1913 **GEWINA** 2013

5th Gewina Meeting of Historians of Science in the Low Countries

Woudschoten Conference Center, Zeist
14-15 June 2013

5th Gewina Meeting of Historians of Science in the Low Countries Woudschoten, 14-15 June 2013

Welcome to the conference!

The theme of the conference is 'Uses of Knowledge'. We invite you to address why individuals have sought or spread knowledge of any kind, be it theoretical insights, practical skills, or a mystical understanding of nature. For whom did they do it, and to what end? How did these ends feed back into the meaning and nature of the knowledge itself? How have particular purposes affected the credibility or legitimacy of different kinds of knowledge? What kinds of discourse have producers of knowledge developed with respect to the end?

Naturally, these questions are as relevant to our work as historians as to historical actors. Why are we trying to understand the history of knowledge production? What is the 'use' of our research, our publications, and - last but not least - our teaching? How do such uses affect or fail to affect our various activities?

The VU ALV / Gewina Organizing Committee,

David Baneke
Frans van Lunteren
Ida Stamhuis
Ilja Nieuwland

VU VRIJE UNIVERSITEIT AMSTERDAM

Practical information

Questions about registration, the program, or other organizational issues:
David Baneke, Baneke@strw.leidenuniv.nl
06-50808618 (**only** during the conference)

Venue

Woudschoten Conferentiecentrum
Woudenbergseweg 54
3707 HX Zeist
Tel. 0343 492 492
www.woudschoten.nl

Payment information

Triodos Bank, account no. 78.13.44.743, I. Nieuwland, The Hague
IBAN: NL59TRIO0781344743; BIC: TRIONL2U

Getting there

By public transportation: the nearest NS station is Driebergen-Zeist. You can take a taxi (c. 10 minutes), or rent a bike or OV-fiets (15-20 minutes). You can also take bus 81 from the station; please check the schedule at www.9292ov.nl.

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

By car: the venue warns you not to trust your navigation system, as there are road works in progress. You can follow the signs to the KNVB headquarters which is 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

Friday 14 June

9:30 Arrival, registration, coffee

10:00 – 11:00

Session 1A: Status and Strategy

Chair: Huib Zuidervaart

- Tim Huisman, *The New Theatre of Anatomy: The anatomical atlas of Govard Bidloo and Gerard de Lairesse*
- Azadeh Achbari, *Serving the Public, Gaining Authority: Buys Ballot's advances in Meteorology*
- Ida Stamhuis, *Use of Knowledge in Emerging Genetics: Strategies of Women 1900-1930*

Session 1B: Natures of Knowledge (1)

Chair: Andreas Weber

- Rens Bod, *Decontextualizing Knowledge*
- Fokko-Jan Dijksterhuis, *Nutzen, Nutzen, und Abernutzen. Useful Knowledge and Reflections thereupon in 18th-century German Thought and Practice*
- Ad Maas, Empirisch subjectivisme: *'Uses of knowledge' van de Nederlandse academische wetenschap in de eerste helft van de negentiende eeuw*

11:00-11:15 Coffee, tea

11:15-12:00 Keynote lecture: Howard Hotson, *The uses of knowledge: economic, political, philosophical, historical and anthropological perspectives*
Introduced by: Wijnand Mijnhardt

12:00-13:30 Lunch

13:30-15:00

Session 2A Sharing Results with the Public

Chair: Hieke Huistra

- Mieneke te Hennepe, *Medicine on display: uses of history in Dutch medical exhibitions 1920-1940*
- Martin Weiss, *The Public Use of Knowledge in the Netherlands in the 19th Century*
- Esther van Gelder, *Selling the nation's nature: Jan Christiaan Sepp's publishing projects on the fauna of the Netherlands*
- Daniel Margócsy, *The Ghostwriter in the Machine: The Publication History of Albertus Seba's Thesaurus*

Session 2B The Greater Good

Chair: Geert Somsen

- Katrin Geske, *Changing perspectives*
- Thomas Mougey, *Civilization and its Discontents: Universalism and Colonialism in UNESCO's International Science Program, 1946-1954*
- Jesper Oldenburger, *Alexander Numan and his sheep: a failure to innovate*
- Paul van Trigt, *Liberation by knowledge? Disability, social science and activism in postwar Britain and the Netherlands*

15:00-15:30 Coffee, tea

15:30-17:00

Session 3A Natures of Knowledge (2)

Chair: Ilja Nieuwland

- Laurens de Rooy, *Germanic 'race' and Dutch identity: racial concepts and origin stories as part of Dutch identity 1910-2010*
- Marij van Strien, *Classical mechanics and the origins of Laplacian determinism*
- Charles T. Wolfe, *Medical empiricism as a form of knowledge in early modernity*
- Jeroen Bouterse, *Hermeneutiek en de wetenschapsgeschiedfilosofie*

Session 3B Teaching panel

Chair: Frans van Lunteren

- Hieke Huistra, Tiemen Cocquyt, Hendrik Asper, *Please do touch: Hands-on history of science teaching*
- Geert Somsen, *Teaching history of science to humanities students*
- Djoeke van Netten, *Reenacting the major discussions in the history of science in the classroom*
- Frank Huisman, *Inconvenient Questions: Medical Humanities for Medical Students*

18:30 Dinner

Saturday, 15 June

9:00-10:30

Session 4A Knowledge in Business

Chair: David Baneke

- Djoeke van Netten, *The uses of knowledge not shared*
- Abel Streefland, *The Centrifugation of Knowledge*
- Arjo Roersch van der Hoogte, *Colonial Agro-Industrialism: Commerce, science and industry in the Dutch Golden Alkaloid Age, 1850-1940*
- Ernst Homburg, *From Coal Tar Distillation to Aromatic Chemistry*

Session 4B Knowledge meets practice

Chair: Lissa Roberts

- Floor Haalboom, *A viral human-animal bond: 'the influenza question' and animal influenza in the Netherlands, 1918-1958*
- Bert Theunissen, *The role of science in the recent successes of Dutch horse breeding*
- Liesbeth Hesselink, *Uses of knowledge: J.M.C. Kloppenburg –Versteegh (1862-1948), an example from the Dutch East Indies*
- Bas van Vlijmen, *Hoe oud is outsourcing in ICT?*

10:30-11:00 Coffee, tea

11:00-12:30

Session 5A History of Science Road Shows

Chair: Bert Theunissen

- Rina Knoeff, Marieke Hendriksen, Ruben Verwaal, *Vital Matters: Boerhaave's Chemico-Medical Legacy and Dutch Enlightenment Culture*
- Lissa Roberts, Andreas Weber, Joppe van Driel, *Chemistry in everyday life: a research programme in the history of chemistry in the Netherlands during the second half of the long eighteenth century*

Session 5B Medicine & Medication

Chair: Ida Stamhuis

- Saskia Klerk, *Smaak, therapeutische ervaring en laat-Galeense farmacologie aan de Universiteit Leiden (1575-1625)*
- Vincent van Roy, *Circulation of Medical Knowledge in the Low Countries (1540-1795)*
- Timo Bolt, *De macht van het getal: de introductie van evidence-based medicine in Nederland* [NB: talk will be in English]

  Noortje Jacobs, *The making of ethical research (a history of Dutch solutions to the moral problems that come and go with experimental tests upon human beings, 1947-1999)*

12:30-14:00 Lunch

14:00-15:00

Session 6A (Pseudo-)science

Chair: Frans van Lunteren

- Rienk Vermij¸ The marginalization of astrology in early modern science
- Ilja Nieuwland, It Is Alive and May be Captured. Paleontologists and the search for living dinosaurs, 1910-1940
- Ingrid Kloosterman, Existence or Explanation: Quantitative and Qualitative Research in Dutch parapsychology in the 1950s

Session 6B Crossing boundaries

Chair: Fokko-Jan Dijksterhuis

- Filip Buyse, *Galileo and Holland: The three appointments which never took place*
- Gerhard Wiesenfeldt, *Dutch 17th Century Mathematics in German Contexts*
- Annemieke Verboon, *Using diagrams to learn about cognition in Central-European universities, 15th-17th century*

15:00-15:30 Coffee, tea

15:30-17:00

Panel discussion: The uses of our knowledge

Chair: Klaas van Berkel

With: Floris Cohen, Dirk van Delft, and everybody who feels that she or he has something to say about the matter

Final remarks: Frans van Lunteren

Abstracts

The uses of knowledge: Economic, political, philosophical, historical and anthropological perspectives
Keynote lecture

Howard Hotson, University of Oxford

What's the use of knowledge? Why is it desirable? What values sustain and shape the pursuit of it? And what is the use, in particular, of knowledge of the history of knowledge production itself, that is, of the history of science?
Until recently, these second-order questions have attracted surprisingly little sustained attention. Now, quite suddenly, they are extremely topical. Answering them, it turns out, is not as easy as it seems, since addressing the ultimate purpose of knowledge requires in turn a knowledge which is virtually encyclopaedic.
The forces currently raising these questions are economic: in a knowledge economy, knowledge is money; and knowledge-making institutions are being colonized by those wishing to extract profit from them.
But these economic pressures are mediated by politics: in a stagnant economy, lobbyists easily persuade politicians that helping companies extract profit from knowledge is in the public interest.
Responding effectively to these pressures requires philosophical analysis: if the norms of science are different from those of commerce, a forced marriage between them could damage science, and even undermine its longer-term value to commerce.
But philosophical analysis needs to be complemented by historical evidence. The role of the history of science in this debate may be to reveal that the uses of knowledge are plural, that is, that the pursuit of knowledge is reducible neither to the autonomous life of the mind nor to purely materialistic motivations, but has been propelled and directed throughout history by a rich variety of values which have often borne practical fruit unintentionally.
Finally, since the sovereignty claimed for the economic justification of marketising the university is based on a reductive conception of human beings as driven solely by the self-interested maximization of 'utility', an anthropological perspective is also needed, which ultimately pits homo economicus against homo sapiens.
While such an encyclopaedic sketch can not claim to be authoritative or definitive, it will at least be 'useful' if it helps to sharpen up the question at the heart of this conference.

