

History of Science PhD-Conference
(Promovendicongres Wetenschapsgeschiedenis)

January 12-13, 2017

De Glind

Programme and abstracts

Organized by Didi van Trijp, Léjon Saarloos, and Ivan Flis;

with the support of the **Descartes Centre**, the **Huizinga Institute**, and the **Vossius Center**.

Programme

Thursday January 12th

10.30: Welcome

10.45: **Anna-Luna Post** – ‘Re-claiming Fame for Galileo: the Capra Controversy between Court and University’

Commentator: *Emma Mojet*

11.15: **Andrea van Leerdam** – ‘Woodcuts as reading aids: Illustrations and knowledge transfer in printed books in Dutch on the natural world, c. 1480 - c. 1550’

Commentator: *Didi van Trijp*

11.45: Coffee break

12.00: **Jaco de Swart** – ‘History and Philosophy of Dark Matter’

Commentator: *Steven van der Laan*

12.30: **Chaokang Tai** – ‘Anton Pannekoek and the Dutch School of Astrophysics’

Commentator: *Jorrit Smit*

13.00: Lunch

14.00: **Robbert Striekwold** – ‘“Artistic within the constraints of science”: Hermann Schlegel and the standardization of illustration in 19th century Dutch natural history’

Commentator: *Andrea van Leerdam*

14.30: **Christiaan Engberts** – ‘Judging Scholars: Mutual Evaluation In Late 19th Century Oriental Studies’

Commentator: *Usman Ahmedani*

15.00: **Usman Ahmedani** – ‘Ottoman-Turkish Romantic Nationalism, 1860-1920’

Commentator: *Léjon Saarloos*

15.30: Coffee break

15.45: **Sjang ten Hagen** – ‘Circulation of knowledge: crossing disciplinary boundaries?’

Commentator: *Christiaan Engberts*

16.15: **Emma Mojet** – ‘Circulation of knowledge: crossing disciplinary boundaries?’

Commentator: *Robbert Striekwold*

16.45: Coffee break

17.00: **Anne van Veen** – ‘Animal testing and Alternatives in the Netherlands (1950-2016)’

Commentator: *Noortje Jacobs*

17.30: **Steven van der Laan** – ‘Hybrid breeding of pigs’

Commentator: *Anne van Veen*

18.30: Dinner

20.00: Drinks

Optional: bootcamp or running class (before drinks)

Friday January 13th

08.00: Breakfast

09.00: **Lucie Bastiaens** – ‘The development of social psychiatry in Maastricht in the 20th century’

Commentator: *Lisa Wijzen*

09.30: **Lisa Wijzen** – ‘Interpreting the latent variable: A historical perspective’

Commentator: *Ivan Flis*

10.00: Coffee break

10.15: **Noortje Jacobs** – ‘Ethics by Committee: Governing human experimentation in the Netherlands, 1945-2000’

Commentator: *Sjang ten Hagen*

10.45: **Pieter van Rees** – ‘The development of scientific knowledge on citizenship education’

Commentator: *Jaco de Swart*

11.15: **Jorrit Smit** – ‘Science (and) policy (as) practices’

Commentator: *Pieter van Rees*

11.45: Lunch

12.45: **Wouter Klein** – ‘The Early Modern Drug Trade as a Niche Market: Diachronic Patterns of Trade in Peruvian Bark in the 18th Century’

Commentator: *Anna-Luna Post*

13.15: **Léjon Saarloos** – ‘Science until you die: desire in Victorian academic memory culture’

Commentator: *Chaokang Tai*

13.45: Coffee break

14.00: **Didi van Trijp** – ‘Nets and networks: some methodological reflections’

Commentator: *Wouter Klein*

14.30: **Ivan Flis** – ‘As the Id Goes Marching On: Psychoanalysis through term co-occurrence maps (1950-1999)’

