

MATERIALITY,
MUSEUMS,
AND MEDIA



PROGRAMME

SEVENTH BI-ANNUAL
GEWINA MEETING FOR
HISTORIANS OF SCIENCE
IN THE NETHERLANDS

ZEIST, 23-24 JUNI 2017

INTRODUCTION

On 23 & 24 June 2017, the Society for the History of Science in the Low Countries, Gewina, is holding its seventh bi-annual meeting in the usual venue of Woudschoten, near Zeist. This two-day conference is intended to bring together those who share an interest in the history of science in the Netherlands, as well as discussing the current and future developments in the field. The 2017 meeting shall be devoted to

Materiality, Museums and Media: History of Science, Presentation, and Outreach.

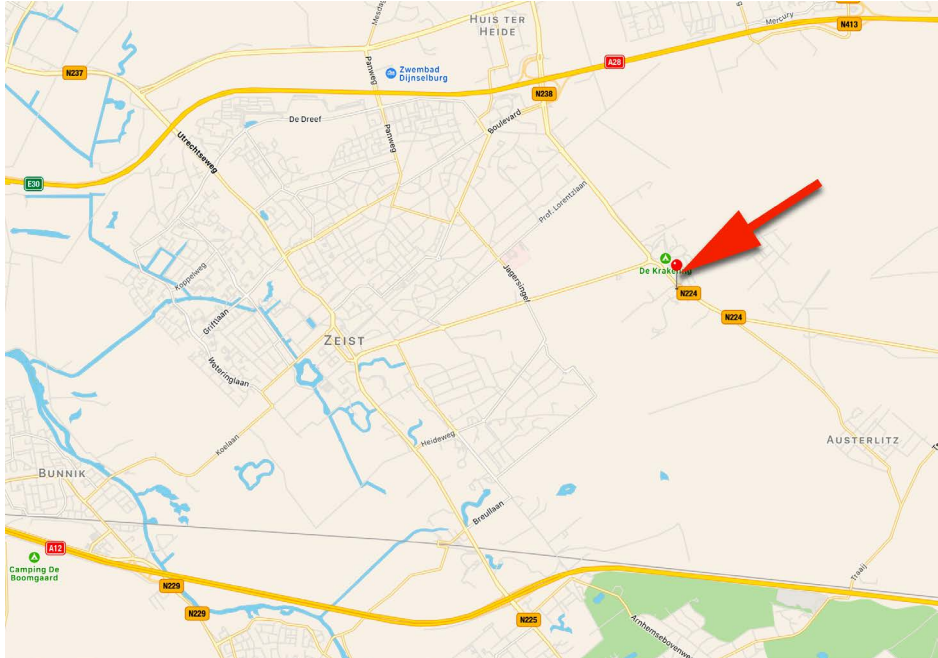
Following up on Woudschoten 2015, which was devoted to the “material turn”, we will take the logical next step, and consider the role of historians of science and museum curators and their outreach in the public sphere. Over the last decade, this material turn in the history of science has broadened the scope of the discipline and has provoked new research questions. This direction opened up new possibilities for co-operation with heritage institutions and, henceforth, to extend the dialogue to broader groups in society.

Whereas historians have traditionally focused on texts, the study of instruments, images, material objects, collections, and substances are now a firmly established topic of research. Scientific practices – including re-enacting experiments – have become a new focus of attention, underlining the fluid boundaries between scientific and artisanal knowledge. Traditional disciplinary boundaries between, for example, the history of science and art history – are overcome, and have given way to fruitful cooperation.

But the question remains how historians of science and museum curators/educators can get in touch with the public. In which way could historians of science and museums co-operate and benefit from one another? What is the status of objects in this context? How will the traditional function of museums as locations of knowledge (and research) develop in the future? What are the possibilities – and pitfalls – of showcasing results objects related to the history of science in the context of a museum? What are the possibilities and challenges of public outreach – and do share historians of science and museums devoted to its history the same audience? Can the history of science learn from the study of visitors’ responses?

PRACTICALITIES

VENUE



Woudschoten Hotel en Conferentiecentrum
Woudenbergseweg 54
3707 HX Zeist
Tel 0343 - 492 492

GETTING THERE USING PUBLIC TRANSPORT

From the directions of Utrecht and Arnhem there is a regular train service to Driebergen Zeist railway station. All Sprinter, and most (but not all) InterCity services stop at the station. A journey takes between 7 and 11 minutes from Utrecht, and between 28 and 37 minutes from Arnhem.

The Driebergen-Zeist, is located 3 km from the conference venue. A taxi trip from the station takes around 10 minutes and costs around 20 euros. The station has an 'OV-fiets' bike rental facility as well, although this operates at limited hours. Syntus bus 381 (towards Austerlitz KNVB) stops at the entrance gate.

GETTING THERE BY CAR

Motorway A28 from the direction of Utrecht, toward Amersfoort/Zwolle

- At the A28, take exit 3 (3 Zeist-Oost/Den Dolder)
- At the first traffic light, continue towards Zeist
- At the next light, turn left toward Woudenberg
- At the end of this long road, turn left toward Woudenberg
- At the roundabout, take the second exit
- You are now on the drive leading toward Woudschoten

Motorway A28 from the direction of Zwolle/Amersfoort, towards Utrecht

- At the A28, take exit 3 (3 Zeist-Oost/Den Dolder)
- Turn right toward Zeist
- At the t-junction, turn right again
- At the next light, turn left toward Woudenberg
- At the end of this long road, turn left toward Woudenberg
- At the roundabout, take the second exit
- You are now on the drive leading toward Woudschoten

Motorway A12 from the direction of Utrecht and/or Arnhem

- At the A12, take exit 20 (Zeist/Driebergen)
- Keep driving toward Zeist
- In Zeist, follow the signs leading to Woudenberg (approx. 3 kilometers)
- At the third roundabout, take the second exit
- You are now on the drive leading toward Woudschoten

TELEPHONE NUMBERS

General enquiries should be directed at the Woudschoten Conference Center (tel. 0031 343 - 492 492)

For questions regarding the conference itself, please contact either of the organizers:

- Ilja Nieuwland (0031 623 407 807)
- Huib Zuidervaart (00 31 653 756 322)
- Eric Jorink (00 31 636 175 206)

For less pressing issues, please send an e-mail to woudschoten7@gmail.com.