Paper abstracts

(Alphabetically, by speaker; Road Shows and Teaching Panel at the end)

Serving the Public, Gaining Authority: Buys Ballot's Advances in Meteorology
Azadeh Achbari, VU Amsterdam

Never in his wildest dreams had Buys Ballot (1817-1890), the Dutch professor and aspirant in meteorology, expected to topple the widely known authority, Heinrich Dove (1803-1879), from power, but that is what in fact happened. In the 1840s Dove was seen as the natural successor to Alexander von Humboldt, who had pioneered the use of averages as a spatial method in global temperature maps. Dove directed the German Meteorological Institute and was widely known as a key figure in the European and Anglo-American network of meteorology. Furthermore, he formulated the law of rotation, which served as the theoretical foundation of the emerging science of the atmosphere. By the 1870s, however, Buys Ballot had taken his place as the pivot in the global meteorological network.

His wind rule, which had first served as a practical rule for the creation of the first storm warning system in 1860, acquired the status of a natural law and replaced Dove's law. In 1873 Buys Ballot's leading position was manifest in his appointment as president of the international meteorological conference held in Vienna. This paper looks into the conditions which paved the way for the shift of power in meteorology and helped Buys Ballot to take the lead.

Decontextualizing Knowledge
Rens Bod, University of Amsterdam

Contrary to common wisdom, humanities scholars from all historical periods have decontextualized knowledge by re-using previous methods and ideas in a new context without taking into account their original context.
For example, Panini's famous grammatical method was originally developed to serve the Vedic ritual practice of ancient India, but when it was (re)discovered in eighteenth-century Europe his grammar was stripped of its ritual connotations and used by 'modern' linguists for their own theories of language.
A similar thing occurred in the Arabic world where the eighth-century isnad-method of reconstructing the words of the Prophet (hadith) was later used by historians such as Al-Tabari and Al-Masudi as a successful method for historical source reconstruction without any religious connotations. This sophisticated reconstruction method that initially had a religious purpose was directly applied to non-religious source reconstructions.
I will argue that there is a general tendency in the history of knowledge to generalize methods related to a specific problem in a particular context for solving new problems in entirely different contexts. This indicates that knowledge is continuously decontextualized by scholars. The widely held claim that knowledge in the humanities is through and through contextual is thus historically incorrect.

De macht van het getal: de introductie van evidence-based medicine in Nederland
Timo Bolt, Promovendus UMC Utrecht / Descartes Centre (in co-operation with Noortje Jacobs; the talk will be in English)

Voor weinig terreinen zal het thema 'uses of knowledge' zo actueel zijn als voor de geneeskunde. In het tijdperk van 'evidence-based medicine' en van de informatietechnologie lijkt het handelen van medici meer dan ooit te worden ingegeven door up-to-date wetenschappelijke kennis, die veelal direct en gemakkelijk toegankelijk is via online databases met systematische samenvattingen van de medisch-wetenschappelijke literatuur en digitaal beschikbare 'evidence-based' richtlijnen. Op het macroniveau van het gezondheidszorgbeleid lijkt zich een vergelijkbare tendens voor te doen, gezien alle verwijzingen naar kwantitatieve, statistische 'evidence' en daaruit afgeleiden begrippen als Quality Adjusted Life Years (QALI's) in de recente discussies in Nederland over de vergoeding van dure geneesmiddelen tegen de ziekten van Pompe en Fabry en over de beheersing van de zorgkosten in zijn algemeen.
Historisch gezien is de notie van 'evidence-based medicine' (EBM) echter merkwaardig. De geneeskunde is namelijk altijd al 'evidence-based' geweest. Wel zijn in de loop van de tijd de opvattingen over wat moet gelden als goede en betrouwbare kennis en over de vraag hoe deze kennis toegepast moet worden in de (behandel)praktijk veelvuldig veranderd. De opkomst van EBM vanaf het begin van de jaren 1990 is een typisch voorbeeld van een dergelijke verandering, die vraagt om een historische verklaring.
In mijn presentatie doe ik een poging tot een dergelijke historische duiding door de bekende theoretische ideeën van Theodore Porter over een verschuiving van disciplinaire objectiviteit naar mechanische objectiviteit kritisch tegen het licht te houden aan de hand van een (op mijn empirische onderzoek gebaseerde, dus 'evidence-based') reconstructie van hoe de introductie van evidence-based medicine in Nederland is verlopen.
Bronnen: o.a. interviews, medische vaktijdschriften, rapporten van overheidsorganen,
secundaire literatuur.

Hermeneutiek en de wetenschapsgeschiedfilosofie
Jeroen Bouterse, Univ. Leiden

In de cultuurgeschiedenis is wetenschapsgeschiedenis bij uitstek een terrein waarop het moeilijk is de eigen vooronderstellingen los te laten: zelfs de grote aanklager van 'Whig history', Herbert Butterfield, viel in al zijn eigen kuilen toen hij over natuurwetenschap ging schrijven.
De 'Whig impuls' lijkt niet dan zeer kunstmatig afgeschud te kunnen worden: door a priori de
methodologische eis te stellen dat onze eigen ideeën over de natuur en rationaliteit geen enkele rol mogen spelen in onze verklaringen van wetenschappelijke ontwikkeling en de aandacht daarom volledig gericht dient te worden op sociale factoren; of door volledige openheid te betrachten bij het bestuderen van het verleden van wetenschap. Deze beide antwoorden zijn onbevredigend: wetenschap laat zich uiteindelijk onvoldoende begrijpen als er gezwegen moet worden over haar object, en de gewenste onbevangenheid blijft in de praktijk uit.
De anti-Whiggish intenties van deze strategieën zijn achtenswaardig, maar beide ontberen een constructieve visie op de rol van vooroordelen in de cultuurwetenschap. De traditie van waaruit geschiedenis wordt geschreven is niet iets wat koste wat kost afgeschud dient te worden, maar iets wat kritisch benut mag worden – de gedachte dat dat mogelijk is verdient tenminste overweging. In het algemeen is de filosofie van de wetenschapsgeschiedschrijving gebaat bij een duiding van het werk van wetenschapshistorici als hermeneutisch. Daartoe wil ik in mijn presentatie een voorstel doen. De vragen in de call for papers bieden voldoende aanknopingspunten om te laten zien hoe wetenschapsgeschiedenis als hermeneutisch begrepen kan worden.

Daarbij is 'hermeneutiek' niet een toverwoord dat alle problemen oplost: zelfs Gadamer is het niet duidelijk hoe de natuurwetenschappen in te passen zijn in de geesteswetenschappelijke hermeneutiek.4 Maar de vraag hoe een hermeneutische wetenschapsgeschiedfilosofie er uitziet, is des te relevanter doordat ze zich niet ongestraft kan beperken tot één kant van de kloof tussen Snows 'two cultures' – wetenschapsgeschiedenis gaat immers over beíde culturen tegelijk.