Commentator: *Lucie Bastiaens*

15.00: Closing

Abstracts

Thursday January 12th

Re-claiming Fame for Galileo: the Capra Controversy between Court and University

Anna-Luna Post

This paper offers an in-depth analysis of the plagiarism conflict between Galileo and Baldassare Capra in 1607, with a specific focus on the role played by the University of Padua and other third parties. When Galileo's *Le Operazioni del Compasso Geometrico e Militare* was plagiarized by his former student Baldassare Capra in 1607, the still relatively unknown Galileo petitioned the Riformatori dello Studio di Padova to intervene and retrieve his lost "honour, fame and glory". This paper investigates why Galileo specifically requested the involvement of the Paduan Riformatori, rather than that of the young Florentine prince to whom the work was dedicated, and examines the role they subsequently played in retrieving his lost fame. While also taking into account Galileo's own actions, this paper focuses in particular on other stakeholders and their interests: the Riformatori, Galileo's friends and patrons, his publisher, and the international cast of learned and noble witnesses who testified in favour of Galileo's claims. It explores the different strategies taken by these third parties to reclaim Galileo's lost fame and argues that, in the subsequent trial, the Riformatori aimed at damage control, whereas Galileo steered towards the creation of a full-blown public scandal to enhance his fame. The paper forms part of my PhD-project on Galileo's fame, reputation and credibility (working title: 'Claiming Fame for Galileo: The Mechanics of Reputation and its Impact in Early Modern Europe') and, as such, aims to present new insights into the importance of scandal and controversy in the construction of scholarly fame and credibility by third parties.

Woodcuts as reading aids: Illustrations and knowledge transfer in printed books in Dutch on the natural world, c. 1480 - c. 1550

Andrea van Leerdam

As a PhD candidate at Utrecht University since October 2016, I study book illustrations (woodcuts) in the earliest printed books in Dutch, from the 15th and 16th centuries. My project, funded by the Netherlands Organisation for Scientific Research (NWO), explores how these woodcuts contributed to knowledge transfer beyond the scholarly world. In the early decades of the printing press, both producers and consumers of the printed book were only gradually getting acquainted with the new medium's possibilities. Printers attempted to attract new audiences - of varying ranges of literacy - with 'user-friendly' books containing new reading aids such as title pages, explanatory prologues and captions. This project studies a type of reading aid of which the impact is not yet fully understood: book illustrations. Focusing on Dutch vernacular books about the natural world, I analyse how they are illustrated and how (and to what extent) the woodcuts relate to the text. In this analysis I approach knowledge transfer as a communication process. By involving insights from such fields as document design and multimedia learning, where image-text relations and their possible effects on readers/listeners have been studied extensively, I aim to shed new light on late medieval and early modern reading practices. I will also examine who were the intended and the actual users of these multimedia books in the vernacular. To this end, I will study indications of the intended audience provided by title pages and prologues, as well as users' traces like annotations, owners' marks, or coloured woodcuts.

History and Philosophy of Dark Matter

Jaco de Swart

Uncovering the nature of 'dark matter' -- a type of nearly undetectable matter, hypothesized to account for an observed excess of gravitational forces -- is one of the most profound and prominent problems in current-day physical sciences. Although the problem can be traced back to the 1930s, it was not until the early 1970s that the issue of 'missing matter' was widely recognized. In this talk I discuss why it was that the dark matter problem became prominent only after such a long period of time. I argue that it was not just the advancement of new evidence that gave rise to interest in dark matter. Rather, to understand the establishment of dark matter we should take into account both the institutional developments in astronomy of the 1960s, and the rise of the discipline of physical cosmology. Only when regarding this broader disciplinary context, I show, we can make sense of how dark matter came to matter.

Anton Pannekoek and the Dutch School of Astrophysics

Chaokang Tai

Up to the twentieth century, astronomy had focused completely on the distribution and movements of stars and planets. In the early twentieth century, however, the development of statistical mechanics and quantum theory finally made it possible to say something meaningful about the chemical composition and physical condition of stars. The main contributors to this newly emerging field, which became known as stellar astrophysics, were almost exclusively linked to three main centres of research: Harvard, Princeton, and Cambridge. One notable exception to this was Amsterdam astronomer Anton Pannekoek, who essentially singlehandedly founded the astrophysical school of research in the Netherlands. Pannekoek's early prominence in astrophysics is especially interesting because he had only just returned to astronomy after spending a decade as socialist theorist and political agitator. In my presentation, I will outline my research on the astrophysical research. This will be directed toward answering the following questions: why did Pannekoek enter the field of astrophysics of stellar atmospheres; how were his contributions received by the centres of astrophysical research; and what exactly were these contributions.

