

WORK IN PROGRESS

Current Research in the (Social) History of Biology in the Netherlands

As a sequel to the sketch of the origin of the history of biology as an academic discipline in the Netherlands (*Tractrix* 2, 1990, pp. 141-157), we present here an overview of current Dutch research in the history and social history of biology. We have cast our nets as wide as possible, including every project that we deemed to be relevant, directly or indirectly, for the (social) history of biology. We are well aware that some of our contributors may feel *bien étonnés de se trouver ensemble* and that some of them would probably not call themselves (social) historians of biology at all. On the other hand, disciplinary boundaries are slowly but surely fading away, and we think that none of our contributors would object to furthering this process. For the same reason, we have not attempted to devise a 'classification' of the entries along disciplinary lines. A chronological listing of the projects would not be of great help either, since, as it turns out, most projects concentrate on nineteenth- and twentieth-century topics. (Should we begin to worry about this trend?) To create some order, we have grouped the projects according to their institutional basis. Naturally, some obvious 'family resemblances' between the projects are accentuated in this way, yet we are confident that this will not stand in the way of an exploration of the possibilities for further interdisciplinary exchange and cooperation. The descriptions of the projects have been drafted by the contributors themselves, and we express our best thanks to them for their cooperation. Needless to say, we may have overlooked some projects. Please bring them to our attention; we will be glad to publish them in an *addendum* in the next issue of *Tractrix*.

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Abraham S. van der Bijl

History of the zoological collections of the "ARTIS Zoo" in Amsterdam during the nineteenth century. In the nineteenth century Amsterdam Zoo kept a Zoological Museum, which is at present connected with the University. In former studies the author has published a biography of the ornithologist/taxidermist P.L. van Steenhuizen, followed by a historical review of the shell collection during the nineteenth century.

In the present project the history of other departments of the Museum will be studied and described.

Henry E. Coomans

1. *The zoological material from the Dutch Caribbean in the collection of Albertus Seba.* The first collection of the apothecary Albertus Seba (1665-1736) in Amsterdam was sold to czar Peter the Great of Russia in 1717. His second collection, which was described in four volumes and auctioned, contained material from the Netherlands Antilles. This material and Seba's connections on the islands are being traced.

2. *Biological and archaeological research of A.J. van Koolwijk.* Father Antonius J. van Koolwijk (1836-1913) was a Dutch Roman Catholic priest who worked on Curaçao, Bonaire and Aruba from 1872 to 1886. He is considered to have been the first archaeologist of these islands, and he also collected animals and plants. A biography of van Koolwijk will be published.

3. *The shell collection of N. Gualtieri.* The Italian physician Niccolé Gualtieri (1688-1744) had a large shell collection on which he published in 1742. This collection was recently discovered in the Zoological Museum of Pisa. It contains, among other things, material collected by Rumphius in Amboina at the end of the seventeenth century.

Robert G. Moolenbeek

History of the malacological collection of the Zoological Museum in Amsterdam. The Zoological Museum of the University of Amsterdam was originally, together with the Zoo, one of the projects of the Royal Zoological Society "Natura Artis Magistra." The Society was founded in 1838. The shell collection of the Museum was growing rapidly by purchase, donations and via exchange. It contained material from all over the world, including historically important shells from former eighteenth-century collections.

Via the archives of the Society, sale catalogues, letters, malacological literature, and from the information written on the shell's labels, the specimens with historical value are being traced. These shells were often used for original descriptions, and therefore considered as type-material. For this reason they are also of importance in taxonomic research.

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Florence F.J.M. Pieters

Currently I am finishing a paper on *the scientific career of the zoologist Max Wilhelm Carl Weber (1852-1937)*. Max Weber is mainly renowned for his leadership of the Siboga Expedition, a deep-sea expedition to the Netherlands East Indies (now Indonesia) in 1899-1900, and for his reference work *Die Säugetiere* published in first edition in 1904. Weber owed his knowledge of the anatomy of rare mammals mainly to specimens from the Amsterdam Zoo "Artis."

The next project is related to the book *La Ménagerie du Muséum National d'Histoire Naturelle* by Georges Cuvier, the Count Lacépède, and Étienne Geoffroy Saint-Hilaire. The first part of this project concerned an analytical bibliographical study of the book. I will proceed with the zoological significance of this work.

Finally, a study is foreseen on *the impact of the menagerie of Stadholder Willem V, directed by Aernout Vosmaer (1720-1799)*, in connection to Holland and to Europe as a whole. This is a continuation of my study on the history of this menagerie. Another famous *menagerie* in Holland at the time was that of *Blauw Jan* in Amsterdam; it existed from ca. 1675 until 1784. More research on this early menagerie is projected.