Galileo and Holland: The three appointments which never took place
Filip Buyse, Université Paris 1 - Panthéon / Sorbonne

Despite Mulerius' translation of De revolutionibus (1617) and the works of Simon Stevens, Copernicanism became widespread in Holland only after 1640, simultaneously with Cartesianism. Until then, there were few Copernicanists in Holland (Jorinck, 1997). Aside from the Flemish mathematician, the cartographer and publisher Willem Blaeu is an obvious example.
Unlike Copernicus and Descartes, Galileo was already well-known in Holland at the time (1989, Van Berkel). Apart from his condemnation, several other elements played a role in the widespread awareness of Galileo. In this paper, I will focus on three important cases:
1.) a plan by Grotius to bring Galileo to Amsterdam after his condemnation in 1633.
2.) Galileo's method for determining longitude.
3.) Elsevier's plan to publish Galileo's complete works in a single volume.
In my paper I would like to examine these three cases based not only on Beeckman's Journal but also on correspondence with Galileo by Grotius, Reael, Hortensius and Vossius. I will focus particularly on the role Elie Diodati's network played in this communication (Garcia, 2003).
Finally I will concentrate on the role the Huygens family played in Galileo's relationship with Holland. As we shall see, the relationship between the Diodati/Calandrini family and the Huygens family was important in Galileo's relationship with Holland. Constantin Huygens intermediated several times between Galileo and officials of the States General.
Constantijn Huygens son, Christiaan, knew Galileo's work very well and most of his work was based on the work of the author of the Discorsi (1638) (Andriesse, 2010). Spinoza wrote in his letter (1665) to the first secretary of the Royal Society that he discussed with him observations Jupiter's satellites and Saturn's rings. I will illustrate how Galileo's ideas might have influenced Spinoza's theory of knowledge. (Buyse, 2008)

Nutzen, Nutzen, und Abernutzen. Useful Knowledge and Reflections thereupon in 18th-century German Thought and Practice.
Fokko Jan Dijksterhuis, Universiteit Twente

In both history and philosophy, the dominant view is traditionally to see science as an intellectual pursuit. Historical studies have increasingly emphasized scientific practices but philosophical articulation seems to be resistant to this. This dominance of intellectual cameos of science is historically grown as will become clear when going back to times before modern conceptions of science, technology and use took shape. 18th-century science was closely linked to societal pursuits of profit and production. In particular in German spheres men of learning not only involved in such practical pursuits, but also reflected upon the question what this meant for the nature and meaning of knowledge. Such 18th-century efforts to reflect upon useful science have been blocked from view by later articulations of science as pure reason. In this contribution I will try and see how Enlightenment thinkers like Tschirnhaus, Wolff and Lambert developed a philosophy of useful science, what this entailed and how it related to their own efforts to the pursuit of useful knowledge.

Selling the nation's nature: Jan Christiaan Sepp's publishing projects on the fauna of the Netherlands
Esther van Gelder, Descartes Centre Utrecht University / Huygens ING

My Rubicon project focuses on the intellectual network and commercial strategies of the most productive publisher of natural history books in the late Dutch Republic, Jan Christiaan Sepp (1739-1811). In close collaboration with other experienced amateur naturalists, Sepp launched ambitious book projects that put Dutch nature on display, such as the Nederlandsche insecten (1762-1860/1927), Nederlandsche vogelen (1770-1829), and Flora Batava (1800-1934). These long running and lavishly illustrated book series were remarkable intellectual, artistic and commercial achievements in a time of great political upheavals and economic uncertainty. By analysing the publishing house Sepp & Zoon as a commercial and scientific hub, a significant part of the Dutch naturalists' community and ideas can be related to the context of nation building, ideals of civilisation and improvement, and the valorisation of knowledge in society. This offers an insight in the transformation of the practice and valorisation of natural history in society around 1800.
In this paper, I will present the outline and first results of my research into Sepp's intellectual practices, taking his publishing project on the Dutch birds (Nederlandsche vogelen) as a case study. This publication was issued in five volumes and written by well-established naturalists (Cornelis Nozeman, Martinus Houttuyn and Coenraad Jacob Temminck). The scope and outlook of the Nederlandsche vogelen are remarkable because of (1) its presentation of Dutch birds as a separate category and (2) the unprece-

dented detailed, life-sized, and hand-colored engravings. I will reconstruct Sepp's share in the establishment of the project (his motives, knowledge and skills in displaying Dutch nature in books and his collaborations with other naturalists) and analyse the textual and visual strategies employed in the books. Furthermore, I will pay attention to the reception of the work: Who bought and read these books? How were they valued by both the public and fellow naturalists? And most importantly: did Sepp's attempts to redefine the standards of natural history as a national endeavour based on knowledge from the field successfully replace the long existing vogue for exotic curiosities and the culture of collecting?

Changing perspectives (work in progress)
Katrin Geske

In the 1980s, major initiatives were taken by the Dutch government to stimulate computing technology. The Informatica-Stimuleringsplan, INSP, a *f* 1.7 billion policy scheme, was set up in order to advise and educate, to stimulate the private sector and to enhance government automation. One of the bigger projects was the automation of the student grant, Studiefinanciering.
Initiatives like these emerged from a growing fear that the national economy might lose out against the leading role of US-American business. One might argue that this insight came rather late, considering that computing technology had been commercially available since the early 1950s. However, to get to the point of such initiatives, the Dutch government had to make a number of steps each requiring a fundamental change of view.
First, as indicated by an OECD report from 1969, not only the Netherlands but the whole of Europe was lagging behind in the field of ICT.5 Second, European attitudes towards computing technology were hesitant compared to the US-American. A certain angst that automation would have a detrimental effect on society, as described in detail for Western Germany by Corina Schlombs,6 was tangible in the Netherlands as well. Against this background, willingness to support ICT came only after a long process of negotiation connected to a change in attitude. The government tried to set the agenda for a coherent policy. The turning point can be perceived in the Rathenau Report on microelectronics, published in 1979. While acknowledging the necessity to assess possible effects on society, the new technology was now presented as the basis for the future Dutch society.
The cultural shift expressed in such initiatives as the INSP is paralleled on a European level by the ESPRIT program. It symbolizes a change in European priorities of knowledge by focusing on computing technology and its place in society.

A viral human-animal bond: 'the influenza question' and animal influenza in the Netherlands, 1918-1958
Floor Haalboom, PhD student, Medical Humanities, UMC / Descartes Centre

'Bird flu' causes quite a stir in present-day societies: avian influenza is thought to be a serious factor difficult to control in the birth of virulent influenza pandemics. I aim to put current concerns on the dangers of animal influenza for human health in historical perspective. My questions concern the relation between animal influenza and the medical 'influenza question' (on the cause of occasional virulent human influenza pandemics) in a sociocultural context of the Netherlands, between the 'Spanish' influenza pandemic of 1918 and the 'Asiatic' influenza pandemic of 1957. How were animals with influenza addressed in the framing of influenza, and how did this change over time? How did different parties encountering animal influenza – importantly physicians, veterinarians, farmers and the public – react to the disease and deal with it? How did these parties relate to one another, and how did their knowledge influence government policy on the control of influenza? I will discuss the conceptual shift in medicine from animal influenza as a curious side-effect of human influenza epidemics in the 1920s, towards the view that animals (especially pigs and horses) were the 'primary influenza virus reservoirs' at the time of the 'Asiatic' influenza pandemic of 1957. During the same period, veterinarians were reluctant to call an unknown, often deadly infectious disease among piglets 'swine influenza', like US veterinarians did. Rather, Dutch veterinarians framed respiratory diseases of piglets as a problem of changing practices in agricultural pig production, which had negative effects on the pigs' resistance against a variety of usually harmless germs. Thus, the influenza-question received little attention in veterinary circles, despite repeated calls to the contrary. As Dutch veterinarians and farmers did not discuss animal influenza under that name until the late 1930s, and physicians largely ignored animals with influenza until the late 1950s, I am faced with a methodological problem. To be able to 'detect' animal influenza before it was addressed as such, I use current scientific knowledge on the influenza virus as a historical source. Is this possible while avoiding the methodological fallacy of presentism?
This paper is part of a PhD project on the history of dealings with zoonoses (infectious diseases shared by humans and animals) in the Netherlands during the twentieth century, with the aim of putting current concerns on zoonoses in historical context. The project is funded by the faculties of Medicine and Veterinary Medicine of the Utrecht University, and the Dutch ministries of public health and agriculture (Ministerie van Volksgezondheid, Welzijn en Sport and Ministerie van Economische Zaken, Landbouw en Innovatie).

Medicine on display: uses of history in Dutch medical exhibitions 1920-1940
Mieneke te Hennepe, Museum Boerhaave

In 1928, the influential professional Dutch medical historian Jan Gerard de Lint organized one of his famous meetings in his hometown Gorinchem. His efforts to professionalize and stress the importance of Dutch medical history resulted not merely in the institutionalization of the history of medicine. He also pushed for popular interest in the subject through historical objects, collections and public displays until his death in 1936. These exhibitions of objects in halls and museums offered a possibility for a wide audience to engage with visual and three-dimensional forms of medical historical knowledge during that period. This paper examines the emergence of a cultural 'medical history' in the Netherlands as propagated by De Lint, and in particular its role in public exhibitions in the interwar period. The interplay for this period between the interest in national folk traditions versus the rapid developments in medical science, commemorations of scientific and medical heroes, and a nation in search of its identity provided attention for historical objects and medical exhibitions with a new educational value. I will argue how medical history created a 'national culture of past medicine' for the Netherlands between 1920 and 1940. A culture including medical historical traditions that remain in place until this very day. Although the study of doing medical history has received some attention recently, mainly through the excellent work by Huisman and Harley Warner (2005), the role of medical history and exhibitions in the Netherlands for this period have so far been neglected. The activities of De Lint offer a unique insight into the transfer of medical knowledge through objects and collections, thereby showing how the medical historical past was constructed as a cultural and folkloristic entity. Exhibitions on medical history consolidated medical and national identity, and legitimized public hygiene policies.