FRIDAY, 23 JUNE 2017

900 Registration

1015 Opening

1030 Keynote lecture: "What Are Science Museums For?"
Samuel Alberti (National Museums Scotland, Edinburgh)

1130 Session A: The Organization of Science

Chair: Ilja Nieuwland, Huygens ING

- Schipper, Douwe (Utrecht University)
From Physico-Theology to Liberalism: Understanding the Secularization of the Zeeuwsch Genootschap in the Context of Proto-Pillarization
- Maas, Ad (Museum Boerhaave, Leiden)
The Zeeuws Genootschap der Wetenschappen and the Rise of the Nation State in the Nineteenth Century
- Flipse, Ab (VU University of Amsterdam)
The VU and its Corporate Image since 1880: how the Vrije Universiteit Amsterdam Has Continually Retold its Own History
- Streefland, Abel (Delft University of Technology)
A "dead city"? The postwar development of the Delft campus

1130 Session B: The Representation of Science

Chair: Mariken Teeuwen, Huygens ING

- Trijp, Didi van (Leiden University)
Corrupted Fish in Pristine State
- Wiersma, Lisa (Utrecht University)
Science and Pictorial Procedures in 17th- and 18th-Century Painting
- Post, Anna Luna (Utrecht University)
Galileo, Popstar
- Anderson, Doug (Medaille College, Amherst)
Last Call for Leeuwenhoek

1300 Lunch

1400 Session C: Natural History

Chair: Eric Jorink, Huygens ING

- Striekwold, Robbert (Leiden University)
Bringing the East-Indies to Europe: Unveiling the Fish Collection of Kuhl & van Hasselt for a European Audience
- Gassó Miracle, Eulàlia (Naturalis Biodiversity Centre)
The Birth of the Rijksmuseum van Natuurlijke Historie
- Sysling, Fenneke (Utrecht University)
Phrenological Charts
- Weber, Andreas (University of Twente)
Science and the Dutch Empire in the Nineteenth Century: Natural Historical Collections as Digital Challenge and Opportunity

1400 Session D: Country Estates

Chair: Frans van Lunteren (VU University of Amsterdam / Leiden University)

- Zuidervaart, Huib J. (Huygens ING / University College Roosevelt)
Early-modern Dutch Country Estates as Breeding Grounds for Learning, Material Culture and Knowledge Practices
- Hoftijzer, Paul G. (Leiden University)
Experimental Philosophy in the Countryside. The Scientific Library and Cabinet of Abraham Edens (1690-1765) at Oostergeest in Warmond
- Fleischer, Alette (Amsterdam)
From Herbaria to Botanical Database: Changing the Nature of (Archiving) Plants at 18th Century Dutch Country Estates
- Commentator: René Dessing (Stichting Kastelen, historische Buitenplaatsen en Landgoederen)

1530 Coffee

1600 Utrecht History and Philosophy of Science Pecha Kucha session for Research Master Students

1730 Drinks

1900 Dinner

SATURDAY, 24 JUNE 2017

900 **Session E: History of Science, Museums, and Outreach**

Chair: Fokko Jan Dijksterhuis (University of Twente)

- Netten, Djoeke van (University of Amsterdam)
Maps in the Museum
- Wiesenfeldt, Gerhard (University of Melbourne)
The Lure of a Past Exotic: Objects as Pedagogical Tools and Technical Things
- Delft, Dirk van (Museum Boerhaave, Leiden)
Experience That Science!! The New Boerhaave Museum and its Connections to the "Front"
- Schilt, Kees-Jan (University of Oxford)
Prisca: Connecting Audiences through Time and Space

900 **Session F: Medicine**

Chair: TBA

- Klein, Wouter (Utrecht University / Huygens ING)
Exotic Drugs and the Intricate Balance of the Early Modern Medical Market
- Huistra, Hieke (Utrecht University)
Can you help me, doctor? How patient requests changed birth and death in the twentieth century
- Bolt, Timo (Erasmus MC, Rotterdam)
The (R)evolution of Evidence-based Medicine
- Gijbels, Jolien (University of Leuven)
Medical ethics and the emergence of the unborn individual (1850-1914)

1030 **Coffee**



1100 Session G: The Dynamics of Disciplines: the Flow of Cognitive Goods

Chair: Charles van den Heuvel (Huygens ING)

- Bod, Rens / Dongen, Jeroen van (University of Amsterdam)
Introduction: Why We Need a Post-Disciplinary Historiography of Knowledge
- Mojet, Emma (University of Amsterdam)
Cognitive Goods Unbound
- Hagen, Sjang ten (University of Amsterdam)
Science and Humanities in 19th Century Germany: The Seminar
- Karstens, Bart (University of Amsterdam)
How the Notion of Structure Found Its Way into the Sciences and the Humanities

1100 Session H: The Presence of Knowledge

Chair: Huib Zuidervaart (Huygens ING/ University College Roosevelt)

- Dijksterhuis, Fokko Jan (University of Twente)
Chorography of Knowledge in the Early Modern City
- Besouw, Jip van (Free University of Brussels)
Reconsidering the Dynamics of 's Gravesande's Cabinet of Instruments
- Miert, Dirk van (Utrecht University)
The Republic of Letters as a Knowledge Commons
- Weiss, Martin (Deutsches Schiffahrtsmuseum, Bremerhaven)
"Don't Mention the War": West German Research Vessels around 1960

1230 Lunch

1400 Demonstration Artechne: Technique in the Arts, 1500-1950

Sven Dupré, Marieke Hendriksen, Jenny Boulboulé, Jill Briggeman,
Thijs Hagendijk, Mariana Pinto, Maartje Stols-Witlox en
Tonny Beentjes (Utrecht University / University of Amsterdam)

1500 Closing remarks

Floor Haalboom (UMC Utrecht)

KEYNOTE LECTURE

“WHAT ARE SCIENCE MUSEUMS FOR?”

Samuel Alberti (National Museums Scotland, Edinburgh)

Science museums are full of contradictions. They are flexible enough to hold the antique and the cutting-edge; they show great discoveries and unfinished research; they appeal to schoolchildren and Nobel prize-winners; they accommodate the breathtakingly massive and the invisibly minute; they are geared towards the physical but seek to represent the intangible; they show geographically-specific evidence of a de-localized enterprise; they are associated with object-free interactivity while storing hundreds of thousands of resolutely material things.

Cherry-picking from recent scholarship and practice in the museology of science, this talk will reflect upon these tensions, and ask how science collections can best be exploited. Unpacking assumptions that curators and stakeholders make about science objects, I will consider who uses them and how – in storage, for research, on display and as tools for engagement. What should the function of the science collection be in the twenty-first century?

SESSION A: THE ORGANIZATION OF SCIENCE

FROM PHYSICO-THEOLOGY TO LIBERALISM: UNDERSTANDING THE SECULARIZATION OF THE ZEEUWSCH GENOOTSCHAP IN THE CONTEXT OF PROTO-PILLARIZATION

Douwe Schipper (Utrecht University)

During the eighteenth century, scientific societies modelled after the Royal Society of London and the Académie des Sciences in Paris were founded in many countries across Europe. One such society was the Dutch Zeeuwsch Genootschap der Wetenschappen ('Zeelandic Society of Sciences'), which was founded in 1769 in the province of Zeeland. Upon its founding, the society adopted a physico-theological approach to the study of the natural world. This religious affiliation, however, was lost over the course of the nineteenth century, as the Zeeuwsch Genootschap evolved into a secular society. This shift towards secularism, I argue, is better understood in the context of changing political and social dynamics in Dutch society, which was in the process of 'proto-pillarization' ('proto-verzuiling'); three groups - Protestants, Catholics and, increasingly, socialists - were reinforcing their cohesiveness and collective identity in the wake of the political dominance of liberalism after the 1848 constitution. Liberalism itself, however, was never organized in such a way, and should be seen as a culture rather than an elaborate ideological movement. By examining the religious and ideological plurality that existed among its individual members, I suggest that the secularized Zeeuwsch Genootschap had become a project of that liberal culture.

