessor, but that in van Breda’s case the largest part of the money was spent on geological specimens.¹⁷⁶

Most of the items van Breda purchased came from quarries in Solnhofen in Southern Germany and Oeningen in Switzerland. He had established a close business relationship with the owner of the latter quarry, Leonhard Barth – van Breda had first travelled to Switzerland in 1817 and returned in the early 1830s and 1852 – and was able to procure some of the best items discovered there.¹⁷⁷ Barth seems to have been a slightly shady figure, although van Breda appears to have tolerated his idiosyncratic business practices as long as they worked in his favour. The specific example from which this can be deduced concerns the geology professor Oswald Heer from Zurich, who was equally interested in what Barth unearthed and also corresponded with van Breda. Barth had struck a deal with Heer that he would sell him

¹⁷³ Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum*, 13–14.

¹⁷⁴ For a thorough and comprehensive analysis of what is known see: O.H. Dijkstra, “Willem Martinus Logeman,” *Jaarboek 1974 Haarlem* (1974): 138–159. A short but informative summary of his life is provided by: J.C. Ramaer, “Logeman, Wilhelmus Martinus,” ed. P.C. Molhuysen and K.H. Kossman, vol. 9, *Nieuw Nederlandsch Biografisch Woordenboek* (Leiden: Sijthoff, 1933), 616–618.

¹⁷⁵ This was at a council meeting held on 27.01.1876: *Verslagen van het Verhandelde in de Zittingen van den Raad der Gemeente Haarlem, 1876* (Haarlem: J. Enschedé & Zonen, 1876), 60–61.

¹⁷⁶ Breure and Bruijn, *Leven en werken van J.G.S. van Breda (1788-1867)*, 419–420.

¹⁷⁷ On van Breda’s first journey south, his later travels, and his dealings with Barth see: *Ibid.*, 75–90 & 177 & 177–189.

every item for 50 cents, on condition that Heer accept every item he was offered. This is perhaps in itself already an indication that Heer was not exactly business savvy, but what made the deal even worse was of course the fact that Barth was supplying van Breda with specimens from his quarry as well. It is not clear to what extent Heer was informed of Barth's dealings with van Breda, although he was clearly aware of the fact that van Breda was purchasing items off Barth.¹⁷⁸

In ordering, cataloguing and caring for the geological collection van Breda was assisted by Tiberius Cornelis Winkler, who was later to succeed van Breda along with van der Willigen. In this sense the separation of the two scientific collections at Teylers Museum, which was to be formalised through the appointment of both Winkler and van der Willigen in van Breda's stead, was already discernible during van Breda's tenure at the museum: Logeman looked after the instruments, while Winkler took care of the geological specimens. It is striking how van Breda appears to have treated them as mere assistants – both were never formally employed to work for the museum, even if they were remunerated for their efforts. On the other hand one could also say that van Breda gave both of them their break: Logeman is sure to have profited from his association with Teylers Museum, financially and otherwise; Winkler – a self-made man with no university degree – was later promoted to the prestigious post of curator. Yet Winkler at least was slightly dismissive of his former boss, pointing out in what disorder he had found the collection after van Breda left.¹⁷⁹

5. Confronted with New Ideas

But even if van Breda's handling of the collections that fell under his purview reflected more of an "old school" approach, that doesn't mean he didn't see himself directly confronted with newer ideas concerning the public role of museums. One revealing example, in which van Breda was dismissive of what he was presented with, occurred during the early phase of his work as a member of the commission that had been tasked with compiling a geological map of the Netherlands.

In order to understand what was going on, one needs to know that the Commission had been provided with a collection of geological specimens from all over the Netherlands. This collection was not inconsiderable; its core had been assembled from a variety of private and institutional collections and it was constantly expanded with specimens sent to the commission by so-called "correspondents" from all areas of the Netherlands. These new items then became state property. A major section of the original core collection consisted of items collected by Petrus Camper, which were now being looked after by the University of

¹⁷⁸ Breure, "J.G.S. van Breda als Paleontoloog, privé en in Teylers Museum," 177. Breure wrongly refers to Oswald Heer both as "Oskar" (p. 177) and "Otto" (p. 216) Heer.

¹⁷⁹ Tiberius C. Winkler, *Catalogue systématique de la collection paléontologique du Musée Teyler* (Harlem: Les Héritiers Loosjes, 1863), ii.

Groningen. All these specimens had been brought to Haarlem – a choice of venue that goes to show how van Breda was the one who was (as yet) calling the shots within the commission.

The collection was stored in two rooms on the ground floor of Paviljoen Welgelegen, i.e. the same building in which the *Rijksmuseum*'s paintings by living artists had been on public display since 1839. The section of the building the geological collection was now stored in had become available after King William II, who had still rented these rooms off the state, had passed away in 1849.¹⁸⁰ Staring was provided with living quarters in the same section of the building.

As from 1853, the geological collection was publicly accessible on Tuesdays and Saturdays between noon and 4pm. Tickets were available – apparently free of charge – from a certain “Mr Werdmüller von Elgg, at the front of the *Pavilion*”.¹⁸¹ (Werdmüller van Elgg was perhaps the building's caretaker.) A small guidebook – essentially a catalogue of what was on display – was available for visitors. A reason as to why it had been written was provided in the introduction to this booklet:

“[W]hat use or even pleasure, could be expected from walking around in a maze of rocks and names, in which even the trained geologist would, without assistance, find his way around only with difficulty?”¹⁸²

As for the aim of the collection itself, according to the guidebook this was first and foremost

“so as to have together for detailed study everything that can serve to gain a correct conception of the types of rocks, minerals and remains of animals and plants that occur in the Netherlands; to explain the origin of the soil; to provide opportunity for further study of what has been examined once already;”¹⁸³

Clearly, thus, it was conceived as a research and reference collection. The reason given as to why it was open to the public was

“to make the enterprise, if possible, into a general concern of the Netherlands, a concern in which everybody is interested who is not indifferent to the place his country occupies in the academic world, and to which everybody is invited to contribute for his part, if he is able.”¹⁸⁴

¹⁸⁰ Kok, “De musea in Paviljoen Welgelegen,” 141.

¹⁸¹ “Heer Werdmüller von Elgg, aan de voorzijde van *het Paviljoen*”; *De Geologie van Nederland: Handleiding voor de bezigtigers der verzameling op het Paviljoen te Haarlem* (Haarlem: A.C. Kruseman, 1853).

¹⁸² “[W]elk nut, of zelfs genoeg, kon men verwachten van het rondwandelen in een doolhof van steenen en namen, waarin zelfs de gestudeerde geoloog zich, zonder hulp, met moeite eenen weg zoude weten te vinden?” Ibid., 3.

¹⁸³ “om alles voor eene naauwkeurige studie bijeen te hebben, wat dienen kan ten einde een juist begrip te verkrijgen van de rotssoorten, delfstoffen en overblijfsels van dieren en planten die in Nederland voorkomen; om het ontstaan van den bodem te verklaren; om gelegenheid te geven tot nader onderzoek van hetgene reeds eenmaal beschouwd is geworden;” Ibid.

¹⁸⁴ “om [...] de onderneming, zoo mogelijk, te maken tot de algemeene zaak van Nederland, tot eene zaak waarin een ieder belang stelt, wien 't niet onverschillig is welke plaats het vaderland inneemt in de wetenschappelijke wereld, en waarvoor een ieder uitgenoodigd wordt om, zoo hij daartoe in staat is, ook van zijne zijde bij te dragen.” Ibid.

This was quite a far-reaching embrace of the public (note the explicit hope of garnering some input from “amateurs” and the strong emphasis of a sense of national pride so typical of the mid-nineteenth century) and one can safely assume that Staring carried most of the burden this brought with it, given that he was living in the same building.

However, as far as van Breda’s attitude towards collections is concerned, the really revealing episode occurred the year before the guidebook was published, when one of the commission’s “correspondents”, Pieter Harting, expressed the hope that the commission’s collection should form the core of something larger, or more specifically a “general Museum for Dutch geology”. His somewhat longwinded letter is worth quoting at some length:

“What has been collected at excavations is of course State property, and I should therefore like to hear from you, what I should do with it when my research is finished. However, this doesn’t apply to what I have collected there in the past at my own expense. I am not unwilling, however, to hand over that as well, namely if a central collection will be created, and individual members of the committee also deposit into it what they have collected from the soil earlier on.

In that case I will gladly follow the good example and retain nothing for myself, as *a general Museum for Dutch geology is by far to be preferred over a number of private collections* [emphasis MW]. What I have is not very much, but there are some important specimens amongst it, such as, for example, all the [...] shells from the Amsterdam soil. I have also some ground to believe, that others will be happy to hand over their special collections to such a general Museum as well, once the example in this respect has been given by the members of the Main Committee. They should therefore not hold it against me if, because of the importance of the matter, I intentionally [unreadable], and request them to be so good as to inform me of their views on this point. If they can agree with me on this most liberal view, then I have the greatest expectations of an open invitation to bring together what is present in many private collections, and the work could perhaps be furthered a great deal ...”¹⁸⁵

But the Commission, led by van Breda, appears to have simply ignored this proposal. It would have been totally against van Breda’s interests, too. Not only would a national museum of geology in Haarlem have undermined the importance of Teylers Museum, the way Harting’s

¹⁸⁵ “Het bij de gravingen verzamelde is natuurlijk Rijkseigendom, en ik verlang derhalve van U.Gel. te weten, hoe ik, na afloop van mijn onderzoek, daarmede handelen moet. Dit geldt echter niet voor hetgene ik vroeger op eigen kosten aldaar verzameld heb. Echter ben ik niet ongenegen ook dit af te staan, wanneer er namelijk een centrale verzameling wordt aangelegd, en ook de individuele leden der commissie daarin het uit den bodem door hen reeds vroeger bijeen verzamelde willen deponeren. // In dit geval wil ik gaarne dit goede voorbeeld volgen door niets voor mij zelven te behouden, daar *een algemeen Museum voor Nederl. geologie verre de voorkeur verdient boven verscheidene particuliere collecties* [emphasis MW]. Wat ik heb is juist niet veel, doch er bevinden zich eenige belangrijke specimina onder, gelijk b.v. al de [...] schelpen uit den Amsterdamschen bodem. Ook heb ik eenigen grond om te geloven, dat ook anderen hunne bijzondere verzamelingen voor zulk een algemeen Museum gaarne zullen afstaan, wanneer eenmaal daartoe het voorbeeld door de leden der Hoofdcmissie is gegeven. Zij houden het mij derhalve ten goede, indien ik dit punt om het gewigt der zaak, opzettelijk [...], en hen verzoek de goedheid te hebben mij zoo mogelijk daaromtrent hunne meening mede te deelen. Mogten zij zich met mij op dit meest liberale standpunt kunnen vereenigen, dan zoude ik mij van eene openlijke uitnodiging, tot tezamenbrenging van het reeds in vele particuliere collectiën voorhandene, veel goeds voorspellen en zoude welligt het werk zeer bevorderd kunnen worden...”; P. Harting to Commissie, 21.07.1852, as quoted in: Breure and Bruijn, *Leven en werken van J.G.S. van Breda (1788-1867)*, 286.

letter was phrased van Breda would in all likelihood have been expected to contribute items from his own personal collection to the new institution as well.

When the Commission was disbanded, the collections in Haarlem were initially sealed off. There was some debate as to whether they should be transferred to the Trippenhuys in Amsterdam, but they eventually remained in Paviljoen Welgelegen.¹⁸⁶ Staring was subsequently tasked with completing the geological map on his own and given full control over the collection in Haarlem. A first section of the map was published in 1858. When Staring moved to the town of Vorden in 1864, it was decided to transfer the geological collection to Leiden and incorporate it into the National Museum of Natural History. By this time Staring had assembled three times as many specimens as he had still listed in the guidebook some ten years earlier.¹⁸⁷

Yet these no longer included a whole set of items from the Pietersberg in Maastricht, which had been sold to the Teyler Foundation in 1861 for a total of f6000,-. The largest part of this sum, f5000,-, was paid to the University of Groningen for specimens that had originally belonged to Camper, the rest of the money went to the state for specimens collected by Staring during his work on the geological map.¹⁸⁸ Van Breda fully supported this transaction – he first drew the trustees’ attention to the possibility of a deal – and even offered to sell the Foundation his own collection, many parts of which would complement the other specimens from the Pietersberg, for about f10.000,-. He doesn’t even appear to have been after any personal gain, as he simultaneously stated that he “would hand over [his collection] only reluctantly before he died”.¹⁸⁹ Although one of the trustees was dispatched to discuss this proposal with van Breda, no reference is made to this offer in the final transaction with Staring and the University of Groningen. Staring, at least, was thanked

“[...] for his kind efforts to transfer the said collection into the possession of this Foundation, and for his [unreadable] concern for the safe transference of the objects from the Pavilion to the building of T.F. [the Teyler Foundation]”¹⁹⁰

And despite all the acrimony brought about by the Commission and van Breda’s later fallout with the trustees about the provenance of parts of his own collection, when the deal with Staring and Groningen was made, it was ultimately van Breda’s work that had helped expand and enhance the collections at Teylers Museum.

Another, unrelated example of the way in which van Breda would have seen himself confronted with the changing role and status of museums can be found in his dealings with mineral traders: whereas the dealers van Marum had worked with and purchased items from still catered primarily to individual, rich collectors (i.e. “patrons”), by the middle of the 19th

¹⁸⁶ “Notulen Afdeling Natuurkunde”, 27.09.1856, Haarlem, NHA, Archief KNAW, vol. 64, nr. 4, fol. 407-413.

¹⁸⁷ Kok, “De musea in Paviljoen Welgelegen,” 141.

¹⁸⁸ “Directienotulen”, 27.09.1861, Haarlem, ATS, vol. 9.

¹⁸⁹ “ongaarne [zijn collectie] vóór zijn overlijden zou afstaan”; “Directienotulen”, 30.11.1860, Haarlem, ATS, vol. 9.

¹⁹⁰ “[...] voor zijn welwillende bemoeijingen om de bedoelde verzameling in eigendom aan deze Stichting te doen overgaan, en voor zijne aangeevende [unreadable] zorg voor het veilig overbrengen der voorwerpen van het Paviljoen naar het gebouw van T.St.”; “Directienotulen”, 21.02.1862, Haarlem, ATS, vol. 9.

century museums and other educational institutions had become major clients for mineral dealers, rivalling rich connoisseurs as a main source of income. What's more, in van Breda's correspondence concerning the acquisition of geological specimens, one regularly finds "science" equated with "the public good" and both are invoked as an argument as to why a particular item or collection should be sold to someone – or rather should not be, if it is in danger of no longer being publicly accessible. One example is provided by the German geologist Christian Erich Hermann von Meyer who, upon having sold van Breda a number of specimens in 1860, wrote:

"As difficult as it is for me to part with these important fossils, it is a reassuring feeling that the pieces on which my research is based, are now safely preserved for science in Teylers Museum; in smaller museums or in private collections they would have been lost sooner or later. The objects are worthy of Teylers Museum [...]"¹⁹¹

Of course it is questionable whether this type of argument really did carry much weight, or whether it wasn't just used to gloss over other matters and deliberations; but nevertheless, it is striking how "the public good" and whatever was seen to serve it (e.g. science) had become part of everyone's rhetorical repertoire.

Recall also how van Marum had still persuaded the trustees that he needed to go to Switzerland in order to acquire certain geological specimens directly "from the source" because they were not pleasing to the eye and therefore not readily available from mineral traders. In contrast, by the time van Breda worked at Teylers, traders were emphasising that the specimens they had on offer were precisely classified and proudly presented complete sets of specimens that illustrated classificatory systems.

6. The Rhenish Mineral-Office Krantz

A good example of the changes that had taken – and were taking – place is one of van Breda's most loyal suppliers, the "Rhenish Mineral-Office Krantz" (*Rheinisches Mineralien Comptoir Krantz*). This had been established by August Anton Krantz in 1833 when he was still studying in Freiburg, the German town famous for its mining academy.¹⁹² He then set up shop in Berlin, but moved his headquarters to Bonn in 1850, "on account of the greater facilities

¹⁹¹ "So schwer ich mich von diesen wichtigen Versteinerungen trenne, so ist es mir doch ein beruhigendes Gefühl, die Stücke die meinen Untersuchungen zu Grunde liegen, nunmehr im Teylerschen Museum auf sichere Weise der Wissenschaft erhalten zu sehen; in kleineren Museen oder Privatsammlungen würden sie früher oder später verloren gegangen seyn. Die Gegenstände sind des Teylerschen Museums würdig [...]" C.E.H. von Meyer to J.G.S. van Breda, 06.03.1860, Haarlem, ATS, vol. 2284.

¹⁹² Krantz gave a very brief summary of his business in the introductory remarks to the following sales catalogue: *Verzeichniss von verkäuflichen Mineralien, Gebirgsarten, Versteinerungen (Petrefacten) und Gypsmodellen seltener Fossilien im Rheinischen Mineralien-Comptoir des Dr. A. Krantz in Bonn* (Bonn, 1855), iii.

offered by the latter town, both for collecting and exporting”.¹⁹³ By this time he had built a huge network of clients and suppliers throughout the world and, by his own account, employed a “Staff of Collectors [...] who are always “en route” through Europe, America, &c., and are zealous in securing all that is new or interesting to the Naturalist”.¹⁹⁴

His catalogues were squarely aimed at large, public institutions. That this was the case, but also the sort of status public institutions were beginning to enjoy, transpires from the following statement which Krantz included in the introduction to all of his later catalogues in some form or another:

“If at public institutions the available funds are insufficient to pay for the objects that are bought in one single payment, then payment in installments will be accepted with extended credit.”¹⁹⁵

Public institutions were evidently judged to be worthy of credit by default. Krantz’s judgement in these matters was obviously sound and his business profitable, because it allowed him to have a magnificent villa built in Bonn when he moved there.¹⁹⁶ This building also served as the premises for his business and it is interesting to see how he included a fancy showroom. He invited van Breda to visit in 1851 – although there is no indication that van Breda took up the offer or the two men ever met. The invitation went as follows:

“That part of the house which will hold my collections [...] will already be finished in 4 weeks time and I shall be happy to have the pleasure later on of showing you my well-displayed wealth of fossils and minerals.”¹⁹⁷

Krantz would of course not just have been looking for some friendly chitchat with van Breda, but was looking for business – one can therefore assume that his showroom was set up to underscore this aim and not just for his own or other people’s pleasure, even if the one did not exclude the other. Some years later, in 1859, Krantz proudly proclaimed in his sales catalogue that his “collection of minerals comprising 11.000 specimens, arranged in 12 cabinets, including meteorites from 85 localities” was one of the finest collections in the world. As he put it:

“regarding the choice of items and number of species the same [Krantz’ collection] surpasses all existing collections at all, regarding its wealth and partly its scientific value it should only

¹⁹³ *Catalogue of Mineralogical, Geological, and Palaeontological Specimens, Collections, Models &c., Dr. A. Krantz Bonn* (London: W. Clowes and Sons, 1855), 2.

¹⁹⁴ *Ibid.*

¹⁹⁵ “Gestatten bei öffentlichen Anstalten die verfügbaren Fonds nicht die Bezahlung für zu entnehmende Gegenstände auf einmal zu leisten, so werden bei ausgedehntem Credit Theilzahlungen gern bewilligt.“ *Verzeichniss von verkäuflichen Mineralien, Gebirgsarten, Versteinerungen (Petrefacten) und Gypsmodellen seltener Fossilien, im Rheinischen Mineralien-Comptoir des Dr. A. Krantz in Bonn*, 6th ed. (Bonn: Carl Georgi, 1859), v.

¹⁹⁶ Olga Sonntag, *Villen am Bonner Rheinufer, 1819-1914* (Bonn: Bouvier, 1998), 205–210.

¹⁹⁷ “La partie de ma maison qui tiendra mes collections [...] devenir fini déjà en 4 semaines et je serai bien heureux d’avoir après le plaisir de vous faire montre mes richesses fossils & Minerals bien exposées.” A. Krantz to J.G.S. van Breda, 21.02.1851, Haarlem, ATS, vol. 2283.

be surpassed by the three public collections in Vienna, Berlin and that of the british [sic] Museum.“¹⁹⁸

Although he acknowledges that they are better than his own collection, by invoking the names of these three public collections Krantz is of course placing himself on par with them. The reason he does so is because these public institutions – or rather public museums such as the British Museum – were not only deemed creditworthy, but were immensely prestigious in that they were seen to serve a higher ideal: that of science. Krantz was eager to avoid the impression that, rather than the advancement of science, what he sought to serve through his business was his own financial advancement. But it is striking to see how public collections and museums had become the benchmark for all those involved with scientific collections.

Indeed, Teylers Museum may have been smaller than the three collections enumerated by Krantz, but it was not seen as being entirely different in nature – even if it was privately owned. The geologist von Meyer who was already mentioned above can serve as crown witness here. Five years before writing the letter from which the quote above was taken, he had already been in correspondence with van Breda about another collection he wanted to sell because he had performed all the research he wanted on the specimens of which it consisted. He wrote van Breda:

“[...] that, in view of its importance and completeness, I will part only reluctantly with this fossil, and am inclined only to give it to a place where it will be preserved most safely for all times. I prefer Teylers Museum even over the British Museum in London and the collections in Paris, Munich and here, which would also have been keen to acquire this fossil. Towards the end of this week I will have finished with the depiction [of the fossil] and my research.”¹⁹⁹

Again, the absolute sincerity of his arguments can perhaps be doubted – he was, after all, conducting business – but nevertheless the structure of his argument and the fact that Teylers Museum was mentioned alongside other major public institutions is revealing enough. Most importantly, it suggests that the changing connotations of the word “museum” were not only affecting the way Teylers Museum was beheld with regard to its collection of fine art, but also with regard to its scientific collections.

¹⁹⁸ “systematisch in 12 Schränken aufgestellte Mineralien-Sammlung von 11000 Exemplaren inclusive Meteoriten von 85 Localitäten”; “[D]ieselbe übertrifft in Bezug auf Auswahl der Stücke und Anzahl der Arten alle vorhandenen Sammlungen überhaupt, in Bezug auf Reichthum und theilweise wissenschaftlichen Werth dürfte sie nur von den drei öffentlichen Sammlungen Wiens, Berlins und der des britischen Museums übertroffen werden.“ *Verzeichniss von verkäuflichen Mineralien, Gebirgsarten, Versteinerungen (Petrefacten) und Gypsmodellen seltener Fossilien, im Rheinischen Mineralien-Comptoir des Dr. A. Krantz in Bonn*, vi. [1859]

¹⁹⁹ “[...] dass ich mich von dieser Versteinerung, in Anbetracht ihrer Wichtigkeit und Vollständigkeit, schwer trenne und sie nur an einen Ort zu geben gesonnen bin wo sie für alle Zeiten am sichersten aufgehoben ist. Dem Teylerschen Museum gebe ich den Vorzug selbst vor dem Britischen Museum in London und den Sammlungen in Paris, München und hier, welche diese Versteinerung ebenfalls gern übernehmen würden. Gegen Ende dieser Woche werde ich mit der Abbildung und Untersuchung fertig werden.” C.E.H. von Meyer to J.G.S. van Breda, 04.06.1855, Haarlem, ATS, vol. 2284.

7. “Monuments of Science”

As far as the changing perception of the scientific collections – particularly the scientific instrument collection – is concerned, one of van Breda’s earliest decisions with regard to the handling of the instruments can hardly be stressed enough and is therefore worth scrutinising in a little more detail.

Shortly after his arrival, van Breda wrote a four-page letter to the trustees, detailing what his plans were for the museum.²⁰⁰ This obviously covered the instrument collection. He stated that he saw the collection as consisting of three categories. The first category he defined as those instruments that could still be used for research, the second he defined as encompassing those instruments that could not be used for research anymore because they had become outdated, and in the third category he put all the models or demonstratory apparatus that had been used for public lectures. This last group of instruments van Breda suggested one could get rid of; he was obviously not interested in using the models. The first category however van Breda wanted to keep, because he himself wanted to perform research at the museum – that was most likely the reason he had taken the job in the first place. But the second group of instruments he rather remarkably wanted to keep as well. His argument ran as follows:

“Those [instruments] of the second kind I judge that, although of little use value, they should be kept in the collection, they are to be regarded as monuments of science, and shall always be regarded with pleasure by every scientist [*Natuurkundigen*], who knows, how much they have contributed to the progress of science.”²⁰¹

So one can say that as from 1839 it became official museum policy at Teylers to preserve historical instruments.

It is not quite clear how rigorously van Breda followed up his own suggestion. It has already become clear that van Breda’s primary concern at the museum was research. The instrument collection was, accordingly, first and foremost a working collection. This is reflected in the fact that far from every instrument ever acquired was preserved. Of the 434 instruments that van Marum included in the inventory of the collection he compiled probably in about 1822, as many as 181 are lost or unidentifiable.²⁰² Van Breda had of course himself announced that he wanted to dispose of all models and demonstratory apparatus in the collection, but other instruments are no longer in the collection either. The entire collection of barometers was disposed of, for instance. It is not clear when and why all these instruments were sold off, the available documentation provides only sporadic evidence. One such piece of evidence dates from September 1862, i.e. from some twenty years after van Breda wrote the letter quoted

²⁰⁰ J.G.S. van Breda to Directeuren, 28.08.1839, Haarlem, ATS, vol. 23.

²⁰¹ Ibid.

²⁰² Gerard l’Estrange Turner translated and transcribed an inventory compiled by van Marum and marked which instruments were unidentifiable in Teylers’ collection. Turner tentatively dated the inventory to 1812, but Marijn van Hoon was recently able to show that it must have been compiled later, probably in about 1822. The translated inventory was published in: 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).

above: van Breda received permission from the trustees to sell or dispose of “a large number of outdated physical instruments”.²⁰³ In all likelihood he did so, too, and if not on this occasion then on others, because he is also known to have used instruments for his own research which never turned up in any of the museum’s inventories.²⁰⁴ Finally, there were other ways in which the amount of objects in the collection was reduced: in 1867, under van der Willigen’s watch, an air pump was donated to the recently established HBS in Haarlem.²⁰⁵

Nevertheless, van Breda’s statement that he intended to keep instruments of historical value is made at a remarkably early time, when this was by no means self-evident. It may be recalled that the Conservatoire des Arts et Métiers in Paris had already taken a similar decision in 1801, but this did not, by any means, catch on and in the Netherlands the earliest known example of an instrument being purchased and treasured simply for its historical value is from the exact same time: in 1838, Frederik Kaiser bought a telescope attributed to Petrus van Musschenbroek for the Observatory of Leiden University. This acquisition was later put on display at the Observatory in Leiden alongside a small number of other astronomical instruments he considered to be of historical interest.²⁰⁶

What’s more, there is no reason to believe that van Breda ever changed his stance and ceased to appreciate many of the instruments acquired by his predecessor. Not just the electrostatic generator – clearly an integral part of the Foundation’s and the Museum’s identity – but many smaller instruments too were never disposed of. This in turn meant that van der Willigen was handed down a collection of scientific instruments that consisted, to a considerable extent, of historical instruments.

This – together with van der Willigen’s own definition of physics and his tasks as curator, but also the broader developments taking place with regard to museums and science – was a crucial factor in determining how the entire collection was perceived and handled by the end of the 19th century.

²⁰³ “Directienotulen”, 26.09.1862, Haarlem, ATS, vol. 9: “Wordt besloten, een groot aantal verouderde physische werktuigen, tot Teijlers Museum behorende, welke ook door den Hr. van Breda, directeur van het Museum, voor onbruikbaar en thans onnuttig verklaard zijn, opteruimen & bij daartoe voorkomende geschikte gelegenheid te gelde te maken.”

²⁰⁴ Huib J. Zuidervart, “Verloren instrumenten uit het kabinet van Teylers Museum in het midden van de negentiende eeuw,” *Teylers Magazijn* 96 (2007): 6–11.

²⁰⁵ “Directienotulen”, 07.06.1867, Haarlem, ATS, vol. 9.

²⁰⁶ Zuidervart, “Frederik Kaiser (1808-1872), een gekweld man met een missie,” 26–27.

V. Volkert Simon Maarten van der Willigen (II): Curator in Haarlem

1. On the Job

Having now illustrated how Teylers Museum and the world around it had changed over the years preceding van der Willigen's arrival in Haarlem, we can turn to his activities during his curatorship.

Unfortunately, very little material that could throw some light on the precise reasons for his appointment has been preserved. However, taking into account all that was said above, it should not come as much of a surprise that the trustees chose van der Willigen, either: he was eminently well qualified in that he had an excellent track record as one of the country's best physicists, espousing a modern methodology; he was familiar with one of the country's better collections of scientific instruments; and he was available because of the restructuring of the Athenaeum in Deventer.

The position was definitely sought after, though, as the following episode illustrates. Van Breda did not only resign as director of Teylers Museum in 1864, but also as secretary of the Holland Society and director of its natural history cabinet. His successor at the Society was Edouard Henri von Baumhauer, professor of chemistry and pharmaceuticals in Amsterdam. Shortly after his appointment he submitted a request to the Directors of the Holland Society, which was heavily discussed at a sequence of meetings. The details both of von Baumhauer's request and of the ensuing discussions have not been preserved – all documents pertaining to this matter were removed from the Society's archives. The only thing that is clear is that von Baumhauer's request was related to van der Willigen's appointment. More to the point, he had evidently been hoping that he would succeed van Breda at Teylers as well and – crucially – that he would be able to use the laboratory facilities there to continue with his chemical research.²⁰⁷ This gives one an idea just how much of a gem the research facilities at Teylers were considered amongst researchers at the time. It is clear that the post of curator was therefore highly sought after. Recall also how this was before laboratories were established at HBS schools all over the country. University laboratories were not as well equipped as the laboratory at Teylers, either. They only surpassed the facilities in Haarlem at the beginning of the 20th century – a point to which we shall return in the next chapter.

Incidentally, the Society's cabinet was dissolved soon after van Breda had left – it had evidently been left in some neglect for a while and in 1866 most of the specimens it housed were sold to *Artis*, a natural history society that had been established in Amsterdam some decades before and gained particular prominence through the publicly accessible zoo it ran.²⁰⁸

²⁰⁷ On this request and what it elicited see: Johan A. Bierens de Haan, *De Hollandsche Maatschappij der Wetenschappen, 1752-1952* (Haarlem: Tjeenk Willink & Zoon, 1970), 109–111.

²⁰⁸ On *Artis* see: Donna C. Mehos, *Science and Culture for Members Only: The Amsterdam Zoo Artis in the Nineteenth Century* (Amsterdam University Press, 2006). On the dispersal of the Holland Society's cabinet see:

Much like the separation of the geological collection and the scientific instrument collection at Teylers, the dispersal of the Holland Society's cabinet is indicative of the changing status of collections, both for researchers and for the lay public. Both van Breda and van Marum had been in charge of a set of collections that essentially spanned the entire natural sciences, i.e. physics, chemistry, natural history and geology. In a sense they were therefore in charge of one, large, all-encompassing "encyclopaedic" museum which happened to be spread out over two venues (or three, if one sees the Teyler Foundation's laboratory as distinct from Teylers Museum) and which happened to be financed by two institutions. Van der Willigen and Winkler, on the other hand, were entrusted with running a specialised research collection that was restricted to their own research within a specialised field of science. This is worth keeping in mind when trying to understand how the collection of scientific instruments in particular was perceived in relation to other collections.

2. Van der Willigen's Work in Haarlem

As for van der Willigen, once he got the job at Teylers it must have become clear to all that, just like van Baumhauer, he was interested first and foremost in performing experimental research. Generally speaking he pursued exactly the same lines of research he had already devoted time to in Deventer. The first summer after his appointment at Teylers he even returned to the north of the Netherlands, to Twello, to complete a series of experiments he had begun there.²⁰⁹ He also brought some instruments to Haarlem with him from Deventer. At least one set of diffraction gratings by Nobert was acquired by the Teyler Foundation from the Deventer Society for Physics and Chemistry.²¹⁰ Needless to say, all his experiments were performed with huge precision and attention to possible sources of inaccuracies and errors.

One area of research he was evidently particularly intrigued by was optics.²¹¹ Recall how his dissertation with Kaiser had already covered the aberration of light. His first project at Teylers was to establish the exact wavelength of all visible sunlight, much as Ångström did. He also published a graph of the visible portion of the solar spectrum, apparently achieving higher precision than Fraunhofer had. Having completed this work van der Willigen turned to the measurement of the refractive indices of various materials and solutions, paying special attention in how far they were influenced by the translucent materials' temperature. His aim was thereby to deduce the precise correlation of the wavelength of light and a material's refractive index.

Bert Sliggers and Marijke H. Besselink, eds., *Het verdwenen museum: natuurhistorische verzamelingen 1750-1850* (Haarlem: Teylers Museum, 2002), 127–129.

²⁰⁹ Volkert Simon Maarten van der Willigen, "Mémoire sur la détermination des longueurs d'onde du spectre solaire," vol. 1, *Archives du Musée Teyler* (Harlem: Les Héritiers Loosjes, 1866), 4–5.

²¹⁰ Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum*, 152–153.

²¹¹ Unless otherwise indicated, the following summary of van der Willigen's research activities at Teylers is based largely on: Bakhuyzen, "Nekrolog: Volkert Simon Maarten van der Willigen," 101–106.

It was within the context of this research that he also proposed using a specific wavelength of light as a reference point for a standard unit of length. He had already established that the wavelength of light always remained constant, and did not, as was commonly assumed, depend in any way on the speed of the light source itself. This in turn led to his extensively discussing Doppler's theories, proposing that certain analogies between light and sound could not be made. Here, as of course in all of his theories on light, "aether" still played a central role. Although van der Willigen's idea to define a standard unit of length using the wavelength of light is testimony of his capability of far-reaching insights, he did not know that this had already been suggested some years earlier by Johann von Lamont and, as in all other areas he worked in, the honour of a groundbreaking discovery eluded him.

This idea for a new definition of a standard unit of length seems to underscore Gerard Turner's conclusion that all van der Willigen's research at Teylers had been linked to one theme, the establishment of a standard length.²¹² Turner concluded this mainly on the basis of van der Willigen's acquisition policy. He pointed out that the acquisition of a reversible pendulum by Repsold and a chronometer by Hohwü, combined with other instruments van der Willigen had acquired earlier for the collection, would indeed have enabled him to establish the length of a seconds pendulum, which is one way of establishing a standard length. What's more, Turner added, Ångström had used the standard metre of Uppsala, which however gained notoriety for being 0,13mm too short, for his work on the solar spectrum which was published in 1868. Perhaps van der Willigen was hoping to improve on this work.

But van der Willigen was involved in other areas of research as well. One other project to which van der Willigen devoted some time was the precise measurement of a Foucault Pendulum's movements. And in the late 1870s van der Willigen began to show an interest in magnetism and experimented with strong magnets. In a way he thereby continued work that both his predecessors at Teylers had already spent time on. Van der Willigen cooperated with van Wetteren and his associate Elias. These were the instrument makers Logeman had been in business with. Logeman, however, had left the company in 1860.²¹³

All this, incidentally, does not provide any further indication as to why van der Willigen had the small laboratory building which was mentioned at the beginning of this chapter constructed in the museum's garden.

Van der Willigen published the results of his research in a variety of journals.²¹⁴ One of these was the Dutch Royal Academy's Proceedings (*Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen te Amsterdam – Afdeeling Natuurkunde*). It has been pointed out that van der Willigen was pretty much the only member of the Academy of his generation who published papers based on experimental research and that his papers also constituted pretty much the only contribution the Academy delivered to physics during this period of its

²¹² Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum*, 14–17.

²¹³ Dijkstra, "Willem Martinus Logeman," 149.