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Olga Amsterdamska

Between science and practice: the development of bacteriology in the first half of the twentieth century. The development of bacteriology in the first half of this

century has been shaped in many important ways by the practical applications of bacteriological knowledge in medicine, agriculture, and industry. At the same time, however, many researchers argued that bacteriology is not just a handmaiden of medicine or industry and that its progress depends on the development of general bacteriology. This project aims at a better understanding of the changing relations between the development of bacteriological research in distinct institutional settings and the various practical areas in which knowledge of microbiology played a role.

Focusing on the research on bacterial physiology and bacterial variation in different intellectual, institutional, and practical contexts, I examine the manner in which practical concerns were incorporated into research, the role of various professional interests and institutional contexts in furthering particular types of research, and the process by which microbiology achieved a degree of disciplinary autonomy.

Patricia Faasse

Patricia Faasse is preparing a Ph.D. thesis about the role of experiments in science. The study focuses on *the genealogy and development of different experimental practices in experimental botany in the Netherlands between 1920 and 1960*. Her study highlights in detail different aspects of experimental botany through an analysis of the case of the growth hormone research in the Went Laboratory in Utrecht. The thesis is expected to be finished at the end of 1992.

Willem Halffman

Boundaries and the development of knowledge practices: the case of ecotoxicology. How do institutions regulate access to research facilities and research environments? They may structure who is included and excluded from the participation in specific knowledge practices. In history and sociology of science, such processes were not only suggested for laboratories, but also for professional associations, journals, etc. But how do the different types of institutional boundaries and the patterns of in- and exclusion that come with them, interact with the ways in which research is carried out?

To illustrate these processes, we look at the rise of new fields of research and the institutional contexts in which they are produced. Case research was selected in the environmental sciences, more specifically the recent history of the (dominantly aquatic) field of ecotoxicology. Are institutions with different patterns of scientists associated with specific ecotoxicology-related knowledge practices? Do the institutions that follow the traditional division of labour in environmental sciences between chemistry and biology produce different kinds of ecotoxicology from institutions that do not? Or is ecotoxicology systematically related to the crossing of these disciplinary lines?

To study institutional configurations, a general exploration of the field of environmental sciences was carried out, leading to the selection of key-journals, in turn suggesting research institutes that offer sites to study institutional boundaries.

Nelly Oudshoorn

Her research interests include women's studies and the sociology and history of biomedical research concerning the female body. Last year she finished her thesis entitled *The making of the hormonal body: a contextual history of the study of sex hormones 1923-1940*. This book traces the development of sex endocrinology back to its origins in the 1920s and 1930s and describes how hormonal research and hormonal therapy focused increasingly on the female body and not on the male body. It shows how the freedom of scientists to realize their goals is to a large extent shaped by organizational structures, professional interests and material conditions. In the case of sex endocrinology, the activities of laboratory scientists, clinicians and pharmaceutical entrepreneurs were highly structured by the fact that there existed a medical specialty for the reproductive functions of the female body (gynaecology), and not for the male body. The book describes how this asymmetry in organizational structures made the female body into the central focus of the hormonal enterprise.

A new research project is just started that deals with *an historical/sociological analysis of the organization of clinical trials in the development of hormones as contraceptives in the 1960s*.

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E.J.A. Zevenhuizen

1. *Arrangement of the historical collection of the Faculty of Biology of the University of Amsterdam*. The library of the Faculty of Biology of the University of Amsterdam (location Anna's Hoeve, Kruislaan 314, 1098 SM Amsterdam), is in the possession of about 12 running meters of historical material. It consists mainly of the archives of the Commissioners of the Botanical Garden of Amsterdam (1716-1815, 1827-1877, 70 cm.), and of the archives of the professors of botany Hugo de Vries (1861-1935, 6.50 m.) and Theo J. Stomps (1898-ca. 1965, 2.50 m.). Besides this, there is, among other things, a collection of photographs of students' excursions (1904-1910, 1922-1958, 75 cm.), photographs of the Amsterdam Botanical Garden (1891-ca. 1930, 15 cm.) and watercolours of

Fungi painted by C. van Overeem and J.C. van Rossem (ca. 1915, 60 cm.). The collection is arranged and described by means of the Filemaker-Pro database program of Apple-MacIntosh. The project will be finished early 1993.

