

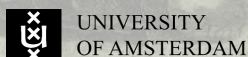
# Towards a History of Knowledge

8<sup>th</sup> Gewina Meeting of Historians of Science  
in the Low Countries  
hosted by the Artechne research group

Woudschoten Conference Center, Zeist, 21-22 June 2019

## Gewina

Belgisch-Nederlands genootschap  
voor wetenschaps- en universiteitsgeschiedenis  
Société Belgo-Néerlandaise pour l'histoire des  
sciences et des universités



Dr. C. Louise  
Thijssen-  
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Stichting

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## 8<sup>th</sup> Gewina Meeting of historians of science in the Low Countries

Woudschoten, 21-22 June 2019

Welcome to the conference!

The Gewina Woudschoten Conference 8 coincides with the launch of the *Journal for the History of Knowledge*, the new official journal of Gewina. The scope of *JHoK* serves to delineate the theme of the conference:

*JHoK* is devoted to the **history of knowledge in its broadest sense**. This includes the study of science, but also of indigenous, artisanal and other types of knowledge, often seen as weaker than science, as well as the history of knowledge developed in the humanities and social sciences. Special attention is paid to interactions and processes of demarcation between science and other forms of knowledge. The journal is explicitly **global** in scope. It offers a platform for publications that concern western and non-western cases, that compare western and non-western knowledge making practices or that show the connections between concepts and practices of knowledge in different parts of the globe. Its' **time-span** is antiquity to the present.

Over the past years, scholars such as Peter Burke, Lorraine Daston, and Philipp Sarasin have made a plea for the emergence of a new field of study: the history of knowledge. This new discipline adopts the study of all types of knowledge, including those which fit less comfortably in the category of 'science'. Examples include, but are not limited to, knowledge in the premodern era, in non-western cultures, and in the arts and humanities. The organizers specifically invite contributions that reflect on this new field: what is the history of knowledge? How does it relate to the history of science? What should it be? Should there be multiple histories of knowledge? What do we gain by adopting the history of knowledge? What are the potential consequences and risks? What role can digital methods play in developing the history of knowledge?

We want to thank you for your enthusiastic response to the call for papers and look forward to your presentations. A special thanks is due to our volunteer conference assistants, Valentine Delrue, Anne Knape, Skander Jaïbi, and Shahin Nazarkermanshahi, and to our sponsors – Gewina, the Descartes Centre at Utrecht University, the Vossius Centre at the University of Amsterdam, Huygens ING, Brill Publishers, and the Dr. C. Louise Thijssen-Schoute Foundation, without whom organizing this conference would have been much more complicated, both financially and practically.

The Artechne organizing committee,

Sven Dupré, Marieke Hendriksen, Jenny Boulboullé, Thijs Hagendijk, Mariana Pinto, Jill Briggeman, and Roland van Blokland

# Practical Information

Questions about registration, the program, or other organizational issues:

office@gewina.nl / Marieke Hendriksen: 0031 (0)30 253 87 76

## Payment information

Account holder: Gewina  
 IBAN: NL73 INGB 0000 0913 41  
 BIC/SWIFT: INGBNL2A  
 Quoting: Woudschoten 8

**Please note that the conference fee includes conference participation, coffee, tea, and lunch on both days, and the conference dinner on Friday. Hotel rooms have to be booked separately and directly with Woudschoten conference centre! Mention that you are part of the conference to get a reduced rate. Contact details below.**

## Book Table

During the conference, a table will be available to showcase your recent publications. Bring a copy of your book or journal article, clearly marked to make sure it will not be mistaken for a freebie!

## Venue Woudschoten Conferentiecentrum

Woudenbergseweg 54  
 3707 HX Zeist  
 Tel. 0031 (0)343-492492

[www.woudschoten.nl](http://www.woudschoten.nl)



## Directions

By public transportation: the nearest NS station is Driebergen-Zeist. You can take bus 381 in the direction of Zeist via Austerlitz, take a taxi (c. 10 minutes), bring your bike on the train, or rent a bike or OV-fiets (15-20 minutes).

On Friday, Woudschoten conference centre runs a shuttle service from and to NS station Driebergen-Zeist at 8:30 AM. Pre-paid seats (5.75 euros one way) need to be booked at least 24 hours in advance through the Woudschoten website, see <https://www.woudschoten.nl/en/faq-shuttle/>

Cycling from Utrecht city or station is highly recommended for those who like such things. It will take you 45-60 minutes.

By car: You can follow the signs to the KNVB headquarters which are next to the venue, or follow these instructions:

A28 from Utrecht direction Amersfoort/Zwolle

- On the A28 exit 3 Zeist-Oost/Den Dolder
- 1st traffic light straight on, in the direction of Zeist
- Next traffic light turn left towards Woudenberg, keep following the long road • At the end of this road, turn left towards Woudenberg,
- Take the second exit on the roundabout

A28 from Zwolle/Amersfoort direction Utrecht

- On the A28 exit 3 Zeist/Den Dolder
- At the end of the exit, turn right, in the direction of Zeist
- Next traffic light turn right
- Next traffic light turn left towards Woudenberg, keep following the long road • At the end of this road, turn left towards Woudenberg,
- Take the second exit on the roundabout

A12 from Utrecht and Arnhem

- On the A12 take exit 20 Zeist/Driebergen
- At the end of the exit continue in the direction of Zeist
- In Zeist, follow the signs to Woudenberg, for about 3 kilometres • On your right you will see Hotel Oud London
- Take the second exit on the roundabout

# Program

## Gewina Woudschoten conference 2019

Friday, 21 June 2019

8:45 – 9:15	Arrival, registration, coffee
9:15 – 9:30	Opening by Sven Dupré & Marieke Hendriksen
9:30 – 11:00	Session 1
	1A: History of Knowledge and Fake News (round table)
	1B: Natural History & Human History in Eighteenth-Century Discipline Formation
	1C: Towards a History of Statistical Knowledge
11:00 – 11:15	Coffee, tea
11:15 – 12:45	Session 2
	2A: Medical ethics and the start of life
	2B: Taste and knowledge: early modern visual and dietary knowledge production
	2C: Disciplines in formation
12:45 – 14:00	Lunch
14:00 – 16:00	Session 3
	3A: Producing, editing, and applying knowledge in medicine
	3B: Drawing on and mapping out diverse cultures of knowledge
	3C: (Post) colonial knowledge
16:00 – 16:30	Tea, Coffee
16:30 – 17:45	Keynote Stéphane Van Damme, introduced by Sven Dupré
17:45 – 18:00	Presentation new Journal for the History of Knowledge
18:00 – 18:15	Huygens-Descartes Thesis Award Ceremony
18:15 – 19:00	Drinks
19:00 – 21:00	Dinner
21:00 – 21:45	Demonstration sessions
22:00 – 23:00	Artechne The Movie

Saturday, 22 June 2019

9:00 – 9:15	Registration, coffee
9:15 – 11:15	Session 4
	4A: Shining light on discipline formations and conditions of knowledge
	4B: Knowledge and the Museum
	4C: Networks of knowledge
11:15 – 11:30	Coffee, tea
11:30 – 12:30	The great master-thesis show
12:30 – 13:30	Lunch
13:30 – 15:30	Session 5
	5A: Navigating abstract, negative & secret knowledge
	5B: Logic, facts, and the accumulation of data / How was knowledge transmitted by “copying” in the context of East Asian Art Making?
	5C: Material cultures of knowledge
15:30 – 15:45	Coffee, tea
15:45 – 17:00:	Round table/closing comments: A History of Knowledge Concepts

## Friday 21 June

8:45- 9:15     Arrival & Registration

9:15             Welcome (Sven Dupré & Marieke Hendriksen)

9:30-11:00     Session 1

Session 1A:    History of Knowledge and Fake News (round table)  
Organizer: Dirk van Miert. Participants: Rens Bod, Irene van Renswoude, Willemijn Ruberg, Rienk Vermij

Session 1B:    Natural History & Human History in Eighteenth-Century Discipline Formation

- Anita Guerrini: *Rewriting Histories, Archaeology, Paleontology, and National Mythologies*
- Didi van Trijp: *"If Only They Were a True Ichthyologist": Eighteenth-Century Classification and Specialization*
- Mathijs Boom: *Striking Humans from Earth's History: Reshaping the Planet's Past in the 1780's*
- Chair: Eric Jorink

Session 1C:    Towards a History of Statistical Knowledge

- Emma Mojet: *'Organisation de la statistique' : Adolphe Quetelet (1796-1874), physique social, and the discipline of statistics*
- Ruben Ros: *Illuminating the Statesman: Marie Mathieu von Baumhauer (1816-1878) between Statistics and Politics*
- Ida Stamhuis: *Statistics uncovers the veins of society'. The Statistical Life of Hendrick Quack (1834-1917).*
- Chair : Huib Zuidervaat

11:00-11:15 Coffee, tea

11:15-12:45 Session 2

Session 2A:    Medical ethics and the start of life

- Hieke Huistra: *Staying Home: Giving Birth in the Netherlands, 1918-1939*
- Lucie Bastiaens: *Infant Care in Maastricht 1900-1920: New Experts and Their Knowledge on Infants*
- Jolien Gijbels: *Catholic Standards of Behavior: Knowledge Production in the Field of Medical Ethics (Belgium, 1880-1914)*
- Chair: Mariana Pinto

Session 2B: Taste and knowledge: early modern visual and dietary knowledge production

- Jessie We-Hsuan Chen: *Making Image, Making Knowledge: Practices of Artistic Production in Visualizing Early Modern Botanical Knowledge*
- Daniel Margócsy: *The Pineapple and the Worms*
- Laura Eliza Enriquez: *Cooking, Making, Knowing: On the Epistemological Value of Taste in the Early Modern Low Countries*
- Chair: Marieke Hendriksen

Session 2C: Disciplines in formation

- Willemijn Ruberg: *Forensic Expertise and the Cultural History of Knowledge*
- Martin P.M. Weiss: *East German Polar Science: an Oral History Project*
- Robbert J. Striekwold: *The Fowl of the Air and the Fish of the Sea: the Philosophy of Classification in 19<sup>th</sup>-Century Natural History*
- Chair: Rienk Vermij