²¹⁴ For a full list of van der Willigen's publications see: Bakhuyzen, "Nekrolog: Volkert Simon Maarten van der Willigen," 106–111.

history.²¹⁵ He was also a frequent contributor to the prestigious *Annalen der Physik und Chemie*, edited by the infamous (amongst contemporary scientists) Johann Christian Poggendorff.

Finally, many of van der Willigen's articles were printed in the *Archives du Musée Teyler*. This journal, paid for by the Teyler Foundation, had been set up in 1868. As a short statement printed on the first pages of the first edition of the *Archives* revealed:

"The Archives of Teyler's Museum will appear from time to time in installments, which will contain scientific memoirs and the annual acquisitions of the Library and of the Palaeontological collections, etc, of the Museum."²¹⁶

In other words, the *Archives* were to serve as a medium through which research that had been performed with the museum's collections could be published. Although the minutes of the Teyler Foundation's trustees' meetings do not provide any information as to why this journal was created or who was the driving force behind its establishment, it can be seen as yet another symptom of the specialisation of the sciences during this period. More to the point, the role of learned societies – particularly privately funded learned societies – had dwindled by the 1860s. Tellingly, for instance, the amount of essays that was submitted in reply to the prize essay competitions still held by Teylers Second Society in accordance with the stipulations of Pieter Teyler's will had been in sharp decline. After 1866, only a handful of *Verhandeligen* could ever be published by the Second Society. (Although the Theological Society did, admittedly, still receive more entries.)²¹⁷ Generally speaking, prize essay competitions as a medium through which to publish the results of research efforts had been replaced by publications in specialised journals (such as Poggendorff's *Annalen*).

Van der Willigen appears to have had high hopes for the *Archives*, but they were not fulfilled: in the introductory remarks to one of his articles he laments – perhaps somewhat naïvely – that the authors of a research paper published by the French *Académie des Sciences* had recently failed to refer to his work on spectrography, even though he had sent the Academy the first edition of the *Archives*, containing his most recent work on this topic.²¹⁸ Instead, he complained, the French Academy had praised a Frenchman for his recent groundbreaking work. Nevertheless, the *Archives* were widely circulated – mainly in an exchange of publications with other societies – and there appears to have been a great deal of interest in

²¹⁵ Berkel, *De Stem van de Wetenschap: Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen*, 1:337 & 341.

²¹⁶ "Les Archives du Musée Teyler paraîtront de temps à temps en cahiers successifs, qui contiendront des mémoires scientifiques et les augmentations annuelles de la Bibliothèque et des collections Paléontologiques etc. du Musée." "Avis," vol. 1, *Archives du Musée Teyler* (Harlem: Les Héritiers Loosjes, 1866).

²¹⁷ For a list of all *Verhandeligen* of Teyler's Learned Societies published before 1978 see: "*Teyler*" 1778-1978: *studies en bijdragen over Teylers Stichting naar aanleiding van het tweede eeuwfeest*. (Haarlem; Antwerpen: Schuyt, 1978), 37–55.

²¹⁸ Volkert Simon Maarten van der Willigen, "Rapport servant de premier supplément au mémoire sur la détermination des longueurs d'onde du spectre solaire," vol. 1, *Archives du Musée Teyler* (Harlem: Les Héritiers Loosjes, 1866), 62.

them. The first edition at least had to be reprinted because demand was higher than expected.²¹⁹

Another time-consuming and significant contribution of van der Willigen's to the body of science – alongside his own experimental research – was his work as coordinator of a Dutch astronomical expedition to the island of Réunion in the Indian Ocean to record the transit of Venus in 1874.²²⁰ Although he did not travel with the researchers, van der Willigen had volunteered to coordinate this expedition in the name of the Dutch Royal Academy and cooperated with teams from other countries that had embarked on similar undertakings and were based in the vicinity. In fact van der Willigen had not only volunteered to coordinate this project, but had even initiated the expedition, which is all the more remarkable because shortly before he died in 1872 his mentor Frederik Kaiser had warned his fellow members of the Academy that participating in the international flurry of activity the transit caused was not worth the effort for a small country such as the Netherlands.²²¹ This, together with the hard work coordinating the expedition had required, must have made it even more disappointing for van der Willigen when the expedition failed, for the simple reason that it was cloudy on Réunion on the day of the transit. Once again, the potential glory of a successful and unique scientific endeavour had eluded van der Willigen. Although, perhaps in recognition of his efforts, he was made a member of the *Astronomische Gesellschaft* the following year.²²²

By the time the expedition was undertaken, van der Willigen had taken on another task in Haarlem: he had been elected a member of the town council in 1872. Political parties did not exist in the Netherlands yet at this point, but only informal political “clubs”, the *kiesverenigingen*, and these also played a role in this election; both the *kiesverenigingen* that recommended candidates to their members in the local newspaper the day before the election, the “Kiesvereniging Eendracht” and the “Kiesvereniging Regt voor allen”, did not however support van der Willigen, but recommended his opponents.²²³ Nevertheless, van der Willigen was elected in a second round of elections on July 30th 1872, with a majority of 313 votes out of a total of 545 cast, and remained a member of the town council until his death in 1878.²²⁴ He was even elected one of the deputy chairmen of the council in 1874.

What is most striking about his contributions to council meetings as they were recorded in the official minutes is that he spoke out almost only on issues pertaining to matters of education, such as the appointment of school personnel or administrative matters.²²⁵ Occasionally he was involved in other activities, mostly where scientific expertise was of help, such as drafting

²¹⁹ “Directienotulen”, 06.11.1874, Haarlem, ATS, vol. 10.

²²⁰ On this expedition see: Rob van Gent, “De Nederlandse Venusexpedities van 1874 en 1882,” *Zenit* 20 (1993): 332–337; *De reizende astronoom: Nederlandse sterrenkundige expedities naar de Oost en de West* (Leiden: Museum Boerhaave, 1993). Van der Willigen is not mentioned in both articles.

²²¹ Berkel, *De Stem van de Wetenschap: Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen*, 1:416.

²²² Bakhuyzen, “Nekrolog: Volkert Simon Maarten van der Willigen,” 106.

²²³ *Haarlemsche Courant*, no. 166, 16.04.1872

²²⁴ “Gemeentebestuur Haarlem 1813-1957”, Haarlem, NHA, vol. 1323.

²²⁵ One example is the establishment of new rules concerning all schools in Haarlem at a meeting of the council on 21.12.1877, as recorded in: *Verslagen van Het Verhandelde in de Zittingen van Den Raad Der Gemeente Haarlem, 1877* (Haarlem: J. Enschedé & Zonen, 1877).

new contracts with the town's gas supplier for instance, but by and large he only showed real passion for matters of education.

3. Public Lectures & the Centennial in Philadelphia

This interest and commitment to matters pertaining to education chimes well with what has already transpired from the analysis of his time in Deventer: while van der Willigen emphasised the distinction between specialists and amateurs, he showed great willingness to further the diffusion of specialist knowledge amongst amateurs. This attitude, in turn, is important to keep in mind when trying to understand how van der Willigen saw and handled the scientific instrument collection at Teylers.

Apart from his involvement in questions that had to do with public education as a member of Haarlem's town council, there are other examples that indicate that van der Willigen's enthusiasm for the public diffusion of scientific knowledge did not wane once he had been taken on as curator in Haarlem. One of these is that he took the public lectures he was required to hold according to his contract seriously enough to acquire a valuable set of acoustic apparatus manufactured by the Parisian instrument maker Karl Rudolph Koenig. These devices don't seem to have been related to his research efforts in any way, but served purely for demonstration purposes.²²⁶ Another example is directly related to these lectures, too: in 1875, the decision was taken to expand their audience significantly. Rather than restricting access to the trustees and the members of Teylers Learned Societies, it was decided that van der Willigen and his fellow curator Winkler could distribute over a hundred tickets to whomever they pleased, to "both women and men".²²⁷ Each trustee was allowed to distribute 5 tickets and the members of the Societies were expected to attend the lectures as well. The audience totalled 150 and a new venue, outside the Teyler Foundation's premises, was agreed upon for the lectures: the "Societeit de Vereeniging". In how far van der Willigen was involved in these decisions is unclear, but there is certainly no evidence to show that he opposed them, either.

Most importantly, though, van der Willigen was the first curator on whose watch instruments from Teylers Museum's collection were sent abroad to be displayed at international exhibitions. This of course rendered them accessible to a far larger audience than if they had remained in Haarlem. What's more, by placing them in a different context different qualities could be – and were – attributed to the instruments on display. They were increasingly appreciated for their historical value, for instance.

²²⁶ Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum*, 17.

²²⁷ "zoowel vrouwen als mannen"; "Directienotulen", 24.09.1875, Haarlem, ATS, vol. 10.

The first international exhibition Teylers and van der Willigen were involved in was the Centennial in Philadelphia. This was essentially a huge trade fair, emulating the 1851 Great Exhibition in London, and was organised to celebrate the 100th anniversary of the signing of the American Declaration of Independence in Philadelphia and to showcase the technological achievements of the budding and increasingly influential United States of America. At the time, this young nation was still healing from the discord and destruction wrought by the American Civil War a little over a decade earlier.²²⁸

The Dutch government initially had strong reservations about participating. An earlier international exhibition held in New York in 1853 had apparently had “disastrous effects” for the contributors, and there was some scepticism about the rapid succession of international exhibitions, or World’s Fairs.²²⁹ These sentiments were expressed on the very first page of the final report on the Dutch display at the Centennial:

“Whether this quick succession of world exhibitions, each of which attempts to surpass its predecessors in extent and splendour, is desirable and corresponds to the conception of the great initiator of the exhibitions, the late Prince Albert of England, is very much to be doubted;”²³⁰

Nevertheless, the decision was taken to participate with an officially sanctioned Dutch display – apparently also in order to avoid private individuals filling the void and giving the impression they represented the Netherlands²³¹ – and von Baumhauer, the secretary of the Holland Society and also a member of Haarlem’s town council, was tasked with coordinating the Dutch display.

The Centennial was ultimately considered a success with more than 10.000.000 visitors attending.²³² Much like the Great Exhibition, it provided an impetus for the American museum world, with a lasting effect on the museums of Philadelphia and with the Arts and Industries Building being constructed in Washington to house exhibits from the Philadelphia show – this was the first building to be built for the Smithsonian Institution after “the Castle”.²³³ As for von Baumhauer, his work has been described as the “climax of his career”.²³⁴

Interestingly, Dutch instrument makers seem to have been reluctant to participate and were accordingly underrepresented. The only exceptions, according to the organising committee’s

²²⁸ On the exhibition see for instance: Giberti, *Designing the Centennial: a History of the 1876 International Exhibition in Philadelphia*.

²²⁹ “noodlottige gevolgen”; *Verslag aan Zijne Excellentie den Minister van binnenlandsche zaken over de Nederlandsche Afdeeling op de Internationale Tentoonstelling, gehouden te Philadelphia van 10 Mei tot 10 November 1876* (Haarlem: De Erven Loosjes, 1877), 2.

²³⁰ “Of deze spoedige opvolging van wereldtentoonstellingen, waar telkens de nieuwe haar voorgangsters in uitgebreidheid en pracht tracht te overschaduwten, gewenscht is en beantwoordt aan het denkbeeld van den grooten stichter der tentoonstellingen, wijlen Prins Albert van Engeland, mag zeer worden betwijfeld;” *Ibid.*, 1.

²³¹ *Ibid.*, 3.

²³² Giberti, *Designing the Centennial: a History of the 1876 International Exhibition in Philadelphia*, 210.

²³³ On the lasting impact of the “Centennial”, particularly on Philadelphia, see: *Ibid.*, 175–225.

²³⁴ “Hoogtepunt van zijn carrière”; Berkel, *De Stem van de Wetenschap: Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen*, 1:329.

final report, were “our famous Chronometer makers” and “The well-known Haarlem magnet manufacturer, the Bros. Van Wetteren”. The latter were awarded a prize by the Centennial’s jury “[f]or the manufacture, under the supervision of Prof. van der Willigen, of powerful magnets, composed of plates.”²³⁵ According to a guidebook to the instrument collection at Teylers Museum written by van der Willigen’s successor Elisa van der Ven in 1898, his predecessor had contributed to the exhibition in Philadelphia in another way too, by sending in a “collection of prisms, made of flint glass, spar and quartz”.²³⁶ According to van der Ven, this had earned an “honourable mention”.²³⁷ Strangely enough, however, this is not backed up by the official list of exhibits which were awarded prizes, as provided in the Dutch organising committee’s final report.²³⁸ What is incontrovertible, though, is that the Teyler Foundation sent in copies of the *Archives*. These were not only displayed in the section “Education” (*Opvoeding en Onderwijs*), but also won a prize for the “[g]eneral excellence of the display” and were subsequently donated to the Smithsonian Institution.²³⁹

4. The Special Loan Collection at South Kensington

But while the world’s attention was focused on the Centennial in North America, another major, international exhibition was taking place in London. This was the Special Loan Collection of Scientific Apparatus. It is fascinating to see how various strands of history merged here and, in as far as the overall status of scientific instruments at Teylers Museum and in other collections is concerned, the Special Loan Collection is actually of far greater importance than the Centennial.

The reason is that the organisers of the Special Loan Collection – the Committee of Council on Education – had the ambition of organising more than one of “the numerous Industrial Exhibitions which have been held in various countries”, as they explained in the Catalogue accompanying the exhibition.²⁴⁰ They elaborated that these “[Industrial] Exhibitions appeal

²³⁵ “onze beroemde Chronometermakers”; “De bekende Haarlemsche magnetenfabrikant, de Gebrs. Van Wetteren”; “Voor de vervaardiging, onder opzicht van Prof. van der Willigen, van krachtige magneten, samengesteld uit platen.” “Officieele Lijst Der Bekroonde Nederlandsche Inzenders,” in *Verslag Aan Zijne Excellentie Den Minister van Binnenlandsche Zaken over de Nederlandsche Afdeeling Op de Internationale Tentoonstelling, Gehouden Te Philadelphia van 10 Mei Tot 10 November 1876* (Haarlem: De Erven Loosjes, 1877), 24.

²³⁶ “collectie prisma’s van flintglas, spath en kwarts”; Elisa van der Ven, *Gids door de Verzameling Physische Instrumenten in Teyler’s Museum* (Haarlem: De Erven Loosjes, 1898), 14. The items in question are listed under cat.-no. 543 in: Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum*, 145.

²³⁷ “eervolle vermelding”; Ven, *Gids door de Verzameling Physische Instrumenten in Teyler’s Museum*, 14.

²³⁸ “Officieele Lijst Der Bekroonde Nederlandsche Inzenders.”

²³⁹ “Algemeene voortreffelijkheid van het tentoongestelde”; For the prize see: *Ibid.*, 38. For the donation see: *Ibid.*, 72.

²⁴⁰ *Catalogue of the Special Loan Collection of Scientific Apparatus at the South Kensington Museum*, 3rd ed. (London: Eyre & Spottiswoode, 1877), xiii.

naturally, more or less exclusively, to the industrial or trade-producing interests” of the countries involved in the Exhibition and continued:

“This was not the idea of the proposed Loan Collection at South Kensington. For that Collection it was desired to obtain not only apparatus and objects from manufacturers, but also objects of historic interest from museums and private cabinets, where they are treasured as sacred relics, as well as apparatus in present use in the laboratories of professors.”²⁴¹

Recall how, some 40 years earlier, it had still been exceptional that van Breda had decided not to dispose of many of the instruments acquired by van Marum. By the 1870s, appreciation for the material witnesses of the history of science was evidently on the rise.

Just as strikingly, the Committee’s aim in organising this exhibition was to initiate “the creation of a Science Museum”.²⁴² Again, this was stated quite forthrightly in the catalogue to the Special Loan Collection, in the description of one of the Committee’s first meetings:

“Their Lordships [of the Committee] stated their conviction that the development of the Educational, and certain other, Departments of the South Kensington Museum, and their enlargement into a Museum somewhat of the nature of the *Conservatoire des Arts et Métiers* in Paris, and other similar institutions on the Continent, would tend to the advancement of science, and be of great service to the industrial progress of this country.”²⁴³

The next sentence, however, proved more decisive:

“While expressing their hope that the Loan Collection might forward this desirable object, their Lordships guarded themselves against committing Her Majesty’s Government, which had not yet fully considered the subject, to any definite scheme.”

In other words, there was no money available. In fact it was going to take more than three decades before an independent “Science Museum” was created out of parts of the South Kensington Museum’s collections in 1909.

Nevertheless, the fact that these sentiments were being expressed so clearly at this point in history and that the Special Loan Collection was held at all can be seen as the culmination of a variety of developments in history that now began to have a strong bearing on the way in which scientific instruments – or instrument collections – were displayed and perceived. Firstly, there was the growing authority of “science”: not only had this come to be seen as one of the root causes for Western societies’ recent rapid progress, it had also come to be seen as an area in which it was worth pursuing a career. Secondly, there was the tradition of the World’s Fairs, or “International Industrial Exhibitions”, as the Committee would have phrased it: even though the Special Loan Collection was supposed to be different, the World’s Fairs still acted as a foil for it. Thirdly, there was the – intended – venue: the South Kensington Museum; it was only because of “various circumstances, which could not be foreseen”²⁴⁴ that

²⁴¹ Ibid.

²⁴² Ibid., xi.

²⁴³ Ibid.

²⁴⁴ Ibid., xviii.

the Special Loan Collection was held in galleries nearby.²⁴⁵ Fourthly, there was the notion that a Museum – with a capital “M” – that had been established through the expansion of another Museum’s “Educational Department”, could serve the “advancement” of science. Clearly, museums were strongly associated with permanent, public, educational exhibitions.

At least it is crystal clear that this was now the case in England. But the ideas developed by the Committee of Council on Education in London were evidently not met with any form of resistance or considered overly strange in the Netherlands, either – or there would have been no reason to form a Dutch committee tasked with ensuring that instruments were sent in from the Netherlands and consisting of some of the most eminent scientists of their day.

More to the point, van der Willigen was a member of this commission and the Teyler Foundation contributed both historical items from its collections and apparatus that van der Willigen had recently used in his research. (Some of the other members of the commission were Buys Ballot and Bosscha jr. It was presided over by Pieter Leonard Rijke, who held the chair in physics at the University of Leiden.²⁴⁶) According to the catalogue, of the instruments the Teyler Foundation submitted, those van der Willigen had recently used were: a collection of prisms, six Nobert refraction gratings, artificial magnets produced by van Wetteren, a ring developed by Elias for the magnetisation of artificial magnets and a vacuum tube for electric discharge.²⁴⁷ Instruments that were clearly of historical value were: a large natural magnet acquired in 1810, a Leyden jar and Leyden battery used by van Marum, two repulsion electrometers made by van Marum and a terrestrial refractor made by the Amsterdam instrument maker van Deyl in 1781.²⁴⁸ To top off this selection, the Foundation also submitted all three volumes of the *Archives* thus far published.²⁴⁹

In a remarkable demonstration of his historical awareness, in the explanatory caption accompanying the description of the 18th century Leyden Jar which van der Willigen wrote for the catalogue to the exhibition, he reported that its “coatings of tinfoil have been renewed recently; but all is restored in the form in which it was used by Van Marum”.²⁵⁰ In other words, van der Willigen had had the Leyden Jar restored – not just repaired – shortly before the Special Loan Collection. This is a clear indication that, while his primary focus was research and van der Willigen was constantly expanding the Foundation’s instrument collection to this end, he was well aware of the historical value of the items in the collection that his predecessors had left him.

In fact the caption in the catalogue explaining why the *Archives* had been submitted insinuates that, had it been transportable, the Foundation and van der Willigen would even have been

²⁴⁵ Peter R. de Clercq, “The Special Loan Collection of Scientific Apparatus, South Kensington, 1876, Part 1: The ‘Historical Treasures’ in the Illustrated London News,” *Bulletin of the Scientific Instrument Society* no. 72 (2002): 11.

²⁴⁶ *Catalogue of the Special Loan Collection of Scientific Apparatus at the South Kensington Museum*, xvi.

²⁴⁷ *Ibid.*, 209 & 229 & 280 & 285 & 322.

²⁴⁸ *Ibid.*, 279 & 319 & 328. Cf. Peter R. de Clercq, “The Special Loan Collection of Scientific Apparatus, South Kensington, 1876, Part 2: The Historical Instruments,” *Bulletin of the Scientific Instrument Society* no. 73 (2002): 14.

²⁴⁹ *Catalogue of the Special Loan Collection of Scientific Apparatus at the South Kensington Museum*, 1064.

²⁵⁰ *Ibid.*, 319.

willing to include the Cuthbertson electrostatic generator in the Special Loan Collection.²⁵¹ Transporting this fragile instrument across the Channel was of course too hazardous to contemplate, but this makes it all the more remarkable that the electrostatic generator was put on display at the Paris Electrical Exhibition in 1881, as was described in detail at the beginning of the introductory chapter to this study.

5. Febris Rheumatica Articularis

Tragically, van der Willigen had died suddenly and unexpectedly early in 1878, at the age of 55. The cause of death given in Haarlem's municipal records is "febris rheumitica articularis", which probably means he suffered a heart attack as the result of rheumatic fever, i.e. an autoimmune disease.²⁵² Just how sudden his death was is illustrated by the fact that he had been elected president of the Society for Industry and Trade in Haarlem (*Maatschappij voor Nijverheid en Handel*) less than a year before.²⁵³

So van der Willigen did not live to see the electrostatic generator put on display in Paris, but one can see its presentation at the Electrical Exhibition and its celebration there as a "monument of science" as the continuation of van der Willigen's efforts to contribute to both of the international exhibitions held in 1876.²⁵⁴ The fact that he was evidently supportive of the Special Loan Collection in particular suggests he would not have objected to the Cuthbertson machine being transported to Paris.

By the time of the Electrical Exhibition, the changes affecting science and the overall role of collections and museums that were so clearly reflected in van der Willigen's entire professional biography, became physically manifest at Teylers Museum. More specifically, the new annex mentioned at the beginning of this chapter was being built. Van der Willigen actually still witnessed the early construction work. In one of his last letters, written to the anthropologist Pieter Johannes Veth in November 1877, van der Willigen reported: "The Trustees have [...] building plans in mind; next to me lie the remains of three demolished houses, where next year a new building is to arise;"²⁵⁵

It took far more than a year for this new building to be completed. But when it finally was opened to the public in 1885, its impact on the way the museum's collections were handled and perceived was profound. Ultimately, they were a major factor in transforming Teylers

²⁵¹ Ibid., 1064.

²⁵² "Gemeente Haarlem Doodsoorzaken 1878", Haarlem, NHA.

²⁵³ Bakhuyzen, "Nekrolog: Volkert Simon Maarten van der Willigen," 100.

²⁵⁴ "Monument of science" was the term used in the official catalogue to the Paris Exhibition. See the introduction to this study for more detail.

²⁵⁵ "De H.H. Directeuren hebben [...] bouwplannen in het hoofd; naast mij liggen drie panden afgebroken, waarop in het volgende jaar een nieuw gebouw moet verrijzen;" V.S.M. van der Willigen to P.J. Veth, 05.11.1877, Leiden, Epistolarium Veth, UBL BC, BPL 1756.

Museum into a museum of the history of science. That, however, is the topic of the next chapter.

Chapter V: Lorentz – Function Follows Form and Theory Leads to Experiment

I. Dire Straits (Intro)

By the mid- 1920s the Teyler Foundation had hit dire straits financially. At a meeting in May 1926, one of the trustees graphically summarised that money was “tighter than tight” and the Foundation’s current situation “unsustainable”.¹ This was not an exaggeration. In fact the situation was so serious that, at this particular meeting, the trustees began debating what should be liquidated first, should the worse come to worst: the Foundation’s collection of paintings or its scientific laboratory.

As events unfolded, the trustees were not forced to make any such stark choices. For the next few decades, selling off all duplicate drawings and prints from the Foundation’s collections and economising by cancelling various annual contributions to other institutions proved sufficient to keep the Foundation and all the institutions it financed – i.e. its almshouse, the Learned Societies and Teylers Museum – operating. Nevertheless, the fact that such scenarios were debated in the first place of course struck at the heart of the Foundation’s identity.

The fact that the Foundation found itself in financial difficulties is all the more striking because this would have been virtually unimaginable just a few years earlier. On the eve of World War I, to an outsider at least the Foundation’s resources would have seemed almost limitless. Over the preceding decades, three events in particular would have helped bolster the impression that the Foundation’s trustees were a safe pair of hands where money was concerned: in 1885, the hitherto largest and lavishly decorated extension to the museum had been inaugurated; then, just eight years later and as if to prove that their resources had not been stretched to the limit, the trustees added another glamorous-looking annex to the museum – the so-called Second Art Gallery; finally, in 1912 the Foundation appointed the Nobel Prize laureate Hendrik Antoon Lorentz as curator of the Foundation’s laboratory and instrument collection – a clear sign that Teylers Museum was still held in high regard in scientific circles.

Yet it was during the negotiations on Lorentz’ contract that the first augurs of what was to come might already have been discernible: one trustee, Louis Paul Zocher, opposed the Nobel

¹ “Directienotulen”, 14.05.1926, Haarlem, ATS, vol. 15: “De heer Tadema wijst er op dat men overal krappere dan krap zit”.

Prize winner's appointment.² Not, he emphasised, because he doubted the physicist or that his appointment would greatly enhance the Foundation's standing, but because he had sincere doubts about the other trustees' idea to offer Lorentz more than three times the financial resources his predecessor, Elisa van der Ven, had received. Zocher was not sure the Foundation's finances could take this added strain.

He failed to persuade the other trustees that his doubts might be well-founded, however, and indeed even Zocher could not have foreseen how the world was going to change within the timeframe of just a few years and how profound an impact these changes were to have on the financial sector in general and the Foundation's finances in particular. World War I of course caused havoc – even if the Netherlands remained neutral throughout; the Russian Revolution made Russian state bonds – of which the Teyler Foundation held many – worthless overnight;³ new taxes targeted wealthy individuals and institutions – such as the Teyler Foundation; and after the War the German economy was in the doldrums – 1923 saw hyperinflation hit the fragile Weimar Republic. Inevitably, all these factors gradually took their toll on the Teyler Foundation.

And while these financial developments had a huge impact on the overall status, scope and handling of all collections at Teylers Museum, the scientific instrument collection in particular was affected by another fundamental shift that was taking place within the world of science. More specifically, the nature of scientific research was changing: all research in the physical sciences was increasingly becoming a team effort; projects were conducted by groups of scientists, rather than individuals – as had been the case for most of the 19th century.

This, in turn, was reflected by the size of research laboratories: they were becoming increasingly large. A prime example is the research laboratory at Leiden University, where Lorentz himself had spent the largest part of his career before coming to Haarlem. Over the course of his career, Lorentz could watch as his contemporary, fellow physics professor in Leiden and fellow Nobel Prize laureate Heike Kamerlingh Onnes expanded the physics department's research facilities from a small laboratory in one wing of a building reserved for the natural sciences, into a series of rooms filling not only the entire original building, but also two equally large annexes to the first edifice.⁴

By way of contrast, the Teyler Foundation had neither the resources nor the physical space to extend its laboratory on such significant a scale. Van der Ven had been provided with new laboratory premises and they were exquisitely refurbished for Lorentz upon his arrival; Lorentz was even provided with a full-time assistant – but at heart, the Foundation's laboratory remained a one-man enterprise, thereby betraying its 18th century roots and with no means for expansion. By the time Lorentz retired – even, as we shall see, during his tenure – the laboratory had become outmoded and was therefore no longer competitive.

² “Directienotulen”, 10.12.1909, Haarlem, ATS, vol. 13.

³ The worthless Russian bonds were kept in the Foundation's archives: “Coupons”, c. 1917, Haarlem, ATS, vol. 2414.

⁴ On this see: Dirk van Delft, *Freezing Physics: Heike Kamerlingh Onnes and the Quest for Cold*, vol. 10, History of Science and Scholarship in the Netherlands (Amsterdam: KNAW, 2007).

Yet while this somewhat sombre assessment of developments in Haarlem after World War I suggests that, by this time, the Teyler Foundation and with it Teylers Museum may have passed their prime as a nodal point of Dutch intellectual life, on another level the Foundation was enjoying unprecedented success: Teylers Museum was enjoying unprecedented acclaim as a museum for the general public. Not only did the museum's 1885 extension with its neo-classical, clearly visible entrance façade establish its status as a public institution devoted to the arts and sciences (the new entrance positively embraced the public); but by the beginning of the 20th century Teylers Museum's instrument collection was also widely recognised as harbouring great importance for the history of science.

This last point forms the overarching theme of this chapter: the way in which Teylers Museum increasingly took on a role as museum of the history of science – alongside its role as a public art museum – around the turn of the century.

As in the previous two chapters, one of the curators' of the scientific instrument collection's professional and personal biography – particularly his activities at Teylers Museum – can serve as a vantage point from which to gauge and understand the overall changes taking place in the way the museum's collections were perceived and handled. In this chapter, the spotlight is on Hendrik Antoon Lorentz.

By way of summary and to provide an idea of the timeframe this chapter will be dealing with, Lorentz was appointed to the newly created chair in theoretical physics at Leiden University in 1877, negotiations concerning his appointment as curator of the Teyler Foundation's laboratory and instrument collection commenced in 1909, he was officially employed by the Foundation as from 1912, and he held the post of curator until his death in 1928.

The emphasis here is not so much on Lorentz' biography, but on his tenure as curator in Haarlem. Particular attention will be paid to questions such as why Lorentz was approached by the trustees in the first place, why he accepted the post of curator at Teylers, what this reveals about the Foundation's self-image, and in how far Lorentz' appointment and activities during his tenure reflect his own views on the meaning and purpose of scientific research.

What's more, the period during which Lorentz was an employee of the Teyler Foundation is particularly interesting not only because this coincided with the Foundation's financial decline and the Foundation's laboratory gradually losing its status as one of the major hothouses of experimental research in the Netherlands, but also because it saw the emergence of a whole new type of museum: the museum of the history of science. Whereas Teyler Museum's status as (part) museum of the history of science had still been exceptional upon Lorentz' arrival – just a few years before, for example, it had served as a reference point for the founders of the Deutsches Museum in Munich, which is itself considered to be one of the first modern "science museums" in the world – by the time Lorentz passed away a whole range of museums devoted to the history of science were about to be founded. By the 1930s the towns of Leiden, Oxford and Florence (to name just a few) played host to such institutions.

So the spotlight is on Lorentz in this chapter; but it needs to be said that, in order to fully understand the events taking place during his tenureship both within Teylers Museum and outside Teylers Museum, one has to obtain a profound sense of the changes that had taken place over the course of the decades preceding Lorentz' arrival in Haarlem. More attention than might at first seem necessary will therefore be devoted to the final decades of the 19th century.

More specifically, the first half of this chapter focuses on events that took place before Lorentz was even asked to take up the post of curator. Firstly, an overview of the changes in the Dutch government's cultural policy will be given and a closer look will be taken at the construction of Teylers Museum's new annex. Questions such as why it was built, why its particular design was chosen, and what this reveals about the trustees' ideas on what role the museum was to fulfil, and how this is related to the policy changes taking place during the same period are addressed. Secondly, a summary of the biographies of the curators who were in charge of the scientific collections at Teylers Museum during the late 19th century, Tiberius Cornelis Winkler and Elisa van der Ven, are provided. These provide background information that allow for a better assessment – thirdly – of the full impact the new annex to the museum had on Teylers Museum's overall character. The changing way in which the scientific collections in particular were perceived is illustrated through the publication of two popular guidebooks, written by Winkler and van der Ven for a lay audience. Having identified how Teylers Museum had changed by the early 20th century, Lorentz' activities in Haarlem can then be analysed.

But first, the spotlight is on developments taking place while Lorentz was still in his 20s.

II. A New Type of Museum

1. New Government Policy in the 1870s

The 1870s saw a major overhaul of the Dutch government's cultural policy. Most importantly, instead of steadfastly following a sort of mantra that all matters pertaining to culture should essentially be left to private initiative, the government began to take responsibility for its nation's cultural heritage and became actively involved in its preservation. This of course included it becoming more involved in the running of the state's own museums, and this change of policy was therefore also most strikingly represented by the construction of a new, monumental building for the *Rijksmuseum* in Amsterdam, which was completed in 1885.

One man's name in particular is associated with these changes: that of Victor de Stuers. This nobleman from the Southern region of Brabant became something of a household name when he published an exceedingly well-written polemical article of more than 80 pages in the

journal *De Gids* in November 1873.⁵ In this essay he used witty sarcasm to point out what he saw as the detrimental long-term effects of the liberal *laissez-faire* policy the Dutch government had adopted over the course of the previous decades.

Inevitably, his accusatory article contained many exaggerations – in complaining for example that the *Rijksmuseum*’s current housing at the *Trippenhuis* in Amsterdam was inadequate, he failed to mention that others before him had consistently struggled in vain to secure state funding for a new building and, instead, de Stuers described the museum’s board of trustees as a group of elderly men, some of whom were so frail they were “unable to reach even the first floor” of the *Trippenhuis* for their annual meetings.⁶ Yet at the same time, his main arguments were largely irrefutable.⁷ De Stuers had identified something that had the potential to shame the Dutch nation, and he skilfully played this card, exclaiming for instance that he had almost felt too ashamed to admit he was Dutch when he saw a Dutch work of art on display at the South Kensington Museum.⁸

It is striking just how often the South Kensington Museum is mentioned in de Stuers’ essay. It is clear that he is deeply impressed by this institution created by Henry Cole and Prince Albert. In fact the most prominent example he uses to illustrate the systematic damage caused by what he sees as ignorance of the value of the Dutch nation’s cultural heritage has a link with the museum in London: de Stuers describes how the Renaissance rood screen at St John’s Cathedral in ‘s Hertogenbosch had been dismantled for practical and aesthetic reasons – and was acquired by the South Kensington Museum, where de Stuers claims to have been utterly stunned to find it on display.⁹

There are more indications that de Stuers was impressed by what he saw in London. In a section of the article in which he praises British museum policy for instance, he mentions that “there are refreshment rooms in the buildings”, even using the English term “refreshment rooms” in the Dutch text – what he presumably had in mind while writing this, is the restaurant at the South Kensington Museum.¹⁰ Recall how this was the very first museum to include an area offering culinary refreshments.¹¹

What makes de Stuers’ enthusiasm for the South Kensington particularly relevant is that he clearly endorses the ideals that led to its establishment, as was described in the previous chapter. Although it has been suggested that de Stuers primarily attached importance to museums as places for professional and scientific studies¹², various passages from the 1873

⁵ Victor de Stuers, “Holland op zijn smalst,” *De Gids* 37, no. 4 (1873): 320–403.

⁶ On the inadequacy of the caricature painted by de Stuers see: Ellinoor Bergvelt, *Pantheon der Gouden Eeuw: van Nationale Konst-Gallerij tot Rijksmuseum van Schilderijen (1798-1896)* (Zwolle: Waanders, 1998), 202. The relevant passage reads: “De Raad van Bestuur, die eens in het jaar vergadert, bestaat uit vier personen, waarvan twee door hun hoogen ouderdom (83 en 72 jaren) buiten staat zijn zelfs de eerste verdieping te bereiken.” Stuers, “Holland op zijn smalst,” 341.

⁷ Frederik J. Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed* (The Hague: Staatsuitgeverij, 1975), 66.

⁸ Stuers, “Holland op zijn smalst,” 372.

⁹ *Ibid.*, 367–373.

¹⁰ “er zijn refreshment rooms in de gebouwen aanwezig”; *Ibid.*, 341.

¹¹ See the previous chapter or: Krzysztof Pomian, “The South Kensington Museum: A Turning Point,” in *Art and Design for All: The Victoria and Albert Museum* (London: V&A Publishing, 2011), 42.