Uses of knowledge: J.M.C. Kloppenburg–Versteegh (1862-1948), an example from the Dutch East Indies
Liesbeth Hesselink, independent scholar

In the Dutch Indies professional health care often was not available for (Indo-)Europeans, who therefore had to treat themselves when they fell ill. Recipe books based on indigenous medicinal herbs were an important help. The best known author was the Indo-European J.M.C. Kloppenburg-Versteegh; various reprints appeared of her books. Many of her recipes originated with her mother who – in turn – had learned a great deal from a German physician. Via self-study Kloppenburg broadened her knowledge of indigenous plants and herbs; she also exchanged prescriptions with other healers. Her books contrast with others because they are written in Dutch and not in Malay and because they were accompanied by a separately published plant Atlas. In this way the users would not pick the wrong herbs Kloppenburg presumed. She sought contact and exchange with Western scientists. This was facilitated because both her books and the atlas provided the Latin names besides the names in the various vernaculars. Kloppenburg viewed her knowledge and skills as complementing those of Western medical scientists. The popularity of her books will have made some European physicians overly critical. Probably, they were afraid of the competition: after all, the books were only of use to people who could read and these were primarily the (Indo-)Europeans,
who were potentially their patients. One could say that Kloppenburg was an intermediary
between Western medicine, its practitioners and the indigenous medicinal herbs.

From Coal Tar Distillation to Aromatic Chemistry
Ernst Homburg, Maastricht University

In a thought-provoking paper on 'Class Struggle Among the Molecules,' Jonathan Slack argued in 1972 that the rise of the chemical industry, and the associated availability of new chemical substances in particular, had a decisive impact on the development of chemical theory. He gave some interesting examples, but the empirical basis of his paper was probably too thin to convince many historians of chemistry. At least, his materialistic approach has not been widely adopted, and his paper is not well known in our field.
The rise of aromatic chemistry, closely associated with the development with coal tar distillation and with the synthetic dye industry, is an ideal case in point to study Slack's hypothesis more closely. When the synthetic dye industry emerged at full speed during the 1860s and 1870s, the area of aromatic chemistry boomed as well.
In my paper I will mainly discuss the early stages of that development. Originally 'aromatic chemistry' was the study of plant materials with nice flavors and aromas, belonging to the realm of pharmacy, as a result of their supposed healing qualities. They were mainly classified genetically, according the plants and plant classes from which they derived, as well as on the basis of their physical appearance such as resins, gums (gum benzoic), oils (caraway oil; oil of the bitter almonds), etc.
How the rise of coal tar distillation transformed the field or 'aromatic' plant chemicals, connecting previously dissociated fields, will be the main focus of the paper. As such, it takes the material dimension of chemistry seriously, had will pay attention in particular to the 'migration' of chemicals from the realm of industry (distilleries; gas works) to the laboratory.

The New Theatre of Anatomy: The anatomical atlas of Govard Bidloo and Gerard de Lairesse
Tim Huisman, Museum Boerhaave

In 1685, the ambitious Amsterdam doctor-surgeon Govard Bidloo – who was later to become anatomy professor in Leiden and personal physician of the stadtholder-king William III – published Anatomia humani corporis. As Bidloo himself stated in the foreword to this anatomical atlas, it was the first comprehensive illustrated book on human anatomy since Andreas Vesalius' De humani corporis fabrica (1543), and it was something completely new in the genre. In Anatomia we find no anatomical manikins in dramatic life-like poses like in Vesalius' Fabrica, but realistic, and rather gruesome, renditions of anatomized human corpses on the dissection table. Why was this approach taken, and what role did the draftsman-painter Gerard de Lairesse, Bidloo's partner in this enterprise, play in the genesis of the book? The fact that De Lairesse, at the time he collaborated with Bidloo on Anatomia, was at the height of his renown as a painter, while Bidloo the anatomist yet had to make a name for himself, should be taken into account.
In my presentation I will argue that Bidloo showed himself as an adherent of the new science of the late 17th century. Together with De Lairesse he wanted to develop a visual language communicating the spirit of experiment and investigation, typical for this new science. On what sources did the anatomist-artist team draw for this? Were their sources to be found only in the context of the visual culture of science, or were there influences from beyond the sphere of science and anatomy? After all: as he was working on Anatomia, De Lairesse was also involved in large history paintings for important patrons, and both Bidloo and De Lairesse were active in Amsterdam theatre circles.

The making of ethical research (a history of Dutch solutions to the moral problems that come and go with experimental tests upon human beings, 1947-1999).
Noortje Jacobs, PhD-candidate Maastricht University
(in cooperation with Timo Bolt)

In the Netherlands, the end of the Second World War marked a new beginning in the ways in which the organized Dutch medical profession considered its role in Dutch society: "In the past, we have focused too much on material gain. We have to prove that we are not just a trade union and find a better balance between material and spiritual values". In 1948 therefore, the (K)NMG erected a committee to revise its existing code of medical ethics and doctors started to give lectures on the subject of medical ethics at various medical faculties throughout the country. This renewed attention for medical ethics did not die out once the experiences of the Second World War turned into memory. On the contrary, the second half of the twentieth century has seen an explosion in the engagement with the norms and values that are (to be) deployed in medical practice and research. The envisioned solutions to ensure upstanding medical practices, however, have seen a marked shift since the 1940s. In a relatively short period of time, the ways in which medicine could be 'made ethical' moved from "cultivating a physician's conscience" (1947) to "external control through legislation" (1999).
This PhD project investigates this transformation using the Dutch history of clinical research ethics (i.e. the moral framework concerned with experimental medical tests conducted upon human beings). It maps how in the second half of the twentieth century various solutions have, in the Netherlands, subsequently come to be regarded as sensible ways to ensure the ethical conduct of clinical research. Importantly, these processes should not be understood as processes of replacement but rather of displacement, where one envisioned solution was gradually incorporated and surpassed by another. With this conceptualization, this PhD project hopes to offer a valuable alternative to the idea that traditional ethics principles were replaced in the second half of the twentieth century by bureaucratic procedures. For while it is true that the „moral authority to decide how to treat research participants was relocated in the second half of the twentieth century from professions to the state, solutions focused on internal contemplation became incorporated within the ideal of external regulation, in effect producing the medical ethicist as a specialist of medical morality.

Smaak, therapeutische ervaring en laat-Galeense farmacologie aan de Universiteit Leiden (1575-1625).
Saskia Klerk, Descartes Centre, Utrecht University

In de zeventiende eeuw werd de discrepantie tussen de smaak van bepaalde geneesmiddelen, zoals Peruviaanse bast en opium, en hun effecten op het lichaam, gebruikt om Galeense geneeskunde te bekritiseren. Volgens de Galeense traditie moesten de eigenschappen van geneesmiddelen onderzocht worden door zowel smaak als therapeutische ervaring. Waarom zulke discrepanties tussen kennis uit smaak en uit ervaring in deze periode expliciet werden gemaakt en waarom ze als probleem werden gezien, wordt echter niet duidelijk in de bestaande geschiedschrijving.
Ik zal betogen dat deze discrepantie aan het licht werd gebracht door de bestudering van de eigenschappen van geneesmiddelen binnen de Galeense traditie zelf. Dit zal ik doen door het werk van vier auteurs te bespreken die verbonden waren aan de universiteit van Leiden, Rembert Dodonaeus (1517–1585), Johannes Heurnius (1543-1601), Adrianus Spigelius (1578–1625) and Gilbert Jacchaeus (ca.1585-1628). Zij probeerden de eigenschappen van geneesmiddelen te integreren in een uitgebreid systeem van primaire, secundaire, tertiaire en quartaire kwaliteiten of faculteiten. In zijn innovatieve tekstboek Institutiones medicinae (1592) maakte Heurnius, kennis van geneesmiddelen tot hoeksteen van een betrouwbare methodus medendi. Door de bestudering van deze rationele methode van genezen, al besproken door Galenus, en door

deze verder te ontwikkelen, hoopten Renaissance artsen de scheiding tussen medische theorie en praktijk die aan Middeleeuwse universiteiten bestond, te overbruggen. De manier waarop de verschillende eigenschappen van geneesmiddelen aan elkaar gerelateerd waren, werd nu kernprobleem om een medische praktijk te onderhouden die zowel rationeel als effectief was. Het was echter precies door deze poging om de verschillende eigenschappen van geneesmiddelen, inclusief hun smaak, te begrijpen binnen het Galeense kader, dat de eigenschappen van sommige problematisch werden.
Ik suggereer dat de veranderende ideeën ten aanzien van kwaliteiten en de samenstelling van materie in deze periode, tenminste gedeeltelijk, ontstonden uit discussies over geneesmiddelen binnen de Galeense geneeskunde.