2. *A book on the history of the Botanical Garden of Amsterdam*. The book will give a detailed description of the history of the Amsterdam Botanical Garden, from its foundation in 1638 up to the present day, seen within the context of the development of botany from one of the medical sciences to an independent discipline. Attention will be given to administration, the collection, the garden's function as a support in the training of apothecaries and students of botany at the Amsterdam university, its role as a widely known scientific and cultural centre, its contributions to agriculture and plant introductions, and the scientific output of the staff: J. and C. Commelin, J. and N.L. Burman, F.W.H. Miquel and Hugo de Vries. The book (ca. 350 pages, richly illustrated, with an English summary; to be published in 1993) is written by Dr. J. Heniger, biohistorian at Vianen, Dr. D.O. Wijnands, Botanical Gardens, Agricultural University Wageningen, and Drs. E.J.A. Zevenhuizen. Research is financially supported by the Hugo de Vries-Foundation, Amsterdam.

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Ida H. Stamhuis

Tine Tammes (1871-1941) and genetics in the first half of the twentieth century. Tammes was the first person to obtain a chair in genetics in the Netherlands. In 1919 she was appointed professor at Groningen University. My research on Tammes, which will involve conceptual as well as social questions relating to the history of genetics, includes the following topics.

1. Probability and statistics in Tammes' work. During a fixed period the application of probability and of statistical methods was essential for her botanical and genetic work. J.C. Kapteyn (1851-1922), professor of astronomy at that time, influenced Tammes in this area.

2. Tammes' contribution to the 'multiple factor theory'. By means of hybridization experiments with flax, Tammes demonstrated that Mendel's segregation laws could be successfully applied to the inheritance of continuous characters. At the time, this was not generally believed to be the case. It will be shown that her results were convincing because of the availability of an appropriate test plant and because of the application of a probability model.

3. The position of Tammes in Dutch genetics. In this period genetics became

accepted as a science. Some questions which will be studied are: why did Tammes begin to do genetic work in the Mendelian tradition? How did her work fit into Dutch genetic research at that time? What was her role in the institutionalization of genetics in the Netherlands?

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Processes of sex attribution: the case of stamens and pistils between 1682 and 1760. The aim of this dissertation is to find out how, in the history of botany, stamens and pistils acquired a sex. This question is part of my fascination for the question: how do entities that first did not have a sex acquire one? From that perspective I earlier on studied the sexualization of nature and scientist in early nineteenth-century plant geography. However, in the earlier study I mainly demonstrated *that* nature and scientist have a sex in the sense that they are described in terms that either point to maleness or femaleness. It was very difficult to describe *how* these entities had acquired 'their' sex. This can be more easily done by studying the historical process of the sexualization of entities that in current handbooks of biology are described as having a sex as for instance the stamen and pistil.

For my study of this process of the sexualization of stamens and pistils I analyze various articles written by naturalists that according to historians of botany have played an important role in the history of the debate on the question of whether plants demonstrate sexuality in the sense of an interaction between two different sexes in order to produce offspring. While talking about pro's and con's of such a plant sexuality, the authors of these articles on the one hand identify characteristics (form, function, behaviour) of the stamen or pistil that, from their point of view, either refer to maleness or to femaleness. On the other hand they develop 'strategies' to convince the reader of the article that the stamen and pistil possess the identified characteristics. Observations and experiments can be elements of this strategy, but also analogies with the animal world.

Kaat Schulte Fischedick

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Schools and skills in early vegetation science: British plant ecology and Dutch plant sociology 1900-1930. This project concentrates on British and Dutch research practices in early vegetation science. The research aims at obtaining new insights into the role of schools and traditions in vegetation science. Earlier studies of early vegetation science were mainly based on published research and archives of institutes and societies. In my research I reconstruct research practices of British and Dutch scientists using international field excursions in early vegetation science. The study of individual field practices and international excursions gives a deeper understanding of the development and role of schools and traditions and questions current ideas on these topics. The results of this project will be published as a Ph.D. thesis in 1993.

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Lodewijk Palm

1. A historical-critical edition of *The Collected Letters of Antoni van Leeuwenhoek*. Volumes 10, 11, and 12 were published in 1979, 1983, and 1989; volume 13 will appear in 1993; volume 14 is expected for 1994. The entire series will consist of 19 volumes.

2. *Dutch shipworm research 1730-1870 and its backgrounds*. Four periods of research are analysed: 1730-1735 and 1860-1870 as a consequence of social demands; the late eighteenth century as part of the systematical tradition in natural history; and the early nineteenth century as part of physiological studies of animal life. This study will be published as a Ph.D. thesis.