¹² Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 67.

essay make clear that he would have agreed fully with Henry Cole's idea that museums should have a civilizing, educational function, while also helping bolster the nation's economy. As de Stuers puts it himself, previous Dutch governments had not understood

"that museums are one of the most indispensable and most powerful driving forces for the development of the people, for the promotion of art and industry, and finally for the increase of general prosperity."¹³

A few pages earlier he had left no doubt about the fact that he thought the fine arts could have a civilizing effect, saying:

"we shall not dwell for long upon the beneficial influence that the pursuit of the fine arts will have on the general refinement and development of the people."¹⁴

And the nobleman de Stuers also clearly stated that he thought museums could have a civilizing effect on the uneducated, lower classes – again echoing Cole's sentiments when he laments that Dutch museums are not open as long as their British counterparts. De Stuers proposes opening all museums on Sundays:

"On Sundays, I think, access should be made available as widely as possible. Lower-class people, unfortunately, don't know what to do with their leisure time, and it would be a highly moral endeavour to give them the opportunity to uplift their hearts and minds when they see the splendid products of the Creator and of men."¹⁵

Crucially, De Stuers found himself able to actively work towards the implementation of these ideals in the Netherlands when, less than two years after he published his famous essay, a new department of the arts and sciences was set up at the Dutch ministry of the interior (*Afdeling Kunsten en Wetenschappen*) and none other than de Stuers himself was instated as the head of this new department and was awarded the rank of senior civil servant. He was 31 years old at the time, and remained on in this position for more than a quarter of a century, until he was placed on "non-active" status when he was elected a member of the Dutch parliament for the town of Weert and its surrounding regions in the Southern Netherlands.¹⁶

Through this position and his skills at playing the state bureaucracy, he was able to exert huge influence over the government's handling of cultural matters. To name just some of the most important examples: he was intricately involved in the establishment of the *Rijksmuseum* at its new building and its overall acquisition policy;¹⁷ he helped ensure that – for the first time in

¹³ "dat de musea een der meest onontbeerlijke en der krachtigste hefboomen zijn tot ontwikkeling van het volk, tot bevordering der kunst en der industrie, en ten slotte tot verhooging van de algemeene welvaart." Stuers, "Holland op zijn smalst," 337.

¹⁴ "Wij zullen niet lang stilstaan bij den gunstigen invloed dien de algemeene beschaving en ontwikkeling van het volk ondervinden door de beoefening der schoone kunsten." Ibid., 322–323.

¹⁵ "Op Zondag zoude het - dunkt mij - zaak zijn de toegangen zoo wijd mogelijk open te stellen. De mindere man weet helaas dan met zijn ledigen tijd geen raad, en men zou een zeer moreel werk verrichten wanneer men hem in de gelegenheid stelde zijn hart en zijn geest te verheffen bij het zien van de heerlijke voortbrengselen van den Schepper of van de menschen." Ibid., 338.

¹⁶ Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 6–7 & 16.

¹⁷ For examples of his involvement see: Bergvelt, *Pantheon der Gouden Eeuw: van Nationale Konst-Gallerij tot Rijksmuseum van Schilderijen (1798-1896)*, 223–224.

decades – funds were made available for a better upkeep of state museums’ collections and new acquisitions once again became possible;¹⁸ he lobbied for trade restrictions on artefacts deemed to be of heritage value so that they could not be exported so easily;¹⁹ and he took the initiative to establish the “Rembrandt Club” (*Vereniging Rembrandt*), which could provide museums with interest-free loans to acquire items for their collection which exceeded their annual budget.²⁰

A measure of the extent to which his ideas on cultural policy caught on, is the gradual expansion of “his” department: when de Stuers arrived he had funding for one assistant, but by the time he left the department consisted of five people, including its head.²¹ So he had evidently also succeeded in having his ideals engrained within the bureaucratic apparatus of Dutch government.

At this point it has to be said that Victor de Stuers of course did not perform the Herculean task of changing an entire government’s decade-long policy entirely on his own. There can be no doubt about the profundity of his influence, but it is also important to realise that he would never have been able to effect so many changes if there had not been some sort of wider consensus on the validity of his ideas and efforts.

That de Stuers was not some kind of lone warrior, but more of a figurehead of a far broader movement, is in turn important to keep in mind when assessing what was happening at Teylers Museum in 1870s and 1880s. More specifically, it provides the backdrop against which the construction of the new annex to the museum during these years needs to be seen.

2. The New Annex to Teylers Museum

As with all the other sections of the museum building, frustratingly little archival material that could throw some light on both the reasons for its construction and the process thereof, has been preserved in the Foundation’s archives. According to the minutes of the trustees’ meetings, the first time they discussed a possible expansion of the museum premises was in February 1877.²² Yet by this time they had already acquired three neighbouring houses, which would eventually be torn down to make way for the new extension. It is unlikely that the possibility of enlarging the museum would not have been discussed during the acquisition process of these properties, i.e. before February 1877.

Be that as it may, by the beginning of 1877 the trustees clearly agreed on the fact that a new wing should be added to the museum building. No details as to why this decision was taken

¹⁸ Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 146.

¹⁹ *Ibid.*, 14–16.

²⁰ *Ibid.*, 8.

²¹ *Ibid.*, 16.

²² T. van Gestel and A.W. Reinink, “Het ‘nieuwe museum’ van Teyler (1877-1885),” in *“Teyler” 1778-1978* (Haarlem; Antwerpen: Schuyt, 1978), 224.

are provided in the relevant meetings' minutes, but a handwritten, nine-page account of the construction of the annex, which was compiled after the building works had been completed in 1885, gives two plausible reasons. The first was that the trustees wanted to commemorate the hundredth anniversary of the Teyler Foundation's establishment in 1778, the second is that the museum was bursting at the seams. The relevant passage in the account itself reads as follows:

"Many problems had already arisen, because for many years a need had been felt for more space; the physics cabinet was too small; by purchasing many books and particularly through the acquisition of a large number of Journals as a result of exchange, the space in the library had become too restricted; the palaeontological Cabinet became too small due to the many acquisitions, and in particular there was a need 1^o for a large auditorium for lectures, which are usually held in winter, 2^o for a room for meetings to examine works of art [*kunstbeschouwingen*] and where drawings (or something else) can be permanently exhibited."²³

In March 1877 an architectural competition for designs for the new annex was announced in various newspapers.²⁴ By September of that year 18 architects had submitted plans. They were required to do so anonymously, and their plans had to meet a fairly long list of requirements. The trustees had even provided a basic sketch of the arrangement of the various sections of the building, which the architects were not to deviate from. The building was to consist of two storeys, with room for an auditorium and library space on the upper floor, and three large rooms on the ground floor, for the palaeontological collection and the scientific instrument collection. Other requirements included an office for the museum's caretaker, fire precautions, and an entrance area with some sort of monumental staircase leading to the first floor.

The construction of a new entrance area became possible because the private houses that had been acquired to make room for the new museum building faced out onto one of the four roads surrounding the block of houses that Teyler's old town house formed a part of. Recall how Pieter Teyler had stipulated that his town house was never to be demolished, and how the original museum building, the Oval Room, had been constructed behind this town house and was only accessible through Teyler's former abode. Ever since the 1780s, Teyler's former front door had been the – accordingly inconspicuous – entrance to Teylers Museum.

With the acquisition of the extra properties, however, it had become possible to create a new access route to the museum. What's more, these properties opened out onto a different road than the one Teyler's former house was on – they opened out onto "the Spaarne", one of

²³ "Er hadden reeds vele bezwaren opgedaan, want sedert vele jaren deed zich meer en meer de behoefte gevoelen aan meerdere ruimte; het physische kabinet was te klein; door den aankoop van vele boeken en vooral door het aanschaffen van een groote aantal Tijdschriften ten gevolge van den ruilhandel werd de ruimte op de bibliotheek te gering; het paleontologische Kabinet werd door de vele aankooen te beperkt, en vooral deed er zich eene behoefte gevoelen 1^o aan een groote auditorium voor de lezingen, welke gewoonlijk 's winters plaats hebben, 2^o aan een lokaal voor kunstbeschouwingen en waar voortdurend teekeningen (of iets anders) tentoongesteld zouden kunnen worden." "Teyler's Fundatie te Haarlem", 1867-c.1887, ATS, vol. 78, fol. 199.

²⁴ For the following information on this competition see: Gestel and Reinink, "Het 'nieuwe museum' van Teyler (1877-1885)," 226–228.

Haarlem's main canals. This meant that the museum premises would become accessible from two sides. The entire conglomerate of museum buildings – Teyler's old town house, the Oval Room, the First Art Gallery and the newest annex – now sort of snaked their way through the block of houses of which Teyler's own house formed a part. Crucially, as a result, it now became possible to render the inconspicuous access route through Teyler's old house a back entrance rather than the main entrance, by constructing a second, purpose-built entrance on "the other side" of the complex of buildings.

It seems that – in architectural terms – the mastermind behind these plans was the trustee L.P. Zocher, who was himself an accomplished architect. Over the course of his career he was involved in designing a number of mansions in Haarlem, some of them together with his even better known father, Jan David Zocher.²⁵ At any rate it was the younger Zocher who drew up the detailed requirements the entrants to the architectural competition were provided with.²⁶ It is plausible that in drawing up the plans for the competition he might also have consulted another architect, Jacob Ernst van den Arend, who at this point was working part-time for Teylers Museum as caretaker of its buildings. In 1862 van den Arend had designed Haarlem's town museum in the town house (*Stadhuis*), where the paintings by Frans Hals that were owned by the municipality were put on display.²⁷ So he was no stranger to designing exhibition areas. Furthermore, he cooperated with Zocher on at least one project in Haarlem.²⁸ And in the early 1890s, van den Arend designed the next extension to Teylers Museum, the so-called Second Art Gallery, adjacent to the First Art Gallery.²⁹

Ultimately, the amount of detail provided by the trustees meant that the only part left entirely to the architects' imagination was the entrance façade facing the street, i.e. the entrance area to the building. The trustees stated somewhat ominously that "[t]he façade facing the Spaarne must, as the main entrance, be worthy of the [Teyler] foundation".³⁰

This implies that they were well aware just how important this part of the building was going to be – as, indeed, does the unfolding of subsequent events.³¹ Because, in a nutshell, all the trustees retained from the architectural competition was the design of the museum's entrance façade. They decided not to award any of the entrants the full prize money, but did single out two designs and offered the author of one of them – the comparatively young architect Christian Ulrich from Vienna – the sum of f5000,- to be allowed to use his design for the entrance façade. Ulrich agreed and provided numerous depictions of possible slight variations to his original design, along with a detailed scale model of the museum's entrance area as he wanted to build it. Zocher even travelled to Vienna to pick up this model and discuss Ulrich's plans in person in February 1879.

²⁵ See: Wim de Wagt and Jos Fielmich, *Architectuurgids Haarlem* (Rotterdam: Uitgeverij 010, 2005), 77 & 89.

²⁶ Gestel and Reinink, "Het 'nieuwe museum' van Teyler (1877-1885)," 227.

²⁷ Saskia Groot Koerkamp, "Teylers Tweede Schilderijenzaal: Mee Met de Tijd" (bachelor thesis, Utrecht University, 2011).

²⁸ Wagt and Fielmich, *Architectuurgids Haarlem*, 80.

²⁹ Koerkamp, "Teylers Tweede Schilderijenzaal: Mee Met de Tijd."

³⁰ "De gevel aan het Spaarne moet, als hoofdingang, der stichting waardig zijn"; as quoted in: Gestel and Reinink, "Het 'nieuwe museum' van Teyler (1877-1885)," 228.

³¹ The following account is based on the information provided in: Gestel and Reinink, "Het 'nieuwe museum' van Teyler (1877-1885)."



*Fig.8. The entrance to Teylers Museum after 1885
(Teylers Museum, Haarlem, AN159)*

The museum's façade was subsequently built in accordance with Ulrich's design. Yet Ulrich himself was never involved in the actual implementation of his ideas. In fact, he never appears to have set foot in Haarlem. The trustees had decided to appoint a Dutch architect to oversee the construction of the new annex. Why exactly they decided not to employ Ulrich is not clear. For one, it was certainly more practical to have a "local", i.e. Dutch architect in charge of the building work. But at the same time, the decision implies that the trustees attached particular importance to the entrance façade, simply because they seem to have gone to greater lengths to ensure its high quality than they did with other parts of the building.

At first they had entrusted the Amsterdam architect Jan L. Springer with overseeing the construction of the new wing to the museum, but when he failed to meet various deadlines the trustees decided to part ways with him. In May 1878 they replaced Springer with A. van der Steur jr., whom Zocher had worked with on a number of projects himself (and whose surname is perhaps confusingly similar to that of Victor de Stuers).³² Van der Steur was ultimately responsible for the design and the construction of the entire remainder of the new building, although some of the art work or the mezzanine floor was produced by experts from as far away as Frankfurt am Main. With regard to the arrangement of the building, van der Steur essentially adhered to Zocher's plans, as they had been presented in the announcement of the architectural competition for the new annex. As far as the aesthetics of the building –

³² Wagt and Fielmich, *Architectuurgids Haarlem*, 77 & 82.

particularly those of the interior – were concerned, he seems to have used Ulrich’s design of the entrance façade as a reference point. This was in fact already noted by the first journalist who is known to have published an extensive description of the new museum premises once they had been completed, and again highlights how important the entrance façade was.³³

With the planning phase largely completed, in November 1879 the cornerstone to the new museum premises was laid by the president of the Teyler Foundation’s trustees, van der Vlugt, during a small ceremony to mark the occasion. Inevitably, the construction work suffered a few setbacks over the course of the following months and years – soon after building had commenced, an unexpected bout of frost damaged the groundwork for instance, or in October 1880 parts of the entrance façade crashed to the ground.³⁴ In the overall scheme of things however, these setbacks remained minor in scale, and building work commenced rapidly. In January 1885, the new annex was ready to be used. The author of the hand-written account from which was already quoted above summarised:

“On Sunday, 18 January 1885, the new rooms of the Museums were opened for many invited guests, the master builders and the architect, and on 26, 27 & 28 January many interested persons and accompanying ladies were admitted so that they could inspect [the new premises].³⁵

One of the tickets required by the general public to enter the museum during these three days has been preserved in the museum archives, and reveals that the building was accessible between 11am and 3pm.³⁶ The auditorium had already been inaugurated with a public lecture by the curator of physics Elisa van der Ven on January 23rd, but the collections had not been transferred to the new building yet. The curators soon began to do so, though, and the exhibition area was largely refurbished by the summer of 1885.³⁷

3. Awe my Guard

The impact of its new premises on the overall character of the museum can hardly be overestimated. It is not just that the museum roughly doubled in size; what was even more striking about the new building and, at the same time, reveals much about how the trustees

³³ J. Craandijk, “Pieter Teyler van der Hulst en zijne Stichting te Haarlem,” *Eigen Haard* 11 (1885): 118. Van Gestel and Reinink clearly confirmed this on the basis of their own research: Gestel and Reinink, “Het ‘nieuwe museum’ van Teyler (1877-1885),” 284.

³⁴ On the problems caused by frost see: Gestel and Reinink, “Het ‘nieuwe museum’ van Teyler (1877-1885),” 253. On the setback building the façade see: “Teyler’s Fundatie te Haarlem”, 1867-c.1887, ATS, vol. 78, fol. 202.

³⁵ “Op Zondag, 18 Januari 1885, werden de nieuwe lokalen der Musea voor vele genoodigden, de bouwmeesters en den architect opengesteld, en den 26, 27 & 28 Januari werd aan vele belangstellenden met hunne dames ook de toegang verlend om deze in oogenschouw te nemen.” “Teyler’s Fundatie te Haarlem”, 1867-c.1887, ATS, vol. 78, fol. 206.

³⁶ The ticket can be found in: “Teyler’s Fundatie te Haarlem”, 1867-c.1887, ATS, vol. 78.

³⁷ “Teyler’s Fundatie te Haarlem”, 1867-c.1887, ATS, vol. 78, fol. 206-207.

saw the museum's overall role at this point in history, is the entrance façade that was constructed as part of the new annex.

It has already been pointed out that the trustees were clearly aware of the symbolism of constructing a new entrance. The fact that they realised just how much of an effect the entrance area in itself would have on the entire museum and particularly how it was perceived, is reflected by the pivotal role the façade was accorded throughout the process of designing the Foundation's newest building. It has also been pointed out how strongly the new entrance contrasted with the old way of access to Teylers Museum, i.e. through Teyler's old town house. In other words, the fact that the museum was provided with a specifically designed entrance area in itself already marks a turning point in the museum's history and, as was already mentioned in previous chapters, was clearly reflected by a significant increase in visitor numbers. The records indicate that attendance increased about fourfold, increasing to about 3000 annually after 1885.³⁸

But what still deserves a little more attention is the design of the entrance façade itself, already because the trustees' architectural preferences reveal a little about their own self-image, or rather how they saw the museum.

It has been suggested that Ulrich was strongly influenced by the design of the *Neue Hofburg* in Vienna.³⁹ Intriguingly, Gottfried Semper had been involved in the construction of this Viennese building – recall how it was Semper who drew up the plans for “Albertopolis” in South Kensington, as described in the previous chapter. But whatever Ulrich's sources of inspiration, what is particularly striking is the monumentality of his design. The façade has been described as representing a form of “neo-classical baroque”, although the 19th century journalist referred to above described the building as being held in an “Italian Renaissance” style.⁴⁰ The museum's towering entrance doors, the ionic columns that frame them, the steps one has to walk up to reach the entrance, and the group of three statues on the roof of the building that resemble ancient goddesses and represent “Fame” crowning “art” and “science” with laurel wreaths – these are just some of the features that ensure the museum stands out amongst the adjacent Dutch town houses from the 18th century.

The neo-classical, monumental style the museum was held in not only ensured none of the passers-by could miss it; it also guaranteed that it was recognisable as a cultural institution. It was clearly in accordance with the temple-like designs the general public would by this time have come to expect from public centres of “high culture” such as theatres, opera houses, or museums. Much the same can be said of the interior: having passed through the entrance doors, visitors entered a small rotunda, with a marble floor, antique-looking statues representing various branches of knowledge set in alcoves, and with plaster reliefs allegorising various branches of the arts and sciences lining the walls. Exaggerating only a little, it was as if they had entered a place of worship for the arts and sciences.

³⁸ This assessment is based on the amount of signatures in the visitor's books and the total amount of visitors provided in the art curator's annual reports after 1885.

³⁹ Gestel and Reinink, “Het ‘nieuwe museum’ van Teyler (1877-1885),” 284.

⁴⁰ Ibid.

So while the trustees clearly wanted to attract more visitors, i.e. let more people profit from the collections they had acquired with Pieter Teyler's bequeathal by making them more easily accessible, any visitors were evidently also supposed to be instilled with a sense of awe and respect, presumably both for the Foundation's work (recall how the instructions to the architectural competition had stated the entrance had to be "worthy of the foundation") and for science and the fine arts in general. On the one hand this was neither new nor surprising – after all, the century-old Oval Room had had a similar effect and purpose. But there is another dimension to this, too: within the context of the times and the increasingly mainstream idea that museums had an educational and "civilising" function, it is particularly significant that the entire design of the new museum elicited a sense of reverence. After all, awe and respect in turn elicit good behaviour and, as was described in the previous chapter, to a major extent museums' "civilising" function lay in providing a benchmark as to what constituted appropriate behaviour in public, or rather good behaviour according to bourgeois norms.

As if to underscore this, as soon as the new annex to Teylers Museum opened to the public and for the first time in the history of their museum, the trustees employed professional guards to ensure the collections on display remained unharmed and visitors acted appropriately. The first paragraph of the guards' job description read:

"The guards are tasked with guarding the items on display, ensuring compliance with the regulations and policing the premises. [...] When the need arises they will assist the caretaker in his work."⁴¹

It is not clear how many guards were present simultaneously, but the general job description certainly refers to "guards" that were to assist the museum's main caretaker (*concierge*), i.e. not just to one guard.

One can safely assume that the idea to take on guards to "police" the museum was largely down to practical reasons – after the completion of the new annex the museum was not only far larger than before but would also be frequented by far more visitors, so the likelihood of damage to the collection had quite simply increased significantly. Yet at the same time – consciously or not – the mere presence of guards would have demonstrated to every visitor that he (or she) was obliged to behave appropriately, i.e. abide by the rules of public conduct and this, in turn, would have served to turn a visit to Teylers Museum at least in part into an "exercise in civics", to use Tony Bennett's term.⁴² Like many other public museums, Teylers Museum was increasingly acquiring a "civilising" role. Indeed, the general guidelines the caretaker and the guards were provided with clearly implied that a sense of public decency was required by all visitors: not only was it forbidden to bring walking sticks or umbrellas to the exhibition area for fear they might cause damage to the objects on display, but the

⁴¹ "Aan de opzichters is opgedragen de tentoongestelde voorwerpen te bewaken, de naleving der reglementen te handhaven en de politie in de lokalen uitte oefenen. [...] Zij zijn desgevraagd den concierge in zijn dienst behulpzaam." "Instructies Opzichters Museum", 1884, Haarlem, ATS, vol. 116.

⁴² Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London; New York: Routledge, 1995), 102.

caretaker was also explicitly allowed “to refuse admittance to shabbily dressed persons and persons under the influence of liquor”.⁴³



Fig.9. One of the rooms for palaeontological and mineralogical collections in the new annex to Teylers Museum, after 1885 (Teylers Museum, Haarlem, AF608)

4. What a Coincidence

This idea of Teylers Museum as something of a purveyor of public mores brings us back to the ideals espoused by Victor de Stuers in Amsterdam. One could perhaps say that both de Stuers and the trustees were riding the crest of a wave of general opinion on the overall role of museums that had its origins in South Kensington and was now sweeping the Netherlands. What is particularly striking in this respect is the fact that the new *Rijksmuseum* in Amsterdam – the most tangible result of de Stuers’ and his allies’ lobbying the government for more funds for the preservation of Dutch cultural heritage – and the extension to Teylers Museum were both completed in the very same year, in 1885. (Although, to be precise, it should be added

⁴³ “haveloos gekleede personen en personen in kennelijken staat van dronkenschap den toegang te weigeren”; “Instructies Opzichters Museum”, 1884, Haarlem, ATS, vol. 116.

that only the section of the *Rijksmuseum* that contained its collection of paintings was opened to the public in that year, whereas the section with historical items took another two years to refurbish. In the overall scheme of things, that is still remarkable close to the opening in Haarlem.) The question then arises in how far this was pure coincidence.

Although the coincidence is striking, great caution is called for here and one should not jump to any conclusions. More to the point, it would be far too simple to portray what was happening in Haarlem merely as an attempt at emulating de Stuers. For one, the trustees of the Teyler Foundation had too many good reasons of their own for constructing the new annex to Teylers Museum when they did. The establishment of the Teyler Foundation in 1778 – the event the trustees intended to celebrate with the new annex – had obviously not been planned to coincide with de Stuers' activities, for instance. What's more, there is no direct evidence of events in Amsterdam having had any impact whatsoever on the decision making process in Haarlem. Neither de Stuers nor the *Rijksmuseum* are mentioned in any of the documents pertaining to the construction of the extension to Teylers Museum.

But at the same time there is clear evidence that at least some of those involved in the various aspects of expanding Teylers Museum were well-informed about what was happening in Amsterdam, both with regard to the new building for the *Rijksmuseum* and with regard to de Stuers' attempts at securing a more high-profile involvement of the government in cultural matters. It is another matter to determine just how much of an impact – if any – this knowledge of issues that were being discussed in Amsterdam and The Hague had on what was decided in Haarlem, but it does underscore that it wouldn't suffice to see the construction of the new annex to Teylers Museum as having occurred in total isolation from other developments in the museum world.

The three individuals that would have most definitely been privy to information concerning de Stuers' activities were: Johannes Enschedé, a member of Teylers Second Society, Hendrik Jacobus Scholten, curator of Teylers Museum's collections of fine art since 1872, and – albeit to a lesser extent than the other two – the trustee L.P. Zocher.

Enschedé and Scholten were members of a committee that can be seen as the kernel of the cultural ideals so vociferously propagated by de Stuers in the Netherlands.⁴⁴ It will not come as much of a surprise that de Stuers was himself a member of this committee and in fact dominated it during the brief period of its existence between 1874 and 1879. The overall amount of members varied, but was never more than ten.

Some background information on this committee is necessary in order to be able to assess the implications of Enschedé's and Scholten's membership. The committee was founded a few months after de Stuers had published his famous article in *De Gids*, although its establishment had already been discussed prior to the article's publication. Its task was to advise the department of education and arts and sciences at the Dutch interior ministry. Technically, this department was the predecessor to the department of arts and sciences that de Stuers was

⁴⁴ For the following information on this committee see: Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 2–13 & 71–78.

appointed to in 1875 – however, the former essentially consisted of just one man (Hendrik Vollenhoven) and even though he was provided with three assistants, he focused almost exclusively on matters pertaining to education. So de Stuers' department was fundamentally different from the one it replaced.⁴⁵

The committee did a lot to create awareness for issues concerning Dutch cultural heritage. Without the committee, de Stuers' department at the interior ministry might never have been created. What's more, along with Enschedé and Scholten the committee included some other prominent members – the architect of the new *Rijksmuseum*, Pierre Cuypers, was one of them for instance. Yet throughout its existence the committee's position was an awkward one. At first, because nine high-profile intellectuals were advising a civil servant – the head of the department for education and arts and sciences – who wasn't really interested in issues pertaining to the area they were advising him on. And then, after this civil servant was replaced by Stuers (who of course was anything but disinterested in issues surrounding Dutch heritage) in 1875, the committee's position remained awkward simply because de Stuers refused to resign from the committee, even though he did step down as secretary to the committee. As a result, de Stuers was essentially advising himself, and the committee's role was in danger of being reduced to rubber stamping de Stuers' policies. Finally, by 1879, major disagreements amongst its members had made the committee unable to function and it was officially dissolved by March 1879.⁴⁶

Let us return to Enschedé and Scholten: Enschedé was one of the first eight members appointed to the committee, and as such would have participated in the more than 50 meetings that were called over the course of the committee's existence. One can assume that at least part of what he learnt during these meetings would have found its way to Haarlem, i.e. that he would have shared information with his friends and colleagues at home. Scholten only joined the committee some years later, in 1877. Nevertheless, the fact that he was appointed a member at all indicates that he was generally recognised within those circles that were pushing for reform of the Dutch government's approach to its nation's cultural heritage.

Zocher, finally, was involved in at least one project that Cuypers was involved in as well.⁴⁷ As a well-established architect working in the same geographical region of the Netherlands, it is plausible that Zocher would have at the very least heard rumours of what Cuypers was working on.

As was already said, these connections do not provide direct proof that the construction of new museum premises in Amsterdam and Haarlem were in any way connected. But they do underscore the notion that both can be seen as the manifestation of a fundamental change of attitude towards the role of museums in the Netherlands that was taking place at the end of the 1870s.

That the implications of these changes, or rather of a new role for museums as state-sponsored "exercises in civics", were both generally recognised and also taken very seriously becomes

⁴⁵ Ibid., 1–2.

⁴⁶ Ibid., 12–13.

⁴⁷ Wagt and Fielmich, *Architectuurgids Haarlem*, 82.

clear if one takes a closer look at the reason why the advisory committee Enschedé and Scholten sat on was dissolved⁴⁸: in the late 1870s de Stuers and Cuypers saw themselves accused of trying to promote Roman-Catholicism through the mediaeval, neo-Gothic, “old-Dutch” style in which they had apparently decided to fashion all public buildings they were responsible for, including of course the new *Rijksmuseum*. De Stuers even felt compelled to publish an essay rejecting these accusations, but this just elicited a retaliatory article from none other than a fellow member of the advisory committee, Carel Vosmaer. Although Vosmaer had published his rebuke – in which he reiterated that de Stuers and his allies were trying to use their promotion of Dutch cultural heritage to help convert the Protestant majority of Dutch Christians to Roman-Catholicism – under a pseudonym, it appears to have been clear to all involved who the real author was. A sharp exchange of opinions ensued during the next meeting of the advisory committee, with Vosmaer and two other members subsequently resigning.

At the time, fundamental debates on the role Catholics were to take within a secular society were raging in the Netherlands.⁴⁹ One strand of Catholicism in particular, referred to as ultramontanism and which placed a strong emphasis on the Pope’s absolute authority, was perceived as a threat by many Protestants in the Netherlands and served to heighten a widely held and age-old sense of distrust of all forms of Christianity that were not sanctioned by the Reformed Church. (Recall how Mennonites such as Teyler, while not in any way restricted in practising their faith, had not been able to take on public office.) The reason ultramontanism was perceived as such a threat was that it seemed to undermine the state’s authority. Rather than pledge allegiance to the Dutch nation, Catholics were being asked to pledge allegiance to the Pope, residing “beyond the mountains”. At a time when a strong sense of nationhood was merging amongst Dutch Liberals, this formed a particularly sensitive dilemma.

These issues largely came to the fore in debates concerning the organisation of the Dutch educational system, with Dutch bishops at one point declaring their followers should not to send their children to state-run schools.⁵⁰ Yet, even if Vosmaer’s and de Stuers’ discussions were merely a side show within a series of more prominent debates, the fact that these debates revolved around educational matters shows how museums were accorded an influential and formative role, precisely as educational institutions, by the late 1870s.

One final aspect about the dispute that led to the dissolution of the advisory committee that is intriguing is the fact that Scholten took sides with Vosmaer. The curator of Teylers Museum’s art collection did not resign from the committee, but clearly had his misgivings about the neo-Gothic style Cuypers had chosen for the new *Rijksmuseum*. Was this perhaps a more widely held sentiment amongst those associated with the Teyler Foundation, reflecting its Mennonite roots? And if so, was this perhaps one of the reasons for choosing such a blatantly monumental neo-classical design theme for the Foundation’s own museum? This was, after

⁴⁸ The following summary of the dispute leading to the advisory committee’s dissolution is based on information provided in: Duparc, *Een eeuw strijd voor Nederlands cultureel erfgoed*, 11; Jos Perry, *Ons fatsoen als natie: Victor de Stuers, 1843-1916* (Amsterdam: SUN, 2004), 119–138.

⁴⁹ On this see for example: R.A.M. Aerts et al., *Land van kleine gebaren: een politieke geschiedenis van Nederland 1780-1990* (Nijmegen: SUN, 2010), 116–127.

⁵⁰ *Ibid.*, 123.

all, a conscious choice, given that the trustees had a total of 18 designs to choose from, following the architectural competition they held. Unfortunately, at least from a historian's point of view, all proposals except the winning one submitted by Ulrich were destroyed or returned to their authors once Ulrich's had been singled out as the best. Just two others have been partially preserved, seemingly by accident – and they are not enough to draw any far-reaching conclusions from.⁵¹ So, given that the available evidence on any possible influence of ultramontanist thought on the design of Teylers Museum is purely circumstantial, any statement concerning this matter would have to remain largely speculative.

However, what is indisputable is the huge impact the extension to Teylers Museum had, not just on the overall character of the museum as was described above, but also on the specific handling and presentation of the museum's collections. Before focusing on how the new building affected the scientific collections, however, it is worth learning a little more about the curators that were in charge of these collections at the time of the construction of the new annex.

III. T.C. Winkler & E. van der Ven

1. Tiberius Cornelis Winkler

During the years in which the new annex was added to Teylers Museum, Tiberius Cornelis Winkler was in charge of the museum's geological collections and Elisa van der Ven was responsible for the scientific instruments and laboratory. Throughout their careers, these men showed great passion not only for scientific research, but also for passing on scientific knowledge. They were educators and popularisers of science. Van der Ven was not only a gifted teacher, but also wrote a series of popular articles on physics and mathematics. Winkler wrote and published more than a dozen books aimed mainly at a youthful audience, explaining various aspects of the study of nature.

Winkler was a self-made man and social climber. He was born in Leeuwarden in 1822, where he attended school until he was 13, when he became an apprentice to a grain merchant.⁵² While he was an apprentice he taught himself French, displaying a knack for languages that led him to subsequently learn German and English as well. Aged 22, Winkler married. His brother-in-law, a medical student in Groningen, suggested he continue his schooling and

⁵¹ For more detail on these alternative designs see: Gestel and Reinink, "Het 'nieuwe museum' van Teyler (1877-1885)," 237–243.

⁵² On Winkler's biography see: D. Winkler and H.W. Heinsius, "Tiberius Cornelis Winkler," in *Album der Natuur* (Haarlem: H.D. Tjeenk Willink, 1898), 320–329; Marian Stegeman, "T.C. Winkler En de Popularisering van de Natuurstudie: Een Onderzoek Naar de Verschillen En Overeenkomsten Met Het Werk van Heimans En Thijssen" (master thesis, Rijksuniversiteit Groningen, 2004); Marijke H. Besselink, "Winkler? Nooit van gehoord," *Teylers Magazijn* 57 (1997): 7–9; Joop van Veen, "Tiberius Cornelis Winkler, 100 jaar geleden overleden," *Teylers Magazijn* 57 (1997): 9–12.

become a surgeon. Following this advice, Winkler and his growing family subsequently moved to Haarlem. Two years later, having completed his training, Winkler opened a practice in the small village of Nieuwediep. Another four years later, however, he moved his family back to Haarlem, to ensure his children would obtain a good education.

As he later recalled, one of his first patients in Nieuwediep had been a fisherman who had been stung by a weever.⁵³ Intrigued by many more cases of pain caused by these fish, Winkler decided to learn more about weevers. This prompted him to first set foot in Teylers Museum, with the aim of consulting books on weevers in the library. This was in the year 1856.

The young surgeon's thirst for knowledge was apparently not lost on the curator of the geological collections, van Breda, and one thing led to another.⁵⁴ In 1858 van Breda asked Winkler whether he might be interested in studying and describing the fossil specimens from Oeningen – both those at Teylers Museum and those that formed part of van Breda's own personal collection. A prize essay competition concerning a treatise on fossils from this area had just been announced by the Holland Society. (Recall that van Breda was the Society's secretary.) Winkler replied "that [he] had never seen a petrified fish, far less studied one", but van Breda was evidently so impressed by the diligence with which Winkler had studied the weevers, that he did not consider this a problem.⁵⁵

His doubts having been alleviated, Winkler set to work. Van Breda's trust in the young surgeon's skills proved to be well-founded, as the publication resulting from his efforts was awarded a gold medal by the Holland Society. With the Foundation's trustees' consent, van Breda subsequently enquired whether Winkler might want to continue studying further parts of the collection at Teylers. Winkler agreed, and eventually ended up publishing a comprehensive catalogue of the entire fossil collection. The first volume to this catalogue was published in 1863, another five had become available by 1868. After that, Winkler still compiled a further five supplements, detailing what had been added to the collection after 1868, as well as a catalogue of the museum's collection of minerals.

By the time the second volume to the catalogue of fossils was published, Winkler had been appointed curator of the geological collections at Teylers Museum. Along with van der Willigen, Winkler thereby became one of van Breda's successors after his retirement in 1864. That same year, Winkler had received an honorary doctorate from the University of Groningen during the festivities surrounding the university's 250th anniversary. The exact reasons for awarding Winkler this title were not recorded, but his work on the catalogue of Teylers Museum's fossil collection is sure to have played a part.⁵⁶ Winkler was immensely

⁵³ Winkler and Heinsius, "Tiberius Cornelis Winkler," 322.

⁵⁴ On the sequence of events leading to Winkler becoming involved with Teylers Museum see: Ibid., 322–323. And also: T.C.Winkler: "Geschiedenis van de palaeontologische collectie, 1858 tot 189_, door den conservator", c. 1896, Haarlem, ATS, vol. 211, fol. 1-5.