THE ZEEUWS GENOOTSCHAP DER WETENSCHAPPEN AND THE RISE OF THE NATION STATE IN THE NINETEENTH CENTURY

Ad Maas (Museum Boerhaave, Leiden)

About 1860 a new generation of leaders took hold of the Zeeuws Genootschap der Wetenschappen. Figureheads of this generation were the physicians A.A. Fokker and J.C. de Man. While the society had always been led by traditional, local patricians, now liberal and nationally oriented professionals determined its course and policy. In a short span of time, the society was secularized, and the

collections were regarded from a systematic-scientific point of view. Somewhat later the accommodation of the society and its collections, the *Musaeum Medioburgensis*, grew into a (modern) public museum. In my presentation, I will argue that these developments were intertwined, and will set out that these should be considered in the context of the modernization of Dutch society after 1850.

THE VU AND ITS CORPORATE IMAGE SINCE 1880: HOW THE VRIJE UNIVERSITEIT AMSTERDAM HAS CONTINUALLY RETOLD ITS OWN HISTORY

Ab Flipse (VU University of Amsterdam)

The VU and its Corporate Image since 1880: how the Vrije Universiteit Amsterdam has Continually Retold its Own History - Ab Flipse
'Researching and writing its own history has always been one of the tasks of the university', so states university historian Pieter Dhondt in a recent paper ('University History Writing: More than a History of Jubilees?', in *Ibid.* (ed.), *National, Nordic or European?* (2015)). Especially jubilees have been occasions to commemorate the past, often resulting in histories which emphasize glorious events, or legitimize the university's existence and identity at the moment of the commemoration. Only in the course of the twentieth century, university history writing has lost this 'commemorative character'. Nevertheless, jubilees have always remained moments to intensify historical research and, obviously, this has influenced the character of university history writing. Just like other institutions, the Vrije Universiteit (VU) Amsterdam has published widely on its own history since its foundation in 1880. In this paper, I will show how the VU has presented its history at some key moments, from its foundation as a neo-Calvinist institution, until now. I will analyze how its 'corporate image' (although this term might be anachronistically for the early period), had been substantiated by historiography. I will conclude by sketching some dilemmas faced by contemporary university historians.

A "DEAD CITY"? THE POSTWAR DEVELOPMENT OF THE DELFT CAMPUS

Abel Streefland

Directly after the end of the Second World War, plans were made for an expansion of the Technical University (*Technische Hogeschool*) in Delft. Central to these plans were a dozen of new buildings to be built beyond at the outskirts of the city. In the first decade after the war, plans for the Delft campus took shape. In the fifties and sixties, most of them were realised.

Along a central axis in the Wippolder educational facilities for all the faculties were planned, behind which a row of laboratories was projected. In a third outermost layer, TNO and industries could develop their buildings and laboratories. Different architects, often with an academic position at the university, were approached to work on the campus design. Responsible for the execution of the plans was the Government Real Estate Agency (Rijksgebouwendienst). While all aspects seem planned, a closer inspection of some of the source material reveals that the Delft university campus was developed more like a hotchpotch.

In this paper, I will take a closer look at the development of the Delft campus. Who were the most important stakeholders? How were decisions made and how was the newly build campus received by the community of the university? What role did the development of the campus play in the post-war reconstruction of the Netherlands?

SESSION B: THE REPRESENTATION OF SCIENCE

CORRUPTED FISH IN PRISTINE STATE: HOW MATERIAL PRACTICES SHAPED LEARNED INQUIRIES INTO THE UNDERWATER WORLD

Didi van Trijp

This paper addresses the complex relationship between objects and their formalization in text and illustration in the field of ichthyology (the branch of zoology which studies fishes), with a focus on the 'long' eighteenth century. During this period various 'fish books' were produced which unfolded meticulous studies of the watery part of the creation. These inquiries, however, were not without difficulties: the luster of aquatic flora and fauna seemed to be lost soon once it had been brought ashore and the sight of a fresh specimen, though much preferred, could not always be secured. For fishes, illustrations were sometimes preferred to actual preserved specimens as these appeared to be a way to counter the foulness of rotten fishes and keep them intact through time and space. The reliability of an image, again, depended greatly on quality and state of the object on which it was based. The preservation of fishes was a messy business. Over the course of the eighteenth century, various methods were developed to conserve fishes for study. Leiden-based Laurens Theodorus Gronovius dried specimens that could be leafed together in some sort of 'fish herbarium', whereas the French naturalist Ferchault Réaumur developed a technique for keeping piscine specimens in jars preventing their eau de vie from escaping; his contemporary Étienne-François Turgot produced a preservation manual explaining the preservation of marine specimens of all kinds of sizes and shapes. My paper draws on various sources (natural historical publications, correspondence, manuals, conserved specimens, reenacted practices*) to reconstruct what could be glimpsed from an aquatic object once it was raised from the deep.

GALILEO, POPSTAR

Anna-Luna Post

After Galileo's death, the location of his grave in the Santa Croce in Florence was kept secret, to prevent tomb raiders from stealing his body parts and offering

them for sale. During the move from the family grave to his official tomb in 1737, however, his thumb and middle finger famously went missing. They were, almost a century after his death, still considered to be desirable relics. And they still attract fascination today: the famous scholar's middle finger is now on display in the Museo Galileo (Florence), which has recently been awarded with several prizes celebrating the quality of presentation and display, as well as its mode of communication to reach a vast audience. But Galileo and his fingers appeal to the imagination of a larger audience still, and one that the Museo Galileo does not actively engage with. In this paper I will analyse Galileo's presence in today's pop culture, with particular attention to music and internet memes: what image(s) emerge from these songs and memes, and what motivates people to engage with them? Galileo figures prominently in popular Italian and English pop songs, one of which is even called "Il dito medio di Galileo", "Galileo's middle finger" (Caparezza 2011). Similarly, memes (images with captions which spread from person to person via the Internet, usually of humorous nature) in which Galileo figures draw thousands of likes on Facebook. These songs and memes also inspire responses from individual readers, who are thus actively engaging with the image of Galileo. This indicates not only a lively interest in the figure of one of the most famous scholars of all time, but also presents a challenge: as the image of Galileo is no longer uniquely preserved in museums and books, what role should museums and scholars take on?