12:45-14:00 lunch

14:00-16:00 Session 3

Session 3A: Producing, editing, and applying knowledge in medicine

- Floris van Berckel Smit: *The rise of New Public Management in higher education. Conflicting values and the InHolland diploma scandal*
- Frank Huisman: *Health and Citizenship: The Realities of the 'House of Thorbecke', 1865-1901*
- Noortje Jacobs: *How Team Science changed Team Medicine (and did it?)*
- Chair: Hieke Huistra

Session 3B: Drawing on and mapping out diverse cultures of knowledge

- Ab Flipse: *The Scientific Biography as Part of a Wider Narrative: Life and Work of the Christian Biologist Jan Lever (1922-2010) in a Secularizing Age*
- Lara Bergers: *Praxiography and the Making of a Murderer*
- Matthijs Jonker: *From Local to Global: the Transformation of Healing Practices in the Tesoro messicano*
- Cornelis J. Schilt: *In Search of Gravity: Isaac Newton's Study of Ancient Mythology*
- Chair: Frans van Lunteren

Session 3C: (Post) colonial knowledge

- Sebastiaan Broere: *Knowledge in Times of Decolonization: Agriculture and the Making of Sukarno-Era Indonesia, 1945-1967*
- Pieter van Wingerden: *Science and the Dutch Empire: The Multiple 'Centers' of E.A. Forsten*
- Maarten Langhendriesch: *"The Biggest Murderer in the Congo": Belgian Views on Indigenous Healers and Medical Knowledge in the Belgian Congo (1925-1939)*
- Abel Streefland: *A Colonial Sister: The Close Ties Between the Technische Hogeschool Bandung and the Technische Hogeschool Delft, 1917-1930*
- Chair: Surekha Davies

16:00-16:30 Tea & coffee

16:30-17:45 Keynote Stéphane Van Damme, introduced by Sven Dupré (Room A)

17:45-18:00 Huygens-Descartes Thesis Award Ceremony (Room A)

18:00-18:15 Presentation of the new Journal for the History of Knowledge (Room A)

18:15-19:00 Drinks

19:00-21:00 Dinner

21:00-21:45 Evening session

Room A      Time and person, now?!  
Musical project presentation, Susanna Bloem

Outside      A useful tool: reconstructing Boerhaave's little furnace  
Demonstration session, Ruben Verwaal & Marieke Hendriksen

22:00-23:00 Artechne The Movie (8 mins, on a loop – Room A)

## Saturday 22 June

9:00-9:15 registration, coffee

9:15-11:15 Session 4

Session 4A: Shining light on discipline formations and conditions of knowledge

- Floris Solleveld: *The 'Philosophical Turn' in Eighteenth-Century Scholarship*
- Loek Schönbeck: *Heraclitean Sun*
- Bart Karstens: *Family Matters*
- Anne Por: *'Look, I Don't Get It': On Formal Knowledge Being Understood*
- Chair: Ad Maas

Session 4B: Knowledge and the Museum

- Dirk van Delft: *How Science Works: the 'Failure' of the MiniGRAIL*
- Jantiene van Elk: *TextielLab: Keeping Textile Craftsmanship and Knowledge of Textile Techniques Alive*
- Trienke van der Spek: *A How to Appreciate Scientific Collections and What to Learn from Them, Based on Teylers Museum's Historical Visitor's Guides*
- Ilja Nieuwland: *A Shot in the Foot? Teyler's New Wing of 1885 and the Fate of Evolution*
- Chair: Ruben Verwaal

Session 4C: Networks of knowledge

- Laura Skouvig & Maria Simonsen: *Same, same – but different? History of Knowledge from the Perspectives of Book History and Information History*
- Karen Hollewand: *Collecting Epistolary Metadata of the Republic of Letters*
- Marius Buning: *Writing Intellectual Property: The Historical Construction of Intellectual Property in University Textbooks*
- Chair: Dirk van Miert

11:15-11:30 Coffee, tea

11:30-12:30 The great master-thesis show

HPS Master's students present their research topic with the dynamic pecha kucha-format – 20 slides in 6 minutes and 40 seconds.

Gerben van der Werf	Florence, a Cradle for Opera and for the 'Scientific Revolution': an interdisciplinary approach to the scholarly network of Florence, 1550-1600
Kerrewin van Blanken	Diligent observers of natural things? Observing earthquakes in the age before seismology
Elske de Waal	As a Matter of Fact: a new look at Mach's epistemology
Luca Forgiarini	The Cyborg: Science meets Science Fiction

Anne Knappe	Regular Medicine: can't live without, won't heal within.
Kamiel Mobach	The case of the homeopathic physician
Martijn van der Meer	Matter in action: What is superconductivity?
& Stefan Gaillard	Initiating the Journal for Trial and Error

Chair: David Baneke

12:30-13:30 Lunch

13:30 – 15:30 Session 5

Session 5A: Navigating abstract, negative & secret knowledge

- Gerhard Wiesenfeldt: *Knowing, Knowledge, Science? Categorical Distinctions When Trying to Navigate as a Historian of Science*
- Tobias Winnerling: *The Missing and the Lacking: What could a Digital history of Absent Knowledge look like?*
- Lukas Verburgt: *What the History of Knowledge Should Also Be: the Case of Negative Knowledge*
- Chair: Thijs Hagendijk

Session 5B: Logic, facts, and the accumulation of data / How was knowledge transmitted by "copying" in the context of East Asian Art Making?

- Steven Coesemans: *Logica clavis scientiarum : Interdisciplinarity in Early Modern Logic Teaching*
- Ad Maas: *Facts and Democracy*
- Chair: Karen Hollewand
- Chingfei Shih: *Remaking 'China' and returning to 'Greece and Rome'?*  
*European Imitations of Yixing Zisha Teapots*
- Yu-chih Lai: *Visual Brokerage and Blockage: Some Observations on the Project of an Encyclopedic Production of Albums Embarked in 1750 at the Qianlong Court*
- Chair: Jenny Boulboulé

Session 5C: Material cultures of knowledge

- Douglas Anderson: *Leeuwenhoek's Comptoire: Space and Access in the Early Modern Scientific Workplace*
- Mattia Mantovani: *Descartes' Man Under Construction: Salomon Reisel's Statua humana circulatoria (1680)*
- Huib Zuidervaat: *The History of a Failed Instrument: the Dutch Philosopher Frans Hemsterhuis (1721-1790) and his Binocular Achromatic Telescope*
- Jip van Besouw: *The Camera Obscura between Dioptrics and Practical Knowledge*
- Chair: Fokko Jan Dijksterhuis

15:30-15:45 Coffee, tea

15:45-17:00: Round table: A History of Knowledge Concepts / followed by closing comments. Organizer: Fokko-Jan Dijksterhuis Participants: Bert de Munck, Emma Mojet, Nina Geerdink, Karen Hollewand, Floris Solleveld, Feike Dietz

Moderators: Sven Dupré, Marieke Hendriksen

# **ABSTRACTS**

## **Session 1A: History of Knowledge and Fake News : historiographical answers to a current socio-epistemological crisis (round table)**

*Rens Bod, Dirk van Miert, Irene van Renswoude, Willemijn Ruberg, Rienk Vermij*

What is knowledge? A history of knowledge cannot avoid that question. Although there is a methodological imperative to discuss all knowledge claims on equal footing, that does not mean we have to treat them as equally valid. This round table will discuss the question how to give shape to a history of knowledge at a time that the authority of scientific or even factual knowledge is increasingly under fire, while avoiding both the Scylla of absolute relativism and the Charybdis of a naive positivism.

Several aspects of the topic will be briefly introduced. How has the concept of knowledge fared in the history of science in the last decades, in particular under the influence of social constructivism? Have historians contributed to the confusion by turning a methodological principle into an ontology? Evidently, in a history of knowledge the concept of knowledge has to be historicized - what was considered knowledge, and why, when, and by whom? The question is whether such insights will enable historians to legitimately identify more and less defensible knowledge claims. Sitting around the table will be Rens Bod, author of a recently published book on History of Knowledge (2019), Irene van Renswoude, a specialist in medieval conceptualizations and practices of knowledge, Willemijn Ruberg, who has just finished a book on the history of the body in relation to culture and society, historian of science Rienk Vermij, who will make some suggestions how to deal with the problem in future historiography, and Dirk van Miert, who teaches History of Humanities and chairs this table as president of Woudschoten's organizing society Gewina.

## **Session 1B: Natural History and Human History in Eighteenth-Century Discipline Formation (Organised session)**

'History,' in the seventeenth and eighteenth centuries, covered both the natural and the human. Near the end of this period, the two began to part ways, as specialists delineated disciplines of knowledge focusing exclusively on one or the other. Yet, there was no predetermined path for discipline formation. Eighteenth-century savants actively drew up new frameworks for natural and cultural knowledge, in the process including and excluding particular types of knowledge. This panel considers three cases in which a humanist framework for the interpretation of knowledge interacted and at times conflicted with a naturalistic approach. They trace the negotiation of the boundaries between the natural and human histories. Anita Guerrini discusses the study of 'giant's bones' in late seventeenth-century Europe, which were the subject of humanist debate on the mythical past as well as naturalists' scrutiny. Didi van Trijp examines Peter Artedi's fashioning of the discipline of ichthyology in the early eighteenth century as an exclusively naturalist branch of knowledge. And Mathijs Boom explores the delineation of the geological past as a pre-human domain of history in the late eighteenth-century Low Countries.

## **Rewriting Histories: Archaeology, Paleontology, and National Mythologies**

*Anita Guerrini*

In the sixteenth and seventeenth centuries, a number of European origin stories focused on supposed giant ancestors. These giants were not perceived as pre-historic, but as historical actors alongside Biblical characters as well as the Greeks and the Romans. Large bones unearthed across Europe seemed to support these histories, which assumed a narrative of decline (physical and moral) from a glorious past. But by the early seventeenth century, humanist scholars were beginning to shed doubt on these stories, on the basis both of textual evidence and of physical interpretation of the bones. For the next century, such scholars, alongside natural philosophers, naturalists, and anatomists, debated the nature of these physical remains. As the practices that became the disciplines of archaeology and paleontology began to take form at the end of the seventeenth century, interpretations of these bones began to reach a consensus regarding their non-human nature. But the rewriting of national histories that this consensus required took longer.