⁵⁵ "dat ik nog nooit een versteenden visch had gezien en nog minder bestudeerd"; T.C.Winkler: "Geschiedenis van de palaeontologische collectie, 1858 tot 189_, door den conservator", c. 1896, Haarlem, ATS, vol. 211, fol. 2.

⁵⁶ Stegeman, "T.C. Winkler En de Popularisering van de Natuurstudie: Een Onderzoek Naar de Verschillen En Overeenkomsten Met Het Werk van Heimans En Thijsse," 12–13.

proud of the honour thus bestowed upon him, and his daughter later recalled how he had referred to this event as “the apex of his glory”.⁵⁷

Another reason the University of Groningen might have decided to award Winkler a doctorate was that, by this time, he had built a reputation as an author and a translator of books. His research on weevers had already resulted in an article for the popular science journal *Album der Natuur*, and by 1864 Winkler had published more articles – both popular and scientific – and written a number of books of his own, aimed at a general audience.⁵⁸ They carried revealing titles such as “The animal world: stories for boys and girls” (*De dierenwereld: verhalen voor jongens en meisjes*) which was published in 1861, or “Short natural history of minerals: a textbook for schools” (*Korte natuurlijke historie der delfstoffen: een leer- en leesboek voor de scholen*), which appeared in 1863. Later books of Winkler’s included “The Vertebrate Animals of the Past” (*De Gewervelde dieren van het verleden*), published in 1893, or the “Handbook for the Collector” (*Handboek voor den verzamelaer*), which carried the extensive subtitle “A useful book, teaching the assembly of, the ordering of and the care for all sorts of collections, adapted for young people”.

This last work was published in successive instalments between 1880 and 1884 and, true to its title, covered a diverse range of possible amateur collections, including collectibles such as butterflies, minerals, seashells, eggs, stamps and coins. It is particularly revealing in that Winkler repeatedly stresses the importance of a diligent, disciplined approach to collecting. In Winkler’s own words, he who wants his collection to last, it to be of any long-term use and wants to be able to impress his friends with it, “has to set about his task with passion and diligence, with care and perseverance.”⁵⁹ Unsurprisingly, this is in no way at odds with his own work at Teylers Museum or, for that matter, his approach to scientific research in general. His main contribution to the overall body of science was the impressively detailed catalogue of Teylers Museum’s collections, which proved to be indispensable in that it allowed for a far better assessment of individual specimens, both from the collection at Teylers Museum and other collections. This means that, essentially, Winkler’s scientific work was descriptive – rather than interpretative – and therefore largely uncontroversial in nature.

Which is not to say that Winkler was not deeply involved in the major controversy shaping his field at the time: the discussion of Darwin’s *Origin of Species*, first published in 1859. On the contrary: It was Winkler who first translated this book into Dutch. He did so following a request by Arie Cornelis Kruseman, a prominent publisher in Haarlem who was probably hoping the book’s controversy meant it would sell many copies, which had indeed proved to be the case in England.⁶⁰

⁵⁷ “het glanspunt van zijn roem”; Winkler and Heinsius, “Tiberius Cornelis Winkler,” 324.

⁵⁸ For a bibliography of Winkler’s publications see: Ibid., 326–329; Stegeman, “T.C. Winkler En de Popularisering van de Natuurstudie: Een Onderzoek Naar de Verschillen En Overeenkomsten Met Het Werk van Heimans En Thijssse,” 106–111. The exact number of publications penned by Winkler however is difficult to ascertain because some of his books were published in instalments or were simply adapted versions of long articles he had published previously. His translations, too, often contain adaptations of the original work.

⁵⁹ “moet beginnen met zijn taak met lust en ijver, met zorg en volharding op te vatten.” Tiberius C. Winkler, *Handboek Voor Den Verzamelaer*, vol. 1 (Leiden: A.W. Sijthoff, 1880), 28.

⁶⁰ Bart Leeuwenburgh, *Darwin in domineesland* (Rotterdam: Vantilt, 2009), 138.

In fact there is no reason to believe that Winkler himself took the initiative to translate the *Origins* or even knew of the book's existence before being approached by Kruseman. Given Winkler's growing reputation as an expert on geological matters and a translator – he had already translated other books on geology before Kruseman approached him with Darwin's book – and the fact that he was living in Haarlem, it is not even surprising that Kruseman turned to Winkler for a translation of the *Origins*.

At the same time however, the fact that Winkler accepted the task implies that even before having completed his translation of the book, he was sympathetic towards Darwin's ideas, which in turn implies a certain openness to new ideas and even progressivism on Winkler's behalf. He could quite simply have refused to translate Darwin's work, too. This was by no means out of the question: evidence from later years suggests Winkler acted self-confidently in his dealings with publishers. As much at least can be derived from snippets of his correspondence with the publisher Albertus Willem Sijthoff which have been preserved. In a letter Winkler penned in 1863 for instance, concerning a book he was writing for Sijthoff, his businesslike tone, although by no means impolite, is striking.⁶¹ It is also in stark contrast with the respectful and almost reverent tone in which he wrote letters to the trustees of the Teyler Foundation. In 1885, Winkler sent Sijthoff a curt reply decisively rejecting the publisher's suggestion he translate "4 essays" which are not described in more detail. Having stated that, with regard to this request "I can answer nothing but: out of the question!", Winkler then briefly explains why, with extra exclamation marks for emphasis:

"The ideas of somebody who, for example, wants to cure rheumatism by bloodletting!! or who refuses to give morphine as an analgesic, and more of the same, – should be left untranslated in the land where they were born."⁶²

As far as the translation of the *Origins* was concerned, Kruseman's hopes of cashing in on the controversy surrounding Darwin's theory of evolution the way his British counterparts had were not fulfilled. Kruseman decided to publish the book in instalments and had 1000 copies of the first one printed, reflecting his high hopes this would prove to be a good seller. Ultimately, however, he sold no more than 212.⁶³ The main problem seems to have been that, until the late 1860s, a controversial debate surrounding Darwin's ideas failed to take off in the Netherlands.⁶⁴ Kruseman even published a translation of one of Darwin's prominent English critics, the mathematician and geologist William Hopkins, in late 1860 in what presumably amounted to an attempt to ignite controversy.⁶⁵ But if that was indeed the case, his attempt proved to be futile.

⁶¹ T.C. Winkler to .W. Sijthoff, 05.11.1863, Leiden, UBL BC, Collectie Sijthoff, SYT-A.

⁶² "4 opstellen"; "kan ik niets anders antwoorden als: volstrekt niet!"; "De ideeën van iemand die b.v. rheumatismus wil genezen door het doen van aderlatingen!! of die geen morphine wil geven tot pijnstilling, en dergelijken meer, - laat men onvertaald blijven in het land waarin zij geboren zijn." T.C. Winkler to A.W. Sijthoff, 28.02.1885, Leiden, UBL BC, Collectie Sijthoff, SYT-A.

⁶³ Lisa Kuitert, "'Geen grootten opgang': een voetnoot bij het Darwin-symposium 1992," *De Negentiende Eeuw* 17 (1993): 88.

⁶⁴ Leeuwenburgh, *Darwin in domineesland*, 138–148.

⁶⁵ *Ibid.*, 140.

Interestingly, it was Winkler himself who helped invigorate a debate on the wider implications of Darwin's writings in the Netherlands. In 1867 he published an article in *De Gids* titled "The teachings of Darwin" (*De leer van Darwin*), in which he did not shy back from stating that Darwin's ideas implied man's ancestors had been ape-like.⁶⁶ Darwin himself only addressed this issue explicitly a few years later, when he published *The Descent of Man*. As a result, Winkler was increasingly identified as what one historian has described as "one of the most fervent proponents" of Darwin's theory in the Netherlands, despite the fact that he subsequently kept a low profile in these debates.⁶⁷ By the dawn of the 1870s, when religion became more of a sensitive issue in Dutch society (to which the controversy surrounding ultramontanist ideas mentioned above is further testimony) and the debates Kruseman had been counting on were finally stirred up, one prominent publication assailing Darwin's theory of evolution even carried the title "Our forefathers according to the theory of Darwin and the Darwinism of Winkler" (*Onze voorouders volgens de theorie van Darwin en het darwinisme van Winkler*).⁶⁸

By this time, Kruseman had sold the rights to a Dutch translation of the *Origins*, after eventually breaking even and at least returning his investment.⁶⁹ An adaptation of Winkler's translation by H. Hartog Heys van Zouteveen was later published by the publishers Gebr. E&M Cohen, with more success.⁷⁰

But even if Winkler's translation of the *Origins* turned out to be a commercial failure, it did enable him to keep abreast of the newest developments in geology and biology and is another indication of this man's lifelong thirst for learning and ambition to push the boundaries, not just of his own knowledge, but also of science as a whole.

2. Elisa van der Ven

From 1878 until 1909, Elisa van der Ven was in charge of Teylers Museum's scientific instrument collection. Just like his fellow curator Winkler, van der Ven displayed a great passion not just for acquiring scientific knowledge, but also for passing it on.

⁶⁶ Tiberius C. Winkler, "De leer van Darwin," *De Gids* 31, no. 4 (1867): 22–70. On this article and an earlier essay of Winkler's in *De Gids* of 1864 in which he left no doubt that he was convinced by Darwin's arguments see: Ilse N. Bulhof, "The Netherlands," in *The Comparative Reception of Darwinism*, ed. Thomas F. Glick (Austin; London: University of Texas Press, 1974), 286–288.

⁶⁷ "een van de meest fervente voorstanders"; Leeuwenburgh, *Darwin in domineesland*, 147.

⁶⁸ B. H. Klönne, *Onze voorouders volgens de theorie van Darwin en het Darwinisme van Winkler* ('s Hertogenbosch: Henri Bogaerts, 1869). On the increasing controversy surrounding Darwin see: Leeuwenburgh, *Darwin in domineesland*, 223–228; Janneke van der Heide, *Darwin en de strijd om de beschaving in Nederland 1859-1909* (Amsterdam: Wereldbibliotheek, 2009).

⁶⁹ Kuitert, "'Geen grooten opgang': een voetnoot bij het Darwin-symposium 1992," 88.

⁷⁰ *Ibid.*, 91.

Unlike Winkler, van der Ven had a purely academic background. He was born on October 5th 1833 in Edam.⁷¹ His father had died just weeks before his birth, but his mother remarried and his stepfather, an apothecary, appears to have taken good care of Elisa and his older sister. His stepfather, along with the local doctor, are credited with having sparked the boy's interest in the natural sciences. In 1853, he enrolled at Leiden University at the Faculty of Mathematics and Sciences. Even before being awarded the highest distinction for his doctoral thesis ("summa cum laude") in May 1858, he had already drawn attention by winning the gold medal for his entry in a prize essay competition on an astronomical topic. He had also taken on a job as assistant or "second" teacher of mathematics, science and cosmography (*wiskunde, natuurkunde en cosmographie*) at the local secondary school (*Gymnasium*) in 1856. He was later promoted to "first" teacher and remained on in Leiden until 1864, when he was appointed headmaster of the newly founded polytechnic (*Hogere Burgerschool* or HBS) in Haarlem. He also taught classes there. In 1870 he took on an additional post as headmaster of the associated evening school (*Burgeravondschool*).

Besides introducing numerous students to mathematics and the sciences through his classes, van der Ven also reached out to a wider audience of non-specialists through publications in popular magazines. Between 1874 and 1909 he published a grand total of 133 articles in the popular science journal *Album der Natuur*, which had been co-founded by van Breda's assistant Logeman some years before.⁷² In 1881 he was made a member of the board of editors of the journal *Eigen Haard*. As a fellow editor, Jeronimo de Vries, explained after van der Ven had passed away in a postscript to his obituary in the same journal:

"He was chosen, so that as a physicist he could be the adviser and right hand of the editorial staff in the assessment and selection of those articles that touch on this field of study."

De Vries elaborated how van der Ven had contributed to the journal for many years in different ways, stressing his contribution in the form of a column on scientific matters:

"He was charged with the care for the so-called miscellany section (*Verscheidenheid*), regularly published on the last page of each issue. Initially, for many years, providing this section was his work. The articles comprised information about topics regarding physics, discoveries, inventions, curious particulars, matters of general interest, with which he pleasantly and usefully entertained both us and the readers of *Eigen Haard*."⁷³

⁷¹ For the following biographical data see two obituaries written by H.J. Calkoen: H.J. Calkoen, "Levensbericht van Dr. E. van der Ven, 1833-1909," in *Jaarboek van de Maatschappij der Nederlandsche Letterkunde* (Leiden: E.J. Brill, 1910), 60–78; H.J. Calkoen, "Dr. Eliza van der Ven," *Eigen Haard* no. 34 (1909): 532–535.

⁷² Geertje Janssen, "Elisa van der Ven en het Teylers Museum" (master thesis, Leiden University, 2007), 48.

⁷³ "De keuze viel op hem, opdat hij als natuurkundige de raadsman en rechterhand der redactie zou zijn, bij de beoordeeling en de plaatsing van die artikelen, die dit vak van studie raakten." "[M]et name was hem opgedragen de zorg voor de zogenaamde *Verscheidenheid*, geregeld voorkomende op de laatste bladzijde der aflevering. In den eersten tijd, vele jaren lang, was de levering daarvan zijn werk. Het waren mededeelingen van natuurkundigen aard, ontdekkingen, uitvindingen, curieuse bijzonderheden, zaken van actueel belang, met welke hij ons en de lezers van *Eigen Haard* aangenaam en nuttig bezig hield." Jeronimo de Vries, "Naschrift," *Eigen Haard* no. 34 (1909): 535.

By the time van der Ven was writing these columns, he had been appointed curator at Teylers, as successor to van der Willigen. Even in retrospect, his appointment seemed surprising to his contemporaries. As was stated in his obituary:

“Van der Ven was [...] more of a mathematician than a physicist, and therefore this appointment was greeted with surprise in academic circles.”⁷⁴

And maybe there were other reasons for their surprise as well: although, without doubt, van der Ven possessed a fine mind, he had not made a name for himself as a fully fledged member of the Dutch scientific elite. He was certainly of a different calibre than his predecessor, never for instance being elected a member of the prestigious Royal Dutch Academy of Sciences (*KNAW*). He had also been passed over for a professorship in Leiden in 1866, despite having been led to believe he would be appointed.⁷⁵

Nevertheless, the trustees chose van der Ven from a pool of 16 candidates, as is revealed by an overview the trustees drew up summarising all candidates' qualifications.⁷⁶ According to this list, most of the applicants were teachers at a HBS, and many were in fact less qualified than van der Ven. But there were also some formidable competitors. The most serious other contender for the post was probably Pieter Adriaan Bergsma, the director of the Royal Magnetical and Meteorological Observatory at Batavia (Jakarta).⁷⁷ But Herman Haga, who was appointed to the chair in physics at Groningen just a few years later and transformed his institute into one of the nerve centres of Dutch experimental physics, applied for the curatorship in Haarlem as well. At this point, however, Haga had just recently completed his doctoral thesis in Leiden, so his potential might not have been discernible for the trustees yet.

What might also have helped tip the scales in van der Ven's favour was his involvement in many charitable causes. Throughout his period in Haarlem he was an active member of the Haarlem section of the *Maatschappij tot Nut van 't Algemeen* and was an active member of his Protestant, Reformed parish.⁷⁸ Finally, the trustees might also have thought that an inspirational teacher would contrast well with van der Willigen's aloof manner vis-à-vis amateurs, providing something of a fresh breeze at the Foundation. After all, the trustees themselves had lost track of van der Willigen's research efforts.

Whatever the trustees' considerations, van der Ven's contract left no doubt that he was expected to perform research at Teylers. The third paragraph read:

⁷⁴ “Van der Ven was [...] meer wiskundige dan natuurkundige, en daarom werd deze benoeming in de kringen der geleerden dan ook met verwondering vernomen.” Calkoen, “Dr. Eliza van der Ven,” 533.

⁷⁵ Calkoen, “Levensbericht van Dr. E. van der Ven, 1833-1909,” 69–70.

⁷⁶ “Lijst van Sollicitanten Phys. Kabinet”, c. 05.1878, Haarlem, ATS, vol. 107.

⁷⁷ 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): 283.

⁷⁸ Calkoen, “Levensbericht van Dr. E. van der Ven, 1833-1909,” 72–73.

“It is recommended that he make diligent and faithful use of the collections that have been placed under his supervision for the promotion of the science of Physics”.⁷⁹

He was even provided with new laboratory premises at the same time the new annex to the museum was built. Van der Ven made regular use of the facilities that were available, acquiring 160 new instruments for the collection during his tenure and performing a series of experiments, mainly concerning electricity.⁸⁰ He published the results in the *Archives du Musée Teyler*, which he also edited as from 1881. It has to be said, however, that none of the papers he wrote were particularly far-reaching or had much of an impact. As Gerard Turner concluded:

“His results were presented at great length, including rather simple mathematical calculations. They show his lack of sophistication as a researcher, but are understandable if one regards him primarily as a teacher.”⁸¹

A task he appears to have fulfilled with greater passion and success were the public lectures he was required to give during the winter months. He certainly gave more than the minimum amount of presentations he was required to give according to his contract⁸², and his lectures in the new auditorium were fondly remembered by the author of van der Ven’s obituary.⁸³ It is perhaps telling that the trustees let van der Ven inaugurate the auditorium once it had been completed, too, rather than anyone else associated with the Foundation. By 1899, however, van der Ven found himself too frail to undergo the strain of public lecturing, and according to the records he did not give any presentations at Teylers Museum before his death in 1909 anymore.

Besides his research and public lecturing, van der Ven undertook one other major task for the Foundation: he compiled a catalogue of the collections under his purview. This catalogue, in turn, reflects the way he saw the instruments in the museum and, more importantly, how he sought to render them accessible and understandable to a wider audience after the new annex had been opened. It is these changes in the way the scientific collections were perceived that we can now turn to.

⁷⁹ “Hem wordt aanbevolen, van de verzamelingen, die onder zijn beheer zijn geplaatst, een ijverig en getrouw gebruik te maken ter bevordering van de Natuurkundige wetenschap”. “Instructie voor den te benoemen Conservator van het Physisch Kabinet van Teylers Stichting”, 05.07.1878, Haarlem, ATS, vol. 106.

⁸⁰ Hoorn, “Elisa van Der Ven and the Physical Laboratory of the Teyler Foundation (Haarlem), 1878-1909,” 284.

⁸¹ Gerard L'E. Turner, *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum* (Haarlem: Teylers Museum, 1996), 18–19.

⁸² Hoorn, “Elisa van Der Ven and the Physical Laboratory of the Teyler Foundation (Haarlem), 1878-1909,” 284.

⁸³ Calkoen, “Dr. Eliza van der Ven,” 534.

IV. Function Follows Form

1. Moving House

It is not clear in how far Winkler and van der Ven were involved in the design process of the new annex to Teylers Museum that was completed in 1885. It is unlikely that they – together with the art curator Scholten – would not have been heard at all; but if so, then no records detailing this were kept. It is not even clear in how far the curators had any say in choosing and acquiring the display cabinets that were to hold the collections which fell under their purview.

But what does clearly transpire from the records is that it was entirely up to the curators to fill these cabinets. In other words, they were pivotal in creating the new museum's final appearance. What's more, the records reveal that they were very conscious of how visitors reacted to what they saw.

As was already mentioned, the new museum building had essentially been completed in January 1885 and the general public was given its first opportunity to inspect the new premises. Winkler and van der Ven subsequently lost no time in transferring their collections to the new wing. As the handwritten account of the construction of the new annex that was already quoted above reads:

“Very soon [afterwards] a beginning was made with storing the scientific instruments, and of the palaeontological objects by the respective curators in the rooms destined for this purpose, and this proceeded so steadily that they could already in the course of the summer amply satisfy the visitors.”⁸⁴

In the annual report Winkler submitted in April 1885 he did indeed proudly proclaim that he had already started preparing for the move during the summer of 1884, which facilitated a speedy transferral of all objects, and meant that by April 1885 “already 19 of the 20 cabinets are more or less ready”.⁸⁵ “More or less” proved to be the operative term, however, as it still took Winkler until December 29th 1885 before he had moved every single of the 16.000 objects that formed part of the collection to the new premises.⁸⁶ Ironically, he even pointed out that a larger part of the collection was now concealed from the general public than before:

“the outcome has shown that there is less space in the new museum to display fossils than there was in the old museum. In the latter all objects were visible in cabinets and glass cases,

⁸⁴ “Zeer spoedig werd [daarna] een aanvang gemaakt met het verbergen van de physische instrumenten, van de paleontologische voorwerpen door de respectieve conservators naar de daarvoor bestemde lokalen, en dit ging zoo geregeld voort, dat deze reeds in den loop van de zomer de bezoekers ruimschoots konden voldoen.” “Teyler's Fundatie te Haarlem”, 1867-c.1887, ATS, vol. 78, fol. 107.

⁸⁵ “zijn er reeds 19 van de 20 kasten ongeveer gereed”. “Jaarverslag 1884/1885”, 08.04.1885, Haarlem, ATS, vol. 210, fol. 1.

⁸⁶ “Jaarverslag 1885/1886”, 08.04.1886, Haarlem, ATS, vol. 210, fol. 1.

except for 144 drawers filled with petrifications, while in the new building there are 180 drawers, filled with objects for which there was no place in the glass cases and cupboards.”⁸⁷

At the same time, because of the move, more items than ever before from the art collection and even the Foundation’s numismatic collection could be put on display. More specifically, the two rooms in which the geological collections had previously been stored had now become available.

The smaller of these two rooms was reserved for a display of the Foundation’s coins and medals, which, incidentally, had only recently started to receive some serious attention. After A.J. Enschedé had been elected a member of Teylers Second Society he had not only donated his own collection of Roman coins to the Foundation, but renewed the trustees’ interest in the coins and medals housed at the museum.⁸⁸ Pieter Teyler’s stipulation that the numismatic collection should only ever be consulted in the presence of at least two trustees was evidently no longer taken too seriously and the collection therefore became accessible to the general public as from 1888, when the smaller of the former fossil rooms had been furnished with specially built showcases. Two years earlier, the trustees had even taken on an extra curator to look after their coins and medals, Th. M. Roest. Roest stayed on until 1898, cooperating closely with Enschedé in compiling a catalogue of the entire collection.⁸⁹

Even more importantly, the larger of the two rooms – the room under the library that had been built as part of the first extension to the museum in 1824 and which had originally served to display the Foundation’s first paintings – was now designated an exhibition area for prints and drawings from the art collection. Although this was not revolutionary or unheard of, it was a remarkable decision: the first exhibition devoted solely to prints and drawings – i.e. not to paintings – in the Netherlands had only been held in 1860, at the gallery of *Arti et Amicitiae*.⁹⁰ So the idea of creating a permanent or even temporary display of this type of art was comparatively new.

Starting in early 1886, i.e. immediately after Winkler had removed the last items from it, the room underneath the library underwent a costly renovation and refurbishment.⁹¹ The casement windows were replaced by sliding ones, the floor was redone and a heating system installed, the cupboards that were already present were repainted, a fancy, Louis XVI-style table was set up at which prints and drawings could be studied, the ceiling was elaborately painted, 52 frames made from oak wood were ordered and an exquisite rotational display stand was set up to show prints or drawings in the middle of the room. A photograph made in the early 1890s and Scholten’s own notes suggest that older works of art were placed in the display stand, whereas newer prints and drawings were framed and hung on the walls.⁹² Some

⁸⁷ “de uitkomst heeft geleerd dat er in het nieuwe museum minder ruimte is om fossielen ten toon te stellen dan er in het oude museum was. Immers in het laatstgenoemde waren alle voorwerpen zichtbaar in de kasten en vitrines, behalven 144 laden die met versteeningen waren gevuld, terwijl er in het nieuwe gebouw 180 laden zijn, gevuld met voorwerpen die geen plaats konden vinden in de vitrines en kasten.” Ibid.

⁸⁸ H. Enno van Gelder, “Het Penningkabinet,” in *“Teyler” 1778-1978* (Haarlem; Antwerpen: Schuyt, 1978), 24.

⁸⁹ Ibid.

⁹⁰ Renske E. Jellema, “De inrichting van de aquarellenzaal in 1886,” *Teylers Magazijn* 29 (1990): 7.

⁹¹ On this see: Jellema, “De inrichting van de aquarellenzaal in 1886.”

⁹² Ibid., 8–10.

of these were apparently exchanged regularly. The grand total of this refurbishment came to more than f3000,-. For comparison: this was the same as van der Ven's annual salary. The trustees must have been very satisfied with the end result, too, as Scholten received an extra payment of f1000,- in addition to his regular salary in April 1886.

So Scholten and the trustees had gone to great lengths to ensure visitors could study works of art from the Foundation's collection in aesthetically pleasing surroundings. But Winkler, too, was clearly very conscious of the overall visual impact the display of the geological collections would have on visitors. In his reports on the transferral, he spoke of "showpieces" (*prachtstukken*), and had special glass cases made for some of the largest and most spectacular minerals.⁹³

This in itself already suggests that, when arranging the objects in the museum, Winkler saw himself as not just catering to fellow specialists, but also to the general public. Which, it must be emphasised, is not to say Winkler in any way neglected his fellow experts in palaeontology and mineralogy – on the contrary, it was they who formed his primary "target audience", because, despite his talk of "showpieces" and construction of special cases and even mountings for fossils, Winkler was not trying to create some sort of purely aesthetic arrangement, or an educational illustration of geological theories of some sort aimed at laypeople. Winkler obviously wanted to create a display that was also pleasing to the eye, but first and foremost, there were two main criteria which determined where he placed an object in the new museum. Firstly, an object's size: large items were framed and hung on the wall or placed in the larger display cabinets, whereas smaller items were stored in drawers. Secondly, an object's geological properties: specimens that had been unearthed in the same geographical area were grouped together and within these groups all specimens of a particular type were assembled side by side.

But at the same time Winkler cared deeply about the accessibility of the collections, in the sense that he wanted them to be understandable to a lay audience. This became crystal clear in 1888, when he started to realise that the lay audience visiting the museum was bewildered by – or rather was not even consulting – the copy of the comprehensive, scientific catalogue of the entire collection which Winkler had compiled and put out on one of the showcases. As Winkler himself recalled in his recollections at the end of the 1890s:

"After the complete catalogue had been available to visitors of the museum for a considerable time, lying on the glass case in the first room, it became increasingly apparent that only the educated took a look at it, whilst the general public did not pay the least bit of attention to it. It was clear that, if the collections were to be appreciated by the uneducated as well, it was necessary to provide them with a popular guidebook."⁹⁴

⁹³ "Jaarverslag 1884/1885", 08.04.1885, Haarlem, ATS, vol. 210, fol. 2.

⁹⁴ "Nadat de volledige catalogus reeds een geruimen tijd ter beschikking van de bezoekers van het museum, op de vitrine in de voorzaal had gelegen, bleek het hoe langer hoe meer, dat slechts geleerden er een blik in wierpen, maar dat het groote publiek er geen de minste aandacht aan schonk. Het was duidelijk dat, als de collecties ook door niet geleerden zou worden gewaardeerd, het noodig was hen daartoe een populaireren wegwijzer te verschaffen." T.C.Winkler: "Geschiedenis van de palaeontologische collectie, 1858 tot 189_, door den conservator", c. 1896, Haarlem, ATS, vol. 211, fol. 20.

Providing visitors with a popular guidebook is exactly what Winkler subsequently did, essentially distilling his comprehensive catalogue into a small booklet providing an overview of the collection and more information on selected items of particular interest. He wrote two such booklets, one covering the palaeontological collection, the other the mineralogical collection, and had both of them published in both Dutch and French. In his recollections he proudly stated that the first edition of the Dutch guidebook on the mineralogical collection was soon sold out and needed to be reprinted.⁹⁵

2. Function Follows Form

The fact that Winkler went to the effort of publishing a guidebook for the benefit of lay visitors, particularly the fact that he realised lay visitors would benefit from such a publication in the first place, reflects how passionate he was about the diffusion of scientific knowledge. It chimes well with his track record as an author of numerous popular science books.

But it is highly significant for another reason as well. What helped Winkler realise that popular guidebooks were necessary and what at the same time presumably also helped him to persuade the trustees to finance the publication of such guidebooks – he had actually suggested a similar scheme more than two decades earlier and even written a draft version of a guidebook already, but “as a result of the coincidence of various circumstances” this was never published⁹⁶ – was the fact that the amount of lay visitors to Teylers Museum had increased so significantly by the late 1880s. The crucial point is that this increase in visitors, in turn, had everything to do with the new annex to the museum.

This point is so crucial because what was essentially happening, was that the geological collections – as well as the scientific instrument collection, to which we will turn below – were being subjected to the expectations of a lay public as to what they would be presented with in a “museum”, as that term had come to be defined over the course of the previous decades.

Put differently, the average visitor to Teylers Museum after 1885, enticed by the monumental, neo-classical entrance that was almost stereotypical of a public museum, would not have expected to find himself (or herself) confronted with a collection of scientific specimens and instruments that had been arranged – primarily – according to scientific principles. The curators in charge of the collections had not put out the specimens and instruments on display with the intention of presenting them as cultural artefacts, i.e. as props in aid of an “exercise in civics”. Instead, what the visitor encountered was more akin to a scientific repository, containing specimens and instruments of which many were still regularly used for scientific research purposes. What the visitor was more likely to expect – the collection of fine art in the

⁹⁵ Ibid.

⁹⁶ “ten gevolge van een samenloop van omstandigheden”; Ibid., fol. 7.

First Art Gallery and the gallery under the library – was presented in a section of the museum that was only accessible by traversing the area in which the scientific collections were on display.

It was this discrepancy between, on the one hand, the visitors' expectations that had been generated by the outward appearance of Teylers Museum upon completion of the 1885 annex, and, on the other hand, the science curators' concept of what purpose their collections were to serve, that one can safely assume to have played a major part in causing the bewilderment Winkler recognised amongst lay visitors, prompting him to write popular guidebooks.

At the same time, the fact that the trustees agreed to finance these guidebooks – which they appear not to have done about two decades earlier – underscores how, by the 1880s, they had more of a public role in mind for Teylers Museum than ever before.

To rephrase this, the publication of Winkler's guidebooks can be seen as the result of a confluence of two major historical strands that shaped the history of Teylers Museum throughout the 19th century: on the one hand, Teylers Museum had been conceived as an 18th century repository to Teylers Learned Societies; on the other hand, it was subjected to the changing connotations of the word "museum", particularly in regard to the public role "museums" were to fulfil. By the 1880s, these two strands had become so incompatible that the section of Teylers Museum that contained the scientific collections had become something of a chimaera. And then, crucially, by thinking in the terms of the popularisation of science which were so familiar to him, it was Winkler who, through his guidebooks, attempted – and, judging by the apparent popularity of at least one of the booklets, also succeeded – in uniting these two strands, at least as far as was possible.

At this point it is worth recalling that van der Ven had started building a reputation as a populariser of science by the time the new annex was completed as well. He, too, soon published a popular guidebook to the collections that fell under his purview. What is particularly striking in van der Ven's case, though, is that he began emphasising the historical value of many of the scientific instruments on display. It is to this we can now turn.

3. The Birth of a Museum of the History of Science

Winkler recorded his actions at Teylers Museum in more detail than van der Ven. But a closer look at van der Ven's approach to the collection that fell under his purview reveals that he too must have noticed a certain bewilderment amongst lay visitors, i.e. how the instruments on display were incomprehensible to them. And again, the new annex played a part in highlighting the lay public's problems.

As much at least can be induced from the way he adapted the catalogue he had compiled of all instruments in the collection. Recall how this had been laid out as one of his main tasks upon

taking up the post of curator. In fact, he was to perform this task as quickly as possible. As the second paragraph of his contract, as drawn up in 1878, read:

“The Curator shall, after taking up his duties, as soon as possible make a new inventory of the objects that are present in the Physics Cabinet, – and furthermore occupy himself with preparing from this inventory a Systematically-ordered Catalogue, to which he shall regularly add the new objects with which the Cabinet will be enriched in the future.”⁹⁷

Van der Ven had completed this task in 1882.⁹⁸ Essentially, the catalogue he produced was identical with an inventory. It was basically just a list of all instruments in the Foundation’s possession, ordered by the area of physics they belonged to and with a succinct description.

By 1898, this catalogue was in need of an update. Remarkably, however, van der Ven not only updated the list of instruments, but added a 22-page “guide” to the collections. Van der Ven left no doubt that in doing so he hoped to render the collections understandable and useful not just for the experts who came to the museum in search of specific apparatus (and who would know how to use the catalogue that formed the second part of the booklet), but also to the general public. As he wrote in the introductory remarks to the “guide”:

“This “Guide” should be viewed mainly as an attempt to make a visit to Teylers’ unique collection of scientific instruments more fruitful for laypeople in the area of physics and therefore more attractive.”⁹⁹

He subsequently implied that he had found himself in a bit of a dilemma, because he could of course not assume that a lay audience would be familiar with the laws of physics, which made it impossible to describe the instruments on display in any appropriate way within the limited space of the guidebook. As he put it: “With one of our sacred writers we might say that even the whole world could not contain the books that could comprise such a description.”¹⁰⁰ The result was inevitable: “Much of what is available must be passed over in silence.”¹⁰¹

But van der Ven did have a – at least partial – solution to this problem. As he stated a little circuitously:

“But despite this there is so much in the collection that, even if it is only because of its historical value, can elicit the interest of those too who are unfamiliar with the physical

⁹⁷ “De Conservator zal na de aanvaarding zijner betrekking zoo spoedig mogelijk een volledige inventaris opmaken van de voorwerpen, die in het Physisch Kabinet aanwezig zijn, - en voorts zich bezighouden met daarvan te vervaardigen een Systematisch-geordenden Catalogus, dien hij daarna geregeld zal aanvullen met de nieuwe voorwerpen, waarmede het Kabinet in het vervolg verrijkt zal worden.” “Instructie voor den te benoemen Conservator van het Physisch Kabinet van Teylers Stichting”, 05.07.1878, Haarlem, ATS, vol. 106.

⁹⁸ *Catalogus van de Physische Instrumenten, Teylers Museum* (Haarlem: De Erven Loosjes, 1882). Van der Ven had presented the manuscript of his catalogue to the trustees in September 1882: “Directienotulen”, 01.09.1882, Haarlem, ATS, vol. 10.

⁹⁹ “Men zie in dezen “Gids” hoofdzakelijk een poging, om een bezoek aan Teylers’ eenige verzameling van natuurkundige instrumenten voor leeken op natuurkundig gebied meer vruchtbaar te maken en daardoor meer aantrekkelijk.” Elisa van der Ven, *Gids door de Verzameling Physische Instrumenten in Teyler’s Museum* (Haarlem: De Erven Loosjes, 1898), iii.

¹⁰⁰ “[W]ij [zouden] met een onzer gewijde schrijvers kunnen zeggen, dat de gansche wereld de boeken niet zou kunnen omvatten, waarin zoodanige beschrijving zou moeten worden opgenomen.” Ibid.

¹⁰¹ “Veel van wat voorhanden is moet dan ook met stilzwijgen worden voorbijgegaan.” Ibid.

sciences, so that even just pointing them out in a better fashion did not seem like futile work to me.”¹⁰²

This clearly implies that van der Ven had discovered that history provided an angle from which he could approach the collection without losing the lay public's interest, because history formed a common denominator for all visitors, i.e. something every visitor could relate to, and which was more easily explicable than the science behind the machines.

Throughout the guidebook Van der Ven accordingly repeatedly elaborated on various items' historical significance, both for research performed in Haarlem and with regards to science as a whole. And the visitor's sense of history would have been augmented by van der Ven's decision to store most instruments from before 1850 in the Oval Room, and all later devices in the new building. With the explanations from the guidebook, history became a little more tangible in the Oval Room.