“Artistic within the constraints of science”: Hermann Schlegel and the standardization of illustration in 19th century Dutch natural history

Robbert Striekwold

Natural history illustration has a long history, but naturalists have held widely varying opinions concerning the way such illustrations should be made, and the role they ought to play. By the 19th century, however, the increase in scale of mostly museum-based collections and the enormous amounts of new species increased the demand for agreement on how to properly depict specimens. In 1846, the Teylers Society announced a reward for whoever could specify the characteristics a natural history illustration should have in order to satisfy both artists and naturalists. Hermann Schlegel, curator of vertebrates at the National Natural History Museum in Leiden, gladly accepted the challenge and wrote a highly influential essay in which he laid out the rules. While Schlegel greatly valued the aesthetic aspect of natural history illustrations, he made the scientific demands primary and gave artists only limited room to exercise their freedom. This is hardly surprising, for the role of illustrations was changing in the 19th century, especially with the rise of type specimens that bore the name of entire species. Such specimens had to be studied widely and were thus much demanded, but by their very nature only one could exist per species. Illustrations had to function as doubles for such objects, making it possible to study them at a distance. Schlegel's rules quickly became the norm in the Netherlands, illustrating the institutionalization and standardization in 19th century natural history.

Judging Scholars: Mutual Evaluation In Late 19th Century Oriental Studies

Christiaan Engberts

Nineteenth century scholars often reverted to the metaphor of the judge when asked to characterize their scholarship. A good scholar was expected to be able to judge both the work and the character of his peers. Therefore, review journals as well as personal correspondences of scholars are full of judgments of both recently published research reports and the personal virtues and vices of their authors. This judicial self-representation, however, was more controversial than a quick glance at these reviews and letters might suggest. In my paper, I will illustrate the major points of disagreement as presented in the correspondences of two Orientalists: Theodor Nöldeke, professor of Semitic languages in Strassburg and his friend and colleague Michael Jan de Goeje, professor of Arabic in Leiden. While the former generally defended the judicial prerogatives of scholars the latter started to have his doubts. These doubts centered on three major questions. The first question concerned the public character of the judgment: was it not better to settle disputes in private discussion rather than in front of an audience? The second question was whether it was a good thing that scholars often considered themselves to be free to not only judge each other's work but to judge each other's character as well. Through this case study I will illustrate how the metaphor of the scholar as a judge, which seems appropriate in the description of nineteenth century scholars, was in fact also strongly contested and highly ambiguous.

Ottoman-Turkish Romantic Nationalism, 1860-1920

Usman Ahmedani

The 'long nineteenth century' witnessed tensions between two simultaneous movements: on the one hand, increased transfer of scientific knowledge (alongside capital, goods and people) on an international scale; on the other hand, the increasing resonance of the romantic belief that each nation had a unique 'soul' (as manifested in its culture, language and literature). I aim to explore these tensions in the case of Ottoman-Turkish cultural nationalism as it developed at the turn of the twentieth century. In particular, I will look at the shifting conceptualisation of national character that stressed the chivalric and martial qualities of the ancient Turkish 'noble savage' and saw in it a model for the new Turkish nation. This turn to archaism in Turkist thought emerged alongside a new understanding of Turkish history that was rooted in a pre-Ottoman, and even pre-Islamic, Turkic past. However, discussions about Turkish national character and origins were carried out within a transnational context. Indeed, the interest in Turkic ancestry had origins in European philological and ethnographic studies on the Ottoman Empire. How were these studies' conclusions adapted and instrumentalised by Turkist thinkers? What role did theories of environmental determinism and Social Darwinist ideas play in the romanticisation of the ancient steppe in nationalist literature? In what way were notions of Turkish national character inflected by novel concepts of psychology and race? These questions will form the basis of my overall research project.

The flow of 'cognitive goods' across disciplinary boundaries, 1800-2000

Emma Mojet and Sjang ten Hagen

Our shared project aims to describe historical interactions between disciplines in science and the humanities. In particular, we are interested in moments when intellectual products transfer, or flow, across disciplinary boundaries. There must have been plenty of such flows in history, considering the fact that disciplines have significantly changed over time. We observe, however, that the lion's share of studies in the history of science and the humanities is monodisciplinary in focus. Even those studies influenced by Secord's historiographical manifest *Knowledge in Transit*, in which the study of crossover of disciplinary boundaries is explicitly advocated, have largely failed to describe interdisciplinary interactions. In our project, we plan to use a new analytical tool – the concept of cognitive goods – in order to describe historical interactions between disciplines. Examples of 'cognitive goods' are research methods, formalisms, intellectual and moral virtues, theoretical concepts, metaphors, and argumentative and demonstrative techniques. By following the trajectory of a cognitive good across disciplinary boundaries, we can describe how knowledge circulation across disciplines takes place. Furthermore, such a general framework enables a comparative analysis of multiple flows, which is impossible with current historiographical methodology.