## **“If Only There Were a True Ichthyologist”: Eighteenth-Century Classification and Specialization**

*Didi van Trijp*

Exploring the world of fish, early modern scholars relied on a wide array of sources, which included ancient natural historical texts, emblem- and cookery books, and the experiences of fishermen and fishmongers. Over the course of the eighteenth century however, a shift occurred in ideas about what kind of materials were of import to learned inquiries into fish. A programmatic approach was articulated by Peter Artedi in his *Ichthyologia* (Leiden, 1738). Artedi, close collaborator and friend of Carl Linnaeus, described all the fish that he encountered in natural historical works or during his field work according to a new method of organization. He devised a system of classification, soon taken up by other naturalists, that divided fishes into classes, genera, and species based on external features.

This system privileged certain characteristics of fish over others and thus prescribed which parts of the piscine world were studied, preserved, and conveyed. Artedi explicitly excluded any kind of knowledge that he considered ‘amethodic’ [sic], such as the aforementioned artisan expertise.

This talk examines how Artedi presented ‘the ichthyologist’ as a specialized naturalist. By studying how ichthyology became a separate field of knowledge, I aim to contribute to a broader understanding of (disciplinary) specialization.

## **Striking Humans from Earth’s History: Reshaping the Planet’s Past in the 1780’s**

*Mathijs Boom*

This paper discusses the process by which the geological past came to be seen as a pre-human domain of history. I argue that this process was not a simple naturalization of the study of the deep past, but a negotiation about the respective positions of human and natural history within this field.

In the 1780s, the study of the earth’s history went through a series of changes as naturalists limited its interdisciplinary scope. The Brussels physician François-Xavier de Burtin was among the first to reconstruct the planet’s past from traces in fossils, rocks, and strata. He collaborated closely with the Dutchmen Petrus Camper and Martinus van Marum to create a new form of earth science that excluded evidence from historiography, antiquarianism, linguistics, theology, and philology.

Yet Burtin also saw an intimate connection between the ‘moral’ and the ‘physical’ history of the earth, and explored parallels between natural history and human history through notions of progress and catastrophe. Burtin’s cross-disciplinary thinking illuminates how earth science gave rise to radically new notions of a past shaped by contingency rather than Providence.

### **Session 1C: Towards a History of Statistical Knowledge (organized session)**

Since the 1980s the history of statistics has grown into a rich field of research. Works by amongst others Dèrosières, Porter and Hacking have shown how, drawing on various eighteenth century traditions of ‘state descriptions’, political arithmetic and medical science, statistical practices emerged and professionalized in various European states. Although far from uniform in purpose and method, the advent of statistics coincided with a ‘probabilistic revolution’ as well as an increase in transnational exchanges of knowledge and experience (Kruger 1987, Randeraad 2011). Studies into the history of statistics have gone well beyond the level of national governments and universities. The ‘statistical mind’ (Van Maarsseveen, Klep and Stamhuis 2008) is now identified and studied outside the traditional spatial and institutional centers. Topics range from colonial statistics (Christopher 2008), networks of statistical expertise (Leonards and Randeraad 2010) to the popular face of statistical knowledge and its role in creating and sustaining the public sphere (Crook & O’Hara 2011, Prévost & Beaud 2013). In the light of the recent calls for a ‘history of knowledge’ (Sarasin 2011, Daston 2017), the history of statistics is a special case. The methodological and epistemological issues raised by Daston and Sarasin seem to be adopted in the history of statistics from relatively early on. The institutionally and theoretically diffuse nature of ‘statistics’ in the past centuries only uneasily fit established methods and frameworks in the history of science. Capital-s ‘Science’ obscures the variation in practices and ideas that have been regarded as statistics in the past, forcing historians to go beyond traditional spatio-temporal contexts of (early-)modern science.

In this session we aim to open up a conversation between the history of statistics and the history of knowledge. We evaluate the horizons of the latter against the empirical studies in the history of statistics. We also discuss the lessons learned from more than three decades of historical research into statistics.

### **The Statistical Lives of Matthieu von Baumhauer (1816-1878) and Hendrick Quack (1834-1917)**

*Ida Stamhuis & Ruben Ros*

This article studies the statistical lives of Marie Mathieu von Baumhauer (1816-1878) and Hendrick Peter Godfried Quack (1834-1917). We approach the biographies of these Dutch statisticians using the concept of a “persona”. Hereby, we are able to analyze the history of statistics in the second half of the nineteenth century, a period that risks being overshadowed by the institutional crystallization of statistics in the latest decades of the nineteenth century (the Dutch Central Bureau of Statistics was founded only in 1899). This period is characterized by troubled boundaries between science, politics and personal lives. The persona-concept has proven to be particularly well equipped to handle these complex contexts. Therefore, we employ it to investigate three aspects of Von Baumhauer’s and Quack’s statistical lives: the embeddedness of their personal lives in the practice of statistics, their political outlooks and, subsequently, their conception of society as the object of statistical research. The comparison between

Von Baumhauer and Quack will reveal how Dutch statistics was grounded in particular epistemological convictions that were strongly intertwined with political ideology. Furthermore, the changing statistician-personae also reflect the increasing and accelerating institutionalization and professionalization of statistics.

**‘Organisation de la statistique’ : Adolphe Quetelet (1796-1874), physique social, and the discipline of statistics**

*Emma Mojet*

Nineteenth-century statistics commonly consisted of qualitative theories and descriptions of states and peoples, while more mathematically inclined branches of statistics or probability theories were seen as a separate endeavour. Belgian astronomer and statistician Adolphe Quetelet’s pioneering work to combine the qualitative and quantitative approaches into the new discipline of physique social did not find immediate approval. After Quetelet died in 1874, the 9th International Congress of Statistics in 1876 was to be the last. Other attempts to unify the various methods of statistics through disciplines such as demography and vital statistics met a similar fate. (Schweber (2006)) The assumed reason: the topics and interests involving statistical methods were seen as too diverse to be merged, even after having discussed the unification for more than 20 years. (Randeraad (2011))

Statistics did not disappear, however. Mathematical statistical and probabilistic thinking has become an integral part of a wide range of academic disciplines and societal or governmental institutions.

Statisticians hold chairs at universities, write in journals on statistical theory and methods, and founded the internationally renowned Institute of Mathematical Statistics in 1930. The history of statistics then can be studied from multiple perspectives: academic and government, natural and social sciences, national and international. Consequently, a history of knowledge framework is not only a good fit, it is also a necessary to fully understand the reach of statistical thinking. This paper revisits Adolphe Quetelet and his work combining theories, methods, and concepts from different fields to construct physique sociale as a new discipline.

## **Session 2A: Medical ethics and the start of life**

### **Staying Home: Giving birth in the Netherlands, 1918–1939**

*Hieke Huistra*

Around 1900, almost all European and American births happened at home, but soon after, birth moved into the hospital. Historians have shown that scientific and medical knowledge played a major role in this shift. New scientific insights on how to prevent infections favoured the strictly controlled birth environment only the hospital could offer. Furthermore, pregnant women strongly believed modern science could make birth safe and comfortable – a ‘modern, scientific’ hospital birth was seen as a good birth; a traditional home birth was not. Thus, in the interwar period, birth started to move into the hospital in most western countries – with one major exception: the Netherlands. Although trust in science was high in the interwar Netherlands, the number of hospital births remained low.

In this talk, I investigate this difference, which so far, I argue, has not been sufficiently addressed. Existing work has focused mainly on the strong position of Dutch midwives, but I will show that this explanation does not suffice. To show this, and to figure out what made the Netherlands different instead, I analyze scientific textbooks, practical handbooks, medical case notes, and women’s diaries.

### **Infant care in Maastricht 1900-1920: new experts and their knowledge on infants**

*Lucie Bastiaens*

Around 1900 infant care in Maastricht echoed the catholic philanthropy of the nineteenth century. It was sporadic, patronizing and ruled by bourgeoisie ladies. Only a few years later infants were weighted, measured, checked and monitored by a doctor and trained assistants. This (early) modern form of infant care was characterized by a striving for objectivity, clinical observations and the use of scientific instruments. It was institutionalized in a new association that aimed for more structural infant care: Pro Infantibus.

How did this knowledge on infant care come into being and who were involved? Can we identify a network of political, social and financial support for the further development and appliance of this knowledge in practice? In this paper I will show how statistical research and (a search for) the latest medical information provided new insights into the infant, at the same time problematizing and medicalizing the infant. Inspired by scholars in the field of the social construction of medical knowledge, I will show that a new type of public health organization and interactions between actors with different backgrounds and kinds of expertise played an important role as well.

### **Catholic standards of behavior: knowledge production in the field of medical ethics (Belgium, 1880-1914)**

*Jolien Gijbels*

In 1890, the Leuven professor in obstetrics Eugène Hubert announced the creation of the first course in medical ethics in Belgium. According to him, the Catholic University of Leuven was probably even the first in the world to erect a Chair in medical ethics. Remarkably, in Belgium, this field of knowledge bears the clear imprint of Catholicism. Contrary to other countries such as France where influential medical ethical treatises of secular and religious nature circulated, Belgium’s medical literature on the standards of behavior for doctors was much more dominated by Catholic physicians such as Hubert. In this paper, Belgian physicians’ exchange of views on the limits and application of

medical knowledge will be examined as a process of knowledge production. To this end, I will analyze the literature within the field of medical ethics – academic articles, courses and codes of medical ethics – by using both text mining and close reading historical methods. Overall, the presentation will make clear how Catholic professors of medicine at the Leuven university constructed the ethical boundaries of ‘being a good Catholic doctor’.

## **Session 2B: Taste and knowledge: early modern visual and dietary knowledge production**

### **Making image, making knowledge: Practices of artistic production in visualizing early modern botanical knowledge**

*Jessie Wei-Hsuan Chen*

Among all the sciences in their broadest sense, the branch of natural history is perhaps the one most dependent on the use of images. Illustration has been an integral device to identify and study flora and fauna in printed books since the Renaissance. In the early modern period, book illustration experienced a handful of shifts in production techniques, moving from woodcuts to metal-plate engravings and etchings. These turns in the main ways of image-making techniques not only reflected the changing artistic practices in the early modern period, but also affected how natural history was depicted and visualized.

This paper discusses the integral nature between image making and knowledge making in early modern Europe, using the technical making of botanical illustrations as a point of departure. It identifies the key skills and required artisanal knowledge of the image makers in the process of making and printing a botanical woodcut/engraving/etching. It further demonstrates how the limitations of the materials and techniques affected the visualizations of plants. By delving into the small practicalities of making an image, this paper aims to respond to the larger questioning of what is the history/histories of knowledge through the history of visual botany.