To clad this in the phrases used above, the confluence of the two strands of history that determined the development of Teylers Museum throughout the 19th century not only resulted in popular guidebooks – both Winkler's and, a decade later, van der Ven's – but also in the historical and therefore cultural value of the scientific instruments being emphasised within the museum premises.

At this point it also becomes significant that a separate laboratory had been constructed for van der Ven at the same time the new annex to the museum was being built. Very little is known about the construction as well as the usage of this laboratory. The few snippets of information available include an entry from the minutes of a meeting of the trustees held in January 1884, which reads:

“It is decided, in accordance the proposal by the Curator of the Physics cabinet, Mr E. van der Ven, to build a new chemical and physical Laboratory, very close to the existing Museum and Cabinet Building. – The costs of the plan are estimated at over f 6000,-.”¹⁰³

Some weeks later, the company Mertens and Son is tasked with building this laboratory for f6120,-.¹⁰⁴ That such a large amount of money was made available for research facilities is all the more surprising if one considers van der Ven's subsequent relative lack of output.

The crucial point, however, is that this laboratory was off limits to the general public. This in turn underscores just how important it was that – through historical contingencies – large parts of the instrument collection were stored in the museum building, i.e. the Oval Room and what came to be referred to as the Instrument Hall in the new annex. After all, if all the instruments had been stored in the laboratory, which was only accessible to experts, van der

¹⁰² “Maar niettegenstaande dat is er in de verzameling zoveel dat, al was het alleen om zijne historische waarde, de belangstelling, ook van in natuurkundige wetenschappen onbedrevenen, tot zich kan trekken, dat eene nadere aanwijzing daarvan alleen mij geen nutteloos werk toescheen.” Ibid.

¹⁰³ “Wordt besloten, overeenkomstig het voorstel van den Conservator van het Physisch Kabinet, Dhr E. van der Ven, een nieuw chemisch & physisch Laboratorium te doen bouwen, in de onmiddellijke nabijheid van het bestaande Museum- en Kabinets-gebouw. – De kosten daarvan zijn op ruim f6000,- begroot.” “Directienotulen”, 24.01.1884, Haarlem, ATS, vol. 11.

¹⁰⁴ “Directienotulen”, 29.02.1884, Haarlem, ATS, vol. 11.

Ven would not have had to write a popular guidebook in which he reverted to history to make the instruments more accessible to laypeople.

The importance of van der Ven's guidebook can hardly be overestimated: it provides an important marker in the history of the Teyler Foundation's instrument collection, because it can be taken as the point at which part of the Teyler Museum became a museum of the history of science.

4. Science Museums and Museums of the History of Science

Van der Ven emphasising the history of the instrument collection in his care will have served to enhance its reputation as an instrument collection of great historical value which it had already started acquiring over the previous decades. Recall how two visitors (von Sierstorff and Niemeyer) had already remarked upon the collection's future potential as an illustration of the history of physics as early as 1806, how van Breda had stipulated that instruments of historical value should not be disposed of in 1839, and how the Teyler Foundation had been sought out and asked to contribute some of the historical instruments from its collection to displays at international exhibitions in the late 1870s and early 1880s.

Perhaps the best illustration of both the fact that, above all, the historical value of the Teyler Foundation's scientific instrument collection was widely recognised by the turn of the century, but also of the fact that Teylers Museum as a whole was increasingly being perceived as a museum devoted in part to the history of science (and was not just presented as such by van der Ven), is a keynote speech held in 1905 by the Dutch Nobel Prize laureate Jacobus van 't Hoff at the second annual meeting of the trustees of the still-to-be-founded *Deutsches Museum* in Munich. The title of his speech was "The Teyler Museum in Haarlem", and its subtitle "the significance of historical collections for science and technology", clearly demonstrating that the museum was perceived as partially a history museum by outsiders.¹⁰⁵

In a further illustration of just how much the term "museum" had come to dominate how the instrument collection in Haarlem was perceived, van 't Hoff started his speech by stating that "the expression Teyler-Museum does not correspond to the original nature of Teylers' establishment",¹⁰⁶ explaining how it was related to the Teyler Foundation, and who Pieter Teyler van der Hulst had been.

¹⁰⁵ Jacobus H. van 't Hoff, *Das Teyler-Museum in Haarlem und die Bedeutung historischer Sammlungen für Naturwissenschaft und Technik*, vol. 9, Deutsches Museum: Vorträge und Berichte (München: Deutsches Museum, 1912). Van 't Hoff had previously published his speech in Dutch: Jacobus H. van 't Hoff, "Teyler's Museum en de betekenis van geschiedkundige verzamelingen voor natuurwetenschap en industrie," *De Gids* 70 (1906): 338–348.

¹⁰⁶ „[...] der Ausdruck Teyler-Museum dem eigentlichen Charakter von Teylers Gründung nicht entspricht“, Hoff, *Das Teyler-Museum in Haarlem und die Bedeutung historischer Sammlungen für Naturwissenschaft und Technik*, 9:1.

The context within which this speech was held carries a lot of significance as well. Not only did the audience consist of many high-profile listeners – including the Prince Regent and future King Ludwig III of Bavaria – but the establishment of the *Deutsches Museum* in itself constitutes a milestone in the history of museums. Its importance lies in the fact that this was the first large-scale attempt at enhancing scientists’ and engineers’ social status by devoting a museum to the fruits of their labour and the science underlying them. The idea was that a museum – generally recognised as a place of high culture and learning – would help fashion science and engineering as “cultured”, high-brow activities.

Put differently, the designers of the museum in Munich were actively availing themselves of the social mechanisms that the scientific collections at Teylers had been subjected to more or less by chance and which had prompted Winkler and van der Ven to write their guidebooks. Visitors came to a museum with certain expectations. More specifically, they arrived expecting to find artefacts of “high culture” displayed in an understandable manner. What the designers of the *Deutsches Museum* had recognised was that, firstly, they needed to provide these visitors with a stereotypical museum which would elicit all the behavioural patterns associated with a museum visit – to use Tony Bennett’s term once again, a place where visitors would automatically launch into an “exercise in civics”. And that then, once such a forum had been created, the items selected for display there would, secondly, automatically be perceived as “high culture”.

In a sense this was similar to what had happened at the Special Loan Exhibition at South Kensington in 1876 (as was described in the previous chapter). A significant difference however, was that what was being built in Munich was a permanent museum, not “just” a temporary international exhibition.

Some caution is called for in that it would not do the prolific and complex driving force behind the establishment of this new museum, Oskar von Miller, justice to reduce his brainchild to a mere image campaign in aid of science and engineering. Von Miller had built a reputation as a first class engineer – he had been largely responsible for installing Bavaria’s first power grid, for instance – long before he first came forward with ambitious plans to build a museum in 1903, he was genuinely interested in demonstrating the excitement of technology to the youth, and his plans for a museum always included plans for an extensive library that could serve as a reference library and provide inspiration for engineers.¹⁰⁷ But at the same time it is no coincidence that the museum’s full title was *Deutsches Museum von Meisterwerken der Naturwissenschaft und Technik*, i.e. “German Museum of Masterpieces of Science and Technology”. The term “masterpieces” itself already suggests that what was on display was deemed to be of superior quality.

¹⁰⁷ On von Miller see: Wilhelm Füßl, *Oskar von Miller 1855-1934: Eine Biographie* (München: C.H. Beck, 2005). Interestingly, von Miller visited the Paris Electrical Exhibition in 1881 – recall that the Cuthbertson Electrostatic Generator from Teylers Museum was on display there – and this visit proved to be “turning point” in his life: *Ibid.*, 46–47.

Neither is it a coincidence that from the very beginning onward portraits of famous scientists and engineers were acquired for the museum's collections.¹⁰⁸ In later years busts and medals depicting famous individuals were acquired as well. When a preliminary exhibition of the museum's collections opened to the public in 1906 – due to multiple delays its purpose-built housing on an island in the centre of Munich could only be completed in 1925 – this already included a section reserved for the display of the portraits acquired thus far. The purpose-built museum building then even included what was referred to as a “hall of honour” for the display of the effigies from the museum's collections.¹⁰⁹

As one historian has recently summarised, “Das wirklich Neue und Innovative am Deutschen Museum war letztlich die Übertragung des klassisch-humanistischen Kulturbegriffs auf das Gebiet der Naturwissenschaften und Technik“.¹¹⁰

Significantly, what was happening in Munich was soon discernible throughout the world. Within the space of a few decades, museums of science and technology with similar aims had proliferated all over the globe. To name but a few, the Science Museum was separated from the South Kensington Museum in London in 1909, the Vienna Technical Museum opened to the public in 1918 after ten years of preparation, and the National Technical Museum in Prague opened in 1908.

To whatever degree they were directly influenced by the establishment of the *Deutsches Museum*, the designers of these new museums would have been well aware of developments in Munich.¹¹¹ Later examples of the *Deutsches Museum*'s direct influence include that of the American Julius Rosenberg, who was so impressed with what he saw in Munich in 1911 that he eventually provided \$7 million for the establishment of the Museum of Science and Industry in Chicago, which opened in 1933. In another example, during the early 1930s a Russian delegation that was planning to establish a “Palace of Technology” in Moscow had come to Munich looking for inspiration.

Clearly, it was not only those who were involved with the *Deutsches Museum* who felt that scientists and engineers deserved more recognition for their contribution to society as a whole – they were tapping into some widely held sentiments.

In a further indication of the growing sense of pride and community amongst scientists and engineers as well as an increasing desire to foster this, interest in the history of science and technology increased significantly during the early decades of the 20th century. The scholarly journal *ISIS* for instance, devoted to the history of science, medicine and technology, was first published in 1912, and the History of Science Society was set up in 1924. In the Netherlands,

¹⁰⁸ On the acquisition of portraits see: Eva A. Mayring, “Das Porträt als Programm,” in *Circa 1903: Artefakte in der Gründungszeit des Deutschen Museums*, ed. Ulf Hashagen, Oskar Blumtritt, and Helmuth Trischler (München: Deutsches Museum, 2003), 55–56.

¹⁰⁹ *Ibid.*, 57–62.

¹¹⁰ Olaf Hartung, *Museen des Industrialismus: Formen bürgerlicher Geschichtskultur am Beispiel des Bayerischen Verkehrsmuseums und des Deutschen Bergbaumuseums* (Köln: Böhlau, 2007), 53.

¹¹¹ On the museum's role model status throughout its history see: Bernhard S. Finn, “Der Einfluss des Deutschen Museums auf die internationale Landschaft der Wissenschafts- und Technikmuseen,” in *Geschichte des Deutschen Museums: Akteure, Artefakte, Ausstellungen*, ed. Wilhelm Füll and Helmuth Trischler (München: Prestel, 2003), 397–405.

a *Nederlandsche Vereeniging voor Geschiedenis der Geneeskundige Wetenschappen* (NVGGW) had been founded as early as 1898, and around this time a Historical Commission was also established by members of the *Natuur- en Geneeskundig Congres* (NGC).¹¹² The NGC was essentially a society for the promotion of the sciences that held regular national conferences (it was roughly comparable with the British Association for the Advancement of Science and its annual conferences). Most importantly, however, the Dutch association for the history of science, medicine and technology (*Gewina*) was established in 1913, absorbing all members of the NVGGW. The preceding decades had already seen ever more frequent inferences of past achievements of Dutch researchers, with the clear aim of bolstering a sense of national pride amongst the budding, late 19th century Dutch scientific community.¹¹³

This increase in attention the history of science, medicine and technology was receiving entailed a growing interest in the material witnesses of past science, i.e. the scientific instruments past researchers had used. In 1907 for instance the Historical Commission organised a temporary “Historical Exhibition of Science and Medicine” (*Geschiedkundige Tentoonstelling van Natuur- en Geneeskunde*) in Leiden to coincide with the eleventh national congress of science and medicine. As the title page of its catalogue reveals, the exhibition carried the motto “past is prologue”.¹¹⁴ Medical preparations and scientific instruments on loan from learned societies and university laboratories from all over the country were exhibited in two university buildings: the library and the university’s main building. Roughly a dozen items from Teylers Museum were on display as well, including gasometers used by van Marum and a collection of telephones used for demonstratory purposes.¹¹⁵

But while this was a temporary exhibition, a little over two decades later a series of – permanent – museums of the history of science had been founded. In Oxford the Lewis Evans Collection, assembled by the private collector Evans in the early 20th century and subsequently donated to Oxford University, was made publicly accessible in 1924 and later became the Museum of the History of Science.¹¹⁶ At about the same time, Andrea Corsini founded the “Group for the Preservation of the National Scientific Heritage” in Italy, and by 1930 the Istituto di Storia della Scienza in Florence had established a permanent exhibition of historical scientific instruments, the precursor to today’s Museo Galileo.¹¹⁷ In Leiden, the Netherlands Historical Science Museum (*Nederlandsch Historisch Natuurwetenschappelijk Museum*), precursor to what is currently known as the Museum Boerhaave, was opened to the public in 1930, after some years of lobbying, primarily by Claude Auguste Crommelin, a former laboratory assistant to Kamerlingh Onnes and director of the Leiden Instrumentmakers School (*Leidse Instrumentenmakers School*). The museum’s initial collection consisted

¹¹² On these developments in the Netherlands see: Willem Otterspeer, “Begin en context van het Museum Boerhaave,” in *75 jaar Museum Boerhaave* (Leiden: Museum Boerhaave, 2006), 7.

¹¹³ On this see for example: Klaas van Berkel, *Citaten uit het boek der natuur: opstellen over Nederlandse wetenschapsgeschiedenis* (Amsterdam: Bert Bakker, 1998), 221–239.

¹¹⁴ *Catalogus van de geschiedkundige tentoonstelling van natuur- en geneeskunde* (Leiden: Sijthoff, 1907).

¹¹⁵ *Ibid.*, 109 & 112.

¹¹⁶ Jim Bennett, “European Science Museums and the Museum Boerhaave,” in *75 Jaar Museum Boerhaave* (Leiden: Museum Boerhaave, 2006), 77.

¹¹⁷ Paolo Galluzzi, “Introduction,” in *Museo Galileo: a Guide to the Treasures of the Collection* (Firenze: Giunti, 2010), 5.

mainly of instruments that had been used at Leiden University.¹¹⁸ Also in the early 1930s, Pieter Hendrick van Cittert, a physicist at the University of Utrecht, started drawing attention to the instrument collection of the dormant *Natuurkundig Gezelschap*, a learned society that had been founded in the 18th century. Together with his wife he spent the following years lobbying for the establishment of what is now the University Museum.¹¹⁹ In North America, by the 1930s David P. Wheatland, graduate and employee of the physics department at Harvard, had also started raising awareness for his university's historical instruments and began accumulating some of them. A first exhibition of these instruments was organised in 1936, but the collection was only recognised and funded as "The Collection of Historical Scientific Instruments" after 1947.¹²⁰

At the same time that these new museums of the history of science were being founded to preserve and display historical collections of scientific apparatus, 18th-century instrument collections that had not been dispersed during the 19th century were integrated into some of the science museums that were also being founded during this period. In 1903, for example, the very first items that were donated to the – as yet to be built – *Deutsches Museum* were the instruments that had formed the repository of the Bavarian Academy of Sciences.¹²¹ Or in 1927, the bulk of the George III collection of scientific instruments dating back to the 17th century was transferred to the Science Museum from King's College.¹²²

So while Teylers Museum had started being perceived as part museum of the history of science around the turn of the century already and had been invoked as such during the preparatory stages for the *Deutsches Museum*, by the 1930s it had become one museum of the history of science amongst many.

It is of course interesting to see how Teylers Museum developed during this period in history, particularly in how far the instrument collection in Haarlem was affected by international developments. This period coincides largely with the curatorship of Hendrik Antoon Lorentz, who accepted the post in 1909 (although only formally taking it up in 1912) and remained on until his death in 1928. The following section takes a closer look at his tenureship, and how he handled the instrument collection that fell under his purview.

¹¹⁸ On this see: Otterspeer, "Begin en context van het Museum Boerhaave."

¹¹⁹ Esger Brunner, "Erfenis van een echtpaar," *Nederlands Tijdschrift voor Natuurkunde* 78, no. 1 (2012): 26–27.

¹²⁰ David P. Wheatland and Barbara Carson, *The Apparatus of Science at Harvard, 1765-1800* (Cambridge: Harvard University, 1968), 7–8. I am grateful to Sara Schechner for providing additional information on Wheatland's early activities.

¹²¹ Wilhelm Füßl, "Gründung und Aufbau 1903-1925," in *Geschichte des Deutschen Museums: Akteure, Artefakte, Ausstellungen*, ed. Wilhelm Füßl and Helmuth Trischler (München: Prestel, 2003), 70.

¹²² Alan Q. Morton and Jane A. Wess, *Public & Private Science: The King George III Collection* (Oxford: Oxford University Press, 1993), 37.

V. Lorentz: A Theoretician as Curator

1. A Revered Theoretical Physicist

By the beginning of the 20th century Hendrik Antoon Lorentz was something of a living legend, certainly amongst physicists. Revered by all those he ever dealt with, he was held in high esteem both for his professional work and his good nature. The iconic Albert Einstein was but one of many brilliant minds who looked up to the Dutchman who gave his name to the linear transformations so important to the theory of special relativity.

Lorentz' life and career have been summarised and discussed in various publications, so a short summary of his activities before coming to Haarlem can suffice here.¹²³ He was born in Arnhem in 1853, attended the local HBS, and was subsequently able to study physics in Leiden. In 1875 he completed his dissertation, and less than three years later he had been appointed to the chair of theoretical physics at his alma mater, at the tender age of 24.

This appointment was not only remarkable because Lorentz was so young, but also because the chair of "mathematical physics and mechanics" he was appointed to had been newly created, a development which in itself is indicative of the changes occurring within physics, and which also symbolises the changing status the natural sciences were accorded within academia. More to the point, although the creation of Lorentz' chair itself did not yet uproot the mid-19th century organisational structures within which it was still embedded, it enabled him to become what would be labelled a "theoretical physicist" by the early 20th century. The emergence of a field of "theoretical physics" is in turn indicative of the gradual emergence of a concept of "pure" science, or the idea that it was perfectly legitimate to practice science in and of itself – to paraphrase the artist's battle cry, what emerged was a concept of "la science pour la science". Research became important in and of itself, a development that was reflected in the courses Lorentz' taught in Leiden. Recall how this would have been unthinkable for van Marum – or, for that matter, for any of his contemporaries – and how Frederik Kaiser and van der Willigen had still been pioneers in emphasising that science was about research, more than about character formation or generating an economic benefit.

In 1902, Lorentz received one of the first ever Nobel Prizes, together with Pieter Zeeman. It was around about this time that he actively began to foster international cooperation. It seems strange to emphasise this in the case of a Nobel Prize laureate, but until about the turn of the century Lorentz' life and work had been a surprisingly local affair. Within a few years,

¹²³ On Lorentz and his position within the history of science see for instance: Anne J. Kox, "Hendrik A. Lorentz, 1853-1928," in *Van Stevin tot Lorentz: portretten van achttien Nederlandse natuurwetenschappers*, ed. Anne J. Kox (Amsterdam: Bakker, 1990), 226–242; Bastiaan Willink, *De tweede Gouden Eeuw: Nederland en de Nobelprijzen voor natuurwetenschappen, 1870-1940* (Amsterdam: Bert Bakker, 1998), 105–109; Bert Theunissen, "Nut en nog eens nut": *wetenschapsbeelden van Nederlandse natuuronderzoekers, 1800-1900* (Hilversum: Verloren, 2000), 168–184; Frans van Lunteren, "Wissenschaft internationalisieren: Hendrik Antoon Lorentz, Paul Ehrenfest und ihre Arbeit für die internationale Wissenschafts-Community," in *Einstein und Europa: Dimensionen moderner Forschung*, ed. Gert Kaiser and Arne Claussen (Düsseldorf: Wissenschaftszentrum NRW, 2006), 25–35.

however, he enjoyed the same sort of reverence internationally he must have become acquainted with in the Netherlands already. That he only began to discover the world in his late 40s is even more surprising if one takes into account that his German, English and French were all impeccable – judging, at least, by the flawless letters he wrote in these languages.

And then, as he approached 60, Lorentz accepted the offer of becoming the curator of physics at Teylers Museum or, more specifically, the offer of becoming the head of the Teyler Foundation's physics laboratory. This period of his life and the processes leading up to his taking up this position are usually only addressed perfunctorily¹²⁴, so they are worth dwelling on in some detail, before returning to the question of how Lorentz saw Teylers Museum, or rather how he handled the historical instrument collection that fell under his purview for almost two decades.

2. Much to Offer

Elisa van der Ven passed away on June 27th 1909. Even before his funeral, the first unsolicited application was sent off to the trustees, asking for details about the vacancy that had obviously just opened.¹²⁵ Although this applicant – a teacher at a local polytechnic – received a fairly curt reply, two others who wrote just days later were told that nothing had been decided yet with regard to this position, but applications could be sent to the trustees.¹²⁶ By the time these applications would have arrived (none have been preserved) towards the end of July, the trustees had, however, already set their sights on Lorentz. The minutes of the meeting of the board of trustees on July 28th 1909 read: “Regarding the vacancy for conservator of the Physical Cabinet advice will be sought from prof. Lorentz in Leiden, at which opportunity the professor will be asked if he is inclined to accept this position himself.”¹²⁷ A letter inviting Lorentz to Haarlem was sent off that very same day – although no mention was yet made of the vacant post being offered to him.¹²⁸ Lorentz promptly replied he would be happy to come, and a meeting was scheduled for early August.¹²⁹ It was to take

¹²⁴ One notable exception is: 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. Van Hoorn focuses on the research performed under Lorentz' purview and the instruments used.

¹²⁵ Oosting to trustees of the Teyler Foundation, 30.06.1909, Haarlem, ATS, vol. 36.

¹²⁶ Meerburg to trustees of the Teyler Foundation, 03.07.1909, Haarlem, ATS, vol. 36 & Stoel to trustees of the Teyler Foundation, 04.07.1909, Haarlem, ATS, vol. 36. Copies of the replies they received: Trustees of the Teyler Foundation to Meerburg, 10.07.1909, Haarlem, ATS, vol. 57, fol. 72 & Trustees of the Teyler Foundation to Stoel”, 10.07.1909, Haarlem, ATS, vol. 57, fol. 73. Further letters of inquiry have been preserved in ATS, vol. 36, some of the replies they received in ATS, vol. 57.

¹²⁷ “Over de vacature conservator Physisch Kabinet zal advies worden gevraagd aan prof. Lorentz te Leiden, bij welke gelegenheid dien hoogleraar zal worden gevraagd of hij genegen is zelf de betrekking te aanvaarden”: “Directienotulen”, 28.07.1909, Haarlem, ATS, vol. 13.

¹²⁸ Trustees of the Teyler Foundation to H.A. Lorentz, 28.07.1909, Haarlem, ATS, vol. 57, fol. 82.

¹²⁹ H.A. Lorentz to trustees of the Teyler Foundation, c. 30.07.1909, Haarlem, ATS, vol. 36.

place at the home of one of the trustees, Jan Adriaan Fontein, and the two men were to be joined by another trustee of the Teyler Foundation, Anthonie Wilhelm Thöne.¹³⁰

The question of course arises why the trustees approached Lorentz, rather than anyone else. There was certainly no shortage of talented and internationally recognised physicists in the Netherlands at the time – the decades around 1900 have even summarily been described as the “Second Golden Age” of Dutch science – and Lorentz was one of the most prominent amongst them, respected not only as a brilliant physicist who had just won the Nobel Prize, but also as a person.

In a way, Lorentz’ high reputation was probably one of the reasons the trustees decided to approach him. They saw themselves as heirs to an institution with a long-standing tradition as one of the nerve centres of Dutch science. What’s more, because van der Ven had been more of a populariser of science than a researcher, and because he had been frail for much of his last years, the trustees must have felt it was time to re-establish Teylers’ reputation in scientific circles. In an account of his first meeting with Thöne and Fontein, Lorentz wrote that his task at Teylers would be “[t]o turn T.[eylers] into a place where work of considerable importance is performed and from which a certain influence is exerted”.¹³¹ These are sure to have been the trustees’ as much as his own words.

But circumstances suggest there was also a second aspect: Lorentz was deeply dissatisfied with his position in Leiden. The reason was, firstly, that he had no laboratory of his own – even though he had been appointed to the first chair of theoretical physics in the Netherlands, he would have liked to be able to perform the occasional experiment – and, secondly, that he was saddled with a high teaching burden which left hardly any time for his own research.¹³² Both issues had a lot to do with his equally brilliant fellow physics professor (for experimental physics) in Leiden, Heike Kamerlingh Onnes. Kamerlingh Onnes was soon to receive his own Nobel Prize for liquefying helium, which he had succeeded in doing less than a year before van der Ven’s death, on July 10th 1908. But Kamerlingh Onnes was also a gifted manager, the physical manifestation of which became the constant refurbishments and major extensions of the university physics laboratories in Leiden he repeatedly succeeded to gain funding for. It was not that Lorentz and Kamerlingh Onnes didn’t get on – on the contrary – but somehow, despite the constant addition of work space, even a small laboratory exclusively for Lorentz’ use never materialised. When he was offered a professorship without teaching duties at the University of Munich in 1905, he only stayed in Leiden because promises had been made to lighten his teaching burden. Although Johannes Petrus Kuenen was subsequently appointed professor of physics in order to assist Lorentz with his teaching, Lorentz still felt, in his own words, that “I may, it seems to me, regard matters in such a way

¹³⁰ Trustees of the Teyler Foundation to H.A. Lorentz, 02.08.1909, Haarlem, ATS, vol. 57, fol. 84.

¹³¹ “T.[eylers] tot een plaats te maken, waar werk van eenige beteekenis gedaan wordt en van waar een zekere invloed uitgaat”: H.A. Lorentz to J. Bosscha”, c. 17.08.1909, Haarlem, ATS, vol. 183.

¹³² See: Delft, *Freezing Physics: Heike Kamerlingh Onnes and the Quest for Cold*, 10:352–357.

that a change has only been brought about in the interest of the University, but in no way for me personally.”¹³³

For Lorentz, these are unusually strong words. Ever conciliatory and in full control of his emotions, his daughter describes how the issue of the two rooms being wrongly assigned “was not discussed.” She adds: “My father preferred, rightly or wrongly, to keep his peace of mind rather than to create a disturbance unless it were strictly necessary.”¹³⁴

Either way, these circumstances would have made Lorentz especially receptive to what the trustees of the Teyler Foundation had to offer. But could they also have known about his situation? The evidence which indicates that in all likelihood they did, is the intimate involvement of Johannes Bosscha jr. in the negotiations preceding Lorentz’ appointment. As Fontein later recalled, it was Bosscha “who showed the trustees Lorentz’ path to Haarlem”.¹³⁵ Recall that Bosscha was an acolyte of the former curator van der Willigen. At this point in time, Bosscha was the general secretary of the Holland Society of the Sciences, and had already offered Lorentz to succeed him in this post in 1908, in an attempt at providing Lorentz with a graceful exit from Leiden and to relieve him of his teaching obligations.¹³⁶ The two men had known each other for a long time and respected each other deeply. Bosscha lived in Heemstede, near Haarlem, where the Holland Society was based, across the street from Teylers Museum. Fontein was a member of the Holland Society.¹³⁷ So multiple channels of communication were open, and as a letter from Bosscha to Lorentz reveals, they were used, too: just days after the first meeting between Thöne, Fontein and Lorentz, Johannes Bosscha writes to Lorentz reporting that he had met “his friend Fontein” during an evening stroll along the beach to enjoy “the beautiful sunset”, and that Fontein had told him about the meeting at his home. Bosscha is joyous that “you are seriously considering Teylers’ proposals”, and then revealingly adds – not without apologising – “I already knew of them, but was not allowed to speak about them, when I received your pleasant visit.”¹³⁸ Unsurprisingly, Bosscha then strongly advises Lorentz to take up the position offered, praising the clean air in Haarlem as a great advantage not only for the family.

At any rate Lorentz had obviously begun seriously considering accepting the offer to succeed van der Ven, starting a round of four months’ negotiating with the trustees, even though as far as they were concerned, there was little to negotiate about. In their enthusiasm – probably Fontein’s above all – they essentially agreed to everything Lorentz proposed. Yet as was already mentioned in the introductory remarks to this chapter, the trustees were not all equally

¹³³ “ik mag het, dunkt mij, zoo beschouwen dat er alleen ten behoeve van de Universiteit en geenszins voor mij persoonlijk eene verandering is gekomen”: H.A. Lorentz to J. Bosscha”, c. 17.08.1909, Haarlem, ATS, vol. 183.

¹³⁴ Geertruida Luberta de Haas-Lorentz, ed., *H.A. Lorentz: Impressions of His Life and Work*. (Amsterdam: North-Holland Pub. Co., 1957), 98.

¹³⁵ “die voor Lorentz, den weg naar Haarlem aan Directeuren heeft gewezen”: “Directienotulen”, 17.02.1928, Haarlem, ATS, vol. 15.

¹³⁶ H.A. Lorentz to J. Bosscha, c. 17.08.1909, Haarlem, ATS, vol. 183.

¹³⁷ Johan A. Bierens de Haan, *De Hollandsche Maatschappij der Wetenschappen, 1752-1952* (Haarlem: Tjeenk Willink & Zoon, 1970), 383.

¹³⁸ “gij Teylers voorstellen in ernstige overweging neemt” / “Ik wist er reeds van, maar mocht er niet van spreken, toen ik uw aangenaam bezoek ontving”: J. Bosscha to H.A. Lorentz, 11.08.1909, Haarlem, ATS, vol. 183.

enthusiastic: already during the very first meeting at which approaching Lorentz had been discussed, two of the trustees had voiced fears that the Foundation's financial muscle was not enough to afford such a prestigious successor to van der Ven – although they were quick to add that, otherwise, they were “very taken with the concept of associating prof. Lorentz with the Foundation”.¹³⁹ These two were Pieter Loosjes and Louis Paul Zocher. Four months later, Loosjes doubts had been alleviated, but Zocher still had it recorded in the minutes that he objected to Lorentz being taken on.¹⁴⁰ Again, he added, purely on financial grounds.

To Lorentz and Bosscha it was as yet inconceivable that the Teyler Foundation's resources were not unlimited. When Lorentz confessed that he would feel uneasy in accepting an offer Fontein had made, namely that he was to continue to receive his full salary even in retirement, Bosscha replied that Teylers was “wealthy enough” to be able to pay him and a successor a full salary for some years.¹⁴¹

Zocher's qualms later proved not to be unfounded, but in 1909, Fontein's enthusiasm went unabated, and everything was done to entice Lorentz to come to Haarlem. Besides the problems irritating him in Leiden that were mentioned above, Lorentz was tempted for three reasons. Firstly, he repeatedly stated that he would be happy to work for a “Dutch” institution with such a rich heritage as the Teyler Foundation.¹⁴² Secondly, he told Bosscha that it was “tempting, before it is too late to do so, to take a slightly different path [professionally], on which I might possibly be able to work more fruitfully than in [...] my current position.”¹⁴³ And thirdly, he must have thought he might be more productive in Haarlem than he was in his “current position” because he had access to a laboratory of his own, could edit the Foundation's small scientific journal, the *Archives du Musée Teyler*, and all the time would essentially be his own boss, having to answer only to the trustees – who were obviously eager to support him wherever they could.

Yet he had some worries as well. The first was that he felt there was no appropriate successor for him in Leiden yet. He granted that “there are indeed some promising young folk, but it is precisely over the course of the next few years that it shall have to transpire what they are really capable of.”¹⁴⁴ His second worry was that he could forfeit his rights to the considerable government pension which he would only receive if he worked at a university and remained in government service right up until his retirement age of 65, which would have been in 1918. Although he doubted that, after 31 years of service, both the university and the government

¹³⁹ “zeer ingenomen met het denkbeeld prof. Lorentz aan de Stichting te verbinden”: “Directienotulen”, 28.07.1909, Haarlem, ATS, vol. 13.

¹⁴⁰ “Directienotulen”, 10.12.1909, Haarlem, ATS, vol. 13.

¹⁴¹ “vermogen genoeg”: J. Bosscha to H.A. Lorentz, 17.08.1909, Haarlem, ATS, vol. 193.

¹⁴² He speaks of “eene zoo echt Nederlandsche instelling als T.” in: H.A. Lorentz to J. Bosscha, c. 17.08.1909, Haarlem, ATS, vol. 183; the same phrase is used in: H.A. Lorentz to trustees of the Teyler Foundation, 25.08.1909, Haarlem, ATS, vol. 36.

¹⁴³ “verlokkend, vóór het daartoe te laat wordt, nog eens een ietwat andere richting in te slaan, waarin ik misschien met meer vrucht zou kunnen werkzaam zijn dan in [...] mijne tegenwoordige positie.”: H.A. Lorentz to J. Bosscha, c. 17.08.1909, Haarlem, ATS, vol. 183.

¹⁴⁴ “Er zijn wel een paar veelbelovende jongelui, maar juist in de eerstvolgende jaren zal moeten blijken wat zij kunnen presteren.”: H.A. Lorentz to J. Bosscha, c. 17.08.1909, Haarlem, ATS, vol. 183.

would create unnecessary difficulties in this respect, he did want this to be resolved in an orderly fashion.

Having weighed all the pros and cons for about three weeks (Fontein had told him he could take all the time he wanted), Lorentz then wrote to the trustees.¹⁴⁵ As a solution to his worries he suggested a transitionary phase of three to four years in which he would already place himself at the Foundation's disposal, but stay on in Leiden as a full professor until the question of his succession had been resolved. After that, he would stay on as an honorary professor or a normal lecturer at the university in order to secure his pension, but move to Haarlem and consider the Foundation his primary employer. During this transitionary phase, the salary he received from the Foundation did not have to be a full one.

Lorentz then went on to explain how he would define his tasks at Teylers, should he be taken on by the Foundation. His first concern was the laboratory, which he wrote "must not be neglected", but used for the preparation of lectures and "to no lesser degree, [be] a place where scientific research is performed."¹⁴⁶ Interestingly, he then stated that the trustees were surely aware that, thus far, he had concerned himself more with theoretical rather than experimental work. Although he wanted to remain in overall charge of the activities at the laboratory and conduct the occasional experiment himself, he also stated that he could not oversee the day-to-day running of the laboratory, and therefore proposed that an assistant be taken on, preferably "a young, promising physicist [...] who has already earned his spurs, and who has shown that he can work on his own, so that I could, not only during the years I would still spend in Leiden, but also later, leave the laboratory almost entirely to him."¹⁴⁷ This young physicist could receive the title "conservator", as assistant professors at universities then did, and also receive a comparative salary.

Together, Lorentz continued, they could then run Teylers like a Dutch equivalent to the Royal Institution in London. They would take care of the instrument collection (referred to as "the cabinet"), perform research in the laboratory and assist external researchers who might want to use the research facilities, give lectures and courses for the general public as well as science teachers, and edit the *Archives*.

Finally, Lorentz still pointed out that implementing his ideas could be costly, as the refurbishment of the laboratory as well as the conservator's salary would incur extra costs. But the trustees were unperturbed. They arranged for another meeting with Lorentz on October 27th, and although no minutes of the meeting were taken or have been preserved, it is clear from their subsequent correspondence with Lorentz, and Lorentz' with Bosscha, that the trustees had gone along with all of Lorentz' proposals, and Lorentz had tentatively committed himself to working for the Foundation. All he still wanted to do was personally inform his

¹⁴⁵ For Fontein's offer see: H.A. Lorentz to J. Bosscha, c. 17.08.1909, Haarlem, ATS, vol. 183.