SCIENCE AND PICTORIAL PROCEDURES IN 17TH- AND 18TH-CENTURY PAINTING

Lisa Wiersma

During the early modern period, the urge to comprehend the physical world - be it in science or art - led to new observations and optical strategies, which were cleverly used by Willem Beurs in his treatise on painting, *The big world painted small* (Amsterdam 1692). Interestingly, the author refers to art theory and art history in an implicit and precursory way, and takes the objects that need to be painted as a reference point, explaining which colours must be used and where exactly when painting glass, a peacock or grapes with sufficient lighting and shades - modes of operation corresponding with pigments and layer structures found in 17th-century paintings. Moreover, the composition of the book seems well considered: beginning with some basic colour principles and increasing the degree of difficulty regarding the objects to depict along the way. This methodical approach is not unique in the early modern period, but it does seem uncommon. Was his way to delegate knowledge perhaps inspired by the emergence of institutionalised education and empirical science?

In his treatise, Beurs repeatedly stresses the importance of theories proposed by Robert Boyle and Christiaan Huygens: When discussing e.g. the painting of light reflection and refraction, he pities the fact that not all painters study these.

Further Descartes, Goedaert, Swammerdam, Blankaart, Aldrovandi, Gessner, Jonston and Bochart are touched upon or mentioned. What exactly might new or recent scientific theories and discoveries have changed for the art of painting and teaching? In this research project traditional art history is combined with history of science, practical and experiential research at the Rijksmuseum Amsterdam and Mauritshuis, and psychophysics - the latter is conducted at the TU Delft, where a second PhD-candidate is working.

LAST CALL FOR LEEUWENHOEK

Douglas Anderson (Medaille College, Amherst)

An edition of the collected letters of Antony van Leeuwenhoek was first conceived in 1923, the bicentennial of Leeuwenhoek's death. In 1932, the tricentennial of Leeuwenhoek's birth, the Committee of Scientists was formed to manage and edit the project. It was not until after they put out a call for letters that they began publishing. The first volume, under Prof. Dr. G. van Rijnberk, president of the Committee, and Prof. G.C. Heringa, editor, was issued in 1939. It had Leeuwenhoek's Dutch on the verso, an English translation on the facing recto, and detailed notes about Leeuwenhoek's science, the people he referred to, and his sometimes difficult language. The Committee announced plans in the distant future for a final volume focusing on Leeuwenhoek's life and science.

Seventy years and five editors later, Volume 16 was published in 2014, Lodewijk Palm, editor. In 2016, when Dr. Palm retired, the Committee was not active. Three volumes of letters and their translations remained. The emphasis had shifted from science to history, drastically reducing the notes, and plans for the final biographical volume had been abandoned. The project was taken up by the Huygens Institute for Dutch History. Huib Zuidervaart and Douglas Anderson were appointed co-editors, charged first and foremost with finishing the project.

This presentation will trace the history of this project, present the current editors' plans, and make a final call for any letters or other relevant material.

SESSION C: NATURAL HISTORY

BRINGING THE EAST-INDIES TO EUROPE: UNVEILING THE FISH COLLECTION OF KUHL & VAN HASSELT FOR A EUROPEAN AUDIENCE

Robbert J. Striekwold (Leiden University)

The founding of the Dutch National Natural History Museum (RMNH) in 1820 gave a new impulse to the then somewhat neglected scientific study of the colonies in the East. Coenraad Jacob Temminck, the RMNH's first director, sent a number of naturalists to the Dutch East-Indies in the period 1820-1850, with the goal of bringing as much of its flora and fauna to the museum as possible. I study the collections of two such naturalists, Heinrich Kuhl and Johan Conrad van Hasselt, who went to the East-Indies in 1820 and sent large amounts of animal specimens to Leiden until their premature deaths in 1821 and 1823, respectively. In particular, I look into the fate of their fish specimens as they travelled from the lakes and rivers of their native habitats to the museum (where most of them can still be found) and eventually made their way into a number of prominent publications in the years that followed. Spurred on by Temminck, the sequential appearance of published letters from Kuhl & van Hasselt with short descriptions and sketches of their material, papers with proper species descriptions, entries in Cuvier & Valenciennes' *Histoire Naturelle des Poissons*, and more popular works, made the collection available step by step to a widening circle of people. Thus, this case illustrates the central role of the RMNH in presenting the East-Indies to both scientific and non-scientific audiences in Europe.

THE BIRTH OF THE RIJKSMUSEUM VAN NATUURLIJKE HISTORIE

Eulàlia Gassó Miracle (Naturalis Biodiversity Centre)

In 1814, C.J. Temminck proposed to his friend A.R. Falck, the minister of education, the creation of a National Museum for Natural History and nominated himself as director. His suggestion did not bear fruit. He tried again five years later, through the same channels and with twice the determination. He succeeded this time and Temminck became the first director of the Rijksmuseum van Natuurlijke Historie in Leiden. The new director had no academic training a very little experience in the field: he owed this victory mainly to his high social status and a few politically influential friends. Until now, this has been

the account given by biographers and historians. However, when we put these events in context - scientific, political and social - a very different image emerges. We need to evaluate the role other factors might have played in the foundation of the museum and in Temminck's appointment, like the splitting of natural history into subdisciplines, professionalization and the emergence of meritocracy.

PHRENOLOGICAL CHARTS

Fenneke Sysling (Utrecht University)

This paper looks at phrenological charts from the US and the UK (1840-1940) as mediators of (pseudo) scientific knowledge to individual clients who used them as a means of (self-) knowledge. Phrenologists propagated the idea that the human mind could be categorised into different mental faculties, with each particular faculty represented in a different area of the brain and bumps on the head. In the US and the UK popular phrenologists examined individual clients for a fee. Drawing on a collection of 157 phrenological charts completed for individual clients, this paper shows how individual consumers of phrenology learnt to apply science to themselves. Hitherto historians studying phrenology have focused mainly on the attraction of the content of phrenological knowledge for the wider public but in this paper I show how the charts were a persuasive technology that enabled clients to participate actively in creating knowledge of their own bodies and selves.

SCIENCE AND THE DUTCH EMPIRE IN THE NINETEENTH CENTURY: NATURAL HISTORICAL COLLECTIONS AS DIGITAL CHALLENGE AND OPPORTUNITY

Andreas Weber (Twente University)

In the first half of the nineteenth century, the Indonesian Archipelago witnessed various attempts to describe, classify and manage local natural resources. Next to a large number of detailed reports on the cultivation of cash crops, this resulted in a unique collection of fieldnotes, field diaries and drawings documenting the area's variegated flora and fauna. Over the last decade, many of these handwritten manuscripts, drawings and specimens have been digitized and are now stored on servers of natural history museums in the Netherlands and beyond. However, owing to their heterogeneous character and complex structure, the material has never been fully disclosed and interlinked. In order to address this challenge, a consortium of researchers from Groningen, Leiden and Twente, and the publishing house Brill is developing a user-friendly and technologically advanced digital environment which is meant to facilitate the work of historians, biologists, and curators interested in disclosing and studying digitized natural historical and other illustrated handwritten collections. Next to

discussing the general layout of the environment, my presentation raises two interrelated issues: first, it examines the pitfalls and opportunities which the application of digital tools in the context of natural historical collections entails. Second, it reflects upon how the digital environment developed within the Making Sense project can give a new boost to historical scholarship which re-evaluates the role of natural historical collections in a broader process of (Dutch) empire formation in the first half of the nineteenth century.