### **The Pineapple and the Worms**

*Daniel Margocsy*

Maria Sibylla Merian’s illustrations of the pineapple are the iconic images of early modern natural history. They reveal the crucial role of women in the development of modern arts and science, they teach us about the importance of the visual arts for natural history, and they serve as reminders of the troubling relationship between European arts, science and colonialism. This talk will situate Merian’s artwork, and especially his images of pineapple, in the context of helminthology. The years around 1700 did not only see the flourishing of Merian’s art: they also saw huge debates erupting over the origins of intestinal worms, and the possible role of sweet fruits, such as pineapples, as carriers of the invisible eggs of these parasites. Some of the key figures in these debates were also the major collectors of Merian’s water colours: Richard Mead or Hans Sloane. This talk will examine these connections and examine how dietetics may influence the interpretation of art.

## **Cooking, making, knowing: On the epistemological value of taste in the early modern Low Countries**

*Laura Eliza Enriquez*

The aim of this paper is to argue that a history of knowledge is a history of the senses. In order to do so, I am going to focus on the sense of taste, and explore the experiences, practices and representations articulating taste into a discourse that contributed to the making of scientific knowledge, within the context of the early modern Low Countries.

Building upon the idea of the senses as a valid source of knowledge, I will make use of an iconography of taste as starting point, including botanical illustrations, still life painting, genre scenes, and prints on cookbooks, so as to elaborate on the epistemological relationship between gustation and the world it perceives. This relationship, I will argue, is one of practical wisdom, assessment, transformation, and consumption of land. Likewise, I will explore the related literature on taste, the senses and knowledge, from both scientific (texts on nature and empiricism) and non-scientific (herbariums, art treatises, cookbooks) sources. In that sense, sensorial experimentation in taste-related practices, such as harvesting, healing and cooking, permeated into the principles, methodologies and representations of fields such as botany, alchemy and medicine, proving to be as relevant as the orthodox scientific observation.

## **Session 2C: Disciplines in formation**

### **Forensic expertise and the cultural history of knowledge**

*Willemijn Ruberg*

In our 'post-truth' society, it has become clear that the notion of scientific expertise is problematical. Science and Technology Studies have pointed out that expertise is socially constructed and performed. However, many studies on expertise 'neglect the broader historical and societal context' (Grundmann 2017). The history of knowledge offers opportunities to provide this much-needed contextualization by shifting the focus to the practices of making forensic knowledge (in the courtroom, the morgue, the laboratory or the psychiatric observation clinic) and to historically variable cultural norms. This paper will outline a programme for the historical and cultural contextualization of expertise, focusing specifically on the production and reception of forensic expertise in the Netherlands in the period 1930-1970. It takes the notion of modernization as a starting point, demonstrating how modernization can refer to institutions, scientific and technological developments, and gender images. Applied to the history of Dutch forensic science, medicine and psychiatry, it argues for including attention to the notions of authority, objectivity, pillarization, and emancipation and relating these to internal scientific developments. The paper aims to clarify which cultural contexts are relevant for providing a thoroughly historical analysis of (forensic) expertise.

### **East German Polar Science: An Oral History Project**

*Martin P.M. Weiss*

Antarctica is a remote part of the world, difficult to access at the best of times. Its extreme environment means humans cannot survive there without mutual aid and cooperation. Yet this region is also potentially rich in valuable resources, which led several countries vying for a competitive edge in creating and applying the knowledge necessary to unlock these regions over the course of the 20th century.

In all these respects, East German Antarctic science is a particularly fruitful case study on the history of Cold War science, and the complexity of knowledge generation processes in general. Following the International Geophysical Year in 1957 until the late 1980s, in their work East German scientists were heavily dependent on their Russian colleagues, as well as their own government's permission to travel abroad. By the late 1970s, however, Russia was strongly encouraging East Germany to set up its own Antarctic science programme.

This paper reconstructs the emergence of an East German Antarctic science programme. It draws on interviews with former East German polar scientists conducted in 2018 in an oral history project funded by the Federal Foundation for the Study of Communist Dictatorship in East Germany, as well as newly accessible archival material.

### **The fowl of the air and the fish of the sea: the philosophy of classification in 19th century natural history**

*Robbert J. Striekwold*

One of the central goals of natural history is classification: the ordering of living beings into categories that make sense from the perspective of practical utility or that of their actual place in the grand scheme of nature. I compare the principles that were used to classify birds and fishes in 19th century natural history. In ichthyology, classification was based at every level on one or more particular characteristics of the animals. In images and descriptions, the characteristics that were necessary for classification were strongly emphasized, while those that were not important were left vague. In ornithology, much more extensive accounts were given of behaviour, ecology, and so on. Fish species as objects of natural history were thus essentially clusters of anatomical characteristics, whereas birds were represented much more as living beings. I discuss why 19th century ichthyology tended to be much more reductionistic in this way than ornithology, pointing both to the particular problems the two groups of animals presented to the naturalist, and to the ways in which the fields were practiced.

## **Session 3A: Producing, editing, and applying knowledge in medicine**

### **Health and Citizenship: The Realities of the 'House of Thorbecke', 1865-1901**

*Frank Huisman*

In 1844 J.R. Thorbecke, then a Leiden professor, published his vision on modern citizenship. Reflecting on the implications of the French Revolution for his own time, he concluded that the revolution had pointed to societal abuse but was lacking in productive value. Time had come for the state to create a new legitimate order. This could only be accomplished through legislation which would create a constitutional infrastructure and turn people into citizens. After moving into politics, Thorbecke created the so-called 'House of Thorbecke', in which municipalities, provinces and the state were to collaborate in an organic fashion. After that, he set out to create modern citizens through legislation on poor relief, education and health care. Only those who were healthy, educated and free from poverty could be productive citizens.

In 1865, Thorbecke had succeeded in formally realizing his political program. But how did it work in practice? In my paper, I will be looking at the material effects of his health legislation – particularly at the workings of the Health Inspectorate and the municipalities – and seek an answer to the question whether or not the organic ideal of Thorbecke was realized in Dutch health care of the late 19th century.

### **How team science changed medicine (and did it?)**

*Noortje Jacobs*

In this talk, I outline a new research topic that I am exploring: the rise of team science in medicine. In 2014, Science Translational Medicine published a paper about the recent growth of consortia in biomedical research: "neutral environments" pooling expertise and management to facilitate the development of new biomedical research tools. The motto is Cooperation, Not Competition: "By temporarily putting aside institutional differences, these collaborations aim to accelerate individual research efforts by building broadly accessible standardized resources". This apparently new phenomenon has already been hailed as a momentous development in medicine. It would allow medical research to become "truly scientific"; "more representative of sciences such as physics and astronomy"; "a solution to the replication crisis"; and "a more efficient, transparent, and ethical use of resources". What are we historians of science to make of this? Is team science in medicine really such a new phenomenon? Did it follow developments in physics and astronomy and, if so, why and how? How does its emphasis on teamwork, large data sets, and standardization reconfigure standards of objectivity and quality in biomedical research? And what effects might this have on existing disease and patient categories? With the Woudschoten audience, I want to explore how to translate these questions into a concrete historical research proposal.

### **The rise of New Public Management in higher education. Conflicting values and the InHolland diploma scandal**

*Floris van Berckel Smit*

This paper discusses the impact of New Public Management (NPM) on the governance of Dutch higher education since the 1980s, with an empirical focus on the diploma scandal at the Hogeschool InHolland in 2010. During the last decades higher education institutions have been subjected to many reforms. New managerialist ideas, business concepts, techniques and values became increasingly important in higher education institutions. Both public debates and studies on higher education suggest that too much

emphasis on NPM-driven policy causes perverse incentives and even corruption risks. NPM and neoliberalism in the public sector are extensively public and academic debated, yet its emergence and impact in higher education has received little attention from historians.

Within that administrative NPM-context, in July 2010, diploma fraud at the Hogeschool InHolland resulted in a major scandal in the Netherlands. My research shows that NPM played an important role in the emergence of risks, which led to a debate about integrity, fraud and corruption in the case of the InHolland diploma scandal. But what is NPM precisely about? Which value conflicts existed in the regard of the InHolland scandal? And what elements of NPM led to corruption risks? By combining insights and concepts from different disciplines – history, management studies, educational sciences, and public governance – changes in higher education can be better understood. Additionally, a historical perspective, which is concerned with change, detail, and contextualization of NPM, fills the gap that public governance and other management studies have left open.

### **Session 3B: Drawing on and mapping out diverse cultures of knowledge**

#### **The scientific biography as part of a wider narrative: Life and work of the Christian biologist Jan Lever (1922-2010) in a secularizing age**

*Ab Flipse*

Although modern science has long been portrayed as a motor of secularization, recent studies, including “science-religion biographies,” have provided a more nuanced view (Rupke 2009). Nevertheless, science-religion biographies are still part of larger secularization narratives, and attempt to show how scientists can lose their faith as a consequence of their scientific work. On the other hand, these biographies are sometimes used for apologetic purposes, to serve as an example of harmony between science and religion. In order to find out how the lives and work of religious scientists are used for different purposes, and how these scientists themselves relate their own lives, historians need to “put science-religion biographies in their place” (Livingstone 2002). To illustrate the problems connected with this dichotomy, this paper uses the example of Jan Lever (1922-2010), a Dutch biologist who was appointed professor of zoology at the Calvinist Vrije Universiteit Amsterdam in 1950. Historians and sociologists of religion have framed Lever’s development as a Christian biologist in terms of personal secularization, typical for the Reformed church that he belonged to. However, Lever himself did not think in categories of modernizing (or rejecting) faith. He applied the resources of his own tradition, both religious and scientific, to reconcile creation and evolution, and urged fellow believers to do the same. I analyze both the religious and scientific context in which Lever developed his ideas, and the way his work and life became part of a wider narrative about the Reformed community in the Netherlands.

#### **Praxiography and the Making of a Murder**

*Lara Bergers*

This paper analyses a Dutch 1930s murder case to explore the potential of using Annemarie Mol’s praxiographic method in the historical analysis of forensic science. Mol has relied on participant observation of a variety of hospital practices to show that atherosclerosis is “ontologically multiple.” The patient file which describes the seemingly unified atherosclerosis of one patient, in this view, becomes an achievement; in it, coherence among conflicting practices result from “coordination” and “distribution.”