¹⁴⁶ "Het laboratorium van "Teyler" mag niet worden verwaarloosd." / "vooral niet minder, een plaats zijn, waar wetenschappelijk onderzoek verricht wordt.": H.A. Lorentz to trustees of the Teyler Foundation, 25.08.1909, Haarlem, ATS, vol. 36.

¹⁴⁷ "een jong, veelbelovend physicus [...] die zijne sporen reeds verdiend heeft, en die getoond heeft, zelfstandig te kunnen werken, zoodat ik hem, niet alleen in de jaren die ik nog te Leiden zou doorbrengen, maar ook later, het laboratorium zo goed als geheel zou kunnen overlaten."

colleagues in Leiden and the board of the faculty of his plans to leave them. He reassured the trustees that their reaction would, however, have no impact on his decision to come and work for the Foundation.

One interesting point he still brings up is a suggestion by Herman Haga to turn the laboratory at Teylers into a Dutch equivalent of the Physikalisch Technische Reichsanstalt in Berlin, which would have meant it would calibrate all instruments in the Netherlands. Lorentz himself was only lukewarm about the idea, and it never materialised.¹⁴⁸ Incidentally, recall that Haga had himself applied for the post of curator after van der Willigen had died.

A final meeting was scheduled for November 18th in Haarlem to agree on contractual details. Lorentz gave his assessment of the laboratory he was to be made the head of (he had inspected it some days earlier), and reported that he had come to the conclusion that although a refurbishment was necessary, a new building was not – at least not for another 20 to 25 years. Once that period of time had passed, the new laboratory space could be created in an adjacent building. As for his title, “professor”, “consultant” and “advisor” were floated, but the title “curator” was eventually agreed upon. So Lorentz was to be the “curator” of the Foundation’s laboratory, and his assistant the “conservator”. Lorentz agreed to draw up a list of possible assistants as soon as possible.

Lorentz set to work doing so over the course of the following weeks, and on December 9th he suggested Gerhard Johan Elias, who at that point was working in Berlin with Henri du Bois, assisting him in his magneto-optical research.¹⁴⁹ Lorentz wrote that he was an excellent candidate both because he had gained a lot of experience in running a laboratory in Berlin, and because magneto-optical research was what Lorentz intended to focus on in Haarlem. Just as interesting, however, is the list of candidates that either refused the job or who Lorentz rejected. His first choice, the director of the Royal Magnetic and Meteorological Observatory in Batavia, Willem van Bemmelen, refused to leave the Dutch Colonies unless he could get a significant pay rise. Chemists on the other hand Lorentz did not take into consideration because he wanted to run a physics laboratory. He did seriously consider choosing an assistant from a long list of science teachers at polytechnics around Haarlem – most of them were well educated and had ample experience in running their schools’ laboratories. And finally, he decided not to take on Wander Johannes de Haas, even though he was a promising candidate, because he had only just completed his studies and not obtained his PhD yet.

The trustees did not doubt Lorentz’ recommendation, and on December 10th 1909, the decision was taken to appoint both Lorentz and Elias as curator and conservator of the laboratory of the Teyler Foundation respectively.¹⁵⁰ Their tenure was to begin on January 1st 1910, although it soon transpired that Elias could not leave Berlin so quickly.

¹⁴⁸ Lorentz to trustees of the Teyler Foundation, 04.11.1909, Haarlem ATS, vol. 36. Together with Kamerlingh Onnes and Bosscha, Haga had earlier suggested that this task was to be performed by HBS-teachers across the country. See: Frans van Lunteren, “‘Van meten tot weten’: De opkomst der experimentele fysica aan de Nederlandse universiteiten in de negentiende eeuw,” *Gewina* 18, no. 2 (1995): 102–103.

¹⁴⁹ Lorentz to trustees of the Teyler Foundation, 09.12.1909, Haarlem, ATS, vol. 36.

¹⁵⁰ “Directienotulen”, 10.12.1909, Haarlem, ATS, vol. 13.

Until he gave up his full professorship in Leiden, Lorentz was now to receive an annual salary of f2000,-. Once he had come to Haarlem, this was to be raised to f5000,-. An additional f10.000,- per year were reserved for what was referred to as the “cabinet”, which in this case meant everything that fell under Lorentz’ purview. This included the conservator’s annual salary, which was gradually to rise to f3000,-, as well as an extra f3000,- for any equipment for the laboratory, f1000,- for the laboratory attendant (*amanuensis*) van Waveren who had already worked with van der Ven, f2000,- for the publication of the *Archives*, and finally f1000,- for lectures and courses.

It was at this meeting that Zocher objected to Lorentz’ appointment for a second time, because of the costs involved. Van der Ven had received an annual salary of about f3000,- and a far smaller budget for all the costs he incurred. And not only was what Lorentz was eventually paid significantly more than what his predecessor had received, but the costs were even higher than the initial estimate Zocher and Loosjes had objected to four months earlier. The final bill was so much higher mainly because the initial estimate had not included a well-educated assistant. Some ten years later, Zocher’s premonitions proved to have been correct.

3. Refurbishment of the Laboratory and Subsequent Research

The first indication that the Foundation’s budget might be stretched to the limit came even before the new curator and conservator were officially appointed, on December 24th 1909. Lorentz had asked whether he could participate in a meeting of the trustees in order to relay some points he had discussed with his new assistant.¹⁵¹ First of all, Elias could not leave Berlin as quickly as the trustees had hoped, because he wanted to complete a series of experiments he had been performing with Henri du Bois. With the trustees’ blessing he eventually arrived in Haarlem in April 1910. But in addition to this, Elias had drawn up some plans for changes to the laboratory, and, as was to be expected, they came at a cost. The estimate Elias and Lorentz gave the trustees was about f9000,- spread over a couple of years. Although Elias considered the laboratory “very suitable”, he did want to have “a few minor things” installed, as Lorentz put it, such as running water, gas, and a fume cupboard. The trustees “considered such reasonable”, and Lorentz then suggested ways of economising in order to obtain the f9000,- required. The trustees were quick to remark that “the calculation of prof. Lorentz does not add up entirely”, for the simple reason that they did not want to save f2000,- in one year by not publishing a volume of the *Archives*, but Elias was given the green light to go ahead with his plans for refurbishing the laboratory.¹⁵²

By April 1911, van der Ven would probably have hardly recognised his former work environment. While Lorentz was still in Leiden, Elias and the laboratory attendant van

¹⁵¹ Lorentz to trustees of the Teyler Foundation, 22.12.1909, Haarlem, ATS, vol. 36.

¹⁵² “zeer bruikbaar” / “eenige kleinigheden” / “achten zulks billijk” / “de berekening van Prof. Lorentz niet geheel opgaat”: “Directienotulen”, 24.12.1909, Haarlem, ATS, vol. 13.

Waveren had overseen the laboratory's refurbishment. Electric lights had been installed everywhere, and most rooms were provided with running water and gas.¹⁵³ All the walls had been plastered and painted, and fire doors installed. In order to prevent any possibility of fire spreading to the museum, the door connecting the museum building and the laboratory had been sealed off. A whole range of instruments and machines as well as laboratory equipment had been acquired as well.

Lorentz and Elias now had a total of nine rooms at their disposal, six of which were spread over the three storeys of two formerly separate houses adjacent to the museum that had already been conjoined to form the laboratory building during van der Ven's times. The ground floor consisted of two rooms, the so-called "large downstairs workroom" and a workshop for van Waveren. A one-metre thick concrete slab had been installed in the large workroom under some removable floorboards, so that instruments could be set up on it in order to minimise any interference of vibrations with measurements. The fume cupboard was installed in this room as well, and all of the laboratory's electricity was controlled through a large switchboard set up here. The workshop was equipped with a lathe and a workbench, amongst other equipment and tools. By 1912, Lorentz proudly proclaimed that "only for harder jobs it is occasionally necessary to turn to other workshops."¹⁵⁴ Over the years van Waveren built or improved upon a wide range of instruments with the tools available in his workshop.

The second floor consisted of three rooms: firstly an office for Lorentz, which for some reason he always referred to in inverted commas; secondly another workroom, the referred to as "the large upstairs workroom"; and thirdly a small room that was referred to as the "small upstairs chamber". This chamber was used as storage space, at least initially.

On the third floor, the top story of one of the two houses that had been conjoined was converted into a dark room to develop photographs.

Finally, there were two –or, depending on how one counts even three – other buildings associated with the laboratory, providing the remaining three out of the total of nine rooms. The first of these buildings was van der Willigen's "Observatory", essentially consisting of one room. It was not used for scientific purposes during Lorentz' tenure, but must at some point have been converted into a studio to be used by the curator of the art collections. The last of the instruments that had still been stored there were transferred to the "Museum" by 1912.¹⁵⁵ Lorentz suggested that same year that, should it eventually prove necessary, additional space for laboratory work could be created by extending the Observatory.

The second building was referred to as the "acids house" (*zuurhuisje*). It is not clear whether this was indeed a separate building, or part of an adjacent building. It consisted of two sections or rooms, one of which housed a 12hp engine to convert electricity (this indicates

¹⁵³ Unless otherwise indicated, the information presented in the following section is taken from Lorentz' annual reports to the trustees of the Teyler Foundation: "Verslagen", 1885-1944, Haarlem, ATS, vol. 191.

¹⁵⁴ "alleen for zwaardere werk is het in sommige gevallen noodig zich tot andere werkplaatsen te wenden." "Jaarverslag 1911-1912", 06.04.1912, Haarlem, ATS, vol. 191.

¹⁵⁵ "Jaarverslag 1911-1912", 06.04.1912, Haarlem, ATS, vol. 191.

that it can't have been too far away from the laboratory itself), the other of which was furnished as a chemical laboratory.

Not all of these rooms were used exclusively by those permanently employed by the Foundation (van Waveren later took two of his sons on as apprentices). On the contrary, over the years a whole range of guests made use of the facilities, some even for a period of several years, for their own research.¹⁵⁶ This is also why one could argue that the last building in which research was performed did not necessarily belong to the laboratory itself: in 1912 what is referred to as the “garden house” (*tuinhuisje*) was equipped so that Anton Hendrik Blaauw could conduct a series of experiments to find out more “about the influence of radiation on the growth phenomena of plants”.¹⁵⁷ No record indicating that any of the conservators ever worked there as well has been preserved, although no resources or efforts were spared by both Elias and van Waveren to assist Blaauw. Especially van Waveren spent a lot of time on Blaauw's equipment, prompting the author of Blaauw's obituary some thirty years later still to refer to at least one “beautiful instrument” that Blaauw had been able to use in Haarlem.¹⁵⁸

The *zuurhuisje*, too, was placed at the disposal of another guest researcher between 1913 and 1916, the geologist Christoph Georg Sigismund Sandberg, for some work on “questions of dynamic geology”.¹⁵⁹ The trustees only agreed to this under the condition that “suchlike does not entail any significant costs”.¹⁶⁰ Lorentz saw to it that he was provided with all necessary equipment, assuring the trustees that he had made it clear that Sandberg could only expect financial support for everything that “[can] be considered to form part of the equipment of a scientific [*natuurkundig*] laboratory”.¹⁶¹ Sandberg's research in Haarlem doesn't appear to have resulted in any publications, although he gained some notoriety later for his autobiographical account of his times in the Dutch Colonies, and as an anti-semitic and supporter of the German Nazi party.

The same year that Sandberg arrived, the darkroom on the top floor of the laboratory was converted into a room for the linguistic research of a Mrs. Bakker, later referred to as Mrs. Bakker-Bezemer. She needed a place to analyse recordings she had made in Utrecht, and was

¹⁵⁶ Meanwhile, the completely separate palaeontological and mineralogical collections were administered by another eminent, internationally respected, if perhaps also controversial, scientist: Eugène Dubois. Dubois' claim to fame was the discovery of what he deemed to be remains of a “missing link” between humans and ape-like ancestors, which he named *Pithecanthropus erectus*. He succeeded Winkler as curator in 1899 and stayed on until after Lorentz' death. On Winkler and the discussions surrounding his work see: Bert Theunissen, *Eugène Dubois and the Ape-man from Java: The History of the First Missing Link and Its Discoverer* (Dordrecht; Boston: Kluwer Academic Publishers, 1989). For a popular but well-researched account of Dubois' life see: Pat Shipman, *The Man Who Found the Missing Link: The Extraordinary Life of Eugène Dubois* (London: Weidenfeld & Nicolson, 2001).

¹⁵⁷ “over den invloed van bestraling op de groeiverschijnselen bij planten”: “Jaarverslag 1913-1914”, 08.04.1914, Haarlem, ATS, vol. 191.

¹⁵⁸ “fraai instrument”: W.H. Arisz, “Levensbericht A.H. Blaauw,” in *Jaarboek der Nederlandsche Akademie van Wetenschappen* (Amsterdam: Noord-Hollandsche Uitgevers, 1943), 231.

¹⁵⁹ “vraagstukken der dynamische geologie”: “Jaarverslag 1913-1914”, 08.04.1914, Haarlem, ATS, vol. 191.

¹⁶⁰ “zulks geen kosten van beteekenis mede brengt”: “Directienotulen”, 06.06.1913, Haarlem, ATS, vol. 13.

¹⁶¹ “gerekend [kan] worden tot de uitrusting van een natuurkundig laboratorium de behooren”: “Jaarverslag 1913-1914”, 08.04.1914, Haarlem, ATS, vol. 191.

provided with the necessary equipment from Teylers instrument collection. She stayed on until 1916, from which point on she was evidently able to work at home.

As from 1919, the former darkroom was occupied by Dr. M.J. Huizinga two afternoons every week. Huizinga was a maths teacher interested in “questions that arise from current conduction through flames”.¹⁶² Before he left in 1920 he might still have met the engineer G.F. van Dissel, who wanted to learn more about electromagnetic waves because he wanted to specialise in wireless telegraphy. An announcement in the *Indische Courant* of 1929 seems to suggest that he successfully pursued a career along these lines.¹⁶³

But even though guests that only passed by for assistance have not been included in the list above, and Huizinga’s presence even prompted Lorentz to start holding monthly colloquia attended by other maths and science teachers from the Haarlem area, the laboratory was still first and foremost his and the conservator’s.

Elias himself avidly set to work once the laboratory had been refurbished and all his equipment had arrived and been installed. As was Lorentz’ intention, most of Elias’ work revolved around magneto-optic effects. De Haas assisted him in 1913 in performing a series of experiments on “the structure of absorption lines of sodium vapour”.¹⁶⁴ And after Lorentz had been succeeded by Paul Ehrenfest in Leiden and subsequently moved to Haarlem in 1912, Elias assisted the curator in a series of experiments on a problem that the Nobel Prize laureate would repeatedly return to over the coming years, hysteresis.

But just as Elias’ own efforts were gaining momentum after all the instruments had been delivered, assembled, and calibrated to his satisfaction, that momentum was checked through events far beyond his control, namely the outbreak of the First World War. And even though the Netherlands remained neutral, the effects were of course felt in Haarlem too, as everyone everywhere was forced to economise. Worst of all, Elias was called up for service in 1914. He was allowed to return after a few months, but it didn’t take long for economising to take its toll. By the end of the War, Lorentz had stopped giving public lectures that were traditionally held in the winter, as the lecture hall could not be heated, because fuel was scarce. No new instruments were acquired either.

Elias left Teylers on August 8th 1916, after he was offered and accepted a position as honorary professor at the University of Delft (*Technische Hogeschool*). He would most likely have changed jobs even if the War hadn’t been raging. Not only was the entire country including the University of Delft affected by the hostilities, but as early as March 1911 Elias had already accepted – with the trustees’ blessing after Lorentz assured them that this would not detract from his work at Teylers – a teaching position in Utrecht, standing in for the frail Cornelis Harm Wind for two hours a week. The following year, Elias had been made an assistant professor (*privaatdocent*) in Utrecht.

¹⁶² “vragen, die zich bij de electriciteitsgeleiding door vlammen voordoen.”: “Jaarverslag 1919-1920”, 07.04.1920, Haarlem, ATS, vol. 191.

¹⁶³ “Een onderscheiding”, in: *De Indische Courant* 76, 12.12.1929.

¹⁶⁴ “de structuur der absorptielijnen van natriumdamp”: “Jaarverslag 1913-1914”, 08.04.1914, Haarlem, ATS, vol. 191.

Elias exchanging his position at the laboratory in Haarlem for a position at a university was the first indication of a pattern that was to emerge over the course of the following years: all of Elias' successors as conservator lamented the absence of students in Haarlem or left once they were offered a position at a university. And the list of successors was not short, because most of the subsequent conservators did not remain in Haarlem for very long.

Elias was succeeded by de Haas, who had already been considered for the position in 1909, and in the meantime had received his doctorate. Although he left just a year later to join Elias as a professor of physics in Delft, he managed to recreate and describe more accurately than anyone else previously a physical phenomenon that has since been called the Einstein-de Haas effect. De Haas and the increasingly famous Einstein had first discovered this phenomenon while working together in Berlin. These credentials also go to show that de Haas' appointment had little, perhaps even nothing, to do with the fact that he had also become Lorentz' son-in-law in 1910.

After de Haas left, Lorentz employed Johannes Martinus Burgers, a recent graduate of Ehrenfest's with strong Marxist sympathies, on January 8th 1918.¹⁶⁵ Lorentz set him to work on a set of experiments related to his research on hysteresis. Burgers was only to complete these experiments "up to a certain level" though, as he was simultaneously granted time to edit his PhD-thesis and, like his predecessors in Haarlem, left for Delft after only ten months for a professorship of engineering.¹⁶⁶

Lorentz then chose Balthasar van der Pol as the new conservator. At the time van der Pol was working in Cambridge at the Cavendish Laboratory as an assistant to J.J. Thomson. Lorentz allowed him to continue with his research into the propagation of electromagnetic waves which he had already begun in Cambridge, and van der Pol ordered some of the instruments he would require in Haarlem in England, subsequently having them delivered to the Netherlands. Interestingly, in his report to the trustees on van der Pol, Lorentz emphasised that his previous research had been conducted not with an eye to improving wireless telegraphy, but "the study of physical phenomena".¹⁶⁷ Until he left in late 1922 – for a position at the newly created industrial laboratory of the *Philips Gloeilampenfabriek* – van der Pol experimented a lot with recently developed triodes, focusing especially on cases of hysteresis. Meanwhile, Lorentz himself had succeeded in measuring a "curious double refraction in crystals of the regular system" which had been theoretically predicted, but never observed yet.¹⁶⁸

Van der Pol was succeeded by Coster, who stayed for a little more than a year before leaving in 1924 for a professorship in Groningen. While in Haarlem, he experimented with X-rays. He was succeeded by Adriaan Fokker in July 1926.¹⁶⁹ Fokker had previously worked with

¹⁶⁵ On Burgers see: A.J.Q. Alkemade, "Burgers, Johannes Martinus," February 10, 2012, <http://www.historici.nl/Onderzoek/Projecten/BWN/lemmata/bwn5/burgers>. This is a digitized version of the entry on Burgers in the *Biografisch Woordenboek van Nederland 5* (The Hague 2002).

¹⁶⁶ "tot op zekere hoogte": "Jaarverslag 1918-1919", 07.04.1919, Haarlem, ATS, vol. 191.

¹⁶⁷ "de bestudering der physische verschijnselen." Ibid.

¹⁶⁸ "eigenaardige dubbele breking bij kristallen van het regulaire stelsel": Ibid.

¹⁶⁹ "Directienotulen", 09.07.1926, Haarlem, ATS, vol. 15.

Rutherford in Manchester and with Einstein in Zurich. Lorentz agreed with the trustees that Fokker could succeed Lorentz as curator. Together they turned towards questions pertaining to quantum mechanics, specifically the existence of light quanta, but their efforts were cut short when Lorentz passed away on February 4th 1928.

4. “The Isolation of Haarlem”

As has already been pointed out, all of the conservators – all of them obviously budding young physicists with great potential and future members of the elite of Dutch science – evidently considered universities a more challenging work environment with better career prospects than Teylers Laboratory. The question of why naturally arises.

Two points were certainly irrelevant, and a third was of little importance. Firstly, their leaving cannot have had anything to do with Lorentz’ scientific credentials or his role as their superior. No incidence of any of the conservators speaking ill of Lorentz is known of. Secondly, the trustees were as supportive as they could be, and certainly didn’t interfere with work at the laboratory. Their demands – that a number of lectures should be held annually – were minimal, and certainly not comparable with the burden of teaching at a university. Finally, the salary the Foundation paid was competitive as well, albeit considerably lower than a university professor’s.¹⁷⁰

Two other points however were of crucial importance: the changing nature of science, and, eventually, the Foundation’s finances.

As for the first of these points, research was increasingly being conducted in large scale projects, requiring teams of scientists. Because of the larger scale of these projects, funding could increasingly only be provided by the government, industry, or perhaps major philanthropic organisations such as the Rockefeller and Carnegie Foundations. Eventually, a two-person, privately funded laboratory in a town such as Haarlem without a university, could no longer compete. Perhaps the best example of the changing dimensions and character of scientific research is the immense expansion of the facilities at Lorentz’ own university, Leiden. As was already mentioned above, Kamerlingh Onnes had immediately set about refurbishing the laboratory he was provided with upon his appointment in 1882; but during the years Lorentz spent in Haarlem, the physics department’s premises were significantly extended upon Kamerlingh Onnes’ initiative, with a major new wing being added to the original building between 1920 and 1926.¹⁷¹ Lorentz’ laboratory in Haarlem paled in comparison. And even if the Teyler Foundation would have had the resources to expand its own premises, it would have faced another obstacle: Pieter Teyler’s old town house was

¹⁷⁰ The salary for a full professorship was about f6000,- p.a., the conservator earned about f3000,- p.a.

¹⁷¹ On this see: Delft, *Freezing Physics: Heike Kamerlingh Onnes and the Quest for Cold*, 10:530ff.

situated in what had now become the middle of town, and the space around it was obviously limited, all the more so because tearing down the museum was out of the question.

As scientific research became large-scale, research networks became increasingly important as well, especially as specialisation amongst experts increased too. As Ehrenfest demonstrated through his infamous colloquia in Leiden, students could provide a valuable stimulus to research as well as a reservoir of future research talent, all the more so as their number increased significantly over the first decades of the 20th century. This is where another character trait of Lorentz' becomes significant: he was not a natural-born charismatic leader with instincts of power. This in turn meant he was not the type to establish a scientific "school" of his own. Where he displayed leadership, it was more on a rational level, out of a sense of duty when jobs had to be done or problems solved. It should be emphasised that this is not to say that his word did not carry immense weight, or that he was not respected, that he did not stimulate exchanges amongst scientists, or that he did not nurture students' talent. On the contrary, as his pivotal involvement and presidency of the Solvay conferences for instance shows, as well as his commitment to his own students and matters of education in general. But the contrast with Ehrenfest for instance already did not escape contemporaries. As Lorentz' daughter put it:

"How great a difference between Ehrenfest and Lorentz as regards their relationship to their students and the influence which they exercised upon them! Whenever Ehrenfest met a young man in whom he saw great possibilities as far as physics was concerned, but who spent too much time and energy on other things, he would spare time nor effort to influence him to take up the study of physics seriously. Lorentz, facing the same situation, would regret the fact, but would come to the conclusion that, for better or for worse, this young man was more interested in other matters than in physics, and that this was his own business. Only when a student asked for help, or was in need of his assistance, on account of illness or similar circumstances, would Lorentz be ready to offer help."¹⁷²

Or, as Fokker later remembered during an interview:

"[Lorentz] was very, very kind, and his conversation was never dull although he was quiet. But he didn't make an appeal on your soul, so to speak, you see; he just left you to your own intentions and to your own desires. And that's not the way to make a school; if you are making a school, you must just shake people, you see. The same thing I noticed later when I talked with Rutherford -- I was some weeks with Rutherford. There's a great difference; it's a pity that Lorentz did not have a school around him just like Ehrenfest."¹⁷³

So Lorentz' style did not help establish Haarlem as one of the nerve centres of Dutch science in the sense that Lorentz brilliance and high reputation was not enough to compensate what was beginning to emerge as a structural disadvantage, i.e. the relatively small size of Teylers Laboratory and Haarlem's lack of a university. This was amplified by two factors: firstly that Lorentz stayed on in Leiden as an honorary professor, giving his legendary "Monday morning

¹⁷² Haas-Lorentz, *H.A. Lorentz: Impressions of His Life and Work.*, 107. Original in English.

¹⁷³ Transcript of an interview John L. Heilbron held with Fokker at Beekbergen, 01.04.1963: <http://www.aip.org/history/ohilist/4607.html>, accessed 07.02.2012.

lectures” even after he had officially reached retirement age; and secondly his time-consuming involvement with – and later presidency of – the so-called “Zuiderzee-committee” (*Staatscommissie Zuiderzee*), which had been established to calculate what effect the construction of the *Afsluitdijk*, an enormous enclosure dam in the province of Friesland, would have on the water level and pressure on the surrounding dams. Lorentz developed a theoretical model to simulate the hydrodynamics involved, and oversaw the subsequent immense calculations this required.¹⁷⁴

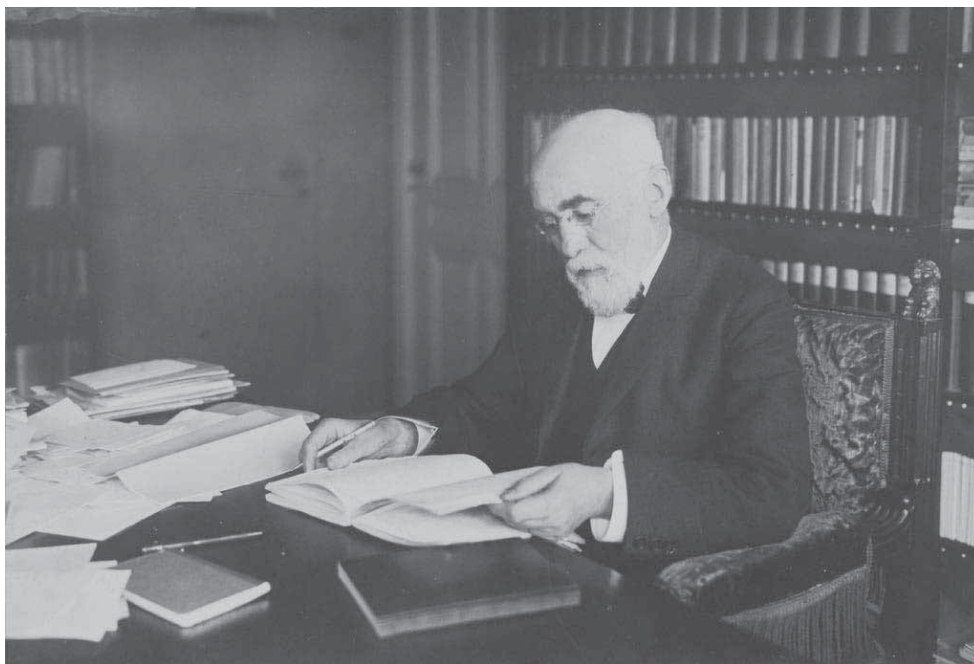


Fig.10. Hendrik Antoon Lorentz (1853-1928) in his private study in Haarlem, 1926 (Teylers Museum, Haarlem)

As some of their correspondence shows, the conservators were beginning to feel this isolation. In 1922 for instance Van der Pol wrote to Lorentz, who was abroad at the time,

“At Teylers it is quiet and lonely. Only now that you are gone I realise, actually for the first time, what it means to work in a town in which there is no university life.”¹⁷⁵

A year later, van der Pol left for Eindhoven. And when Lorentz turned to Fokker to ask him whether he might want to take up the post of conservator, Fokker had grave doubts about his

¹⁷⁴ See Anne J. Kox, “Uit de hand gelopen onderzoek in opdracht: H.A. Lorentz’ werk in de Zuiderzeecommissie,” in *Onderzoek in opdracht: de publieke functie van het universitaire onderzoek in Nederland sedert 1876*, ed. Leen Dorsman and Peter J. Kneegtmans (Hilversum: Verloren, 2007), 39–52.

¹⁷⁵ “Op Teyler is het stil en eenzaam. Nu U weg is beseft ik pas, eigenlijk voor het eerst, wat het zeggen wil, in een stad de werken waar geen universitair leven is.”: B. Van der Pol to H.A. Lorentz, 15.03.1922, Haarlem, NHA, Archief Lorentz, vol. 364, nr. 62.

own qualifications, citing Haarlem's isolated position as the main reason he would prefer to take up an alternative offer he had received from the University of Delft:

“Without question there is very much that is great about a private Foundation [the Teyler Foundation] that wants its resources to serve science, and to ensure that these great intentions are done justice and developed even further is a tempting task. I also understand very well that many things could perhaps be done for the general cause of all physicists by someone who is not burdened by other duties of his position, with regards to cooperation on a national level as well as for international relations. But this is an ambition that aims high, to attract those members of the scientific circle of friends for regular interaction. In order to break the isolation [*isolement*] of Haarlem a lot of friendship will be necessary, and a certain amount of authority. Following this line of thought it then seems again as if I needed to earn my spurs in Delft first, and become familiar with the nature of and [... unreadable] of relations.”¹⁷⁶

In other words, “the isolation of Haarlem” weighed more heavily than the absence of any teaching obligations at Teylers and the possibility to focus entirely on research.

By this time, the second aspect could no longer be ignored either: the Foundation's finances. The changes in the global economy were beginning to take their toll on the Foundation's budget, which of course had already been stretched to the limit when Lorentz was taken on. The War, inflation, the Russian Revolution, and the introduction of personal taxes all brought about change in the financial world during this time. When the trustees were looking for a successor to van der Pol, they therefore openly told Lorentz that they were “of the opinion that they would have to be prepared for a possible cave-in and significant loss of value of stocks”.¹⁷⁷ They had already lost a lot of money as a result of the Russian Revolution, when the Russian government bonds they held became worthless. Even though the trustees were able to compensate for this loss by investing in Dutch companies and bonds, the financial markets were still far from stable.¹⁷⁸ The year Coster was taken on, 1923, was the year in which hyperinflation brought the young Weimar Republic to its knees. Lorentz accordingly warned Coster that he had to consider his new position a temporary one, as there was a possibility that the entire physics department would have to economise – small wonder Coster soon left for Groningen.¹⁷⁹

¹⁷⁶ “Ontegengesteld is er erg veel moois in een particuliere Stichting [Teylers], die haar middelen aan de wetenschap wil dienstbaar maken, en om te zorgen dat dit mooie der bedoeling tot zijn recht komt en nog verder ontwikkeld wordt is een aantrekkelijke taak. Ook zie ik heel wel in, dat er vele dingen wellicht te doen vallen voor de gemeene zaal der physici juist voor iemand, die geen drukke ambtsplichten heeft, zoowel voor de binnenlandsche vriendschappen als voor buitenlandsche verstandhouding. Maar het is een ambitie, die nogal hoog mikt, deze van een wetenschappelijken vriendenkring aan te trekken tot geregeld verkeer. Om het isolement van Haarlem te breken zal veel vriendschap noodig zijn, en een zeker gezag. In dezen gedachtengang lijkt het dan weer alsof ik in Delft eerst mijn sporen daartoe moet verdienen, en bekendheid verwerven met karakter en den binnenkant [?] van verhoudingen.”: A. Fokker to H.A. Lorentz, 03.01.1923, Haarlem, NHA, Archief Lorentz, vol. 364, nr. 24.

¹⁷⁷ “van oordeel zijn dat zij rekening moeten houden met een mogelijke ineenstorting en waardevermindering van rentegevende papieren.” This is the way Fokker quotes Lorentz, in: A. Fokker to Lorentz, 03.01.1923, Haarlem, NHA, Archief Lorentz, vol. 364, nr. 24.

¹⁷⁸ See the accountant's reports covering this period, in: “Rekeningen met Toelichting”, 1889-1945, Haarlem, ATS, vol. 609. The worthless Russian bonds were kept: “Coupons”, c.1917, Haarlem, ATS, vol. 2414.

¹⁷⁹ “Jaarverslag 1922-1923”, 07.04.1923, Haarlem, ATS, vol. 191.

Interestingly, even well into the 1930s the Foundation had in fact not actually lost any of its capital, which, at about f2.000.000,- was still considerable.¹⁸⁰ But, crucially, the trustees were no longer able to gain much of a return on the assets they owned. The accountant's annual reports confirm what Fontein, by this time president of the board of trustees, pointed out in 1926: "that one needs to be very frugal in order to retain f10m [f10.000,-] at the end of each year, which is quite necessary".¹⁸¹ By this time, he and his fellow members of the board were no less concerned than they had been after van der Pol left. It is worth recalling that the Foundation had a lot more to pay for than Lorentz' laboratory: all the other departments at the museum – the most costly of which for many years was the library –, the museum itself, the *Hoffe*, the two learned societies, and a wide range of charities all required regular payments.

As was already mentioned in the introduction to this chapter, lengthy discussions on how to economise ensued, and during these discussions the idea to close down either the laboratory or the art department was even floated several times by different members of the board. It was finally decided that all the prints and drawings the Foundation owned in duplicate were to be sold off.¹⁸² Sensing what else might still be coming, the curator of the art department, H. van Borssum Buisman, subsequently agreed to select prints and drawings that could be put on the market, but repeatedly protested heavily against any paintings being sold.¹⁸³ Lorentz himself also went on record protesting against other departments economising in order to maintain his own department's budget. But as Fokker soon noticed, all departments felt the squeeze, with the laboratory's annual budget being set at f14.000,- rather than the f17.000,- both Fokker and Lorentz considered necessary and had asked for.

So, in a way, it looked as if Zocher's premonitions about the Foundation's finances had been correct. Zocher himself had passed away in 1915. Yet Fontein's enthusiasm was never broken, he never showed any signs of regretting having taken on Lorentz. On the contrary, when Lorentz passed away, Fontein gave a small eulogy at the following meeting of the board of trustees, in which he spoke of Lorentz tenure and personality in no less than glowing terms. Acknowledging that Lorentz had not been able to perform as much research at Teylers as he had wanted to himself, Fontein nevertheless drew attention to the "successen" of the conservators, emphasised Lorentz' impeccable character and fine intellect, and proudly quoted Kamerlingh Onnes as having stated that the country should be eternally grateful to the Teyler Foundation because it had created a position for Lorentz in which he was free to focus exclusively on his research. But, Fontein continued, far more than the Foundation had been able to assist Lorentz, it had benefitted from his worldwide fame:

¹⁸⁰ "Rekeningen met Toelichting", 1889-1945, Haarlem, ATS, vol. 609.

¹⁸¹ "dat men heel en heel zuinig moet zijn om jaarlijks f10m [f10.000,-] te kunnen overhouden wat toch noodzakelijk is." "Directienotulen", 14.05.1926, Haarlem, ATS, vol. 15.

¹⁸² "Directienotulen", 30.04.1926-11.06.1926, Haarlem, ATS, vol. 15.

¹⁸³ "Directienotulen", 14.05.1926, Haarlem, ATS, vol. 15, fol. 5 & fol. 9.

“On his great flight to world fame, which he never actively sought, but which simply came to him, he inadvertently took Teyler’s Laboratory and all that accompanies it (including the entire Foundation) under his wing so that all would share in his world fame.”¹⁸⁴

Fontein’s case can indeed be argued. Renowned colleagues of Lorentz’ such as Einstein or du Bois for instance came to Haarlem and to Teylers because Lorentz worked there. As Lorentz noted in his 1917 annual report, “Prof. A. Einstein from Berlin and Prof. H. Du Bois showed their interest in the laboratory on their visits.”¹⁸⁵ Other well-known scientists include van der Pol’s visitor Appleton.