Existence or Explanation: Quantitative and Qualitative Research in Dutch parapsychology in the 1950s
Ingrid Kloosterman, Descartes Centre, Utrecht University

A distinction – and often struggle – between qualitative and quantitative research methods has been a prevalent theme in the social sciences ever since their emergence at the end of the 19th century. An example from parapsychological research in the 1950s in the Netherlands sheds light on the question how these distinctive research methods were intertwined with specific (envisioned) uses of knowledge.
In 1957 the Dutch school inspector Johan van Busschbach (1896-1974) received the first American McDougall Award for outstanding parapsychological research. This award was instituted by Joseph Banks Rhine (1895-1980), one of the most internationally renowned parapsychologists of the period. Van Busschbach received the award in honour of his experiments into telepathy with school children and their teachers.
In the Netherlands, however, the work of Van Busschbach was not as celebrated. In 1954 Wilhelm Tenhaeff (1894-1981) became professor in parapsychology at Utrecht University. He was not as impressed as Rhine was by the work of Van Busschbach, mainly due to their different approaches of parapsychology. Van Busschbach undertook quantitative experiments, investigating big groups and using advanced statistical methods. Tenhaeff, however, was mainly interested in the qualitative characteristics of gifted individuals such as the medium and magnetizer Gerard Croiset (1909-1980). From several letters of both Van Busschbach and Tenhaeff in the archives of Rhine's Parapsychology Laboratory and from other sources, it becomes clear that also in other respects their views on parapsychological research differed. Van Busschbach hoped with his research to improve teaching methods, while Tenhaeff was less interested in practical applications of parapsychological knowledge. Furthermore, Van Busschbach was looking for proof of the existence of telepathy, whereas Tenhaeff was more concerned with the (psychological) explanation of the phenomena. In my presentation I explore how the different aims they had for parapsychological research called for different research methods.

Empirical subjectivism: 'Uses of knowledge' in the Dutch academic sciences in the first half of the nineteenth century
Ad Maas, Museum Boerhaave

In the first half of the nineteenth century, scholars at the Dutch universities put a strong personal mark on their scientific activities. They not only showed themselves to their fellow citizens in societies and charity-committees, but they also explicitly used their personal judgment as (legitimate) part of their scientific argumentation. In my presentation I will argue that this 'subjective' way of practicing science is inherently connected to the Dutch scientific culture in this period.
In addition, I will confront the epistemic values of the Dutch scientific culture with the central argument in Lorraine Daston and Peter Galison's groundbreaking book Objectivity. The developments in the Dutch nineteenth-century academic sciences reveal remarkable parallels with the transition from a 'truth-to-nature' manner of practicing science to 'mechanical objectivity', as described by them.

The Ghostwriter in the Machine: The Publication History of Albertus Seba's Thesaurus
Daniel Margocsy, Hunter College – CUNY / Cullman Center for Scholars and Writers – NYPL

This paper examines the production process of publishing encyclopedias of natural history in the early modern Netherlands, and how financial reasons influenced the dissemination patterns and credibility of natural knowledge. I focus on Albertus Seba's Thesaurus, a monumental work that offered an exhaustive overview of Seba's personal collection of exotica in four volumes, illustrated with four hundred plates. It was published over the course of thirty years between the 1730s and the 1760s. Seba himself died early in the project, and the completion of this work required the cooperation of a large number of workers: draughtsmen, engravers, ghostwriters, translators, printers and publishers. Thanks to the surviving, extensive correspondence of the postmortem editors, one can recreate how, after Seba's death, their financial interests took over the publication project. My paper investigates how considerations of profit drove the post-mortem editors of the Thesaurus to continue publication even after Seba's death, why they decided not to update the work to include the findings of Linnaeus and others, and why they hired a team of ghostwriters who were explicitly told to create the illusion that the whole work had been written by Seba. The case of Seba thus exemplifies how, in the early modern period, the production of illustrated encyclopedias was a capital-intensive project. To attract wealthy customers, profit-seeking publishers often prioritized the aesthetic appeal of the engravings to the detriment of the entries' scientific accuracy, which led many observing readers to develop a sceptical attitude towards any factual claim in natural history.

Civilization and its Discontents: Universalism and Colonialism in UNESCO's International Science Program, 1946-1954
Thomas Mougey, Maastricht University

This project aims to focus on one of the earliest attempts at globally inclusive scientific cooperation: UNESCO's International Science Program of 1945-1954. Conceived by the head of UNESCO's Natural Science Division, the British biochemist Joseph Needham, this program aimed to create a better world by exploiting science to its full, 'natural' potential. The program was rooted in 1930s left-wing views of the social and international function of science.
Despite its intentions, the two branches of the program triggered ambivalent reactions. The Arid zone project (IIAZ) was generally welcomed for the opportunities it offered to peripheral scientists. But at the Hylean Amazon project (IIHA) in Brazil, resistance grew against the influx of Western scientists and what was seen as 'old-boy imperialism'. Controversy rose, and in 1954 the major powers intervened, and terminated the Science Program along with UNESCO's general scientistic orientation toward world politics.
This project will explore the paradoxes inherent in Needham's vision by examining how it was conceived and received, and how center and periphery were construed in competing notions of science and international relations. It will pay special attention to non-Western actors and their ambivalent responses. Studies of UNESCO so far tend to be celebratory and ascribe its failures to the Cold War or nationalism. This project seeks to identify the inherent tensions in its (scientific) universalism. In doing so it will draw upon recent work on the history of the UN, which has revealed the imperialist underpinnings of its initial conception.
This project combines insights from Science and Technology for Development studies with approaches from the history of science and recent work in international history and colonial studies.

The uses of knowledge not shared
Djoeke van Netten, UvA

Spreading knowledge is making science. But what if knowledge is – deliberately – not spread? In future research I would like to go into secrecy, knowledge that was kept confidential. At first, we encounter more questions than answers. How do we know about knowledge that was not disseminated? How useful is this?
I will focus on the Dutch East India Company (VOC), a powerful trading company in the seventeenth and eighteenth century. The VOC is said to be not actively stimulating science or scientists. But at the same time the VOC is seen as important in facilitating the making of new knowledge, in particular about the newly discovered lands in Asia. Along the way information about many new lands, routes, species, spices, fruits and other food, peoples and their customs was discovered, described, mapped, brought to Europe, published and sold.
Sure, the purpose of the VOC was not making knowledge, but making money. Still, in order to achieve this purpose, the VOC needed and used knowledge. Specific knowledge made the VOC rich and powerful and gave it adventages in the area. In this case, knowledge meant power only when it was not shared by too many people. This knowledge the VOC did not or only really scarcely want to spread. But what was this knowledge? How was it kept secret? And how succesful was this? Because in the end, we only know about secrets when they are not secret anymore.

It Is Alive and May be Captured. Paleontologists and the search for living dinosaurs, 1910-1940
Ilja Nieuwland, Huygens ING

To many in the earliest years of the twentieth century, it seemed as though little had been left to discover in the world. But around 1910, a heightened public interest in dinosaurs as the result of sensational new discoveries (such as the Tendaguru dinosaurs in German East Africa) provoked several adventurers to start a hunt for living examples of these supposedly extinct giants. Egged on by the tales of local peoples and by the prospect of rich rewards, they attempted to set up expeditions to the dark interior of South America and Africa, in order to find and capture such animals.
These men came from various backgrounds: among them were big game hunters, animal traders and aristocratic layabouts. Most of them were also adept at using the press to give publicity to their work. In order to find funding for their ambitions, they used this publicity to influence governments, the public and, without exception, scientific institutions. To gain the trust or (better still) the explicit backing of established scientists and scientific institutions was to ensure their endeavour received respectability, publicity, and possibly funding. While almost all professional paleontologists were highly sceptical of such endeavours and the people that undertook them, the attached publicity could be very welcome to them as well. As I will show, however, the benefits hardly ever outweighed the risks.
This paper discusses the difficult relationship between the establishment and these 'borderlands' of paleontological science. It argues that the traditionally heavy involvement of amateurs with paleontology, and its ongoing process of professionalization, sometimes made it very difficult to separate serious workers from charlatans, and to distinguish between serious and more fanciful efforts. In the background is a continuously difficult relationship between scientists looking to educate the public, and journalists looking for a quick scoop.