This paper addresses the challenges that come with applying the method to a different site of knowledge production (the courtroom) and, in addition, to historical materials. How do a variety of actors — bringing distinct types of knowledge — “enact” a murder? To what extent are the negotiations that occur in a courtroom analogous to the “coordination” and “distribution” that Mol described in the hospital context? And how do the different types of knowledge making practices interact?

Praxiography necessitates considering a multitude of material practices, actors and interactions. It thereby opens up new ways of looking at the role of scientific expertise in courtrooms. At a time in which forensic expertise seems to play an ever larger role in the administration of justice, such new perspectives may help us understand how forensic science is made.

### **From Local to Global: the transformation of healing practices in the *Tesoro messicano***

*Matthijs Jonker*

The idea of the history of knowledge is predicated on the increasing focus on practice and on the local nature of knowledge in the historiography of science since the 1980s. Although this development has opened the way for artisanal, indigenous and other forms of knowledge to be studied on equal footing with Western science, it also leads to a pressing question: How can the focus on practice and the local account for the apparent delocalization/globalization of knowledge? The paper answers this question by shifting the attention from scientific practices (e.g. instrument making, observation) to social practices in which knowledge gets translated, appropriated and adapted.

Concretely, the paper compares early modern European and Mesoamerican healing practices as reflected in the *Tesoro messicano*, a book on the natural history of Mexico, published by the Accademia dei Lincei in 1651 and based on the confrontation between European and Aztec knowledge of botany and medicine. The paper argues that the different organization of these practices – in terms of goals, general understanding of the world, rules and skills required from practitioners – entails that knowledge played a different role in these practices, and that delocalization/globalization can be understood by focusing on the transformation of their organization.

### **In search of gravity: Isaac Newton’s study of ancient mythology**

*Cornelis J. Schilt*

The work of Isaac Newton is notoriously difficult to typify. Discussions in the 1970s and 80s focused on the possible connections between his mathematical, natural philosophical, alchemical, religious, and chronological writings, with two camps pitted against each other in what Paolo Casini once described as an ‘embarrassing controversy’. Much of that conversation was informed by our modern notions of the fields of science and scholarship, disciplinary divisions that generally prove problematic for early modern knowledge-making and not just where it pertains Newton. Luminaries

like Kepler, Bacon, and indeed Newton adhered as much to an emerging mathematico-experimental tradition as to a form of *prisca scientiae*. This belief in ancient knowledge resulted in their treatment of often obscure, arcane writings, both scholarly and scientific, as sources of illumination. Newton saw himself as not discovering, but rediscovering the laws of nature: the early Egyptians already knew about the heliocentric universe, universal gravity, and even the inverse square law. Thus, he perused works on classical and pagan mythology for clues about nature, which he found in abundance. In this paper,

I will focus on Newton's earliest religio-chronological treatise, *Theologiae Gentilis Origines Philosophicae*, and how it functioned in Newton's search for the cause of gravity.

### **Session 3C: (Post) colonial knowledge**

#### **Knowledge in Times of Decolonization: Agriculture and the Making of Sukarno-Era Indonesia, 1945-1967**

*Sebastiaan Broere*

This paper turns recent calls for the decolonization of knowledge upside down and argues that postcolonial Indonesian elites considered the production of knowledge a fundamental building block for a truly independent Indonesia. Imagined by many as 'a just and prosperous society,' the realization of this self-proclaimed national identity was threatened by widespread hunger and occasional famine. Annual rates of rice production had to be increased, also because large-scale import of rice deprived Indonesia of foreign currency reserves. 'Independence, safety, "a just and prosperous society," these words remain empty as long as we lack enough food,' President Sukarno proclaimed at the groundbreaking of an agricultural faculty in 1952. 'Students of Indonesia,' he continued, 'become Heroes of Development!' Yet what kinds of knowledge had to be mobilized in pursuit of increased agricultural output, and where did they reside? By analyzing assumptions behind the work of the Indonesian agricultural extension service during the 1950s, I will show that Indonesia's agronomic elite in answering these questions reproduced a set of colonial notions about farmers and their abilities. Useful knowledge was with the expert, not the people (*rakyat*) whose "auto-activity" had to be activated and know-how considerably improved.

#### **Science and the Dutch Empire: The multiple 'centres' of E.A. Forsten**

*Pieter van Wingerden*

In 1820 the Committee for Natural History of the Netherlands Indies (*Natuurkundige Commissie*) was founded by the Dutch king Willem I. During its active years (1820-1850) the members of the Committee collected thousands of specimens that were sent back to 's Rijks Museum van Natuurlijke Historie in Leiden. One of the members of the Committee was Dutch zoologist Eltjo Alegondus Forsten (1811-1843). Forsten left for the Indies in late 1839, spent some time on Java, and travelled to his main collecting destination of Celebes in 1840. He died on Amboina in 1843.

In my talk I want to take issue with the view on nineteenth century colonial science according to which the European metropolis ('centre') directed the actual practice of science in the colonial world ('periphery'). The story of E.A. Forsten complicates this picture. Making use of his diary and correspondence, I will show how Forsten was a 'periphery' to various different 'centres' (the Museum, the Dutch sending ministry, the government in Batavia) and how he negotiated the demands of these various 'centres' who were all trying to direct his scientific practice to further their own purposes.

#### **"The biggest murderer in the Congo": Belgian views on indigenous healers and medical knowledge in the Belgian Congo (1925-1939)**

*Maarten Langhendriesch*

Congo had been in the hands of the Belgians – first as a private enterprise of Leopold II, from 1908 as a national colony – since 1885. From the start of this endeavor, tropical scientists did research in the colony. But this research did not lead to a system of public healthcare. It was only in the interwar period that the medical apparatus was professionalized. Doctors leaving for the Congo in that period quickly came in touch with indigenous medical practices. My paper will examine their views on indigenous medical knowledge. Through a case-study of a select group of Catholic doctors and their ideas on reproductive medicine, I will discuss to what degree they validated and how they related to indigenous medical knowledge and practices, and how their attitude towards these practices evolved throughout the 1920s and 1930s. It will also deal specifically with their opinions on the figure of the indigenous healer. Thus I will try to answer the question if and to which extent these doctors considered Congolese understanding of the body and of medicine as knowledge or not.

### **A colonial sister: the close ties between the Technische Hogeschool Bandung and the Technische Hogeschool Delft, 1917-1930**

*Abel Streefland*

In 1917 a group of Dutch engineers, traders, industrialists and agriculturalists developed a plan to bring higher technical education to the Dutch East Indies. Led by the Java philanthropist K.A.R. Bosscha, in two years, three and a half million Guilders were collected. The Technische Hogeschool Bandung opened its doors in July 1920. It remained a private school until 1924, when the school was handed over to the local government. Ties with the Technische Hogeschool Delft were close. Delft professor Jan Klopper, for example, was one of the founders of the Bandung school for engineers and became the first Rector. A large part of the teaching in Bandung was done by professors from Delft. In taking a close look at the development of the Bandung school for engineers – at its curriculum, the motives of the founders, the rapid expansion afterwards and the strong ties with Delft – this paper aims at gaining a better understanding of the way colonial engineers conducted their endeavours.

Where these engineers “missionaries of modernity” ? In what way was the education influenced by the local contexts? And what did engineers bring back home to Delft?

## KEY NOTE LECTURE

*Sponsored by the Dr. C. Louise Thijssen-Schoute Foundation*

### **Towards a Global History of Knowledge? Perspectives, challenges and concerns**

*Stéphane Van Damme*

Long, history of Knowledge was presented as a way of challenging the narrow disciplinary genealogies produced by historians of science (mainly mathematics, astronomy, physics, biology and medicine). Against historians of science who were obsessed to produce an archaeology of forms of scientific methods (objectivity, quantification, observation, and experimentation), historians of knowledge were eager to broaden the research agenda by including a vast range of practices, actors and disciplines. The cultural turn disoriented the traditional questionnaire by considering sciences as a cultural practice but failed to dissolve the great narrative of the scientific revolution as the paradigm of modernity.

After several decades of epistemological discussions about the nature of history of knowledge, historians of knowledge found a way of consolidating its heuristic position by moving to a global framework. Global history of Knowledge has the merit to provincialize Europe by putting in an equal footings Chinese or Arabic Knowledge with no needs to point out a western singularity. The end of this exceptionalism allows to capture the long globalisation of knowledge and their links to particular processes of political, economic, and cultural globalisation or internationalization. However, this shift doesn't mean that history of Knowledge is the future of history of science in a global perspective. The last decade has seen the convergence of history of science and environmental history in the context of the Anthropocene. This convergence is a way of imposing a new analytical approach that includes a multi-naturalism studied by anthropologists which gave strength to a global history of natural knowledge and forces in return history of Knowledge to position itself as a comparative history of cognitive practices.

## Gewina-Descartes-Huygens Thesis Award Ceremony

Over the last couple of months, a four-headed jury has worked assiduously to evaluate no less than eighteen submissions received from Belgian and Dutch master students. The following titles have been shortlisted:

### **Lea Beiermann, “Microscopical Science”: Building an Instrumental Community in London’s Periodical Press, 1860-1880’:**

In the mid-nineteenth century, numerous microscopy societies and journals were launched, catering to a diverse community of amateur and professional scientists, physicians, and engineers. In her thesis, Beiermann studies the formation of a microscopy community in the pages of London’s periodical press and shows that subgroups within the community aligned with various epistemic systems – ways of knowing and making – that either lost or gained importance. Science professionalization is thus conceptualized as a change in prominent epistemic programs. As present-day citizen science projects again destabilize categories of amateurism and professionalism, this thesis allows us to contrast current developments with earlier configurations of the amateur/professional dichotomy.

Beiermann wrote her thesis to complete the Cultures of Arts, Science and Technology program (RMSc) at Maastricht University. She graduated in Juni 2017.

### **Wouter Egelmeers, ‘Reframing Sexuality: Magnus Hirschfeld’s Exposition of ‘Universal’ Fetishism in his 1930 *Bilderteil zur Geschlechtskunde*’:**

The German sexologist Magnus Hirschfeld (1868-1935) was one of the first and most influential theorizers in the field of sexual “deviance” who advocated the public acceptance of sexual variety. This thesis engages with the intriguing kaleidoscopic visual exposition of Hirschfeld’s sexological worldview in the 1930 visual part or *Bilderteil* of his magnum opus *Geschlechtskunde*. On the basis of an analysis of its visual discourse and accompanying “biographical” descriptions of images, Egelmeers examines how Hirschfeld collected images and ordered them for his visual argument. By comparing images of Europeans and non-Westerners, Hirschfeld intended to prove the universality, and thus normality, of fetishistic desires. Yet his methodology also reinforced stereotypes about the culture and sexuality of both groups.