SESSION D: COUNTRY ESTATES

EARLY-MODERN DUTCH COUNTRY-ESTATES AS BREEDING GROUNDS FOR LEARNING, MATERIAL CULTURE AND KNOWLEDGE PRACTICES

Huib Zuidervaart (Huygens ING / University College Roosevelt)

In this session we argue that the early-modern country-estate was an important node in the practice of natural-history and philosophy in the Dutch Republic. At these locations bourgeois culture reached its zenith, being involved in the accumulation and construction of science and technology. Country-estates originally were closely associated with the city, a link nowadays mostly overlooked, as estate-owners lived part-time in the city and in the country. The participants in this session have applied for a NWO-grant to investigate this role of the country-estate as a meeting place and 'laboratory' in the production, accumulation, utilization, dissemination and exchange of knowledge about nature.

In this presentation some examples of this usage of country estates and its implications will be discussed. To name a few: Carolus Linnaeus developed his ideas on nature's taxonomy at George Clifford's Hartekamp (Heemstede); Abraham Trembley discovered the polyp through an improvement of the microscope at Willem Bentinck's Sorgvliet (The Hague); innovations of VOC-ships were developed at Gerard Aernout Hasselaer's Bosbeek (Heemstede); Holland's first steam-engine was tested at Jan Hope's Groenendaal (Heemstede); one of Europe's first international meteorological weather stations was situated at Johan Adriaen van de Perre's Westhove (Walcheren), and the first Dutch water-driven silk factory was installed at David van Mollem's Zijdebalen (near Utrecht). Examples such as these demonstrate that Dutch country-estates constituted a location where regents, merchants, scholars, artists, artisans, gardeners, agriculturalists, travellers, sailors, and others could encounter one another in such a way that practical and theoretical knowledge was produced, circulated, displayed, (re-)worked and (re-)ordered.

EXPERIMENTAL PHILOSOPHY IN THE COUNTRYSIDE. THE SCIENTIFIC LIBRARY AND CABINET OF ABRAHAM EDENS (1690-1765) AT OOSTERGEEST IN WARMOND

Paul Hoftijzer (Leiden University)

Research into early-modern Dutch country estates for a long time has been limited to studies of the architecture of houses and gardens. Little is as yet still known about other aspects of 'country life', such as social and cultural activities,

including scholarly and scientific inquiry. This is surprising, as many of these estates housed impressive collections of books and scientific instruments. This contribution deals with one such country house, the seat 'Oostergeest' in Warmond (near Leiden), which was acquired in 1746 by the rich Rotterdam merchant Abraham Edens.

Edens had been an enthusiastic amateur of science when still living in Rotterdam. In his grand canal house on the Haringvliet he hosted scientific meetings and demonstrations. When he moved to Warmond after his retirement, he took with him his library and cabinet of all sorts of scientific instruments. From the auction catalogue of this impressive collection, it appears that he was even involved in making his own instruments, with the help of professional instrument makers from Leiden. His surviving correspondence shows that he was in contact with other likeminded country house owners in the Leiden-Haarlem-Amsterdam region.

FROM HERBARIA TO BOTANICAL DATABASE: CHANGING THE NATURE OF (ARCHIVING) PLANTS AT 18TH CENTURY DUTCH COUNTRY ESTATES

Alette Fleischer (Amsterdam)

This paper wants to explore how an intricate network of botanists and amateurs jointly transformed the method of how to collect, describe and store exsiccated plants and botanical data. In the long eighteenth century, the accumulation of botanical material and knowledge took place at Dutch country estates. Local and exotic plants, dried and stored in herbaria - together with a description of the plant, one or more names and finding place, - allowed botanists and collected from different eras and areas to study nature. The way of archiving plant knowledge changed dramatically around 1750.

When the Swedish botanist Carl Linnaeus came to the Low Countries 1735, he lived and worked at the country estate "Hartekamp" of George Clifford near Heemstede. For two years, Linnaeus catalogued Clifford's vast collection of exotic plant materials that led to the publication of the Hortus Cliffortianus in 1738. While there, he had access to various herbaria of exotic plants compiled by, amongst others, the botanist Paulus Hermann. Linnaeus used these herbaria to try out different types of nomenclature, which led to his binomial system. This changed the way herbaria were used and ordered. Instead of binding the sheets with dried plants in bound manuscripts, the new directive, called for other methods of archiving. As loose-leaved pages, botanical knowledge were regrouped and stored into drawers, according to a plant's genus and family. The passion for accumulating exotic living or exsiccated plants and botanical knowledge by Holland's estate owners contributed ultimately to the standardization of botanical science worldwide.

SESSION E: HISTORY OF SCIENCE, MUSEUMS, AND OUTREACH

MAPS IN THE MUSEUM. A 21ST CENTURY ANALYSIS OF 20TH CENTURY ACQUISITION OF 17TH CENTURY GEOGRAPHICAL KNOWLEDGE

Djoeke van Netten (University of Amsterdam)

Museums are locations of knowledge, especially by displaying objects that embody knowledge from other times and places. But before they are able to showcase, museums need knowledge surrounding this knowledge, to know if an object is worth the effort and the money. To analyse this process my case in point will be seventeenth century geographical knowledge, in the form of enormous wall world maps which were already famous in their own time. The same goes for their makers: Joan Blaeu (1648) and Ferdinand Verbiest (1674).

In my paper I would like to explore how this knowledge, and its companion: the map as a physical object, was conceived and presented at the time the Maritime Museum in Amsterdam acquired these maps, in 1928 and 1965 respectively. How was the knowledge labelled, what place did it get in the museum collection as a whole? How did sellers and buyers, directors and curators use and contribute to the historiography on these maps and their makers?

In 2017, these two big maps are going to be brought together in a small new exhibition in the Maritime Museum, Amsterdam. This provides an excellent opportunity to evaluate and compare their uses as museum pieces, transferring knowledge to the public (or not) and also figuring in the history of science. There will also be made a comparison with other museums world wide, in possession of the same maps. There are only a few extant copies of both maps, treasured from Tokyo to Texas. Nationalism did (and probably still does) play a big role in the presentation of (maritime) history, so we will need to take the national context into account.

THE LURE OF A PAST EXOTIC: OBJECTS AS PEDAGOGICAL TOOLS AND TECHNICAL THINGS

Gerhard Wiesenfeldt (University of Melbourne)

Unlike earlier 'turns' the material turn in the history of science and various other humanities has been making waves beyond the confined limits of academic papers.

Associated with the aura of authenticity, historical objects seem to be able to capture the public imagination more than any other way to give an understanding of past times in such a way that you can pretend to tell the history of the world in 100 objects without being laughed off stage.