D. René Röell

History of ethology in the Netherlands 1920-1950. Ethology is the biological study of behaviour. Its methods of research and its interpretational framework were defined in the 1930s, under the influence of Konrad Lorenz (1903-1989) and Niko Tinbergen (1907-1988). Especially in the Netherlands the ethological approach to animal behaviour attracted a large number of young researchers. From 1950 onwards the discipline established itself on an international level.

In my study of the history of ethology the emphasis is on two points: firstly, a close look is taken at the origins. Ethology can be seen as the scientific expres-

sion of a broad naturalistic movement, which particularly affected the younger generation at the time. Early ethological work sprang forth from leisure time ornithology. With respect to academic zoology, ethology countered the usual 'dead animal' laboratory work by re-introducing observational field methods and at the same time linking up with experimental ideals.

Secondly, the process of discipline formation is studied. From the end of the 1930s onwards, Tinbergen, in cooperation with Lorenz, devised an ethological theory by proposing new concepts such as the 'displacement reaction' and the 'hierarchical organization of instincts'. At the same time he managed to provide the new discipline with a strong institutional basis. In the process the older tradition of animal psychology was completely overshadowed.

Wim J. van der Schoor

Pure and applied science in the tropics: biological research at private experimental stations in the Dutch East Indies 1870-1940. At the end of the nineteenth century a growing need was felt for scientific research on behalf of agriculture in the Dutch East Indies, especially of export-crops (sugar, tobacco, rubber, and the like). Estate owners united to appoint research workers, generally in cooperation with 's Lands Plantentuin (the Government Botanical Gardens) in Buitenzorg (Bogor) of which the well-known Melchior Treub was director.

Initially, the research workers were attached to 's Lands Plantentuin in Buitenzorg. Later, however, private experimental stations arose in different regions. These stations had large scientific staffs and became important suppliers of professors and scientific staff to the Dutch universities and polytechnics.

The project aims at obtaining new insights into the nature of biological research carried out at the private experimental stations. Besides, it intends to answer the question of whether, and to what extent, these institutions have influenced the development of biological research and education at the Dutch universities.

Bert Theunissen

My research focuses on the *history of biology in the Netherlands in the period 1860-1940*. Currently I am investigating Dutch biologists' ideas on the social importance of biology in the context of a *fin-de-siècle* debate on the reform of Dutch society between socialists, conservatives and liberals. A study of Hugo de Vries' pertinent views is in preparation, and I intend to extend my investigation to a representative selection of Dutch biologists working in the decades around 1900.

R.P.W. Visser

The development of genetics in the Netherlands. This project is part of a more comprehensive study of the development of biology in the Netherlands during the post-Darwinian period. It concentrates on the relation between genetics and evolutionary theory. Until recently the view prevailed that between ca. 1910 and ca. 1940 geneticists were ignorant of and not interested in evolutionary theory. It appears that this view, chiefly based on Anglo-American sources, is not universally applicable. The leading Dutch geneticists were well aware of the situation in evolutionary biology. However, they consciously refrained from contributing to it. Besides analyzing their attitude towards Darwinism and other evolutionary theories, this study tries to answer the question of why these theories were excluded from the geneticists' scientific practice.

K. Elke Werger-Klein

In 1639 Japan had expelled all foreigners except the Dutch and the Chinese. The Dutch East-India Company (VOC) was allowed to keep a trading post on Deshima in the harbour of Nagasaki, although under very severe restrictions. The main mutual interest of the Dutch and the Japanese was trade. Via Deshima, moreover, the Japanese authorities could control the gathering of knowledge about the outside world. The Dutch were likewise interested in Japanese matters, but were seriously hampered in gathering information by the strict Japanese regulations.

My research concentrates on *the exchange of knowledge between the Netherlands and Japan in the fields of botany and medicine in the period between approximately 1650 and 1750*. Barber-surgeons, who served for the VOC on Deshima, and Japanese translators were important in the exchange of information. I focus on their roles and motivations against the background of VOC policy and the interests of the Japanese Tokugawa government. I pay special attention to the network of contacts that existed between VOC employees on Deshima with similarly interested persons in the Dutch East Indies and Europe.

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Dirk Stermerding, Jaap Jelsma, Arie Rip

The dynamics and the implications of human genome research. As part of a general research programme studying the dynamics and societal shaping of

technological developments, this project studies developments in the field of *human genome research* and issues of *regulation* in this field. As a result of the establishment of an international human genome programme in the beginning of the 1990s, the ethical, social and legal implications of human genome research have become a special matter of concern. In studying the dynamics and regulation of human genome research, this project focuses on three different themes: 1. European decision-making concerning human genome research and its regulation, 2. current practices of regulation in the context of Dutch human genome research, and 3. the *history of clinical genetics in the Netherlands*. The third theme is of special interest because it is the existing structure of clinical genetic services that, in the Netherlands, strongly shapes both the development and introduction of human DNA-analysis and current practices of regulation in the field.