Egelmeers wrote his thesis to complete the History program (RMA) at Radboud University. He graduated in April 2016.

### **Virgile Royen, ‘Les Universitaires Liégeois Face à la Flamandisation de l’Université de Gand (1918-1923)’:**

The ‘dutchification’ of the State University of Ghent is often seen as a milestone in the linguistic clashes in Belgium. Royen, however, successfully argues for a different interpretation. In his thesis, he studies the role of the professors and students from the University of Liège between 1918 and 1923 in their fight against dutchification. He shows that the esprit de corps likewise shaped the academic protest movement. Through the analysis of their initiatives and discourses, Royen provides a new understanding of the social position of this ‘estate’ and reveals the relationship between the nationalistic and professional aspects of the ‘Gand-Français’-movement.

Royen wrote his thesis to complete the History program (RMA) at the University of Liège. He graduated in August 2017.

## Evening session

### Time and person, now?!

*Susanna Bloem*

We forgot time! Pressure on your calendar, time-management classes and a growing number of burnt out citizens point out that time and humans are in a standoff. How can we turn this into a fruitful relationship? Firstly: we have to know what time does to human beings and, vice versa, what human being does to time. This project uncovers ideas about time-forms and does that via research and composition. After all: there is no better way to start talking about the meaning of time via an experience of time through music. Music makes time concrete. This way the project will discuss what psychic forms, possibilities and limitations time can take. What is the relationship between time-experience and a meaningful life? And what does this mean for how we think about life and death?

### A Useful Tool: Reconstructing Boerhaave's Little Furnace

*Marieke Hendriksen & Ruben Verwaal*

Herman Boerhaave (1668–1738) has famously been heralded as “the teacher of all of Europe.” Indeed hundreds of students flocked to Leiden to hear the lectures of the professor of medicine, botany and chemistry. To answer the question why Boerhaave was so popular, historians have focussed on Boerhaave's teachings and textbooks. They argued that he invented a new “philosophical chemistry” that served the pedagogical needs of his medical students and stimulated students to think for themselves (Knoeff 2010; Powers 2012). But to what extent did students learn by doing? Did they perform experiments in the laboratory to put claims about nature to the test? Could the combination of manual and intellectual labour be an additional factor in the attractiveness of studying under Boerhaave? To answer this historical question, we decided to try and reproduce a Boerhaavian furnace and use the materials as close as possible to those employed in the 1700s. Subsequently, we reworked two chemical experiments with Boerhaave's favourite medicine: milk. In this demo session, we will first share our experiences concerning the properties and limitations of handling original materials. Second, we the answer the question regarding the likeliness of students' work with the little furnace. And finally, we make an argument about historical experimentation as a useful tool.

## Session 4A: Shining light on discipline formations and conditions of knowledge

### The 'Philosophical Turn' in 18th-Century Scholarship

*Floris Solleveld*

In the years around and after 1750, a 'philosophical turn' took place in most if not all domains of early modern scholarship. Most notably, a new genre of historical writing, *histoire philosophique*, emerged with Montesquieu's *Esprit des Lois* (1748) and Voltaire's *Essai sur les Mœurs* (1756): a question-oriented approach towards historical developments rather than a narrative of great figures and events. Simultaneously, the study of language was re-oriented by debates about the origin of language; antiquarian compendia like Toustain and Tassin's *Nouveau Traité de Diplomatique* (1750-65) and Le Roy's *Monuments de la Grèce* (1758) became vessels for theory formation about writing and architecture. While the rise of the *parti philosophique* was a major factor in this turn – articles from the *Encyclopédie*, for instance, were re-organized into separate dictionaries of music and handbooks of literature and grammar – it extended further than that and beyond French borders. My presentation will be concerned with positioning this turn within the history of the humanities, and of knowledge more broadly: how it transformed the early modern study of 'Letters' and shaped conceptions of historical and linguistic knowledge.

### Heraclitean sun

*Loek Schönbeck*

Traditionally, the knowledge of classical philology is not only supposed a necessary but also a sufficient condition for reaching an understanding of classical texts. Scientifically, the point is not whether knowing ancient Greek is essential, but whether being versed in ancient Greek implies that everything written in it is adequately interpretable on the basis of knowing ancient Greek. If knowledge of ancient Greek ceases to be a sufficient condition, a need for knowledge from other fields will become imperative. Which academic disciplines are needed for the rest? Very little attention has previously been given to this problem.

To give an example: to which academic fields do relevant aspects of HERACLITUS' sun notion belong? The point of departure must be contemporary notions of reality as presented by science such as the changing distance between sun and earth, the constant diameter of the astronomic sun and the moon illusion. This prompts another question: "What cultural baggage must a person bring along to interpret HERACLITUS' sun notion and what baggage should be left at home?" In this light, previous interpretations represent a historic growth process. It begs for the development of a philosophy of science framework which would concentrate on this.

### Family Matters

*Bart Karstens*

In the dominant 'French' model, structuralism starts with the ancestor, French-speaking Swiss linguist Ferdinand de Saussure, and after an incubation period is carried further via Claude Lévi-Strauss to the social sciences and beyond. This model is at best insufficient. It skips over the most important phase in the germination of structuralism and leaves no room for the many varieties of interpretation that the notion of structuralism had. Turning to the Dutch variety, a pioneering role was played by J.P.B. de Josselin de Jong. Like Lévi-Strauss, his research focused on kinship relations of

indigenous societies. In the 1920s J.P.B. invoked the concept of ‘structural core’ to explain genealogical patterns. His nephew and successor to the cultural anthropology chair in Leiden, P.E. de Josselin de Jong, credited his uncle for taking structuralism to its second phase (of four). Even though J.P.B. had been inspired by the work of the sociologists Durkheim, Hubert and Mauss, cultural anthropology at Leiden University was firmly entrenched in the humanities, which makes for a peculiar story of discipline formation. Moreover, an interesting light is shed on the postwar development of structuralism through the dispute that ensued between J.P.B. and Lévi-Strauss, after the latter’s first publications.

### **'Look, I don't get it': on formal knowledge being understood.**

*Anne Por*

In nineteenth-century Europe, syllogistic/mathematical sciences were challenged with creating understanding of new, logically deduced, abstract worlds. Whereas beforehand mathematics could be understood relatively intuitively, formalization caused mathematical matters to become increasingly disconnected from worldly experience and thus harder to conceive of. Along with that, governmental efforts to get to know territory and population caused embodied knowledge of land and community to turn into abstract and large-scale bureaucratic knowledge.

However, likely due to history of science’s preoccupation with scientific methodology, research tends to focus on what was regarded to be knowable and on reasons for these notions. The rather recent surge of studies on epistemic virtues only added to this meta-study of the norms of knowledge. Epistemological problems arising from observation, particular to empirical sciences, appear to have taken center stage.

In my talk, I will highlight the tools used to create understanding of formal knowledge instead: mathematical models as well as data visualizations. In doing so, I intend to show the importance of not merely studying the normative, epistemological history of knowledge, but also the history of how knowledge could actually become understood.

## **Session 4B: Knowledge and the Museum**

### **How science works: the ‘failure’ of MiniGRAIL**

*Dirk van Delft*

Rijksmuseum Boerhaave’s new permanent display features a copper sphere weighing 1,400 kilos. It goes by the name of MiniGRAIL and was designed by a team led by physicist Giorgio Frossati in the 1990s. GRAIL is an acronym for Gravitational Radiation Antenna In Leiden. Mini refers to the fact that the original plan was downsized, and indeed MiniGRAIL is an example of frustrated ambition.

The aim of the project was to be the first to detect the gravitational waves that had been predicted by Albert Einstein’s General Theory of Relativity in 1916. Everlasting fame and a Nobel prize were in the offing. But it was not to be.

The project involved cooling down a copper sphere with a diameter of 2.6 metres and a weight of 100 tons to 10 millikelvin, just above absolute zero. The vibration caused in the sphere by a passing gravitational wave was to be detected by sensors and then electronically amplified. In the end the GRAIL lost out to other proposals in a questionable assessment procedure.

Frossati was undefeated and came up with a toned-down 68-cm version, the MiniGRAIL, which would operate at 15 millikelvin. He worked on it for ten years, but in the end it was

too great a technological challenge. It was not MiniGRAIL but LIGO which detected gravitational waves.

### **TextielLab: Keeping Textile Craftsmanship and Knowledge of Textile Techniques Alive**

*Jantienne van Elk*

Museums are institutions of knowledge production. The TextielMuseum is unique in wanting to keep textile craftsmanship and knowledge of textile techniques alive. The process of creating textiles is an intangible one. Knowledge acquisition in textile craft is different from knowledge acquisition in art history and museum collection development. The TextielMuseum has a specialised workshop dedicated to creating new textiles: the TextielLab (textilelab). At the TextielLab textiles are made at computer- and hand-controlled machines. Both types of machines require craft, which is a special kind of knowledge acquisition. Craft is learned by repeating the steps in the creative process, by gaining experience. A craftsman is continuously improving his work and skills by making changes to materials and technology.

Part of our work force, including part of our group of volunteers, used to work in the Tilburg textile industry. Their knowledge is now available for designers and artists and to new (young) employees.

By inviting designers and artist for collection and research assignments, we invite them to learn about a medium for art and design they haven't explored before. Thus, we keep textile knowledge alive and show that today vocational education and practical and creative skills can be as important as cognitive skills.

### **A How to Appreciate Scientific Collections and What to Learn from Them, Based on Teylers Museum's Historical Visitors' Guides**

*Trienke van der Spek*

Ever since Teylers Museum in Haarlem opened its doors in 1784 as an encyclopedic institute of knowledge, public was welcome to marvel at the collections and study them. As soon as the visitors entered the museum, so did the assumptions on what visitors could know and should know, and on how to guide them in this process.

These assumptions and the way they changed over time are reflected in the visitors guides that were published by Teylers Museum from 1865 onwards. This paper presents the first results of a study of these guides. It focusses on the ones that were written for the natural sciences collections in the 19th and 20th century. Comparing the approaches of successive museum curators to engage their public with the physics, paleontology and mineralogy collections give insights in how they rated their visitors' knowledge and what a study of the museum collections could add to that – or not.