For historians of science, this is an occasion to rejoice given the opportunities it delivers to the discipline. Yet, it also can serve as a moment to reflect on the conjunctures of this development: what is lost when what can be told about the history science is measure by how it can be explained through objects?

This talk will discuss the material turn in the presentation of history of science to the following questions:

- To what extent is the focus on objects in the public display of history of science (and the humanities in general) a way to delegitimise the text (i.e. the humanities)?
- If as historians of science, we work with objects, how do we handle the tension between our epistemic interest and the public curiosity?
- What is going on when exhibition curators manhandle well-ordered scientific collections from the nineteenth and twentieth century into what they call a 'Wunderkammer'?

THE RENEWED BOERHAAVE MUSEUM: EDUCATION AND EXTENDING THE PUBLIC REACH

Dirk van Delft (Museum Boerhaave, Leiden)

After a thorough renovation, the renewed Boerhaave Museum reopens its doors to the public on November 18, 2017. With this renovation, the museum has the opportunity to renew its permanent exhibition, after placing the "naked" instrument on a pedestal for a quarter century.

The renewed permanent exhibition of Museum Boerhaave gets a clear subdivision into five themes. They highlight the core message of the museum each in their own way: what a great impact science, medicine and technology have on our daily lives, in past centuries and to this day. Science is the work of men. The curiosity, courage, creativity, (im)patience and perseverance that drive a researcher were not different for Christiaan Huygens or the chemist Ben Feringa, our latest Nobel laureate - and like his nineteen predecessors present in the new Museum Boerhaave. In it, the collection is the backbone and the appearance remains one of quality and aesthetics. The innovation is reflected in the revival of the story and takes shape in additional productions, audiovisual (digital) tools and games. Boerhaave Museum also integrates robust replicas into its redevelopment, that are interactive for visitors. These same replicas play a key role in new educational programs: nothing motivates the young researcher more than being able to work with real instruments.

Particularly extraordinary in the new Museum Boerhaave is the participation of innovative partners. At some places in the presentation, the visitor is standing face to face with the present and the future. Water Institute Wetsus Leeuwarden will be present with a demonstration model of blue energy (a pilot plant can be seen on the Afsluitdijk). Cosine from Warmond will supply a meter to measure the freshness of fish, an application of space technology and winner of the Herman Wijffels Innovation Award 2015. ASML will be attending with an Extreme Ultra Violet mirror, a key element in the newest machines for chip production. There will also be a qubit present from TU Delft, building block of quantum computer and built into a tiny diamond. All these innovations connect the historical collections of the Boerhaave Museum with the present and the future and show the social embeddedness of the museum.

PRISCA: CONNECTING AUDIENCES THROUGH TIME AND SPACE

Kees-Jan Schilt (Oxford University)

The below is slightly different from a mainstream conference paper abstract. Known for a highly successful series of interdisciplinary conferences on Early Modern history of science and knowledge, the Scientiae Executive Committee have been developing an online, open-access interdisciplinary portal named Prisca that seeks to engage scholars, students and general users in crucial questions about the successes and failures of early modern science, technology and innovation. We would be honoured to introduce Prisca to the GEWINA audience.

At its heart, Prisca is a scholarly journal reimaged for the modern age in a way that will bring cutting-edge scholarship to the public and into the undergraduate classroom. For established scholars, new research articles will usually be the primary entry point into the platform. But Prisca is far more than this, for each article will be linked directly to various levels of new and exciting multimedia material developed to bring their work to a much broader audience. Partnering with some of the top galleries and museums in the world, including the Oxford Ashmolean and the Amsterdam Rijksmuseum, Prisca features professionally produced videos, animations, and 3D models of particular objects, challenging users to think about them, to understand the culture which created and used them, and their social consequences—both then and through to the modern day. In a virtual space, users will be able to “pick up” objects, collecting them into a virtual museum of their own design, or printing them out with a 3D-printer for classroom discussion. They’ll be able to chart their own way through an ever expanding web of connections between things, finding new and unexpected links. In this way, general users and students will have access to a vast, state-of-the-art self-contained research portal. For teachers and instructors, Prisca will be a valuable tool for developing assignments based upon materials otherwise

inaccessible without an expensive field trip. And for established scholars, it will provide them with a new sort of venue for publishing, one which will ensure that their work will reach a far wider audience than a conventional journal. In short, Prisca will be a powerful tool connecting scholars, students and members of the public in a dialogue that will help us all think about the causes and consequences of innovation.

SESSION F: MEDICINE

EXOTIC DRUGS AND THE INTRICATE BALANCE OF THE EARLY MODERN MEDICAL MARKET. A CASE STUDY OF PERUVIAN BARK AND NEGATIVE PUBLICITY, C. 1730

Wouter Klein (Utrecht University / Huygens ING)

Around 1730, almost a century after it first arrived in Europe, Peruvian bark was well established as a remedy on the European medical market. It was mainly used as a febrifuge, although it was applied for many other diseases as well. Still, the seemingly triumphant rise of Peruvian bark was not at all a continuous, uninterrupted process. Appreciation of the bark would both suffer and benefit from various developments in the medical, commercial, and public domain, throughout the early modern period. Focusing on a short period around 1730, this paper addresses one of the episodes where Peruvian bark had a particularly bad image. Negative connotations surrounding the remedy were reflected in a variety of sources: medical works, newspaper advertisements, and trade accounts, among others. An exploration of the causes and consequences of this negative public image reveals that the medical, commercial, and public sphere were closely intertwined: shifting trade patterns were largely responsible for causing medical and public disapproval of the bark, which, in turn, caused the trade in Peruvian bark to change its habits. In the process, cascarilla bark gained prominence as an alternative remedy, thus jumping into the “gap” created by Peruvian bark’s unpopularity. This study, then, emphasizes the delicate balance of conditions that could shape, mould, and break a new remedy’s reputation. Therefore, studies like this can significantly increase our understanding of how new remedies would “behave” on the medical market: both on their own merits, and as a function of the chain of supply and demand in trade, science and society.

CAN YOU HELP ME, DOCTOR? HOW PATIENT REQUESTS CHANGED BIRTH AND DEATH IN THE TWENTIETH CENTURY

Hieke Huistra (Utrecht University)

A 78-year-old woman shuffles into the doctor’s practice and asks for euthanasia because she considers her life completed – how should we respond? Patients increasingly seek medical interventions in ‘natural’ life events like giving birth, aging and dying; their requests vary from eyelid corrections and Viagra prescriptions to freezing egg cells and assisted dying. Our response to such

demands matters – not just to individual patients, but for all of us, because patient requests can transform the role medicine plays in our society. However, currently we do not understand the requests' long-term effects. To help providing this understanding, my new research project investigates the long-term history of two patient requests concerning the beginning and the end of our lives: hospital birth and active euthanasia.