Museum Boerhaave
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Marian Fournier

1. *W.M. Beyerinck and the bacteriophage research of L.E. den Dooren de Jong*. In the early 1930s den Dooren de Jong published a series of articles in which he tried to answer the question of whether the bacteriophage is assembled within the boundaries of the bacterial cell or penetrates the bacterium from the outside. Den Dooren de Jong built up his theories and experiments in close contact with the bacteriologist Beyerinck, and my research aims to assess the nature and influence of this cooperation.

2. *An annotated catalogue of the microscope collection of Museum Boerhaave*. The description of the objects will follow a strict scheme. Special attention will be given to several parts of the microscope, such as the object table, the focusing mechanism, the composition of the optical parts and the possibilities for manipulating the beam of light. Further the origin of the microscope's design will be discussed. Biographies of the instrument makers will also be included. The catalogue will be available on videodisc.

Nationaal Natuurhistorisch Museum
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M.S. Hoogmoed

At the moment some members of the staff of the National Museum of Natural History, a retired person and an outside expert are working on different aspects of a book dealing with *the history of the zoological collections, the zoological research, the presentations, the personnel and the buildings of the Rijksmuseum van Natuurlijke Historie (RMNH)*. This museum changed its name into Nationaal Natuurhistorisch Museum a few years ago, after it had been merged with the geological museum in Leiden. The different chapters are in different stages of completion. The book will be illustrated with old drawings made in the field by artists of the RMNH and with selected other pictures. Collaborators are: Dr. J.C.A. van Etten (presentations), Dr. P.J. van Helsdingen (scientific research), Dr. L.B. Holthuis (personnel), Dr. M.S. Hoogmoed (fieldwork and collections), and Dr. K. Ottenheim (buildings).

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Ton van Helvoort

Forthcoming dissertation: *Research styles in virus studies in the twentieth century: controversies and the formation of consensus*. In five case studies — i.e., on influenza virus, tobacco mosaic virus and bacteriophage — I have shown that virus research was beset by many and protracted controversies in the first half of the twentieth century. Various research styles can be identified which were anchored in disciplinary contexts. The latter were important because they provided analogies, models and metaphors as possible answers to crucial questions in virus research, such as "What is the nature of a virus?" and "How does a virus multiply?" Resulting controversies were analysed to articulate these research styles in detail.

According to the historiography of virology, the development of virus research in the twentieth century is characterized by two rallying points: the concept of 'filterable virus' (in the 1920s) and the 'modern concept of virus' (in the 1950s). The profound nature of controversies in twentieth-century virus studies questions whether this transition can be interpreted as a smooth process of "the progressive unveiling of the nature of the virus particle."

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D.O. Wijnands

The development of taxonomy between 1530 and 1800. Special attention is given to the history of the introduction of plants in the western world; technical development of horticulture; and relations with botanical illustration, horticultural art and visual art. Current research includes the paper museum of the Italian Cassiano del Pozzo (early seventeenth century); the development of taxonomical systems between 1680 and 1735; the effect of the introduction of American plants in painting; the connections between early-seventeenth century *florilegia*; the collections and publications of Johannes and Nicolaas Laurens Burman; and the relations between the Netherlands and Japan.

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Marga Coesel

A life for nature: life and work of J. Heimans (1889-1978) (Ph.D. dissertation University of Amsterdam; expected to be completed in spring 1993).

In his youth and student years, the later professor of systematic botany and genetics at the University of Amsterdam, J. Heimans, was deeply influenced by his three great mentors, his father, the teacher and amateur naturalist E. Heimans; the latter's friend and colleague, Jac. P. Thijssse; and the famous botanist, Hugo de Vries. Together, E. Heimans and Thijssse were responsible for the flourishing of the interest in natural history in the Netherlands at the end of the nineteenth century, and for the creation of the nature conservation movement at the beginning of our century. Under the influence of his three teachers Heimans jr. developed into an all-round biologist, conservationist and populariser of the study of nature. All his efforts were directed at continuing and extending the work of his predecessors. He did not build up an impressive reputation either in the fields of science and education, or in those of nature education and nature conservation, yet young Heimans was omnipresent and actively involved in everything that went on in these fields. His life was interwoven with developments in nature study, nature education and scientific botany to such an extent, that his biography provides a fairly complete overview of these developments.