### **A shot in the foot? Teyler's New Wing of 1885 and the Fate of Evolution**

*Ilja Nieuwland*

In 1885, Teyler's Museum in Haarlem opened its new wing. It was a momentous occasion, which for the museum signalled a multi-faceted break with the past. The old, intimate and inward-looking 18th century Oval Room was no longer the most eye-catching space of the museum. Instead, it now actively announced its presence to the world with an ostentatious, almost gaudy new entrance and several halls, which almost quadrupled the museum's floorspace.

Moreover, in a departure from the old, integrative approach of the 18th century museum, the wing was entirely and unapologetically dedicated to science. It contained

two fossil halls, an instrument hall, a library, and an auditorium. The building meant to impose the visitor, and the structure made use of several trompes d'oeil to enhance the effect.

Like the 18th century Oval Room, its walls were adorned with portraits and names, in this case of esteemed scholars. Cuvier, Huygens, and other naturalists featured prominently, but a name that was lacking was that of Charles Darwin, who had died only four years previously. If we look at the rest of the new fossil exhibition, we also see no evidence of evolutionary, or even broader transformationist, principles. In that sense, it remained decidedly more old-fashioned than contemporaneous new museums in Paris and Berlin, which did present developmental principles.

This is an omission all the more striking because Teyler's curator of paleontology, Tiberius Winkler, was also the first translator of Darwin's *Origin of Species* in Dutch. Why then, this striking absence of evolution in the displays, and the exclusion of Darwin's name from the auditorium's "pantheon" of science? Although it is tempting to infer religious opposition to the still controversial theory of evolution, closer investigation reveals a more complex pattern, based in social than scriptural arguments. Nonetheless, this decision decidedly restricted the new Teyler's lifespan as an institution at the forefront of science.

## **Session 4C: Networks of knowledge**

### **Same, same – but different? History of knowledge from the perspectives of book history and information history**

*Laura Skouvig & Maria Simonsen*

One of the major themes within the history of knowledge seems to be definitional. "What is the history of knowledge" is a title that characterizes a range of works that besides the overall introduction to the field also amounts to define the research area – often in relation to established "histories" such as the history of science and intellectual history. We identify in this paper two other disciplines that share similar interests with the history of knowledge – i.e. book history and information history. One of the shared interests lies in the mediality of knowledge. This is a well-known discussion within book history where there is a common interest in how knowledge circulates bound by the materiality of the book (Darnton, 1982; 2007). From the perspective of information history, mediality is also crucial in discussing how e.g. new media and technologies have transformed information (Weller, 2009). Also, information is a contested concept in historical research and there are many affinities with the conceptual discussions relating to knowledge. In this paper, our bold claim is that insights from information history and book history help clarify how to develop a concept of knowledge that emphasizes the differences from scientific knowledge.

Information Historian Laura Skouvig is Associate Professor at the Department of Information Studies, University of Copenhagen. Her main research interests are situated within Information History where she's interested in how information has been understood and used broadly during late absolutism in Denmark. She has published several articles – e.g. "Records and rumors: Surveillance and information in late absolutist Denmark (1770–1849)" in *Surveillance & Society*.

Book Historian Maria Simonsen is Assistant Professor at the Department of Culture and Global Studies, Aalborg University. Her dissertation *Den skandinaviske encyklopædi* (2016) examined the histories of *Nordisk familjebok* and *Salmonsens Konversationsleksikon*. Her current research project concerns two major Danish

encyclopedia projects: the unfinished Den Store Salmonsens (1967-71) and the Danish national encyclopedia (1994-) and the changes in knowledge circulation caused by the latter's transition from print to digital media.

### **Collecting Epistolary Metadata of the Republic of Letters**

*Karen Hollewand*

All that we know about the early modern Republic of Letters, from the heterogeneity of its membership to its continued significance in the learned world of the sixteenth, seventeenth, and eighteenth centuries, is based on traditional historical research: the close-reading of historical documents. Yet, as the number of primary sources shared online keeps growing, due to projects like Early Modern Letters Online, it is time to take full advantage of this ever-extending digital dataset.

The aim of the Skillnet project (Sharing Knowledge in Learned and Literary Networks – The Republic of Letters as a Pan-European Knowledge Society) is to discover how computational approaches can advance our understanding of the Republic of Letters. The people who constituted this learned community have left behind hundreds of thousands of letters. To help us deal with the huge heap of historical data available, we have launched a crowdsourcing project in December 2018: CEMROL (Collecting Epistolary Metadata of the Republic of Letters). During a presentation at the Gewina conference I will introduce CEMROL, talk about the complexities of collecting historical data via crowdsourcing, and discuss the challenges of constructing an online interface that satisfies both the volunteer and the scholar.

### **“Writing Intellectual Property: The Historical Construction of Intellectual Property in University Textbooks.”**

*Marius Buning*

Intellectual property (IP) is one of the crucial elements of the history of knowledge. This essay examines how our understanding of IP is historically anchored in contemporary university textbooks. Drawing inspiration from the work by Jessica Silbey (2008, 2014) and Jessica Reyman on the 'Rhetoric of Intellectual Property' (Reyman, 2009), the essay will address the theme of 'teaching IP' with the aim of discussing how the historical development of IP is often presented as a linear process, which translates itself into a self-explanatory form of progress. Building on narrative theory, special attention will be given to the language of metaphor, signs, and symbols. What are the literary tropes and 'sites of memory' that flank modern notions of IP? How does the use of language determine the ideological positioning? How is IP in that way continuously performed and historically legitimised? The answers to this set of questions will provide a better understanding of how specific narratives of knowledge production are framed alongside or against distinct ownership claims.

## **Session 5A: Navigating abstract, negative & secret knowledge**

### **Knowing, knowledge, science? Categorial distinctions when trying to navigate as a historian of science**

*Gerhard Wiesenfeldt*

A perennial question in the philosophy of science has been the distinction - if any - between proper knowledge and scientific knowledge. A history of knowledge will be faced with the task of reevaluating that distinction with respect to an interpretation of historical claims to proper knowledge as well as to what counts as science. In particular, historians will have to make a decision on whether to understand history of knowledge as a history of knowledge claims - and, if so, all knowledge claims or only particular ones - or whether to limit the scope to what can be justified as reasonable belief in a given historical situation, in which case historians invariably end up with epistemological claims about what constitutes proper knowledge. This talk will use an auto-ethnographic analysis of navigational practices on board the bark Europa during a voyage across the South Atlantic in 2018. Here, different kinds of navigational techniques with different histories and different relationships with science - GPS, dead reckoning, use of sextants and cross-staffs, ocean swell reading - were used by various crew members throughout the voyage. I will explore how the different practices were mediated with each other and what epistemological status was given to each technique. In this context, both knowledge - historical and present - and science - historical and present - are in themselves stable categories, their relationship, however, shows remarkable fluidity.

### **The Missing and the Lacking: What could a Digital History of Absent Knowledge look like?**

*Tobias Winnerling*

The promise of digital tools for history is to produce more knowledge. 'Big Data' should enable historians to gather more data, visualization tools should help them to display more information in less time, and deep learning tools should help them capable of processing more sources. But what about the things that are not there? Can digital methods be turned around to search for blind spots, identifying absent information? In network analysis there is the concept of structural holes, where the configuration of a network reveals also where (possible) connections are missing. This could serve as a kind of blueprint for a general concept of a digital history of absent knowledge.

In this paper I want to argue that 'forgotten' or ; lost knowledge can be treated as knowledge which is not there where one would expect it. More precisely, relationally framed it can be equated with a stretch of time between two geospatially locatable instance of a which is empty of other instances of this factoid or references to it. Digital research complicates this notion because its results are generated from within seemingly uniform digital hyperspaces which need to be repartitioned to construe the relational frames necessary to determine the absence of any given factoid. I will point out the difficulties with examples drawn from my project database.

### **"What the history of knowledge should also be: the case of negative knowledge"**

*Lukas M. Verburgt*

The field of the history of knowledge is a very recent one. Like most new fields of study, its establishment over the past few years has gone hand in hand with a search for definition. Almost all attempts have done so through the contradistinction of the history

of knowledge to the older field of the history of science. Some have said, for example, that it is less anachronistic and more inclusive since in studying different forms of knowledge it does not pretend to know in advance what scientific knowledge is. However promising, like all definitions by contradistinction, these and other attempts have left the history of knowledge a loose and incoherent field. Hence the urgency of Daston's call to determine what isn't the history of knowledge, which agrees better with what is desired, namely its free-standing existence as a field of study.

This paper argues that we must take a step back before we can move ahead. When trying to determine what it isn't, historians of knowledge have tended to commit themselves prematurely to a constitutive decision: that their field is about knowledge, in whatever form but to the exclusion of other epistemic categories. Following a discussion, with examples, of three such categories – ignorance, indecision, and non-knowledge –, the case is made that history of knowledge should also be the history of negative knowledge.

## **Session 5B: Logic, facts, and the accumulation of data / How was knowledge transmitted by “copying” in the context of East Asian Art Making?**

### **Logica clavis scientiarum: interdisciplinarity in Early Modern logic teaching**

*Steven Coesemans*

I will present an overview of the boundaries between logic and other fields of knowledge in the late seventeenth and eighteenth century. To do so, I will work from a specific case study at the University of Louvain. Reconstructing actual classroom examples from manuscript student notebooks, I will present various ways in which logic relies on, and is useful for, fields such as theology, mathematics, and natural philosophy.

The case for theology comes from the discussion on ontological modality, where modes are defined on the basis of whether or not divine intervention can separate them from their subject.

The case for natural philosophy is based in the discussion on quantity, where natural philosophical questions such as the existence of a vacuum have a strong import on the definition of the logical category of quantity.

Finally, the case for mathematics comes from the eighteenth-century didactic model used for the teaching of logic. Notebooks are increasingly structured according to contemporary handbooks of mathematics, presenting their doctrine by way of theses, corollaria and scholia.