In this talk, I will outline my research plans and explore possibilities for public outreach during and after the project. Both of my case studies dovetail with present-day societal debates on newly emerging patient requests related to giving birth and dying. How can my research contribute to such debates? What possibilities are there to involve patients and healthcare professionals in the project? Through exploring these questions, I aim to contribute to the main themes of this year's Woudschoten conference: how should historians of science and medicine approach non-specialist audiences?

THE (R)EVOLUTION OF EVIDENCE-BASED MEDICINE

Timo Bolt (Erasmus MC, Rotterdam)

Evidence-based medicine (EBM) was launched in 1992 as nothing less than a new paradigm that would revolutionize medicine and healthcare. EBM soon developed into a highly influential concept and movement. However, in recent years, the 'unintended negative consequences' of EBM have been intensively debated. Even proponents of EBM themselves have contended that the movement is facing a serious crisis.

My current research aims to inform the debate about EBM's 'crisis' historically. The history of EBM is regularly invoked by leading voices in the debate themselves, arguing for a return to 'real' evidence based medicine and a 'return to the movement's founding principles'. It is, however, unhelpful to project 'real EBM' into a blissful past in an attempt to save its future. Instead, EBM should be understood as a fluent, historical phenomenon that has evolved over time and has taken different shapes in different contexts.

Building on my PhD thesis – *A Doctor's Order: the Dutch Case of Evidence-Based Medicine (1970-2015)* (Antwerpen/Apeldoorn 2015) – that provides a general historical understanding of the introduction of EBM in the Netherlands – my present project aims to study the actual role, impact and evolution of EBM in Dutch medicine and healthcare more in depth and detail. Four strategically chosen case-studies will be conducted, on respectively (1) general practice; (2) cardiology and cardiac surgery; (3) psychiatry; and (4) public health. Each case study will cover the period 1970-present and three different 'levels': (a) the production of evidence (b) how EBM was applied by health professionals at the micro-level; (c) and how this was done by managers, policy makers and insurers at the macro-level. In each case-study specific controversies in which EBM was

'involved' will be scrutinized. In analysing these controversies two sociological concepts will be applied: Gieryn's boundary work and Nettleton's informational medicine.

MEDICAL ETHICS AND THE EMERGENCE OF THE UNBORN INDIVIDUAL (1850-1914)

Jolien Gijbels (University of Leuven)

In recent decades, scholars such as Lynn Morgan and Sara Dubow have shown how the development of embryology has shaped understandings of unborn fetuses as social subjects from the nineteenth century onwards. Historians have paid less attention to the influence of religion on medicine, even though medical and religious conceptions of the unborn mutually influenced each other. In this paper I will address the material (physical) and spiritual lives of the unborn by focusing on the performance of postmortem caesarian sections in nineteenth-century Belgium. Whereas physicians were especially devoted to these operations to deliver viable babies, priests stressed their importance to baptize the unborn fetus as a means to save its soul. Against the backdrop of medical professionalization and the ideological tensions between Catholics and Liberals in the second half of the nineteenth century, physicians were increasingly opposed to post mortem caesarean sections for religious purposes. By focusing on legal, medical and religious debates, this paper will identify the changing position of the unborn fetus.

SESSION G: THE DYNAMICS OF DISCIPLINES: THE FLOW OF COGNITIVE GOODS

INTRODUCTION: WHY WE NEED A POST-DISCIPLINARY HISTORIOGRAPHY OF KNOWLEDGE

Rens Bod and Jeroen van Dongen (University of Amsterdam)

Historiography of both the sciences and the humanities is almost invariably carried out within the confines of modern disciplinary categories. This produces a serious problem: crucial processes of knowledge transfer receive insufficient attention or are not studied at all, even though great innovations often occur when disciplinary boundaries are crossed. Disciplinary historiography tends to obscure that academic disciplines are not static but dynamic and implicitly keeps the idea intact that the sciences and the humanities are distinct endeavours. To solve these problems we propose to move beyond the disciplinary approach and to write a, what we will call, 'post-disciplinary' history of knowledge. In this talk we will argue that we need to focus on what we call 'cognitive goods': the epistemic notions and objects (i.e. 'goods') that are transferred when knowledge is increased by crossing or transcending disciplinary boundaries. Examples of 'cognitive goods' are research methods, formalisms, virtues, theoretical concepts, metaphors, and argumentative and demonstrative techniques. In this way, we intend to leave disciplinary biases behind yet at the same time provide the means to come to a better understanding of the construction of disciplinary categories.

COGNITIVE GOODS UNBOUND

Emma Mojet (University of Amsterdam)

This subproject will focus on disciplines where the boundaries are not (yet) clearly defined. I plan to look at how the field of cognitive science developed and established itself. A first focus will be on linguistics as one of the disciplines contained in cognitive science together with anthropology, philosophy, psychology, neuroscience and artificial intelligence. I will zoom in on the origins and development of the discipline of general linguistics as contemporary to the emergence of the social sciences around 1900. Flows of cognitive goods can be found by looking at how scholars attempted to shape and model the field of general linguistics as an academic discipline, in relation to the natural and social sciences and the humanities.

SCIENCE AND HUMANITIES IN 19TH CENTURY GERMANY: THE SEMINAR

Sjang ten Hagen (University of Amsterdam)

It is known that the implementation of the physics seminar in 19th century German universities was modeled after the humanistic philology seminar, which dated from the 18th century. Yet, earlier historiography of the physics seminar has been written in contradistinction to the history of the philology seminar. It has been studied as a point of departure for discipline formation. How physicists distinguished their practices from those of the humanists was given most emphasis. Focusing on the transfer of cognitive goods, alternatively, may expose the shared history of the German university seminar. Can we understand the seminar as a medium through which characteristics of philology - with its focus on method, standardization and exactitude - found their ways into physics? And can we describe this process as a flow of cognitive goods?

HOW THE NOTION OF STRUCTURE FOUND ITS WAY INTO THE SCIENCES AND THE HUMANITIES

Bart Karstens (University of Amsterdam)

The notion of structure, which is applied in almost all fields of study nowadays, entered academic discourse at a surprisingly late date. The chemist Friedrich August Kekulé (1829-1896) was the first to apply the term to a chemical compound, which implied a deviation from the original meaning of structure as 'building' or 'something that is build'. For the study of flow of cognitive goods it is significant that Kekulé was initially trained as an architect before he turned to chemistry. In chemistry his 'Strukturtheorie' came into conflict with the opposing 'Typentheorie'. I will discuss this debate and investigate how it affected the conceptualization of the notion of structure. Finally, I will provide a brief outline how the structure concept from thereon flowed to other fields of study.