Alexander Numan and his sheep: a failure to innovate
Jesper Oldenburger, Utrecht University

During the nineteenth century, the selective breeding of sheep in the Netherlands, especially when compared with neighboring countries, got off to a rather shaky and uncertain start. Early attempts to improve the Dutch in-

digenous herd with the famous Spanish Merino sheep all failed miserably and the Netherlands were miles away from being considered internationally important breeders of sheep. The Dutch Professor Alexander Numan (1780-1852) started, partly in response to these failed attempts, partly as a direct result of the policy of the Dutch King William I and partly from a personal moral conviction, with a large-scaled experiment to determine exactly how the indigenous sheep could and should be improved.
Associated with this particular experiment was Numan's wish to enhance both the quality and quantity of the indigenous wool production. This particular goal was for a large part based on strong moral convictions which, ultimately, proved to be an important reason for the failure of Numan's project. Through a description of this particular experiment we can analyze the difficulties that arise when knowledge is being implemented and how a particular combination of political, practical, economical and ideological forces can lead to a failure to innovate.

Colonial Agro-Industrialism: Commerce, science and industry in the Dutch Golden Alkaloid Age, 1850-1940
Arjo Roersch van der Hoogte, Descartes Centre, University of Utrecht

By the 1920s the Netherlands were the largest producers and distributors of the medicinal plants cinchona and coca, surpassing the traditional producers in South America and the British production in British India. Furthermore, the Netherlands were one of the leading industrial producers and distributors of the alkaloids quinine and cocaine, used respectively as antimalarial medicine and as stimulant and anesthetic. However, fifty years earlier the Netherlands played no significant role in the production and distribution of these medicinal plants and their alkaloids. How did the Dutch succeed in achieving this position in such a relative short period, despite the efforts of the leading nineteenth-century pharmaceutical producers in Germany and the United Kingdom?
In my paper I will show how through a dynamic process of cooperation, exchange and interaction between the domains science, commerce, industry and state, the Netherlands were able to position itself as a major producer and agro-industrial power in the production and distribution of cinchona and coca and the alkaloids quinine and cocaine, respectively. This process can be conceptualized as colonial agro-industrialism. Colonial agro-industrialism refers to a colonial industrial-agricultural system by which tropical cash crops were made exploitable and profitable through scientific and technological work supported by an elite group of policymakers, planters, bankers and industrialists who came to realize that scientific knowledge and technical prowess were keys to wealth and power. I will show how the dynamic synergy within the system of colonial agro-industrialism was central for the emergence of a Dutch alkaloid/extraction industry within the context of the Dutch colonial empire in the late 19th and early 20th century.

Onderzoeksvoorstel Germanic 'race' and Dutch identity: racial concepts and origin stories as part of Dutch identity 1910-2010
Laurens de Rooy, Museum Vrolik AMC

Een systematisch historisch onderzoek naar de wetenschappelijke wortels van theorieën over de Europese en in het bijzonder de Nederlandse (Germaanse) rassen, en hun invloed door de 20e eeuw heen. Het onderzoek richt zich op de continuering of juist verdwijning van raciale concepten, en op de veranderingen in de betekenis en connotaties van dergelijke concepten, vooral daar waar deze in verband staan met ideeën over de Nederlandse nationale identiteit. Vooral over het denken en doen van Nederlandse fysisch antropologen in de naoorlogse periode is nog vrijwel niets bekend.
Wetenschappelijke theorieën over de rassen van Europa en in het bijzonder over de Germaanse raciale oorsprong van het Nederlandse volk, gekoppeld aan ideeën over nationale identiteit ontstonden in het midden van de 19e eeuw. Ze vierden hoogtij aan het begin van de 20e eeuw met antropologen zoals de Amsterdamse hoogleraar anatomie Lodewijk Bolk (1866-1930). Het einde van de tweede wereldoorlog betekende niet het einde van het wetenschappelijk theorieën en praktijken op het gebied van de rassenleer in Nederland. Mijn hypothese is dat kernelementen gemeengoed bleven tot tenminste 1970. Wellicht spelen ze ook vandaag de dag nog mee.
Centrale vragen: Welke lijnen kunnen er worden getrokken tussen de Nederlandse antropologen voor en na de tweede wereldoorlog als het gaat om ideeën over Europese rassen en de rol van de antropologie in het definiëren van de oorsprong en identiteit van de Nederlanders? Wanneer stopten Nederlandse antropologen met het toepassen van raciale opvattingen (als ze dit al deden)? Spelen ze nog steeds een rol bij moderne humane genetica en antropologie?
N.a.v. mijn praatje hoop ik op input over methodologie en fasering van het onderzoek; over eventuele afbakening, ideeën over utiliteit, samenwerking (bijv. NIOD) etc.

Circulation of Medical Knowledge in The Low Countries (1540-1795): the interpretation and reception of medical recipe books by health practitioners and 'laymen'
Vincent Van Roy, PhD-student, University of Antwerp: Centre for Urban History

The presented research topic about medical recipes is one of the three main cases highlighted in my PhD-dissertation (expected to be finished mid 2013) about circulation mechanisms of medical knowledge between the different actors on the 'medical market' in the Netherlands during the Early Modern Time.
This subject offers an exceptional surplus value because the so-called dispensaries were often published in the ordinary language (instead of in Latin, Greek or Hebrew) and because they were primarily intended to be used by the lower medical levels or the ordinary 'laymen' that

wanted to prepare medicines against numerous problems or more severe diseases. By the way, the discovery of the New World and the starting transatlantic commercial relations implied the launch of many new medicinal herbs. The newly discovered herbs were, as early as the mid sixteenth century on, integrated in a lot of 'popular' recipe books, both handwritten and printed.
From the sixteenth century onwards there is a strong increase in circulating printed books of medical prescriptions for laymen and more 'ordinary' people. Instead of the discontinuity paradigm of the more 'traditional' research about the 'humanistic big challenge' on recipe literature, we can also postulate the continuity with a lot of well-sophisticated Middle-Dutch (handwritten) artes-literature. It is understood that apart from these publications there were also During the Early Modern Time a lot of handwritten prescriptions that often circulated in villages or local communities. The authors were pharmacists, people specialized in herbs, doctors, surgeons or other social service people but often these prescriptions were composed by religious people (priests, nurses …) or 'ordinary' laymen that studied for this matter without any qualification whatsoever. The presentation focuses on some cases, in example the sixteenth and seventeenth century medical (ab)use of tobacco and the late eighteenth century introduction of the digitalis herb (foxglove) to prevent diseases and ailments.

Use of Knowledge in Emerging Genetics: Strategies of Women 1900-1930

Ida Stamhuis, Vrije Universiteit Amsterdam / Aarhus University

Knowledge can be used in all kinds of ways. In a stratified society, getting educated and gaining knowledge is a well-known strategy to emancipate. It was applied by the lower classes to advance in society. Women could use it as well. The second half of the nineteenth century was the period of the first feminist wave. Initially, women had no access to universities. Around 1900 this barrier was overcome, and some women received a university education. These women looked for suitable jobs. In the academic system, genetics was not yet a prestigious discipline. In the early 20th century quite a few women were active in this emerging field. However, compared to their male colleagues, these women often had inferior positions. Being well-educated was apparently not sufficient. My paper will discuss the strategies open to women to use their knowledge and abilities in consolidating or even improving their position in the discipline of genetics. It is important to realize that, at the time, genetics was not a monolithic knowledge field. Women could choose to work in an established area of genetics, which, properly done, could result in a satisfactory position. Or they could opt for an as yet unoccupied niche. In this way they could become more visible, but they also ran the risk of sidelining themselves. I will give several examples of women geneticists, discuss the research strategies they applied and their successes or failures.

The Centrifugation of Knowledge: How the ultracentrifuge became an industrial goldmine.

Abel Streefland, Sterrewacht Leiden

In 1959 hopes were high for the Dutch ultracentrifuge program. Since 1955 this technique was developed under auspices of Jaap Kistemaker in Amsterdam to separate isotopes. By the end of the fifties, the first tests to enrich uranium with these fast-spinning gas centrifuges were started. The technique proved to be successful and substantial amounts of money were invested in the project by both the government and various industrial companies.
The minister of economic affairs, J.W. De Pous, was in 1959 dissatisfied with the progress that the Dutch industries were making in the nuclear field. There were a lot of expectations (nuclear reactors, enrichment plants), but not much happened. For this reason he installed a commission for the Nuclear Industrial Development, led by T.P. Tromp, vice-president of Philips. This commission thoroughly mapped where the nuclear research stood and gave an especially positive evaluation of the ultracentrifuge program. A transition from research towards an industrial pilot plant should be possible within a year. This report was, together with the 1961 classification regulations, pivotal for the program, for it resulted in a new laboratory, more funding, and a larger staff. It nonetheless took almost ten years to make the program industrially feasible.
In this talk, I would like to take a look at the transition of the Dutch ultracentrifuge program from the laboratory sphere to the industrial sphere. How did this transformation take place? What were the roles of the scientists, industries and the government? How did they converse about the ultracentrifuges and what role did knowledge play in the discussions? In other words, how was knowledge used in industrializing the ultracentrifuge?