### **Facts and democracy, Feiten en democratie**

**(Will be presented in English if there are non-Dutch speaking guests in the room)**

*Ad Maas*

De opkomst van termen als 'post-truth', 'fact-free politics' en 'alternative facts' duiden erop dat onze waarheidsmoraal, waarin feiten en logische consistentie van beweringen centraal staan, onder druk staat. Opvallend bij beschouwingen hierover is deze laatste als de vanzelfsprekende norm wordt gezien, en de post-truth-verschijnselen als de afwijking daarvan. Waarheidsvinding op basis van feiten en logische consistentie is echter lang niet altijd maatgevend geweest.

Mijn aandacht gaat vooral uit naar de tweede helft van de negentiende eeuw. Ik wil laten zien hoe met de komst van de liberale democratie het discours van feiten en logische consistentie leidend werd. Dit werd bovenal als een 'wetenschappelijke' manier van

denken gezien, en zijn opkomst staat in verband met de maatschappelijke opmars van academici, professionals en experts in deze periode. Hoewel dit liberale discours een grote zeggingskracht ontleende aan het universalistische ideaal dat ieder 'rationeel' denkend persoon eraan kon deelnemen, bleek dit in de praktijk niet het geval. Deze onvolkomenheid legde uiteindelijk een grondslag voor het concurrerende 'post-truth'-discours.

### **Remaking 'China' and Returning to 'Greece and Rome'? European Imitations of Yixing Zisha Teapots**

*Chingfei Shih*

This paper re-evaluates the appearance and impact of European copies of Yixing zisha teapots during the 17th to 18th centuries and proposes new observations falling outside the scope of previous research. Scholarly work in the past has already addressed the appearance and spread of European imitations of zisha teapots in the 17th to 18th c., mainly in the context of 18th c. Europe's enthusiastic embrace of all things Chinese. Yixing zisha teapots exported to Europe and local imitations of zisha teapots were all regarded as part of a greater vogue, as evidenced by European interest in Chinese tea culture and penchant for Chinese auspicious symbols (phoenix, dragon, lion, plum blossom, etc). This paper does not contradict these findings, but further explores the key factors and possible determinants behind the decisions and choices made by Europeans during the process of copying Yixing zisha teapots. Although ostensibly imitating the exquisite teapots used in Chinese tea etiquette, European zisha replicas encompassed the concepts and forms of terra sigillata of ancient Greece and Rome (which, interestingly, led to a revival of terra sigillata in Europe). It is remarkable that European nostalgia for China and ancient Greece and Rome should find themselves reflected in imitations of Yixing zisha teapots.

## **Visual Brokerage and Blockage: Some Observations on the Project of an Encyclopedic Production of Albums Embarked in 1750 at the Qianlong Court**

*Yu-chih Lai*

To see is really to believe? What's the relationship between images and knowledge? In 1750, there are several projects of image-compilation were embarked upon by the court; namely Official Tributes (Zhigong tu 職貢圖), a visual documentation of the peoples the Qing empire ruled (both physically and symbolically), Album of Birds (Niao pu 鳥譜), an encyclopedic collection of images on birds, and Album of Beasts (Shou pu 獸譜), featuring zoological depictions of animals in the world the emperor ruled both physically and philologically, and most importantly, Illustrated Regulations for Ceremonial Paraphernalia of the Qing dynasty (Huangchao liqi tushi 皇朝禮器圖式), a pictorial illustrations of every aspects of the court life including hats and robes worn in different occasions, ritual vessels, imperial household insignia, astronomical instruments, military uniforms and weapons, etc. All of them were initiated around the same time, i.e., 1750, share very similar album-leaf format, and all took more than 10 years to finish. Of even greater import is the fact that all these productions display the impact of globalization processes occurring during the 18th century, especially in terms of the memetic style from the European tradition. This specific eclectically fusion style from both Chinese and European tradition renders the objects with a material palpability, which give images an unprecedented capacity of delivering physical information of the objects. Therefore, this paper will focus on this encyclopedic production of images and ask the core concern of my research: the function of the images in the Manchu court? How did these new style images broker as well as block reality? In other words, how did they communicate as well as fabricate knowledge of the world? Most importantly, how did the characteristics of these new style images play into the Qianlong emperor's vision of "world" and "empire" in dialogue with the traditional rhetoric of Chinese politics?

## Session 5C: Material cultures of knowledge

### Leeuwenhoek's Comptoire: Space and Access in the Early Modern Scientific Workplace

*Douglas Anderson*

For his whole adult life, Antony van Leeuwenhoek (1632-1723) lived in the same house in Delft, the Gulden Hoofd, along with his two wives, his daughter, and their servants. As did his contemporary English and Dutch natural philosophers, Leeuwenhoek set aside one room in his house, what he called his comptoire, where he made lenses and microscopes and did almost all of his observing and letter-writing. As Steven Shapin (1998) notes, "The overwhelming majority of [late seventeenth century] experimental trials, displays, and discussions that we know about occurred within private residences." Indeed, Leeuwenhoek's comptoire was a very small room and his activities required that he use other parts of the house.

Newly developed 3D visualizations of the Gulden Hoofd illustrate the challenges Leeuwenhoek had using the Gulden Hoofd as the site where he:

- made and stored tools and instruments
- collected, prepared, and stored specimens
- performed experiments and made observations
- organized bench notes and sketches, scientific letters and drawings, manuscripts, proofs, translations, reference books, and correspondence
- entertained visitors

Mapping these activities to the 3D visualization of the Gulden Hoofd shows how the spaces that Leeuwenhoek used and others' access to them shaped his research practices, his visitors' reactions, and his own credibility as an observer of nature.

### Descartes's Man Under Construction: Salomon Reisel's *Statua humana circulatoria* (1680)

*Mattia Mantovani*

Descartes's claim that all vital functions of animals and plants can be accounted for in purely mechanistic terms represents a major watershed in the history of natural sciences. The philosophical difficulties, theological implications and empirical plausibility of like a theory were immediately objects of a major debate, which prompted dozens of pamphlets and books. In my talk, I will consider a largely neglected and quite surprising chapter of this history, wherein Descartes's thesis wasn't addressed (as was usually the case) in forms of arguments pro and con, but from a very practical – not so say material – perspective, by actually constructing one of these devices. Thanks to his "human circulatory statue", Salomon Reisel intended indeed to prove *de re* that living beings are nothing but machines of a very sophisticated sort. I will argue that Reisel's intentions in building such a device in the 1670s were however even more ambitious: besides displaying anatomical structures and physiological processes, Reisel meant in fact his machine to help in the diagnostic, thereby addressing the more practical concerns of his fellow physicians, and almost embodying his own answers thereto. As I intend to show, although virtually forgotten by present-day historians, Reisel's *statua humana circulatoria* provides a fresh and quite unconventional insight into what it meant to do medicine and science in the early modern age. Proposal for an individual paper at the 8th bi-annual Woudschoten Conference

## **The history of a failed instrument: the Dutch philosopher Frans Hemsterhuis (1721-1790) and his binocular achromatic telescope**

*Huib Zuidervaat*

Frans Hemsterhuis (1721-1790) is best known as probably the most important Dutch philosopher of the 18th century. But he had also a profound interest in astronomy and optics. In the late 1760s Hemsterhuis even developed the ambition to improve the resolution of telescope, so that astronomers would be able to witness more celestial objects or details in the night sky. He first embarked on a project to improve the largest reflecting telescope ever built by the Franeker telescope maker Jan van der Bildt. But after the failure of this project, Hemsterhuis soon grasped the idea that the resolution of the rather recently (in 1758) invented achromatic refracting telescope would be enhanced when the instrument was made suitable for two eyes, instead of one (which was customary at the time). Together with an older friend, the gentleman-scholar Hendrik Feyt (1699-1790) from Warmond, Hemsterhuis examined and tested many achromatic telescopes constructed by the Amsterdam optical artisans Jan and Harmanus van Deijl. Eventually, in 1770, he designed his first binocular achromatic telescope, which was ordered from the well-known optical firm of Dollond in London. Although these Grand Binocles were admired by several visiting scholars, and the Duke of Sachsen-Gotha-Altenburg ordered one for his intended Seeberg Observatory in Gotha, the design eventually appeared useless for astronomy. As a failed instrument, Hemsterhuis' Grand Binocle was forgotten and – until today – even skipped from his biography.

## **The camera obscura between dioptrics and practical knowledge**

*Jip van Besouw*

Although various sixteenth and seventeenth-century writers recommended the camera obscura as a drawing aid, the instruments became substantially used as such only after 1700. At first sight, this might look like a paradigmatic case of the failure of high-end knowledge to make a difference at the practical level. If it was known how a camera obscura could be used, a lack in usage must surely be explained by a lack of communication between theory and practice? As I will show in this talk, this is not the case. The case of the camera is best understood as one in which practical and theoretical knowledge were developed in a bootstrapping process.

Clear conceptualisations of optical projection were long sought for but became publicly available only in the last decade of the seventeenth century. As I will show, the development of such rules, within the mathematized science of dioptrics, became possible due to refinements of such notions as “image” and “focus”. This development itself depended on practical experience with the camera obscura. In turn, the dissemination of practical knowledge about the camera was made much easier by the dioptric conceptualisations of optical projection.

## Round table: A History of Knowledge Concepts

The History of Concepts has become an internationally flourishing discipline, including a Dutch branch (see the recent volume on 'Sekse'). Remarkably, a history of knowledge concepts like 'science', 'arts', 'discipline' has not yet been systematically undertaken. Despite the growth of the field of History of Knowledge, knowledge concepts are often used rather teleologically and a-historically. The integration of history of science, art, and humanities has opened opportunities to consider the complex relationships of various ways of knowing in and between these fields.

In 2017 a group of historians from diverse disciplines started a project to write an edited volume on the history of knowledge concepts. This Spring the group convenes at the Lorentz Centre in Leiden to elaborate the plan and collectively work on the chapters. In this panel the group presents the proceedings of the project and invites Woudschoten participants to query, respond, and share their own ideas.

The panel opens with a series of pitches on the most conspicuous findings regarding the historical transformations of our understandings of knowing, knowledge, science, arts, humanities, craft.

The themes of the project:

Arts and Crafts – Bert de Munck, Fokko Jan Dijksterhuis

Classical Texts and Scholarly Language – Karen Hollewand, Emma Mojet

Dutch Literature - Nina Geerdink, Feike Dietz

Humanities and the Philosophical Turn – Floris Solleveld

Early modern art and philosophy – Marieke Hendriksen, Ann-Sophie Lehmann

Universities and Academies – Klaas van Berkel

Panel organizer: Fokko Jan Dijksterhuis (UTwente/VU)