SESSION H: THE PRESENCE OF KNOWLEDGE

CHOROGRAPHY OF KNOWLEDGE IN THE EARLY MODERN CITY

Dijksterhuis, Fokko Jan Dijksterhuis (University of Twente)

Collot d'Escury's *Holland's Roem in Kunsten en Wetenschappen* (1825-1844) was one of the last works to integrate history of the sciences and the arts. The way Collot uses history of science to promote national prestige points two ways historically: to the modern nation and to the early modern city. Regarding the latter, the book can be placed in the tradition of city descriptions that set the stage for the modern national pride in scientific achievement in an interesting way. The idea that a community can distinguish and praise itself by its learning, skills, ingenuity and talents is typical of a knowledge society. It is usually situated in the modern rise of the nation-state, with its rhetoric of progress, of contributing to science, technology, and arts understood as universal entities. Early traces of the idea of knowledge as a cultural asset can be found in the urban cultures of the Low Countries. These cities were not just junctions of trade, power, and culture, but rose to cultural and political dominance in the Dutch Republic. As the cornerstone of political and economic power the city became the point of reference for cultural identity. Cities began fashioning their wealth and prestige, giving rise to new literary and artistic genres like the city descriptions and cityscapes. Exemplary is *Rerum et urbis Amstelodamensium historia* that built the reputation of Amsterdam by situating it historically – working back to Batavian times, describing its impressive achievements in trade and the high level of urban amenities, and, not lastly, the glorious expeditions that had set sail from the harbor. In this paper I want to trace how such urban chorographies depicted learning, skill, ingenuity and talent as assets of the town, and how this translates in national pride – and the tensions involved in this transition.

RECONSIDERING THE DYNAMICS OF 'S GRAVESANDE'S CABINET OF INSTRUMENTS

Jip Van Besouw (Free University of Brussels)

Willem Jacob 's Gravesande (1688-1742) is remembered for many different reasons. In history and philosophy of science, most important among those are his dissemination of "Newtonian physics" over Europe and his epistemological defence of experimental methods.

Those who have written on these topics have focused mainly on 's Gravesande's texts. Those interested in heritage or material centred approaches to history of science and technology, on the other hand, know 's Gravesande best because of his magnificent collection of scientific instruments but too often have neglected his theoretical work. As yet, the consensus is that 's Gravesande's instruments were above all meant as teaching devices. This is indeed how they have gone down in history: many are still prototypes in physics education, and Museum Boerhaave—where 's Gravesande's collection is exhibited—describes most of his instruments as demonstration devices. Studies of individual instruments, contrarily, often indicate other roles: many instruments seem to have been part of ongoing research; some quantified new theoretical concepts; and still others served technological or practical purposes. With some exceptions, however, these studies of instruments have been carried out for reasons typical of heritage institutions and have not properly attempted to merge with academic history of science. Consequently, they have not received due attention.

In this paper, I will discuss the theoretical meaning of and reasons behind a couple of specific instruments. A closer connection between 's Gravesande's texts and his objects can clarify their *raison d'être*, and will show that our picture of 's Gravesande has much to gain from combining these two strands of research. This will not only lead to a better understanding of 's Gravesande's position in eighteenth century science, it will also provide a much more dynamical picture of his cabinet of instruments.

THE REPUBLIC OF LETTERS AS A KNOWLEDGE COMMONS

Dirk van Miert (Utrecht University)

The Republic of Letters was the name which scholars and scientist in the early modern period (1500-1800) gave to their own community. This community formed a social network by frequent correspondence: hundreds of thousands of learned letters are still extant. They give evidence of a vibrant internationalistic knowledge-based and pan-European society, held together by the common ideal of sharing knowledge. Although everyday practices often fell short of the ideal (as with any ideal), the urge to share knowledge functioned as one of the prime scholarly values shaping the communal identity of the Republic of Letters. In this address I propose to conceptualize the Republic of Letters as a 'knowledge commons': as a bottom-up community dedicated to the production, management and circulation of knowledge as a non-subtractable common property resource. What were the incentives to share knowledge, what were the limitations? Are there early modern examples of crowd-sourcing? How often did scholars and scientist set up large teams to deal with problems and tasks which no single individual could hope to solve or accomplish?

“DON'T MENTION THE WAR”: WEST GERMAN RESEARCH VESSELS AROUND 1960

Martin P.M. Weiss (Deutsches Schiffahrtsmuseum, Bremerhaven)

While the International Geophysical Year (IGY) in 1957/1958 is chiefly remembered for the launching of the Soviet satellite Sputnik and the shockwaves this sent through the Western hemisphere, the internationally coordinated research projects the IGY entailed also had a huge impact on the fields of oceanography and polar science. Perhaps the most tangible effect was the ratification of the Antarctic Treaty in 1961.

Meanwhile, the first UN Convention on the Law of the Seas (UNCLOS I) was also ratified and resulted in a fundamental redistribution of fishing grounds. These politically charged developments had a direct impact on West German science policy: Within a space of just several years, the German government funded the construction of three new – and very costly – research vessels. The first was a fisheries vessel (Walther Herwig), the second a civilian oceanographic research vessel (Meteor II) and the third a military oceanographic research vessel (Planet).

Based on archival material and personal interviews, this paper will reconstruct the history of the construction of these three vessels. The question in how far military aspects – which were particularly sensitive in post-War West Germany – played a role in securing funding for these vessels will also be addressed.

Besides focusing on this historical research, the paper will also present the plans for the design of a new section on marine and polar science at the German Maritime Museum and explain what role history of science played in the design process.

DEMONSTRATION ARTECHNE: TECHNIQUE IN THE ARTS, 1500-1950

RE-CASTING VAN LAER: HANDS-ON METAL CASTING
WORKSHOP

Sven Dupré

Thijs Hagendijk

Tonny Beentjes

Marieke Hendriksen

Jenny Boulboulé

Mariana Pinto

Maartje Stols-Witlox

How do artists master their art? What is technique in the visual and decorative arts? How is technique transmitted and studied? Who is considered expert in technique, and why? Considering 'technique' as a textual, material and social practice, the researchers of the ERC-funded ARTECHNE project (Utrecht University / University of Amsterdam) are writing a long-term history of the theory and practice of the study of 'technique' in the visual and decorative arts between 1500 and 1950. Their methods include the creation of an online database and historical semantic map of recipes and techniques, and experimentally reconstructing historical recipes to finally open the black box of the transmission of technique in the visual and decorative arts.

For example, in 1721 Zwolle-based silversmith Willem van Laer published his *Weg-wyzer voor aankoomende goud- en zilversmeeden* ('Guidebook for upcoming gold- and silversmiths'). Van Laer had created prestigious silver objects, like a highly decorative communion set, before misfortune made him destitute. ARTECHNE PhD candidate Thijs Hagendijk and metals conservator Tonny Beentjes use Van Laer's *Weg-Wyzer* as a manual to reconstruct his techniques, thus exploring the role and value of text in the development of hands-on expertise. At Woudschoten, the ARTECHNE researchers will set up an eighteenth-century casting workshop, where participants can try Van Laer's instructions for themselves, preparing casting flasks and casting small tin objects. Meanwhile, we will discuss how reconstruction practices like this inform and change our understanding of the transmission of technique in early modern art and science.

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