Case studies

Our project consists of several case studies of flows across disciplines, as well as identification (and reinterpretation) of existing case studies describing such flows.

Emma will focus on disciplines where the boundaries are not (yet) clearly defined, if at all. For example, she plans to look at how the notion of cognitive science developed and established itself. A first focus will be on linguistics as one of the disciplines contained in cognitive science together with anthropology, philosophy, psychology, neuroscience and artificial intelligence.

Sjang will focus on cases in which disciplinary boundaries are more or less stable. His research involves interactions between the humanities and the sciences, particularly between physics and historical disciplines in the 19th century. For example, he plans to analyse the implementation of the physics seminar in 19th century German universities, of which it is known that it was modelled towards the humanistic seminar.

Animal testing and Alternatives in the Netherland (1950-2016)

Anne van Veen

Since the 1950s, important developments have taken place in the realm of animal testing and alternatives in the Netherlands and internationally. The Wet op de dierproeven (Wod) has been created (1977) and implemented (1980), the EU has banned testing for cosmetic purposes and the focus of policy and legislation has shifted to the 3 Rs: Replacement, Reduction, and Refinement. In addition, specific events such as the publication of the ad against Revlon testing on rabbits in The New York Times in 1980 and the thalidomide tragedy in the 1960s internationally and the publication of Wod evaluation 'Noodzakelijk Kwaad' in 2005 nationally, have led to a (temporarily) increased public interest in animal testing and alternatives. Also, the public in general and interest groups/activists specifically have been demanding more openness from scientists working with animals whilst the focus shift towards the 3Rs has created more opportunities for cooperation between scientists, government and animal welfare organisations. My research will focus on the history of animal testing and alternatives in the Netherlands (1950-2016), giving special attention to the public debate and how this debate interacts with developments in science and policy. I will also consider how these historic developments are related to changes in public-science and human-animal relations since the 1950s. My presentation will elaborate on what I plan to focus on with my research and why.

Hybrid breeding of pigs

Steven van der Laan

Until the 1960's, pig farmers kept a strict division between their breeds. A rational approach to breeding was purebred breeding because crossing breeds would only lead to unpredictable results and eventually chaos. At the end of the sixties, agricultural scientists became involved in the practice of breeding and as one of the results, pig breeders began to implement crossing-schemes to benefit from hybrid vigour; the effect of crossing two breeds in which the offspring performs better than their parents. That is how the story usually goes. Yet this top-down view on scientific innovations in the practice of breeding can be criticised in multiple ways. For one, the mechanism behind hybrid vigour is until now poorly understood by scientists but a widely known phenomenon for hundreds of years among breeders. Why did these breeders then switch to hybrid breeding only in the sixties of the twentieth century? What role did scientists play in this changeover? These questions yield surprising answers and, besides giving a nuanced view on the nature of scientific innovations, give insights in the way breeders conceive the genetic material of their pigs.

Friday January 13th

The development of social psychiatry in Maastricht in the 20th century

Lucie Bastiaens

The development of social psychiatry in Maastricht in the 20th century, until approximately 1965, can be divided into three periods with their own characteristics. From 1900 until 1930 so called 'idiots', 'epileptics' and 'neurotics' were pointed out as 'new problematic citizens'. Although newly formed networks of doctors, priests, politicians and bourgeoisie with a modern, progressive and socially committed mind-set attempted to effectively help these citizens, these modern ideas and initiatives could barely develop: traditional views of philanthropic aid remained dominant. There was a lack of support and money from Maastricht's catholic-liberal bourgeoisie and church. It was only when from the 1930's on the catholic organisation The Green Cross Limburg, the most influential public health organisation in the province Limburg, set out for mental health care, that mental health care facilities in Maastricht came into being. Committed Green Cross members with different expertise (GP, psychiatrist, psychologist, politician, priest) united in a Committee for Mental Health: "to look after the interests of people with mental deficiency or mental instability". 1945 marks a new era. The focus broadens from psychiatric patients to the whole population. 'Modern society' is seen as a cause of potential mental problems for all citizens. To extend mental health care facilities, more professionally educated staff (such as psychiatrists, psychologists, social workers) was required. In the 1950's a new field within social psychiatry developed in Maastricht, because of clearance of Maastricht's slums: so called 'antisocial citizens' were conceptualised as 'problem citizens' which had to be re-educated. Catholic clergy that took care of this group in the slums were replaced by all sorts of new professionals when (governmental) money and facilities became available.