Yet at the same time, Kamerlingh Onnes’ remark about the Teyler Foundation that Fontein referred to was the only reference made to this Haarlem institution in a total of 6 speeches held in Lorentz’ honour during the festivities to mark the 50th anniversary of his doctorate in 1925.¹⁸⁶ This might have had something to do with the fact that these festivities were held at the University of Leiden, but that in itself is not insignificant: they were not held in Haarlem. The scientific community obviously still associated Lorentz with Leiden, more than with Haarlem.

Lorentz himself in fact regretted he had not been able to do more for the Teyler Foundation. At the height of the discussions on the Foundation’s finances in May 1926, he summarised his own view of the previous one and a half decades. As the minutes of the meeting read:

“With regards to himself Prof. Lorentz states that his initial plans have not been fully implemented. Speaker [Lorentz] hasn’t done for Teyler what he had wanted to. Numerous circumstances prevented him from doing so. Leiden did not let him go, the War claimed a lot of his time, as did peace. Then came the calculations for the Zuiderzee, etc. etc. Yet there is also reason to be satisfied.”¹⁸⁷

Before summarising Lorentz’ ensuing account of everything that he thought did go well – above all Lorentz was proud of what the conservators had achieved – the trustee taking the minutes of the meeting still recorded verbatim Lorentz’ very brief overall verdict of his tenure at Teylers, which, considering that Lorentz passed away less than two years later, has a final ring to it: “*Het is wel aardig gedaan*”, which can be translated roughly as “It didn’t go badly.”

¹⁸⁴ “Op zijne groote vlucht naar wereldberoemdheid, welke hij nooit gezocht heeft, doch die hem eenvoudig te gemoet is komen waaien, heeft hij onwillekeurig Teyler’s Laboratorium met al zijn aanhang (waaronder de geheele Stichting) onder zijn arm medegenomen op dat dit alles in zijne wereldvermaardheid zoude deelen.”: “Directienotulen”, 17.02.1928, Haarlem, ATS, vol. 15.

¹⁸⁵ “Prof. A. Einstein te Berlijn en Prof. H. Du Bois toonden bij bezoeken hunne belangstelling in het laboratorium.”: “Jaarverslag 1916-1917”, 07.04.1917, Haarlem, ATS, vol. 191. This was one of at least two confirmed instances in which Einstein came to Leiden. The first was in 1911 (see below).

¹⁸⁶ At least this was the only time its name appears in the published versions of these speeches: W. de Sitter et al., “Huldiging van Professor Lorentz,” *Physica: Nederlandsch Tijdschrift voor Natuurkunde* 6, no. 1 (1926): 1–21.

¹⁸⁷ “Op zich zelven komende verklaart Prof. Lorentz dat zijn plannen van vroeger helaas niet in elken deele verwezenlijkt zijn. Spreker heeft niet voor Teyler gedaan, wat hij had willen doen. Tal van omstandigheden hebben hem dat belet. Leiden liet hem niet los, de oorlog vroeg veel van zijn tijd even als de vrede. Toen kwamen de berekeningen voor de Zuiderzee enz. enz. Toch is er ook reden tot tevredenheid.”: “Directienotulen”, 14.05.1926, Haarlem, ATS, vol. 15.

5. The Museum Next Door

Let us briefly summarise some points that so far have transpired from the description of Lorentz' activities as curator of the Teyler Foundation's laboratory. Firstly, he was taken on largely because of the enthusiasm of one trustee, Jan Adriaan Fontein, and the mediation of another eminent scientist, Johannes Bosscha. Secondly, Lorentz accepted the job in Haarlem at least in part because he was dissatisfied with his situation at the University of Leiden. Thirdly, the Foundation's budget was stretched to the limit from the very beginning of Lorentz' tenure, and this situation became painfully acute after the Foundation experienced a variety of financial setbacks. Fourthly, this decline in the laboratory's fortunes was amplified by the rise of universities as research institutes, which was closely connected to the structural changes scientific research was experiencing. Research increasingly involved a team effort and sensitive, expensive measuring devices.

Thus far one could therefore conclude that hiring Lorentz was essentially a fateful attempt by the Teyler Foundation to maintain the position it had held throughout most of the 19th century, as the centre of Dutch experimental science. Two other aspects besides the Foundation's financial woes and Haarlem's increasingly peripheral status without a university contributed to this ill fate, i.e. the Foundation's laboratory being taken less and less seriously within the scientific community: firstly, even if the funds had been available it would have been almost impossible to expand the laboratory building to a scale comparable to university laboratories, simply because the laboratory was in the middle of Haarlem and adjacent to Teylers Museum. And secondly, despite his brilliance and immensely high reputation Lorentz did not possess the charisma needed to compensate for Haarlem's peripheral status.

As a result, by the time Lorentz passed away the Foundation was selling off those prints and drawings from its collection that it owned in duplicate in order to raise money.

This finally turns the spotlight back onto the museum, and is in fact remarkable – although not so much because of what was being sold, but because of what the Foundation was *not* selling: the trustees did not decide to sell any of the historical scientific instruments – which fell under Lorentz' purview as curator – from their collection in order to gain some fresh income. This is even more noteworthy than the fact that they didn't sell any of the books from the library, coins from the numismatic collection, or fossils and minerals from the geological collection, because all of these were either unique or could still serve for research purposes. The instruments were all unique too of course, whereas the duplicate drawings and prints were obviously not – but many of the instruments were no longer of any use in the laboratory, or would clearly never be again; they no longer had any practical value. Given that the Foundation's predominant aim was clearly to support research, it is therefore easily imaginable that someone at the time might have come up with the argument that the old and useless instruments should be the first to be sold from any of the collections in order to guarantee that further research could be funded by the Foundation.

The prioritisation in selling off duplicate works of art before historical scientific instruments is therefore strongly indicative of some sense of the historical value of these artefacts of former science. The trustees wanted to keep their museum of the history of science.

Yet the same time, what also transpires perfectly clearly from the analysis of Lorentz' and his assistants' activities at Teylers given above, is that as long as they were in charge of the scientific instrument collection they never made an active effort of highlighting it for its historical value; Lorentz' focal point was the laboratory, not the museum. On the contrary, from the few references he made to the museum or the collection at all, two points clearly transpire: firstly, that in his eyes the instrument collection served as a sort of reservoir of instruments which could be used for laboratory work, should they prove to be of any assistance; and secondly, that to him the museum and laboratory were separate entities.

This second point is most clearly illustrated by a card he sent to the curator of the art department, Johannes Frederik Hulk, when he was expecting a visit from Einstein and his wife. It read:

"Dear Mr. Hulk,

I hope to come to the museum tomorrow after coffee at about 2 o'clock with Mr. and Mrs. Einstein and we would greatly appreciate it, if we could see some things.

Yours respectfully, H.A. Lorentz"¹⁸⁸

In other words, "after coffee", Einstein and Lorentz – curator of the physics department – wanted to go on what amounted to a guided tour of the adjacent Teylers Museum.

In his annual reports Lorentz repeatedly stated how he resorted to instruments from the museum's collection for use in the laboratory. The most prominent example was the conversion of a Repsold universal instrument that had been acquired by van der Ven's predecessor van der Willigen in 1878, into a multipurpose spectrometer. This conversion amounted to a total cost of f6316,-.¹⁸⁹ In 1912 Lorentz remarked that "a lamp of Duborcq, present in the museum, provided good service" during some of Elias' spectrographic experiments.¹⁹⁰ In 1914 he reported that equipment required by Mrs. Bakker "could be assembled with the help of some instruments from the collection".¹⁹¹ And in 1923, when money was getting tight, Lorentz reported that only a few of the instruments required by Coster had had to be bought new because it had turned out that the laboratory was actually already well equipped for the purposes of his research, adding that some instruments had also

¹⁸⁸ "Zeer geachte heer Hulk, Ik hoop morgen na de koffie, tegen 2 uur met den Heer en Mevr. Einstein in het Museum te komen en wij zullen het dan zeer op prijs stellen, zoo wij wat mogen zien. Met vriendelijken groet hoogachtend Uw dienst. H.A. Lorentz": H.A. Lorentz to J.F. Hulk", 10.02.1911, Haarlem, ATS, vol. 124. I am grateful to Marijn van Hoorn for having drawn my attention to this letter.

¹⁸⁹ Hoorn, "The Physics Laboratory of the Teyler Foundation (Haarlem) Under Professor H.A. Lorentz, 1909-1928," 16.

¹⁹⁰ "Eene in het museum aanwezige lamp van Duborcq bewees [...] goede diensten": "Jaarverslag 1911-1912", 06.04.1912, Haarlem, ATS, vol. 191.

¹⁹¹ "kon met behulp van eenige in de verzameling aanwezige instrumenten worden samengesteld": "Jaarverslag 1913-1914", 08.04.1914, Haarlem, ATS, vol. 191.

been converted by van Waveren.¹⁹² At the same time, instruments from the collection were repeatedly lent to external researchers for their experiments.

This is not to say that Lorentz looted the museum or didn't take care of the instruments that were housed there. On the contrary, his annual reports also reveal that van Waveren and his apprentice son spent time cleaning both the instruments and the showcases they were stored in. In 1912 for instance Lorentz reported that "a number of old instruments, such as an electromagnet, a set of scales and a hot-air machine, were completely cleaned, checked up and revarnished."¹⁹³ In 1917 he wrote that "much care was also devoted to the cleaning of cupboards and instruments in the Museum and the restoration [*herstellen*] of some old apparatus."¹⁹⁴ One year later, Lorentz reported again that "the first and second amanuensis [van Waveren and his apprentice] spent a lot of time checking and restoring instruments from the Museum".¹⁹⁵ It says a lot though that these thorough cleaning and repair jobs were undertaken towards the end of World War I, when no new instruments were being bought and research and other activities had been reduced to a minimum because of the fuel shortage. Again, it becomes clear that Lorentz' focal point at Teylers was the laboratory, and that he possibly didn't even recognise the museum's potential as a showcase for the history of science, alongside all the other collections that were being rediscovered throughout Europe precisely during Lorentz' tenure at Teylers.

At the same time however this also meant that, in principle, the original museum remained untouched and unchanged for another two decades. By the time Lorentz passed away, the Oval Room in particular clearly belonged to another era entirely, and the 1885 extension was more than 40 years old already too. Just five years after Lorentz' death Fokker published a new guidebook to the instrument collection, with a strong emphasis on the rich history it illustrated. Significantly, he placed a far stronger emphasis on the collection's history than van der Ven had in his guidebook. And in this sense it is also not surprising and maybe even symbolic that when Fokker's successor Jacob Kistemaker arrived in Haarlem in 1955 and the trustees took the decision no longer to continue funding research at Teylers, he dismantled all of Lorentz' laboratory and sold all the instruments that it contained – but didn't touch any part of the museum.

One could therefore conclude that on the one hand Lorentz' tenure as curator at Teylers marked the end of an era: the era of the Teyler Foundation's role as one of the most important, perhaps even the most important, patron of experimental research in the Netherlands. But on the other hand, because of events surrounding his tenureship and the fact that he took little active interest in Teylers Museum, the Foundation and its museum were soon able to take on a new role as beacons of the history of science.

¹⁹² "Jaarverslag 1923-1924", 31.03.1924, Haarlem, ATS, vol. 191.

¹⁹³ "Enkele oude instrumenten, als electromagnet, balans en heetelucht-machine, werden geheel gereinigd, nagezien en opnieuw gevernist.": "Jaarverslag 1911-1912", 06.04.1912, Haarlem, ATS, vol. 191.

¹⁹⁴ "veel zorg werd ook besteed aan het schoonmaken van kasten en instrumenten in het Museum en het herstellen van eenige oude apparaten.": "Jaarverslag 1916-1917", 07.04.1917, Haarlem, ATS, vol. 191.

¹⁹⁵ "de eerste en tweede amanuensis [hebben] veel tijd besteed aan het nazien en herstellen van instrumenten uit het Museum": "Jaarverslag 1917-1918", 07.04.1918, Haarlem, ATS, vol. 191.

Chapter VI: Conclusions

1. Summary

Before addressing the main points that have transpired from this study of the history of Teylers Museum from the late 18th to the early 20th century, briefly recalling some of the most important dates in the history of the museum is probably helpful.

Its history begins in 1778, with the death of Pieter Teyler van der Hulst. Largely upon the initiative of Martinus van Marum, the Oval Room was completed in 1784. The first chapter of this study highlighted how the Oval Room had sprung from the relative ambiguity of Pieter Teyler's last will and testament and how Teylers Museum was just one of many institutions – alongside Teylers Learned Societies and an almshouse – financed by the Teyler Foundation and its five trustees.

Van Marum was appointed director of Teylers Museum – although, rather importantly, a caretaker (*kastelein*) was simultaneously in charge of the Foundation's collection of fine art, which was also stored at the museum. Van Marum remained in this position throughout his long life, until his death in 1837. He famously experimented with the world's largest electrostatic generator at the museum in the 1780s. By the early 19th century however, van Marum had fallen out with the trustees, and essentially reduced his activities at the museum to a minimum.

When his successor, Jacob Gijsbert Samuel van Breda, arrived in Haarlem in 1839, he not only took the important decision to preserve scientific instruments that were deemed to be of historical value (because of van Marum's inactivity the collection had been mellowing for almost three decades), but also found that a new annex to the museum had been completed, the sole purpose of which was an aesthetically pleasing display of the Foundation's growing collection of paintings by contemporary Dutch artists.

The completion of this annex heralded Teylers Museum's gradual transition from an 18th century repository conceived as an aid to two learned societies and as a nodal point in the republic of letters, to a public art museum with a scientific laboratory attached to it. The gradual removal of scientific research activities from the museum premises began with the construction of a separate chemical laboratory for van Marum in 1790, but this separation became ever more pronounced once "science" became the exclusive reserve of professionally trained experts. In chapter 4 it was illustrated how these developments were reflected in Volkert Simon Maarten van der Willigen's professional biography and his activities at Teylers between 1865 and 1878.

During this same period, museums were being accorded a new public role. They were increasingly seen as fulfilling an educational task. Most importantly, they were not just supposed to provide visitors with the opportunity to learn more about the collections stored by every museum, but they were also supposed to fulfil a “civilising” role. They became purveyors of public mores, and simultaneously emerged as places to “see and be seen”. This went hand in hand with the idea that museums should attract as many visitors as possible.

The origins of these developments can be traced back well into the 18th century and are closely connected with the changing concept of a citizen’s role within society. The French Revolution acted as a catalyst in this respect, with many public, national museums being founded in the wake of Napoleon’s domination of Europe. But it was the South Kensington Museum in London, which was officially opened to the public in 1857, that came to epitomise the changing status of museums within society and their general recognition as public, educational, “civilising” institutions.

By the 1870s the cultural ideals epitomised by the South Kensington Museum were being emulated in the Netherlands, a development which – certainly to some extent – is reflected by the major new annex to Teylers Museum that was completed in 1885. Significantly, a new and inviting entrance to the museum was constructed as part of this new annex. This, in turn, can be seen as a clear embrace of the museum’s public role (in principle, it had been accessible to all ever since 1784, but in early years practical restrictions had been manifold). What’s more, the entire new section of the museum building was almost stereotypical in its design and, as a result, the entire institution was now clearly recognisable as a museum.

As was shown in chapter 5, the expectations this raised with visitors had a profound impact on the way in which the museum’s scientific collections in particular were handled. As far as the scientific instrument collection was concerned, its history was emphasised more than ever before, which meant that by the dawn of the 20th century Teylers Museum had partially become a museum of the history of science.

At the same time, the trustees of the Teyler Foundation had not stopped supporting scientific research. On the contrary, as the appointment of the Nobel Prize laureate Hendrik Antoon Lorentz in 1909 as curator of the Foundation’s laboratory and scientific instrument collection clearly shows, they took great pride and spared few costs in facilitating scientific research. But by the time Lorentz passed away in 1928, changes in the world’s financial system and the changing nature of scientific research meant the Foundation’s laboratory was no longer competitive, a crisis that even began to affect the entire museum, as items from other collections had to be sold off.

Nevertheless, the Foundation, all of the institutions it funded, and most of Teylers Museum’s collections survived the ensuing dire years, and with state support were all infused with new life in the 1980s.

2. You Say Musaeum, I Say Museum

This brief summary in itself already gives an impression of how multi-layered and complex the history of Teylers Museum is. Just a few examples can already serve to illustrate this: its collections range from the fine arts to the natural sciences, yet are not – and never tried to be – encyclopaedic; it was referred to as a “museum” – or “musaeum” – from the very beginning on, yet it only acquired a predominantly public and educational role towards the end of the 19th century; it was a very local affair, financed by a Foundation that was run by five trustees who practically always lived in Haarlem and many of whom were direct ancestors of close relations of Pieter Teyler’s, yet the museum immediately acquired an international reputation and, reciprocally, was clearly influenced by international developments; the Teyler Foundation was firmly embedded within Haarlem’s Mennonite community, yet this had very little impact on the day-to-day running of the museum; the museum itself spawned a laboratory which gradually turned into an institution in its own right.

This list can be extended almost at will. But with regard to all of these apparently puzzling aspects to the history of Teylers Museum, there is one important point to keep in mind when studying any aspect of its history – regardless of whether it concerns the museum itself, any of its collections, the life and work of a specific curator, or even a famous visitor. This is that the history of Teylers Museum is best pictured as having unfolded in a force field which is essentially shaped by two gravitational poles.

One of these is formed by the museum’s 18th century origins. As was shown, its roots lie in a fairly liberal interpretation of Pieter Teyler’s last will and testament. Teylers Museum was born from Pieter Teyler’s stipulation that his private collections should serve as a repository to the two learned societies that were to be set up in his name, and that these collections were allowed to be expanded. Pieter Teyler had not said anything about a museum, yet a magnificent museum was set up in his name and with his bequeathal and, therefore, always had to be administered in accordance with Pieter Teyler’s last will and testament. Because of this, the museum’s 18th century origins continued to shape its identity until well into the 20th century. Bearing in mind the circumstances under which the institution was founded, as well as the fact that the trustees of the Foundation always felt bound by the stipulations Pieter Teyler had set out in his last will and testament in 1756, therefore helps explain many of its idiosyncrasies. Just one obvious example is the museum’s wide range of collections: Pieter Teyler had stipulated that his legacy was to help stimulate the arts and sciences, which was accordingly reflected in the museum’s broad range of acquisitions.

The second gravitational pole is formed by the changing connotations of the term “museum”. As was already mentioned above but can hardly be stressed enough, the definition of what constituted a “museum” changed profoundly over the course of the 19th century. More to the point, over the years museums acquired an educational role and began to offer visitors the possibility of shoring up their credentials as members of the bourgeoisie. Anything that was labelled a “museum” was increasingly expected to have been designed to attract and accommodate large amounts of visitors. These changing ideas as to what constituted a

“museum” and its public role are clearly reflected in the history of Teylers Museum. The new annex that was completed in 1885 has already been mentioned as a prominent example. Another is the way in which Teylers Museum’s collection of fine art – the core of which was formed by the collection of drawings formerly belonging to Christina of Sweden which was acquired as early as 1790 – increasingly took centre stage. This was certainly the case after the 1820s, when the decision had been taken to acquire paintings by contemporary Dutch artists.

In summary one can say that, on the one hand, those in charge of Teylers Museum were bound by – and adhered to – Pieter Teyler’s last will and testament and the 18th century ideals that had shaped it, while, on the other hand and at the same time, they were in no way immune to the new concept of what constituted a museum that began to emerge as the 19th century progressed.

3. The Changing Status of the Scientific Instrument Collection

Key to understanding any aspect of the history of Teylers Museum is therefore to take into account its 18th century roots and the fact that the term “museum” has a history of its own, and cannot be treated as some sort of universal, timeless category which carried the same connotations towards the end of the 18th century as it did a century later. It also helps to realise that the history of the term “museum” does not necessarily coincide with the history of the institutions or collections that had adopted this label by the end of the 19th century.

By keeping all this in mind, this study was able to show how the status of the scientific instrument collection changed over the course of the 19th century. It clearly transpired how the collection was increasingly appreciated for its historical significance. In a nutshell, it evolved from a working collection that was acquired solely for the purposes of research and the demonstration of scientific principles at public lectures, into a museum of the history of science which vividly illustrated to the general public the experimental research that had been performed under the auspices of the Teyler Foundation.

A combination of local contingencies and larger, international developments brought about this change. One example of a local contingency, for instance, is that there is no indication that it was anything other than a coincidence that the talented and ambitious van Marum was starting to build a second career in Haarlem after having been passed over for a professorship in Groningen, precisely at the time a huge amount of money which had been earmarked for the arts and sciences became available after Pieter Teyler’s death. The fact that van Marum subsequently had access to the vast resources of the Teyler Foundation as director of Teylers Museum in turn enabled him to acquire instruments of the very highest quality for the newly founded institution. Most importantly, this enabled him to have the world’s largest electrostatic generator built, which in turn ensured Teylers Museum did not go unnoticed throughout the world.

As a result, van Marum's instrument collection played an integral part in forging the newly established Teyler Foundation's identity. Crucially, this meant the electrostatic generator was never a candidate for disposal in later years, when it inevitably began to lose its value as a research tool.

Alongside the identity-forming role of the instrument collection, its sheer value also prevented it from being disposed of easily. One remarkable piece of information that came to light as a result of the archival research which was undertaken as part of this study was the fact that as early as 1804 and 1806, two previously unknown visitors to the museum – August Hermann Niemeyer and Kaspar Heinrich Sierstorpff – had already exclaimed literally and separately from each other that the scientific instruments on display at Teylers would someday serve merely as testimony of past science, because they were too valuable either to be used for research or to be disposed of.

And finally, as was already mentioned above, in the early 19th century the collection was also able to mellow because van Marum found himself at odds with the trustees of the Teyler Foundation and reduced his activities at Teylers Museum to a minimum for the better part of almost four decades.

By the time van Marum's successor van Breda started actively using the collection again, it had become significant that Teylers Museum had been referred to as a museum from the very beginning of its existence onward. (The very first time the new institution was referred to as a "musaeum" in writing was on December 10th 1779, in the minutes of a meeting of Teylers Second Society, i.e. the learned society for the arts and sciences sponsored by the Teyler Foundation.) When museums generally started to acquire the image of public educational institutions and began to be seen as places of "high culture", they were at first associated primarily with the fine arts. Gradually, however, attempts to showcase science and technology at museums in the new sense of the word began to gather momentum. The Special Loan Collection in South Kensington in 1876 was a milestone in this respect, and the proliferation of museums of science and technology in the early 20th century can be seen as the culmination of these efforts. Crucially, however, Teylers Museum not only housed a collection that was increasingly deemed to be "museum-worthy" – as proven by the fact that items from the instrument collection were sought after by the organisers of international fairs such as the Special Loan Collection or the Paris Electrical Exhibition in 1881 – but this collection already was in an institution that was referred to as a museum. More to the point, the name "Teylers Museum" had begun to define the institution itself and particularly its public role.

This in turn had a profound impact on the way the instrument collection was perceived and handled. As visitor numbers to Teylers Museum increased, the instruments it housed began to be presented as cultural artefacts; their historical value began to be emphasised in an attempt to make the collection understandable to a lay audience.

In addition to this, as the 19th century progressed an increasingly clear line of separation was drawn between the publicly accessible museum premises and the adjacent laboratory – which the instrument collection was actually maintained for and which the curators were far more interested in. So on the one hand, the laboratory and the instrument collection housed in the

museum formed an organisational unit which was distinct from the museum's other collections; but on the other hand, as far as visitors were concerned, these other collections and the scientific instrument collection would increasingly have been perceived as belonging to one common unit which was distinct from the laboratory, namely the publicly accessible Teylers Museum.

By the 1930s, when both science museums and museums of the history of science had proliferated, Teylers Museum had become one museum of the history of science amongst many. But just how unique and also inspiring its status had been just a few decades before, transpires clearly from the fact that in 1905 it was the topic of the keynote speech at an early – and one can therefore say crucial – fundraising event for what was to become the prototype modern science museum, the *Deutsches Museum* in Munich. The keynote speaker, the Dutch Nobel Prize laureate Jacobus van 't Hoff, chose Teylers Museum as a vantage point from which to discuss “the significance of historical collections for science and technology”.

4. Teylers Museum: Typically Dutch?

Finally, it is worth reflecting a little upon what the history of Teylers Museum reveals about the overall history of Dutch collections and museums.

There are a number of reasons why Teylers Museum provides a particularly interesting case study through which more can be learnt about the history of the Dutch museums in the 19th century. Its age alone justifies including it in any account of their history. After all, the Oval Room was the first building in the Netherlands that had been both purpose-built to house a collection and which was referred to as a “museum” or “musaeum” from the very beginning onwards. Furthermore it enjoyed a certain prominence until well into the 20th century, bolstered by the Teyler Foundation's financial muscle. The wide range of collections housed at the Museum is noteworthy as well.

But above all, the way Teylers Museum developed over the course of the 19th century is of particular interest because it was privately funded, i.e. maintained by the Teyler Foundation. What's more, as the episode surrounding the possible classification of the Foundation's almshouse as a “charity” in the early 1850s shows, the Foundation could be adamant that it did not want to be associated with what would today be referred to as the “public sector”.

Before addressing the private ownership of Teylers Museum in more detail and taking a closer look at the implications this had, it is helpful to recall two more general points that transpired over the course of this study.

The first of these is that the concept of a museum as a purveyor of bourgeois values and public mores as well as its potential to convey a sense of national pride did not go unnoticed in the Netherlands, even around the middle of the 19th century. The Dutch government only

started to adopt the idea that museums could fulfil such a public role in the 1870s, but that does not mean this idea was not circulated and taken very seriously by others in the Netherlands before. Examples underscoring this include Johannes Bosscha sr.'s speech held before the members of the *Hollandsche Maatschappij voor Fraaie Kunsten en Wetenschappen* in 1840, or the plans for a national museum – referred to as *Museum Willem I* – that were devised in 1863 but never materialised. What's more, Victor de Stuers, who was pivotal in ensuring the Dutch government became actively involved in the preservation of its nation's heritage as from the 1870s, was clearly deeply impressed by what he experienced at the South Kensington Museum. That museum, in turn, can be seen as the epitome of the cultural values espoused by Prince Albert and Henry Cole.

The second point is that such cultural values clearly affected and helped shape Teylers Museum. Certainly by the end of the 19th century their impact is clearly discernible at this privately owned institution. Whether this was the result of conscious efforts or more the outcome of a series of chance developments is difficult to tell on the basis of the available source material – ultimately, however, that is actually of secondary importance. What is far more important is that by the end of the 19th century Teylers Museum had assumed the mantle of a publicly accessible place of “high culture”, where visitors were required to behave adequately and which had also – this is the crucial point – been designed to attract as many visitors as possible. This last point is so important because it is above all in this respect that Teylers Museum as it was at the end of the 19th century, differed profoundly from Teylers Museum as it was at the end of the 18th century. More specifically, the public role it was assigned had changed: an aura of “high culture” had already surrounded Teylers Museum during van Marum's times and visitors had also been expected to behave appropriately during this period of the Museum's history; but during these times visitors could only obtain a ticket to the Museum if either van Marum or one of the trustees of the Teyler Foundation obtained the impression that they could be trusted to behave adequately upon entering the premises. By 1885 however, everyone could gain admission to the Museum, without following some sort of rigorous prior screening process – only the inebriated would probably have been stopped at the door. And even though visitors would in all likelihood have known what was expected from them beforehand, it was only after these visitors had entered the museum premises that they were actually given to understand that they were to be on their best behaviour. If necessary, this point was driven home by the guards who were now “policing” the premises. In this sense, too, a visit to Teylers Museum became educational.

The two points that have now been reiterated are so important because they are closely connected to one of the fundamental questions that was at the heart of many of the formative discussions of the 19th century – whether these discussions revolved around cultural, political or economic matters: this is the question of how “public” was defined. What was “public” and what was “private”? What was “the public”? Very often, this boiled down to the question of what moral framework should be used to determine the rules of engagement in public. Put differently, the question was what constituted good or appropriate behaviour in public and who had the authority to define just that.

The increasing inadequacy and final dissolution of many early-modern structures that had shaped society, such as the feudal system or the guild system, simply necessitated a redefinition of every individual's role within society as a whole. The French Revolution or the democratic and nationalist uprisings of 1848 are just two prominent examples of the volatility of social order at the dawn of modernity. Then, as the 19th century progressed, the "civilised, bourgeois citizen" emerged as an ideal type that acquired a kind of role model function as to how every individual was to behave in society – this of course also set the standards as to how every individual was to behave in public. At the same time, citizenship itself was increasingly defined as membership of a nation state.

Returning to Haarlem, what is striking is that the inherently private Teyler Foundation, rooted in Haarlem's Mennonite community, helped to engrain this ideal type of the "civilised, bourgeois citizen" within Dutch society through its very own Teylers Museum. This is particularly noteworthy because in most other cases in which museums assumed such a role the government or some other type of public institution – e.g. a monarch claiming to act on the behalf of his people – was intimately involved. In the Teyler Foundation's case however, the five trustees of the Teyler Foundation had absolute authority and their only restriction with regard to the museum was that their decisions must never violate the terms of Pieter Teyler's last will and testament. So the only way in which they had to justify the policies they laid out for Teylers Museum was that these policies should reflect the spirit of Pieter Teyler's will. In this sense at least, Teylers Museum was therefore a very private affair.

The relevant question is in how far there is something typically Dutch about the way the inherently private Teyler Foundation exerted considerable influence (in relative terms) over public life until well into the 20th century. The long tradition of de-centralised governance so typical of the Netherlands was repeatedly referred to throughout this study. It also became clear how liberal ideas determined all Dutch governments' cultural policy up until the last quarter of the 19th century. Clearly, "the state" was accorded a slightly different role in the Netherlands than it was in other, neighbouring countries, and there was some sort of consensus that the cultural realm should be built upon private initiative. So, in this sense at least Teylers Museum or, more specifically, the fact that it was an inherently private affair was not as idiosyncratic as it might at first seem.

But while the realisation that there was a long tradition of relying on private initiative and de-centralised governance in the Netherlands helps one come to terms with some of the apparently unique features of Teylers Museum (particularly that it was privately owned), reverting to these traditions ultimately only provides a partially satisfying explanation. The real challenge is to go one step further and scrutinise these traditions themselves, i.e. to trace their origins and explain why so much more importance was attached to them in the Netherlands than in other countries.

This, in turn, leads back to the more general question of how public life – or rather the rules of engagement in public – was defined. What, exactly, was the consensus as to every individual's role in Dutch society and how did this change as the 19th century unfolded? How and why was this different in other countries? And, quite specifically, how did this affect and

was reflected in the public role of collections and museums in the Netherlands? Can an answer to these questions perhaps even contribute to a more nuanced explanation as to why public, state-funded museums only emerged in the Netherlands so much later than they did in neighbouring countries?

So as not to raise expectations: within the confines of this study, an exhaustive treatment of these fundamental and far-reaching questions was not possible. Neither could the existing literature concerning them be included in its entirety.¹ Ultimately, the analysis of just one museum also provides too narrow a perspective on history than that it could provide the basis for cast iron conclusions about all other contemporary museums from the same region.

Nevertheless, what did transpire over the course of this study is that it can be highly revealing not to take the term “public” at face value – i.e. as some sort of ahistorical category – but rather to “deconstruct” it, in Clifford Geertz’ sense of the word. Clarifying how “public life” was defined in the Netherlands can help come to terms with many of the unique features of Dutch 19th century history – such as, for example, the curiously late appearance of large educational museums.

In other words, the term “public” should be questioned in a similarly fundamental manner as the term “museum” was throughout this study, or as the term “science” has been deconstructed by historians of science over the past decades.

A good starting point for such a fundamental “deconstruction” of this particular term can be found in the work of sociologists Jürgen Habermas and Richard Sennett.² Habermas’ book *Strukturwandel der Öffentlichkeit*, first published in 1962, in particular is generally considered to be part of the canon of literature cultural historians work with. However, the analysis he presents in this book is all too often reduced to the somewhat simplistic idea that after 1800 a “public sphere” had emerged, and that this is somehow equatable with the premise that during the 19th century the term “public” was used in much the same way as it might be in the 20th or 21st century. However, this does not only ignore the subtleties and the complexity of Habermas’ analysis (“public sphere” is in no way equitable with “public” for instance), but also avoids confronting the ways in which public life changed over the course of the 19th century, i.e. avoids an actual “deconstruction” of the term.³

Richard Sennett’s work, particularly his book *The Fall of Public Man* which was first published in 1976, is less frequently referred to. As far as literature on the history of science is concerned, it is virtually absent. Yet it is Richard Sennett’s analysis of the ways in which public life was restructured after 1800 that seems to provide a particularly good framework

¹ A good starting point is: J.J. Klok and W. W. Mijndhardt, *1800: Blueprints for a National Community* (Assen; London: Royal Van Gorcum; Palgrave Macmillan, 2004); or, from the perspective of a historian of science: Ad Maas, “Civil Scientists: Dutch Scientists Between 1750 and 1875,” *History of Science* 48 (2010): 75–103.

² Jürgen Habermas, *Strukturwandel der Öffentlichkeit: Untersuchungen zu einer Kategorie der bürgerlichen Gesellschaft* (Frankfurt am Main: Suhrkamp, 1990); Richard Sennett, *The Fall of Public Man* (New York; London: W.W. Norton, 1992).

³ On some of the problems of misinterpreting Habermas’ work see for instance: Harold Mah, “Phantasies of the Public Sphere: Rethinking the Habermas of Historians,” *The Journal of Modern History* 72, no. 1 (2000): 153–182; Hanco Jürgens, “Habermas for Historians: Four Approaches to His Work,” vol. 5, *Forschungsberichte Aus Dem Duitsland Instituut Amsterdam* (Amsterdam: Duitsland Instituut Amsterdam, 2009), 158–170.

within which to analyse Dutch modern history and understand some of its unique features. Admittedly, Sennett's claims have been discussed critically and must be deemed controversial – but in essence the pivotal claims he makes have not been refuted or disproven.⁴

Sennett identifies three forces that led to a fundamental recalibration of what was deemed “public” and sees these as the root causes of “modernity”. The first of these forces lies in the traumatic effects of 19th century capitalism: distraught by the ruthlessness of market forces, people began to seek refuge in private – i.e. family – life. This inevitably meant that people retreated from public life, which in turn meant that public life became less important for each individual's formation of his own personality. In addition to this, people's behaviour in public was increasingly judged in terms of morals that had previously been restricted to the private realm. The second force identified by Sennett is that of secularism: he defines this very generally, not just as the diminishing role of religion in society, but rather as the way in which the immanent became more important than the transcendent in people's search for meaning. Sennett links this to the increasing importance of the material realm and the emergence of “commodity fetishism”, to use the term coined by Marx. This resulted in every person taking a completely different stance with regard to the world that surrounded them. Thirdly, Sennett points out that the two previous forces had the potential to uproot society and foster revolutions, but that this did not happen because the social order that had emerged in the cities of the Enlightenment remained in place. This created the impression of a certain continuity: the distinction between the public and the private realm, as it had emerged in cities before 1800, seemed to remain in place, but the balance between the two was completely disrupted, and the public sphere in particular was “hollowed out” and changed fundamentally.