Classical mechanics and the origins of Laplacian determinism

Marij van Strien, Gent University

In this paper I examine the historical relationship between determinism and classical mechanics. The most famous statement of determinism is undoubtedly that of Laplace, made in 1814, where he writes that an intelligence with perfect knowledge of the present state of a system can predict future states. It is usually supposed that Laplace based this statement on his mechanics, specifically on the proposition that each mechanical system has an equation of motion which has a unique solution. But in fact, Laplace could not have derived determinism from his mechanics, because such a derivation depends on a theorem about uniqueness of solutions to differential equations that was only developed in the course of the nineteenth century. I argue that Laplace's determinism was based instead on metaphysical ideas about causality and the principle of sufficient reason. This view is supported by tracing the origins of Laplacian determinism back to Condorcet,

d'Holbach, and Leibniz. While Laplace's statement of determinism from 1814 has become famous, he actually made a very similar statement already in 1773, and he was very probably influenced by Condorcet and d'Holbach, who both made strikingly similar statements just a few years earlier. They both clearly discussed determinism in a philosophical context and their determinism was based on metaphysical ideas about causality and the principle of sufficient reason; I argue that the same holds for Laplace's determinism.
Later authors, who argued for determinism in physics during the nineteenth century, followed Laplace without giving further justification of determinism; throughout the nineteenth century, determinism was a metaphysical principle rather than a theorem in physics.

The role of science in the recent successes of Dutch horse breeding
Bert Theunissen, Descartes Centre, Utrecht University

In recent years, Dutch-bred horses are internationally much sought after for their performance in show jumping and dressage. Dutch horse breeders even seem to have become more successful than their colleagues from formerly leading horse breeding countries such as Germany and Great Britain. Remarkably, the Netherlands never were a traditional horse-breeding country, nor are there any notable Dutch horse breeds, besides the Friesian (which however plays no role in jumping or dressage). The question to be answered in this paper is how this remarkable success can be explained, and more particularly, since professional livestock breeding is said to have become a science, what role scientific knowledge played in bringing it about. Considering that crucial scientific knowledge should be available in principle to serious breeders in all countries, it seems as if differences with respect to the breeders' willingness to 'apply' such knowledge may provide an explanation.

Liberation by knowledge? Disability, social science and activism in postwar Britain and the Netherlands
Paul van Trigt MA, PhD Student VU University Amsterdam

In Europe there are big differences between countries in the way disabled people organize themselves (or not) in social movements and the impact of these movements on the inclusion of people with disabilities. One of the key elements to explain these differences is the (non-) existence of disability studies, an interdisciplinary academic field studying disability. Scholars of this field have developed the so-called social model of disability in which disability is understood as a social construct. This model was on the one hand referring to scientific debates about the way disability has to be defined because it was developed as an alternative to the medical perspective on disability. On the other hand the social model was a source of inspiration for disability activists because the construction of disability was interpreted as a chance to change that construction. This raises the question how disability studies and disability movements or –more general formulated- how science and politics were related in particular settings. One of the most striking examples of difference in this respect comes to light in the comparison between the United Kingdom and the Netherlands. In the UK disability studies was set up by disability activists and the academic field is until today interwoven with the social movement. In contrast, a strong disability movement in the Netherlands is absent and disability studies is only recently developed, although the social model of disability has a longer history. In my paper I will present the preliminary results of a comparative history of the use of scientific concepts and knowledge by postwar disability groups in the UK and the Netherlands.

Using diagrams to learn about cognition in Central-European universities, 15th-17th century.
Annemieke Verboon (Centre Alexandre Koyré, Paris)

Quite a large corpus of medieval diagrams feature the cognition functions in a man's head. These diagrams were used in the study of philosophical psychology in the 15th century, and from there also spreading to anatomy education in the early 16th. In this period students studied mainly by text books, rather than reading Aristotle's De anima directly, presenting overviews, problematic points, discussions, to train and prepare them for exams.
Diagrams, texts and students/professors partake in this reflexive dimension of orality, writing and books. Students were to appropriate the readings presented in these textbooks, initially presented as formal lectures. In their appropriation of the content they create new meanings, manipulating and adapting the contents to their belief, expressed in accompanying glosses and commentaries of local professors. The diagrams likewise demonstrate this reflexivity between orality, writing and its material disposition, its meaning and appearance having changed by alternative and competitive commentaries.
In this paper I will present my file about this corpus of cognition diagrams, manipulated and appropriated by students and professors, diffused in a geo-political space of connected central-Europe universities of the 15th and 16th century. By introducing a narrative framework in which the user of knowledge is at the center, I aim in my work to knit a fabric with the materiality of the book on one pin and the immateriality of thought on the other.

The marginalization of astrology in early modern science
Rienk Vermij, University of Oklahoma

De "wetenschappelijke revolutie' van de zeventiende eeuw is vooral beschreven als een serie nieuwe ontdekkingen en inzichten. Niet minder belangrijk, maar veel minder bestudeerd, is echter dat allerlei theorieën in onbruik raakten. Astrologie was in Middeleeuwen en Renaissance een integraal onderdeel van de sterrenkunde, de geneeskunde

en het algemene wereldbeeld, maar kreeg rond de zeventiende eeuw een stempel van onwetenschappelijkheid. Onduidelijk is hoe dat samenhangt met de overige veranderingen uit de periode. Ik heb geprobeerd in kaart te brengen hoe dit proces van marginalisering in Nederland is verlopen (vooral op basis van materiaal bijeengebracht voor mijn onderzoek naar de receptie van het copernicanisme). Op basis van de voorlopige conclusies hoop ik een meer algemeen onderzoek naar de marginalisering van de astrologie op te zetten.

How old is outsourcing in ICT?
Bas van Vlijmen, UvA

Early in the nineties, a new concept rose in the Dutch ICT: outsourcing. It was presented as the new way to organize tasks in development, management, and also use of computers and software. Many of the software houses and ICT services companies at that time started to offer outsourcing services.
Outsourcing, however, is not a new phenomenon. From the moment people started to live in communities with a division of labour outsourcing exists. The organization of the tasks around computers is no exception. We owe the word 'software' to it.
The first computer users, big companies and public institutions, developed in the early fifties with their own teams on bare bones machines virtually all programmes to serve their own purposes. Quickly it became clear that deploying computers was far from trivial and demanded expertise the user organisations did not have and moreover did not want to develop. In the middle of the fifties a market arose for specialized consultancy firms which offered this expertise. The word software was introduced to indicate these services. In later years the meaning narrowed down to programs.
In the sixties and seventies many small companies did not own a computer, however, they outsourced big parts of their administration: from process control to order processing to accounting. It was the time of computing centres and also of large scale, often outsourced, data entry.
In the eighties many companies did own a computer, but they did not develop the software for it. Also the management and maintenance was often taken care of by external parties. So, outsourcing in the ICT sector is old.
Nevertheless, something did change in the nineties that justified the use of a new term – from the Dutch perspective – and brought about a big growth in outsourcing. It's this change that I will illustrate and try to understand using the case of the Dutch bank and insurer ING.
The study into the History of Outsourcing is part of the study into the History of Software in the Netherlands, a project led by Gerard Alberts.

The Public Use of Knowledge in the Netherlands in the 19th Century
Martin Weiss, Leiden University

Taking Richard Sennett's analysis of how the definition of the public and the private realm changed in Western society after 1800 as a starting point, this paper will first argue that the public sphere was not "hollowed out" (to borrow Sennett's terminology) in the Netherlands as much as it was in other societies. As a result, throughout modern history public life has played a different role in every Dutch citizen's life than it has in the life of citizens of other countries.
The effects of this were and are profound: political conflict was played out differently than in other societies, for instance; public and government institutions had a different status within Dutch society than they did in other countries (museums and other collections are a prime example which will serve as a primary case study in this paper); all this was reflected in the government's cultural policy.
If one then accepts that "science" is a (at least partially) culturally determined form of knowledge, it becomes clear that cultural policy always has an impact on the status and the practice of science too. Crucially, if one continues this line of argument, one can see that the unique definition of what constituted the private and the public realm in the Netherlands can help explain some of the unique features of Dutch science in the 19th century. In a nutshell, knowledge – or science – was to serve a different public use in the Netherlands than it did in other countries.
Presenting the early stages of a more far-reaching research project, this paper will explore how far one can take the argument sketched above.