Interpreting the latent variable: A historical perspective

Lisa Wijsen

In my project, I study the history of psychometrics. Psychometrics is the scientific field devoted to the connection of latent variables to observable behavior. An example of such a connection is the causal link between general intelligence, or IQ, and test scores. In this example, the latent variable is assumed to be the driving force behind the observed test scores. In other words: variation in the test scores can be explained by variation in the latent variable. Most applications of psychometrics (e.g. CITO, SAT's) have a measurement purpose, in which the observed variables are used to indirectly measure the latent variable. However, the latent variable as term, though influential, is not uncontroversial. For example, there is general disagreement on the nature of these latent variables; some psychometricians tend to shy away from realistic interpretations and sometimes prefer to call them 'tools', 'random effects' or 'constructs'. But the notion of measurement implies that 'something' is in fact being measured, which does not seem to bode well with an unrealistic interpretation of the latent variable. Nevertheless, an unrealistic interpretation of the latent variable does not keep psychometricians from engaging in measurement jargon. In this project, I intend to find an answer to the following research questions: 1) what types of interpretations have been given to the latent variable, 2) how these interpretations have changed and developed over time and 3) how these interpretations are compatible with the perhaps changing aims of psychometrics.

Ethics by Committee: Governing human experimentation in the Netherlands, 1945-2000

Noortje Jacobs

Today, if a scientist wants to conduct an experiment on human beings, she first has to pay a visit to a research ethics committee. In most countries around the world, these official bodies have the power to decide on the ethical permissibility of human research studies. Simply put, without their approval, no clinical experiment to cure cancer can take place, no psychological experiment to study the eccentric behavior of PhD-students is allowed. And, increasingly, no oral history interview is supposed to be conducted either. If a scientific research study involves human beings, the argument goes, an ethics committee first has to decide it actually is ethical (regardless of what the researcher in question might think of this). In my PhD-research I investigate the history of research ethics committees in the Netherlands. The practice of "ethics by committee" in scientific research as we know it today did not exist before the second half of the twentieth century. Even though human experimentation goes back as far as 280 B.C.E., the decision to conduct such research studies in most countries around the world remained the prerogative of individual scientists until about the early 1970s. But then, in a remarkably short period of time, research ethics committees sprang up all around the world. Why did this happen? And what does this radical change in governance tell us about the changing societal position of science after World War II? In my presentation, I explain why I chose this research topic (and why the focus on the Netherlands), how I intend to structure my historical narrative, and what I want to point out about the contemporary governance of science with this historical case-study. I look forward to your feedback and suggestions!

The development of scientific knowledge on citizenship education

Pieter van Rees

My PhD-research examines the development of scientific knowledge on citizenship education in various fields in the 20th century. The main idea is that while citizenship education is a mandatory part of the curriculum in many schools systems (including the Dutch), numerous questions remain about the nature of 'citizenship' itself and effective means of teaching citizenship. Furthermore, the debate around citizenship education tends to be filled with many 'political' or 'ideological' notions, as every specific definition of citizenship incorporates a political view. This makes a 'neutral' scientific view on citizenship education a difficult matter. Citizenship can be seen as an 'essentially contested concept'. On the other hand, there is an immense quantity of scientific publications on the nature and effectiveness of citizenship education, from a very wide spectrum of scientific disciplines. This research will place the current debate around citizenship and citizenship education in a wider historical context of developing scientific, educational and political ideas, mapping out the 'contest' around this concept in the last hundred years. The part I would like to present at the conference is a journal-study of *Paedagogische Studiën*, in which I trace the emergence and transformations of citizenship education as a research topic in the Dutch pedagogical academic scene, from around 1920 until 2000. I will focus especially on the role of 'worldviews' and the pillarization before WW II and on the rise of 'objective' and quantitative methods during the second half of the century.