With regard to the definition of public life in the Netherlands and – by extension – the public role of collections and museums, the decisive point is that all three forces identified by Sennett had far less of an impact on Dutch society than they did on other societies (such as those of France or the Anglo-Saxon regions, which Sennett focuses on). As far as the first point is concerned, it is only a slight caricature to say that capitalism was invented in the Netherlands. As a trading nation and with their history as Europe's economic powerhouse during the Golden Age, the onset of 19th century capitalism would have been far less traumatic for the Dutch than it was for other nations. Secondly, the Netherlands had a long tradition of religious tolerance. The term “Christian Enlightenment” had even been used to describe developments during the 17th and 18th centuries.⁵ Increasing secularisation and its undermining of religion would therefore have constituted less of a break with the past than it did in other countries. Thirdly and finally, during the Golden Age the Netherlands had become one of the most densely populated and urbanised regions of the world. One can therefore assume that the social structures as they had emerged in the cities of the Enlightenment were engrained in Dutch society to a far higher degree than in other regions.

All this can help explain the relative continuity between the 18th and the 19th century that characterises Dutch history. Put differently, almost until the end of the 19th century Dutch

⁴ For a summary of some arguments against Sennett's analysis see for instance: Hans van der Loo and Willem van Rijen, *Paradoxen van Modernisering* (Bussum: Coutinho, 1997), 213–214.

⁵ H. H. Zwager, *Nederland en de Verlichting* (Haarlem: Fibula-Van Dishoeck, 1980), 11–12.

society displayed a range of characteristics that, in other regions, would have been associated far more with the 18th century.⁶

This, in turn, makes it understandable that museums – in the sense of public institutions – only emerged a lot later in the Netherlands than they did in other countries. The point is that these museums were essentially symptoms of a new social order, based on and perpetuating a new concept of every individual's role within society – a concept which can be seen as having been effected by forces such as those identified by Sennett. To use Tony Bennett's phrase, public museums were constructed to provide an "exercise in civics".⁷ These "exercises" only became necessary in the Netherlands a lot later than in other regions.

Finally, it is the relative continuity between the 18th and the 19th century – particularly with regard to "public life" – that can help explain why an institution such as Teylers Museum – privately owned, but fulfilling a public role – continued to thrive throughout the 19th century, despite its 18th century roots. Teylers Museum is in fact typically Dutch in that, almost until the end of the 19th century, the Museum was intended to fulfil a public role which, to visitors from other countries, would have been reminiscent of the 18th century. "Museums" and "musaeums" – for that matter all collections in history – always performed some kind of public role; but it is important to realise that the "public role" they fulfilled at any particular point in history was always determined as much by the way in which "public" was defined at that particular time, as it was by the aims of collectors and the physical restrictions imposed by the materiality of the collections themselves and the places where these collections were or could be housed and presented.

Most importantly, it is the uniquely Dutch definition of "public life" that gave Teylers Museum such a hybrid appearance. Even when Teylers Museum had clearly been subjected to the 19th century cultural ideals according to which a public museum was to fulfil an educational function (as epitomised by the construction of the annex that was completed in 1885), it simultaneously managed to stay true to its 18th century roots. Remarkably, rather than place an untenable stress on the Museum, the apparently ambiguous concept of its public role even served to enhance its role, producing something of a novelty, i.e. a museum of the history of science.

It is perhaps only consistent that by the 1920s, when the state had taken on ever more responsibilities and had acquired the authority to raise taxes and support scientific research by helping to finance large-scale research facilities such as those at the University of Leiden, the Teyler Foundation's public role was diminished. What can be of help in understanding what was going on here is the analogy that was introduced above, of the Museum developing in a force field that was shaped by two gravitational poles, the Museum's 18th century roots on the one hand and the changing definition of what constituted a museum and its public role on the other hand. Seen this way, both poles were exerting such a strong pull on the Museum and in opposite directions, that it remained frozen in space or, perhaps more accurately, in time. And it was perhaps also only consistent that it was freed from the "sleeping beauty state" it entered

⁶ It needs to be stressed that this is not the same as saying that Dutch society was lagging behind.

⁷ Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London; New York: Routledge, 1995), 102.

into when the state took on the responsibility of running and preserving the Museum, together with the Teyler Foundation, in the 1980s. Although not at odds with Pieter Teyler's last will and testament, this move is symbolic of the way in which "the state" had become synonymous with "the public" – which was something Pieter Teyler would in all probability have found unfathomable.

Ultimately, by the dawn of the 21st century, because of its 18th century roots and the fact that these could be and were conscientiously upheld for so long by the trustees of the Teyler Foundation, Teylers Museum itself – not just the collections it housed – began to be considered part of Dutch cultural heritage. Put differently, by the dawn of the 21st century the Museum itself became "museum-worthy", and a museum of museum history.

Appendix 1

“Instructie voor den Directeur van Teylers Musaeum

Art. 1

De Directeur zal in orde te houden hebben en dor Bediendens moeten laten schoon-houden, de Fossilia, de Physische Instrumenten en Modellen van nuttige Werktuigen: alsmede de Boeken, die aan de Fundatie behooren.

2.

Van alle die Verzamelingen zal hij Catalogus hebben op te maaken, namelijk eene Systematische Catalogus van Fossilia, eene tweede van de Physische Instrumenten en Modellen, en eene derde van de Boeken, en in dezelve telkens hebben op te tekenen, hetgeen van tijd tot tijd in het Musaeum geplaatst word.

Deeze Catalogi behooren altoos in het Musaeum voor den hand te liggen, ten einde elk hieruit zien kan, wat er in het zelve te vinden is en teffens in dezelve de beschrijving kan leezen, van het geen hem in het Musaeum onder het oog valt.

3.

De Fossilia, die in laaden gelegd kunnen worden zal hij in de beste Systematische orde te schikken hebben, en om dit te beter te kunnen doen, zal hij zig moeten bevljtigen, om ongenaamde Fossilia, die de Fundatie door Aankoop verkrijgt, of aan dezelve worden present gedaan, te leeren kennen, en tot hunne geslachten en Zoorten te brengen. Hij zal ook bij de Fossilia, die in laaden liggen, bijschriften te plaatsen hebben, waaruit te leezen is, welke zoorten zij zijn, en waar zij gevonden worden; alles in diervoege, als hij bij de Fossilia die thans in het Musaeum zijn, gedaan heeft.

4.

Bij de Fossilia, gelijk ook bij de Physische Instrumenten en Modellen, welke men zal goedvinden aan het Musaeum present te doen, zal hij, wanneer zij stuken van aanmerkelijke waarde zijn, de naamen der Geevers te plaatsen hebben, ten einde anderen die het Musaeum beschouwen, hierdoor stilzwijgend aan te moedigen om ook iets aan hetzelfde te vereeren.

Art. 5

De Eerste Directeur zal als Aanlegger van deeze Verzamelingen, zich inzonderheid hebben te bevljtigen, om dezelve zo veel hem doenlijk is, te verrijken, en allen Luister bij te zetten. Ten dien einde zal hij, a) na te spooren hebben, welke daar in voegende Fossilia, Physische Instrumenten, Modellen en Boeken konnen verkreegen worden, en hoe zij op de minst kostbaare wijze te verkrijgen zijn.

B) bij de Publieque Verkoopingen van Fossilia, Physische Instrumenten en Modellen of Boeken gelijk ook van het geen hem hier van onder de hand word aangeboden, dat geene aankopen, in zo verre Heeren Directeuren hem daar toe gelieven te qualificeeren, het welk volgens de gemaakte Ontwerpen in het Musaeum behoort geplaatst te worden, en niet boven de waarde loopt.

6.

De Physische Instrumenten en Modellen die men besluiten zal, voor het Musaeum te laten vervaardigen, zal hij aan de beste Instrumentmaakers aanbestellen en hier in zoo veel mogelijk het Voordeel der Fundatie te betrachten hebben.

En omtrent de aanbestelde Instrumenten zal hij hebben toetezien, dat de Instrumentmaakers dezelve met alle mooglijke naauwkeurigheid vervaardigen. Hij zal dus ook dezelve behoorlen te beproeven, eer zij door de Fundatie aangenomen en betaald worden.

7.

De Fossilia die er bij deelen of geenen aankoop dubbeld verkreegen worden, zal hij trachten ten meesten voordeele voor het Musaeum te verruilen voor zodanige Zaaken welke er in ontbreken: en hieromtrent zal hij bijzonderlijk in het oog te houden hebben, dat hij er van de Eijgenaars of Directeurs van Cabinetten dien hij ontmoet, zoodanige Zaaken voor bedinge welke niet lichtelijk anderzins te verkrijgen zijn.

Art. 8

De eerste Directeur inzonderheid zal met de buitenlandsche Natuurkundigen, die hem ter uitbreidinge van gemelde Verzamelingen behulpzaam kunnen zijn, Correspondentie te houden hebben, om langs deelen weg de zeldzaamere Fossilia van alle oorden te bekoomen, die anderzins zeer moeilijk kunnen verkreegen worden.

9.

De Directeur zal zij hebben te bevljtigen, om met de Physische Instrumenten van het Musaeum zodanige Proeven te neemen, welken het meest ter bevordering der Natuurkennis kunnen dienen en dus teffens aan deele Stichting de meeste Celebritet kunnen bijzetten. Bijzonderlijk zal hij ook hierdoor de Leden van het Tweede Genootschap tragten voor te lichten, wanneer ter beoordeeling der ingekomen Antwoorden op eene dor hun voorgestelde Natuurkundige Vraage deele of geene Proefnemingen vereischt worden.

De Verzameling van Fossilia zal hij ook, zoveel hem mogelijk is, ten nutte doen dienen, ter beoordeeling van zodanige Verhandelingen, als er zijn in gekomen ter beantwoording van Prijsvraagen, de natuurlijke Geschiedenis des Aardkloots betreffende, welke door het tweede Genootschap zijn opgegeeven.

Art. 10

De ontdekkingen, welken het hem gelukken mag met de Physische Instrumenten van het Musaeum te doen, zal hij hebben te beschrijven, en de Instrumenten waarmede hij zodanige Ontdekkingen of Proefneemingen gedaan heeft, zal hij, wanneer Heeren Directeuren zulks approbeeren, voor Rekeningen van de Fundatie, onder zijn opzicht in plaat laten brengen, en laten uitgeeven. De Electriseermachine welke thans voor Rekening der Fundatie vervaardigd word, en derzelver uitwerkzelen zullen in de eerste plaats wel verdienen afgebeeld en beschreeven te worden.

11.

De Directeur zal ook gehouen zijn, zodanige Fossilia te laten afbeelden en te beschrijven, welke men van tijd tot tijd waardig zal oordeelen aan het Publiek mede te deelen. De Maastrichtsche Visschen-kop zoude onder anderen ten hoogsten waardig zijn, dat hiervan eene afbeeldinge en beschrijvinge gegeven wierd welke gevoeglijk zoude kunnen geplaatst worden agter de Prijsverhandelingen die het Tweede Genootschap ter beantwoording der door hem uitgeschrevene vraag, betreffende de Natuurlijke Geschiedenis des Aardkloots te

verwagten heeft, te meer, terwijl dit zeldzaam en weinig bekend stuk tot dit onderwerp zeer veel betrekking hebbe.”

Source: “Directienotulen”, 25.09.1784, Haarlem, ATS, vol. 5, fol. 118-121

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Nederlandse Samenvatting van “The Masses and the Muses”

In dit boek wordt de veranderende publieke rol van Teylers Museum gedurende de lange negentiende eeuw in kaart gebracht. Dit gebeurt voornamelijk aan de hand van de collectie wetenschappelijke instrumenten.

Een centraal punt is de problematisering van het begrip “museum”. Teylers Museum werd vanaf het begin van zijn geschiedenis al “museum” of “musaeum” genoemd, maar de connotaties van deze term veranderden in de loop van de negentiende eeuw fundamenteel. Drie punten zijn daarbij van belang: ten eerste werden “musea” steeds meer geassocieerd met openbaar – dus in principe voor iedereen – toegankelijke tentoonstellingen; ten tweede kregen deze tentoonstellingen steeds meer een educatieve functie; ten derde werden “musea” steeds meer met de schone kunsten geassocieerd.

Vooraf vanwege dit laatste punt vormt de geschiedenis van Teylers Museum en met name van zijn collectie wetenschappelijke instrumenten een bijzonder interessante case study. De collectie wetenschappelijke instrumenten bleef namelijk niet alleen grotendeels behouden, maar de ontwikkeling ervan kan met die van andere collecties in hetzelfde museum vergeleken worden: Teylers Museum huisvest namelijk ook zowel een kunstcollectie, bestaande uit prenten, tekeningen en schilderijen, als een geologische en een numismatische collectie. Bovendien behandelt een groot deel van de museumhistorische literatuur van de afgelopen decennia vooral kunst- en natuurhistorische collecties of is vanuit kunsthistorisch perspectief geschreven.

De focus ligt in deze studie op het werk van drie van de vijf mannen die tussen 1780 en 1928 verantwoordelijk waren voor de instrumentencollectie bij Teylers Museum. De eerste van deze drie is Martinus van Marum (1750 – 1837), de tweede Volkert Simon Maarten van der Willigen (1822 – 1878), de derde Hendrik Antoon Lorentz (1853 – 1928). Bij alle drie wordt ingegaan op de vraag naar hun “wetenschapsfilosofie”; anders geformuleerd: hoe zagen zij de productie en de consumptie van kennis en welk belang kenden zij beide toe. Hun correspondentie en publicaties, samen met ander primair bronmateriaal zoals reisverslagen van bezoekers aan Teylers Museum, de bezoekersboeken van het museum of de notulen van vergaderingen van Directeuren van Teylers Stichting – onder wiens beheer Teylers Museum viel – en de notulen van vergaderingen van de twee geleerde genootschappen die ook onder het beheer van Teylers Stichting vielen, maken het mogelijk om, uiteraard samen met de bestaande secundaire literatuur, conclusies te trekken over de veranderende publieke rol van Teylers Museum.

Martinus van Marum was zonder twijfel de drijvende kracht achter de oprichting van Teylers Museum. Hij kwam rond 1774 naar Haarlem, nadat hij in Groningen in de geneeskunde was gepromoveerd. Getalenteerd en ambitieus, werd hij al snel opzichter van de natuurhistorische

verzamelingen van de in Haarlem gevestigde Hollandsche Maatschappij der Wetenschappen en daarnaast ook tot stadslector benoemd.

Enkele jaren nadat van Marum zich in Haarlem had gevestigd, in 1778, overleed Pieter Teyler van der Hulst. Deze succesvolle Mennonitische textielfabrikant en bankier had al in 1756, na de vroege dood van zijn echtgenote, een testament laten maken. Daarin stipuleerde hij dat met zijn aanzienlijk vermogen een stichting moest worden opgericht, wiens doel “de bevorderingen van Godsdienst, aanmoedigen van kunsten en wetenschappen en het nut van ’t algemeen” zou zijn. Deze stichting – Teylers Stichting – werd bestuurd door vijf, in eerste instantie nog door Teyler zelf benoemde, Directeuren. Zij kregen van Teyler de opdracht om twee geleerde genootschappen op te richten, één voor theologie en één voor kunsten en wetenschappen, ieder met zes leden. Daarnaast werd de Stichting geacht een Hofje te onderhouden. Verder stipuleerde Teyler dat zijn persoonlijke (maar niet al te veel voorstellende) verzamelingen voor de leden van de genootschappen ter beschikking moesten staan en dat de verzamelingen uitgebreid mochten worden. Hij voegde er aan toe dat een zogenaamde kastelein – “bij voorkeur een konstschilder of ander liefhebber van kunsten en wetenschappen” – in zijn voormalig woonhuis mocht wonen en voor de verzamelingen zorg moest dragen.

Samen met één van Directeuren, Jacobus Barnaart, wist Van Marum de overige Directeuren ervan te overtuigen de verzamelingen niet alleen substantieel uit te breiden – in eerste instantie voornamelijk met geologische voorwerpen en wetenschappelijke instrumenten – maar ook een rijk versierde “*Konstzael*” te laten bouwen, achter het voormalige woonhuis van Pieter Teyler. Vanwege de vorm van zijn interieur kreeg dit gebouw de bijnaam “Ovale Zaal”. Hier werden ook de prenten en tekeningen die de kastelein in opdracht van de Stichting aankocht bewaard. De toegang tot de collecties in de Ovale Zaal – het geheel werd “Teylers Museum” genoemd – was via Teylers voormalig woonhuis.

In het eerste hoofdstuk van dit boek wordt de ontstaansgeschiedenis van Teylers Museum in detail besproken. Met behulp van tot nu toe onontgonnen bronmateriaal kan duidelijk worden gemaakt dat het museum in het begin eigenlijk een hybride instelling was, waarvan doel en functie pas langzamerhand werden gedefinieerd. Bijvoorbeeld wordt duidelijk dat Directeuren zichzelf in een traditie van het “Mennonitische Regentendom” in Haarlem plaatsten en neo-humanistische idealen koesterden. Het is dan ook weinig verrassend dat de hele architectuur van de Ovale Zaal erop duidt dat het gebouw oorspronkelijk als bibliotheek was geconcipieerd. Tergelijkertijd was Van Marum vooral geïnteresseerd in empirisch onderzoek en het verspreiden van kennis over de natuur. Het is waarschijnlijk dat hem zelf een carrière als openbaar docent in de traditie van ’s Gravesande of Fahrenheit voor ogen stond, en hij Teylers Museum als een soort thuisbasis voor zijn lezingen wilde gebruiken. In dit hoofdstuk wordt getoond welke strategieën hij gebruikte om zijn eigen belangen te bevorderen, vooral in het jaar 1782, toen de Ovale Zaal klaar maar nog niet ingericht was, en Barnaart onverwacht was overleden. Zo benadrukte Van Marum de fysico-theologische waarde van de geologische verzameling, terwijl zijn eigen interesse vooral uitging naar elektrische proeven.

Directeuren gingen ermee akkoord de grootste elektriseermachine ter wereld voor het Museum te laten vervaardigen. Deze kon al in 1784 in gebruik worden genomen. Dit instrument is niet alleen een symbool van Van Marums wetenschappelijke interesses, maar ook van zijn ambitie: alleen het beste was goed genoeg. Tegelijkertijd was de elektriseermachine voor de nieuw opgerichte Stichting en het Museum identiteitsvormend: vooral de Ovale Zaal en de elektriseermachine bepaalden hoe het Museum werd waargenomen. Ook omdat Van Marum er meteen over publiceerde, kwamen veel bezoekers uit het buitenland om de machine zelf te zien. Interessant is dat in principe iedereen toegang tot het Museum werd verleend. Wel laten enige archiefvondsten zien dat Van Marum – bij wie toegangsbiljetten aangevraagd moesten worden – potentiële bezoekers kritisch bejegende. De bezoekersboeken duiden aan dat in de eerste decennia enkele honderd bezoekers per jaar naar het Museum kwamen.

Het is dus duidelijk dat Teylers Museum in eerste instantie bedoeld was om empirisch onderzoek te faciliteren – wel was deze onderzoeksplek voor het publiek toegankelijk.

De publieke rol van Teylers Museum werd in de loop van de eerste decennia van de negentiende eeuw steeds belangrijker. Het was tegelijkertijd ook nog steeds een belangrijk onderzoekscentrum, maar er werd steeds meer op het publiek gelet. De volgende drie factoren speelden in deze ontwikkelingen vooral een belangrijke rol.

Ten eerste trok Van Marum zich aan het begin van de eeuw grotendeels terug uit het Museum, ook al bleef hij tot aan zijn dood in 1837 verantwoordelijk voor de wetenschappelijke collecties. Al vanaf 1790 voerde hij zijn experimenteel onderzoek uit in een nieuw gebouwd laboratorium in een ander gebouw van de Stichting – dus niet meer in het Museum; verder kreeg hij in 1802 ruzie met Directeuren. Als gevolg verkeerden de wetenschappelijke collecties van het museum enkele decennia in een soort doornroosje-slaap.

Ten tweede vonden er grote veranderingen plaats op culturele en politieke vlak, waarbij de Franse Revolutie en Napoleons bezetting van grote delen van Europa een cruciale factor waren. In algemene termen won het concept van de verlichte burger of “citoyen” aan invloed, waardoor ook de definitie van “het openbaar” en de ideeën veranderden over de vraag hoe elk individu zich ten opzichte van “het openbare belang” moest gedragen. Met betrekking tot de cultuurpolitiek zijn vooral twee ontwikkelingen van belang. Eén: het Franse leger nam veel objecten van culturele waarde mee naar Frankrijk. Deze objecten werden daarbij niet alleen uit hun originele context verwijderd, maar vervolgens vaak in Parijs in een museum (zoals het Louvre) openbaar tentoongesteld, om aldus bestudeerd te kunnen worden. Als gevolg werden “musea” steeds meer met openbaar getoonde verzamelingen van cultureel erfgoed geassocieerd. Twee: Deze “musea” werden steeds meer als culturbepalend middel ontdekt. Een tentoonstelling kon ertoe bijdragen een collectief bewustzijn en geheugen te vormen. Als gevolg daarvan veranderden ook de verwachtingen die bezoekers van een “museum” hadden. Zij begonnen tentoonstellingen van bijeengebracht cultureel erfgoed of “kunst” te verwachten.

Het Franse beleid had ook in Nederland gevolgen, met name tijdens het korte bewind van Lodewijk Napoleon, de broer van de Franse keizer, die aan het begin van de negentiende eeuw tot koning van Holland werd uitgeroepen. Lodewijk initieerde bijvoorbeeld

kunsttentoonstellingen en probeerde daarmee het esthetisch bewustzijn van zijn onderdanen te beïnvloeden. Net als in andere Europese landen groeide in de loop van de volgende decennia de vraag naar eigentijdse kunst enorm. Het werd chic om een schilderij van een eigentijdse kunstenaar te kopen of op z'n minst op een tentoonstelling te bewonderen.

Dit brengt ons terug naar Haarlem en het derde punt: Directeuren van Teylers Stichting begonnen vanaf de jaren 1820 een schilderijencollectie eigentijdse kunst op te bouwen. Tot die tijd hadden zij zich beperkt tot prenten en tekeningen. (De belangrijkste eerdere aankoop was de verzameling van Christina van Zweden in 1790.)

Vooraf belangrijk is dat Directeuren deze schilderijencollectie ook wilden tentoonstellen. Voor het eerst gebeurde dit in 1826, na de voltooiing van een eerste uitbreiding van Teylers Museum. In 1839 werd vervolgens een complete nieuwe vleugel, naast de Ovale Zaal en ongeveer even groot als deze, voltooid, waarvan de enige functie was om schilderijen tentoon te stellen. Daardoor veranderde het hele karakter van Teylers Museum en men kan zeggen dat het inmiddels een kunstmuseum met een wetenschappelijk laboratorium was geworden.

Tergelijkertijd waren er in de natuurwetenschappen grote veranderingen opgetreden. Opvallend is vooral het toenemend gemaakte onderscheid tussen “experts” en “leken”. Aan de ene kant had dit veel te maken met het toenemende belang dat aan nauwkeurige en gevoelige metingen werd toegekend, aan de andere kant verhoogden de “experts” met het benadrukken van hun expertise ook hun maatschappelijke status.

Beide aspecten zijn duidelijk herkenbaar in de biografie van Volkert Simon Maarten van der Willigen. Zoals in hoofdstuk IV getoond wordt, was Van der Willigen – over wiens leven en werk nog geen systematische studie was gepubliceerd – in Nederland als leerling van de Leidse astronoom Frederik Kaiser een van de vroegste en lange tijd meest prominente voorstanders van uiterst nauwkeurige metingen als enige legitieme basis voor alle natuurkundige uitspraken. Tergelijkertijd heeft hij het onderscheid tussen “experts” en “leken” in Deventer – waar hij 16 jaar hoogleraar was voordat hij in 1865 naar Teylers kwam – bevorderd.

Bij Teylers Museum werden deze ontwikkelingen tijdens het bewind van Van der Willigen op twee manieren zichtbaar. Aan de eene kant werd “de wetenschap steeds meer uit het museum gehaald”. Van der Willigen's onderzoek was bijvoorbeeld zo gespecialiseerd dat zelfs Directeuren na zijn plotselinge dood in 1878 niet meer wisten waarvoor tien jaar eerder een klein laboratorium in de tuin van het Museum eigenlijk was neergezet. Dit laat zien hoeveel vrijheid Van der Willigen in zijn onderzoek had, maar ook hoe ontoegankelijk het onderzoek letterlijk was geworden. Als zelfs Directeuren niet wisten waar Van der Willigen precies mee bezig was, gold dat zeker voor het brede publiek.

Aan de andere kant betekende dit niet dat Van der Willigen niet doordrongen was van het belang om “leken” voor de natuurkunde warm te maken. In tegendeel: In Deventer gaf hij publieke lezingen, die zowel voor vrouwen als mannen toegankelijk waren, zoals toen benadrukt werd. Vanuit zijn positie bij Teylers Museum zorgde hij er in 1876 voor dat een

aantal instrumenten uit de collectie in South Kensington bij de Special Loan Collection tentoongesteld konden worden.

Het belang van deze tentoonstelling is wederom nauwelijks te overschatten, omdat hier voor het eerst op grote schaal wetenschappelijke instrumenten ook vanwege hun historische en culturele waarde werden samengebracht en voor een groot publiek tentoongesteld. Het is een duidelijke indicatie dat de (potentiële) historische waarde van wetenschappelijke instrumenten in toenemende mate in brede kringen herkend werd. Het was zelfs een expliciet doel van de organisatoren van deze tentoonstelling om hiermee de basis te leggen voor een permanent wetenschapsmuseum – dat dan wel nog enkele decennia op zich liet wachten. Veelzeggend is niet alleen dat de organisatoren van deze tentoonstelling de historische waarde van de collectie bij Teylers Museum hadden herkend, maar ook dat Van der Willigen een *Leidsche Fles*, die nog door Van Marum was gebruikt, voor de tentoonstelling liet restaureren – en niet alleen repareren.

Tergelijkertijd probeerde men bij Teylers Stichting in Haarlem het Museum voor een breder publiek toegankelijk te maken. Nog tijdens het leven van Van der Willigen werd met de bouw van een nieuwe vleugel voor het Museum begonnen, waardoor het mogelijk werd een nieuwe ingang te creëren. In 1885 was het nieuwe gebouw voltooid. De nieuwe ingang werd in een neoclassicistische, monumentale façade geïntegreerd, die het museum veel zichtbaarder maakte en bovendien direct herkenbaar als culturele instelling. Ook het interieur van de nieuwe vleugel werd ingericht volgens de toen gangbare ideeën hoe een openbaar museum eruit moest zien. De bezoekersaantallen stegen significant – van enkele honderden per jaar naar enkele duizenden – en er werden suppoosten in dienst genomen om ervoor te zorgen dat bezoekers passend gedrag vertoonden. Ook in dit opzicht had Teylers Museum nu dus duidelijk een educatieve functie: tijdens een bezoek aan het Museum zou de bezoeker niet alleen iets over de verzamelingen kunnen leren, maar was daarnaast ook gedwongen zich in het openbaar volgens de gangbare gedragscodes te gedragen.

In hoofdstuk IV wordt bovendien de these naar voren gebracht dat de keuze van het ontwerp van de nieuwe vleugel mede bepaald werd door discussies die door de bouw van het nieuwe Rijksmuseum in Amsterdam waren losgebarsten. Sommige critici van het Amsterdamse project vermoedden namelijk dat de neo-gotische stijl van het nieuwe gebouw aldaar een subtiele poging van de initiator van het project, Victor de Stuers, was, om in het grotendeels protestantse Nederland het katholicisme te bevorderen. De keuze bij Teylers voor een neoclassicistische, door de klassieke oudheid geïnspireerde bouwstijl, zou men als reactie op zulke debatten kunnen zien.

In de nieuwe vleugel werden voornamelijk de wetenschappelijke collecties ondergebracht en tentoongesteld. Er deed zich nu een nieuw, veelzeggend probleem voor, dat door de conservator van de geologische collecties expliciet aan de orde werd gesteld: de bezoekers wisten kennelijk niet hoe zij deze volgens wetenschappelijke criteria bijeengebrachte en grotendeels ook tentoongestelde collecties moesten benaderen of begrijpen. Ook ander primair bronmateriaal duidt erop dat in deze tijd Teylers Museum door het publiek vooral als kunstmuseum werd gezien. Bezoekers kwamen kennelijk met de verwachting een permanente

kunsttentoonstelling te zien en verwachtten ook zich op een passende manier te moeten gedragen. Al vanaf de eerste helft van de negentiende eeuw vormden zich bepaalde gewenste gedragspatronen bij het bezoek aan kunsttentoonstellingen. Door deze te volgen, kon men blijk geven van smaak en eruditie en laten zien dat men deel uitmaakte van de bourgeoisie. Wetenschappelijke collecties, aan de andere kant, werden niet zo vaak bezocht en de gedragscodes voor een bezoek aan dergelijke collecties waren nog onduidelijk. De oplossing bij Teylers voor dit dilemma was dat de conservatoren korte gidsen voor het algemene publiek schreven.

De gids voor de instrumentencollectie kwam in 1898 uit. Het is veelzeggend dat de auteur – Van der Willigens opvolger, Elisa van der Ven – de geschiedenis van de instrumenten als beginsel voor zijn uitleg van individuele instrumenten gebruikte. Hij zelf schreef dat hij hiervoor had gekozen omdat de bijbehorende natuurkundige principes veel te ingewikkeld waren om kort aan de bezoekers uit te leggen.

Vanaf dit moment kan men zeggen dat Teylers Museum definitief een wetenschapshistorisch museum was geworden – in ieder geval met betrekking tot de instrumentencollectie. Ook deze ontwikkeling werd buiten Haarlem opgemerkt, zoals blijkt uit een in vergetelheid geraakte lezing uit 1905 van de Nobelprijs winnaar Jacobus van 't Hoff op de tweede jaarvergadering van het bestuur van het toen net gestichte – maar nog lang niet voltooide – Deutsche Museum in München. In deze lezing gebruikte Van 't Hoff Teylers Museum als voorbeeld hoe men met historische instrumentencollecties kon omgaan. Dit feit is ook daarom noemenswaardig omdat het Deutsche Museum zelf een van de eerste – misschien zelfs het allereerste – moderne wetenschaps- en techniekmusea was. Zijn oprichting werkte als een soort katalysator in andere steden, zoals bijvoorbeeld in Londen, waar het al in 1876 voorgestelde wetenschapsmuseum enkele jaren na de stichting van het Deutsche Museum daadwerkelijk werd opgericht. Tegelijkertijd ontstonden in de loop van de volgende decennia, tot in de jaren 1930, meerdere musea die specifiek op de wetenschapsgeschiedenis waren gericht – zoals bijvoorbeeld het Nederlandsch Historisch Natuurwetenschappelijk Museum in Leiden.

Deze periode in de geschiedenis komt overeen met Hendrik Antoon Lorentz' aanstelling als beheerder of curator van de instrumentencollectie bij Teylers Museum. In hoofdstuk V wordt deze tot nu toe weinig bestudeerde laatste fase uit het leven van Lorentz onder de loep genomen. Onder andere wordt op de vraag ingegaan waarom Lorentz ervoor koos naar Haarlem te gaan in plaats van zijn positie als gewone hoogleraar in Leiden te behouden. Beargumenteerd wordt dat drie factoren hierbij van belang waren: ten eerste waren Directeuren van Teylers Stichting erop gesteld hun reputatie als belangrijke steun voor natuurkundig onderzoek in Nederland in stand te houden; ten tweede speelde de bemiddeling van Johannes Bosscha, de voorzitter van de Hollandsche Maatschappij, tussen Lorentz en Directeuren een belangrijke rol; ten derde was er Lorentz' frustratie dat hij in Leiden geen tijd en geen faciliteiten kreeg om eigen experimenteel onderzoek te kunnen doorvoeren, ondanks herhaaldelijke verzoeken van zijn kant – het aanbod van Teylers Stichting het laboratorium naast het museum compleet nieuw in te richten moet des te verleidelijker zijn geweest.

Lorentz belangstelling gold in de komende jaren ook duidelijk het laboratorium, niet het Museum. Tekenend is in dit opzicht een briefje uit 1911 waarin hij de conservator van de kunstverzamelingen vraagt om een rondleiding door het museum te verzorgen voor hem en de heer en mevrouw Albert Einstein.

Maar ook al legde Lorentz de focus op het laboratorium, zijn aanstelling leidde niet tot de verwachte bloei van Teylers Stichting en Museum. Hier zijn vooral drie redenen voor: ten eerste ging het na de eerste wereldoorlog financieel slechter met de Stichting. Ten tweede verloor Haarlem langzaam zijn status als een van de centra van het intellectuele leven van Nederland, simpelweg al omdat het geen universiteitsstad was. Uit tot nu toe onbekende brieven van Lorentz' assistenten in het laboratorium in Haarlem – de meesten hoorden tot de elite van de Nederlandse natuurkundigen – blijkt dat zij zich in Haarlem geïsoleerd voelden en het contact met studenten en andere academici misten. Verder konden universiteiten veel grotere laboratoria financieren dan Teylers Stichting. Er kwam nog bij dat Lorentz ondanks zijn enorme internationale reputatie niet het type wetenschapper was die een schare volgelingen aan zich bond, die hem eventueel naar Haarlem hadden kunnen volgen. Hij was geen charismatische leider, maar een uitstekend natuurkundige die zijn onderzoek bij voorkeur alleen uitvoerde. Ten derde kostten zijn inspanningen voor de berekeningen rond de Afsluitdijk veel tijd die hij niet aan Teylers Museum kon wijden.

Samenvattend kan men dus zeggen dat zich aan de hand van de collectie wetenschappelijke instrumenten van Teylers Museum goed laat tonen hoe de “organisatorische eenheid” die Teylers Museum wordt genoemd in de loop van de (lange) negentiende eeuw veranderde van een in het begin zelfs neo-humanistisch geconcipeerd experimenteel onderzoekscentrum in een openbaar kunstmuseum met een daaraan verbonden laboratorium. Bijzonder interessant is daarbij dat de gedragscodes die in de kunstwereld waren ontstaan en die bepaalden hoe men zich op een tentoonstelling moest gedragen, de musealisering van de wetenschappelijke collecties bij Teylers Museum – met name van de instrumentencollectie – sterk bevorderden.

Curriculum Vitae

Martin P.M. Weiss was born in Hanover, Germany, in 1985. He grew up bilingually and spent many weeks every year attending summer schools, travelling and visiting friends in England, where his grandparents lived.

After having completed secondary school in Germany in 2003, he started studying physics at RWTH Aachen University and was awarded a scholarship by the German National Academic Foundation (*Studienstiftung*). Having completed his *Vordiplom* and having learnt Dutch, an Erasmus Mundus scholarship enabled him to spend a year at Utrecht University in 2005. There he subsequently enrolled in the Masters programme “History and Philosophy of Science”. In addition to his studies he completed an internship at the archives of the Deutsches Museum in Munich and went on study trips to Iran and Russia. In 2008 he graduated *cum laude* with a thesis on the history of polytechnical museums in the GDR. For his research he travelled widely through eastern Germany.

Having completed his studies he was offered a job as researcher at Leiden University and started work on his PhD on the history of Teylers Museum in Haarlem in the nineteenth century. In addition to his research he initiated and organised a conference on the public role of Dutch collections in the nineteenth century and was guest-editor of a special edition of the Dutch scholarly journal *De Negentiende Eeuw* on the same topic. This was published in 2010 under the title *Druk bekeken*.

He presented the findings of his PhD-research at conferences in the Netherlands as well as abroad, in Montréal, Aberdeen, Leeds, Philadelphia and Kassel. This resulted in two scholarly articles currently in print, as well as short contributions to the magazine for friends and visitors of Teylers Museum. He was also a member of the Huizinga Institute, the national Dutch research network for Cultural History, and attended many of the courses and master classes offered for members. At Leiden University he helped devise and teach a seminar “Science and the Public” for graduate students.

As from October 2013, he is a trainee at the European Commission in Brussels.