Dutch 17th Century Mathematics in German Contexts
Gerhard Wiesenfeldt, University of Melbourne

This paper will look at three German mathematicians and philosophers in the second half of the
seventeenth century and the way they adopted elements of Dutch practical mathematics: Johann Christoph Sturm (1635-1703), professor of mathematics and natural philosophy at Altdorf, Ehrenfried Walter von Tschirnhaus (1651-1708), advisor to the Elector of Saxony, and Samuel Reyher (1635-1714), professor of mathematics and law at Kiel. All three had gained a first hand knowledge of practical mathematics during longer stays in the Dutch Republic. Yet, they made very different use of this knowledge after their return to the German lands. Sturm had published a mathematical tract during his student days at Leiden in 1661 – the Universalia Euclidea – and while he subsequently acknowledged practical mathematics in his broader mathematical works, he never embraced it in his own studies, neither in his astronomical studies nor in his extensive work on experimental natural philosophy. Tschirnhaus, on the other hand, followed the Dutch model closely in his research on burning mirrors and lenses. For him, practical mathematics became an important

component of the formation of a technological industry at the heart of the early modern state formation. Reyher, finally, adopted central elements of the teaching of Dutch mathematics in his own practice. He managed to get his university to acquire a field that could be used for practical exercises in surveying and fortification.
The paper will discuss potential factors contributing to their respective stance towards Dutch
mathematics. A particular role to be analysed here is the relation between mathematics and
philosophy, the ways this relationship impacted on the role of mathematics in the early modern state and how this again was interpreted within radical Cartesianism.

Medical empiricism as a form of knowledge in early modernity

Charles T. Wolfe, Sarton Centre for History of Science, Ghent University

The category of 'medical empiricism' presents us with an unusual conceptual and historiographical difficulty, including as a form of knowledge: we do not know what it is, although various actors and commentators make use of it. Simply put, we have a rather fragmented situation, composed of at least the three following clusters: (1) a philosophical position we now call empiricism, roughly since Kant, exists and is defended by Locke and others; but this position bears very little resemblance to what philosophers now call empiricism, at least since Russell; (2) certain core claims of this position, such as the minimal credo, nihil est in intellectu quod non fuerit in sensu (there is nothing in the intellect (or 'mind' or 'understanding') which was not first in the senses), are also medical claims: both because doctors and professors of medicine, including Harvey, Sylvius, Mandeville, Ménuret, Le Camus, Cabanis, mix philosophical, anatomical, and physiological considerations, and because some of these forms of 'medical empiricism' more or less deliberately push it in the direction of an account of brain and mind which it was certainly not in its Lockean context; (3) historically, we find practitioners termed 'empiricks', without this term ever having a particularly well-specified meaning, even if one is tempted to reconstruct a kind of implicit theoretical world of these practitioners, à la Rancière. At least since Galen's On the sects the distinction between rational, methodical and 'merely empirical' physicians is common. 'Empirick' seems to have been used roughly synonymously with 'quack' and 'mountebank' – and 'charlatan', as for instance in the title of Dr Walter Harris 1683 book Pharmacologia Anti-Empirica…Remarks on the most Notorious Impostures of divers Empiricks and Mountebanks (London). But in contrast to the usual empirick-quack identification, a letter written to the Gentleman's Magazine in 1748 seeks to promote a distinction between 'empirics' and 'theoretics' (sounding very Galenic), in which "empirics" are those who have "found the benefit of the medecins they administer" by "Empeiria (experience)." However, the writer admits that the term 'empiric', as noted in Chambers' Cyclopedia, is used by those who are more attached to antiquity and tradition, to designate the rest of the profession – as 'empirics', 'quacks' and so forth.
I shall not classify as a separate conceptual or historical cluster, the recent practice to speak of 'empiricism' in the history of science, to mean a kind of pluralistic, evidence-gathering, pragmatic approach to nature, also since the term is never clearly defined there.
In earlier work I tried to address the question of the nature of this 'medical empiricism' by stressing its uniquely embodied character, which distinguishes it from the more experimentalist empiricism found in the Royal Society and elsewhere – this includes the hostility to anatomy and experimentation in Locke and Sydenham. But this is still very programmatic. Here I wish to focus on medical empiricism as a form of knowledge. Is there a conceptual framework, even a loose one, which allows one to distinguish medical empiricism from other candidates – whether other medico-theoretical projects such as iatromechanism or vitalism, or other philosophical positions, including other forms of empiricism? Is this an explicitly stated framework, or something more tacit? What I am seeking to articulate here is both a discursive, conceptually formed entity, and a form of practice (of the sort that was recently described in William Harvey, as a kind of craft-knowledge, a knowledge different from that of academic medicine and closer to that of the artisans and midwives). Differently put, I try to introduce details from the history of medicine into the otherwise internalist-type presentation of empiricism in the history of philosophy; and conversely, I try and reflect more philosophically on the status of a particularly medical empiricism.

Road Shows

Two groups that are working on NWO-funded research projects will introduce their research plans and prospects.

Chemistry in everyday life: a research programme in the history of chemistry in the Netherlands during the second half of the long eighteenth century
Lissa Roberts, Andreas Weber, Joppe van Driel, Twente University

Vital Matters. Boerhaave's Chemico-Medical Legacy and Dutch Enlightenment Culture
Groningen University
Rina Knoeff: Chemistry and the Nerves
Marieke Hendriksen (postdoc): Quicksilver Doctors
Ruben Verwaal (PhD student): Blood, Sweat and Tears

Panel Discussion: Teaching History of Science

Please do touch: Hands-on history of science teaching
Hieke Huistra, Tiemen Cocquyt, Hendrik Asper

How to teach students that an experimentum crucis is actually rather messy when you are in the middle of it — and only becomes crucial when it is constructed to be so afterwards? By letting them (try to) reproduce such an experiment themselves.
A practical experiment may not be the first thing that comes to mind when designing a history of science course. Usually, these courses are built around texts, with students using no instrument but their laptops. However, experiments and practices are becoming ever more important in the contents of these courses, following the 'practical turn' in writing the history of science. We propose that learning about past practices is best done using your own hands.
In our talk, we present our experiences in hands-on history of science teaching. We will focus on one case in particular: the reproduction of Newton's prism experiment. This reproduction is part of a history of science course that we have developed for (and taught to) secondary school pupils. In present-day physics books, Newton's experiment is depicted as clean and simple; it seems to demonstrate instantly that white light consists of the colours of the rainbow. However, when students try to reproduce the experiment under early-modern circumstances, they learn that the present-day image only remotely resembles what Newton probably did — and that it takes a lot more than one prism to construct a crucial experiment.

Reenacting the major discussions in the history of science in the classroom
Djoeke van Netten, UvA

As an assistant professor with a huge teaching load I know what I am talking about, although not all my courses are directly related to the history of science. What I would like to elaborate on is the idea of reenacting the major discussions in the history of science in the classroom. I tried this rather succesfully, encouraging my students (first year, history) to argue heliocentrism against geocentrism. In the end the whole group was convinced the sun is revolving around the earth, which really nuanced their ideas on Galileo etc. Is this useful? Is it worth trying with other discussions (shape of the earth, infinity of the universe, evolution-creation)? Or maybe too scholastic, or not academical enough?

History of Science for Humanities Students
Geert Somsen, History Department/STS program, Maastricht University

Teaching history of science is rarely straightforward as one is almost always dealing with students who have a lateral interest in the subject – at best. The challenges of

interesting scientists and engineers for our field are fairly well-known. But engaging humanities students is yet a different cup of tea.
In this talk I will address this subject based on my ten years' experience with a first year history of science course in the Maastricht BA program Arts and Culture. This course is taken by some 200 students, whose primary interest is art and culture and who are often quite averse to science. Winning them over is a challenge, but after several attempts we have found some ways that seem to work. The course is now rated as one of the most 'intellectually stimulating' of the curriculum, and it attracts a steady number of students (although still a minority) to specialize in the subject.

Inconvenient Questions: Medical Humanities for Medical Students
Frank Huisman, Utrecht University

It has been argued that the nature of 'Medical Humanities' is rather undecided and that its boundaries are unclear. At the same time, it is regarded as a potential threat to medical history. In my paper, I would like to show how medical history can contribute to 'Medical Humanities' in meaningful ways. I would like to do so by telling about how medical history is integrated in an eight week course of 'Medical Humanities' in the Utrecht medical curriculum.
In the medical curriculum of Utrecht University, Medical Humanities is defined as an interdisciplinary field that incorporates the humanities (medical ethics, health law and medical history), the social sciences (mainly medical sociology) and the arts (some). It sets out to understand modern medicine by inviting students to reflect on its historical and philosophical roots, as well as on its current ethical and legal dilemmas. Because students are stimulated to train their skills of critical analysis and self-reflection, Medical Humanities hopes to contribute to the academic and social shaping of the future physician. In the third year of the undergraduate program, two courses of four weeks each are available;
they are no elective courses but fully integrated in the medical curriculum. While both courses make an attempt to contextualize modern medicine and health care, their focus is different. In MH1 the focus is on collective health care, while MH2 is looking at individual health care. After a general introduction to the course as a whole, each week is devoted to a specific topic: medical research, scarcity in health care, prevention, the doctor patient relationship, the end of life, medical technology and the beginning of life.
In my paper, I will argue that the past may be used as a 'social laboratory'. Focusing on two week topics - medical research and the end of life – I hope to show that by asking inconvenient questions students are triggered to self-reflection and critical analysis.