Science (and) policy (as) practices

Jorrit Smit

Did post-war science policy lead to more than paper – how did it leave a mark on the world? The responses one can give to this question depend strongly on the concepts of science and policy used by the researcher, as well as by the historical agents. This, namely, leads one to look for and study different kinds of sources. In this presentation I reflect on these issues that I encountered in the first year of my PhD – and that I hope to resolve in the next. In this short paper I will tease out how both policy and sciences were active in epistemic, social and material ways. What ideas of knowledge (and society) informed different science policies, and how did this translate into various material forms that subsequently structured social reality – of scientists and civilians – in intended and surprising ways? By looking at the genesis of the first Dutch Science Policy of the 1970s several possibilities and problems emerge for studying the relations between scientific and political practices.

The Early Modern Drug Trade as a Niche Market: Diachronic Patterns of Trade in Peruvian Bark in the 18th Century

Wouter Klein

This paper will address the interplay of trade, science and society in premodern Europe, by focusing on the influx of exotic drug components in 18th century Amsterdam. It will be argued that the flourishing drug trade triggered the development of a specialized, recognizable niche market for pharmaceutical substances. Specific brokers mediated the drug trade between the global and the local/regional levels. For Amsterdam, one of the most important transit locations in the world for goods, like pharmaceutical products, numerous sources can help to study the drug trade: extensive archival records about brokers' activities, digitized newspaper advertisements for these same activities, and price journals. Notwithstanding these systematic resources, nobody has attempted to analyze the drug trade from a diachronic perspective yet. In this paper (which is to become a journal article and dissertation chapter), the trade in Peruvian bark is showcased, based on newspaper advertisements for auctions where the substance was sold. The commercial history of this important remedy against malarial fevers helps to explain its reception in science and society, and the reciprocal effects on commercial patterns. As new types of bark were discovered, tested and used, trade patterns shifted in response. At the same time, the availability of bark was affected by macro-economic developments in global trade, as well as by political and social changes in the Low Countries and abroad. In this way, the paper stresses the intricate balance of different trajectories, that determined the meaning of a drug on the medical marketplace.

Science until you die: desire in Victorian academic memory culture

Léjon Saarloos

In this presentation, I will argue that the category of 'desire' was central to the ways in which Victorian men of science perceived, disputed, and performed their scientific identities. Notions like desire, passion, hunger, love, devotion, and taste, recur over and over again in different types of sources and were uttered by actors from wildly varying backgrounds themselves, whenever they reflected on what it took to be a scholar or man of science in late Victorian Britain. 'Desire', roughly defined as a strong and continuous dedication to the perceived goals of science, was seen as the guiding principle of a scholar's character and as a guarantee of scientific virtuousness. Through a few examples, I hope to elaborate on the role desire played in the attempts of Victorian men of science to redefine their identities in a period of discipline formation and how they, in turn, sought to discipline themselves to live a scientific life.

Nets and networks: some methodological reflections

Didi van Trijp

This paper serves to assess how I can get a firmer grip on the networks through which knowledge of the underwater world circulated in the long eighteenth century. My dissertation looks at four different 'fish books', each of which is embedded in its own context and brings along its own networks. For this paper, however, I have focused on the *Historia piscium* (Oxford, 1686), written by the Cambridge naturalists Francis Willughby and John Ray. The first section of this paper explores various discussions about natural philosophical networks in late seventeenth-century England. The second section discerns the different networks in which Willughby and Ray were embedded, and evaluates what kinds of knowledge they extracted from these respective networks (e.g. observations, testimonies, material). The concluding section relates the treatment of this case study to the central question of my dissertation, namely: how and why did ichthyology develop as a field of expert knowledge in the long eighteenth century?

As the Id Goes Marching On: Psychoanalysis through term co-occurrence maps (1950-1999)

Ivan Flis

In this paper, I will explore in detail a work-in-progress case study which arose out of my research project. My PhD project investigates disciplinary formation of English-language psychology from 1950 to 1999, by looking at introductory university textbooks and data mining more than 600,000 scholarly articles published in psychological journals. In this presentation, I will briefly introduce the method used for data mining such large amounts of literature and a particular kind of visualization called a term co-occurrence map which is used to interpret and analyze the information from the articles' abstracts and titles. The case study is concerned with the unexpected position of psychoanalysis in these term maps, and what can we, as historians of science, learn about the relationship between psychoanalysis and psychology in this period by analyzing large patterns in the literature.