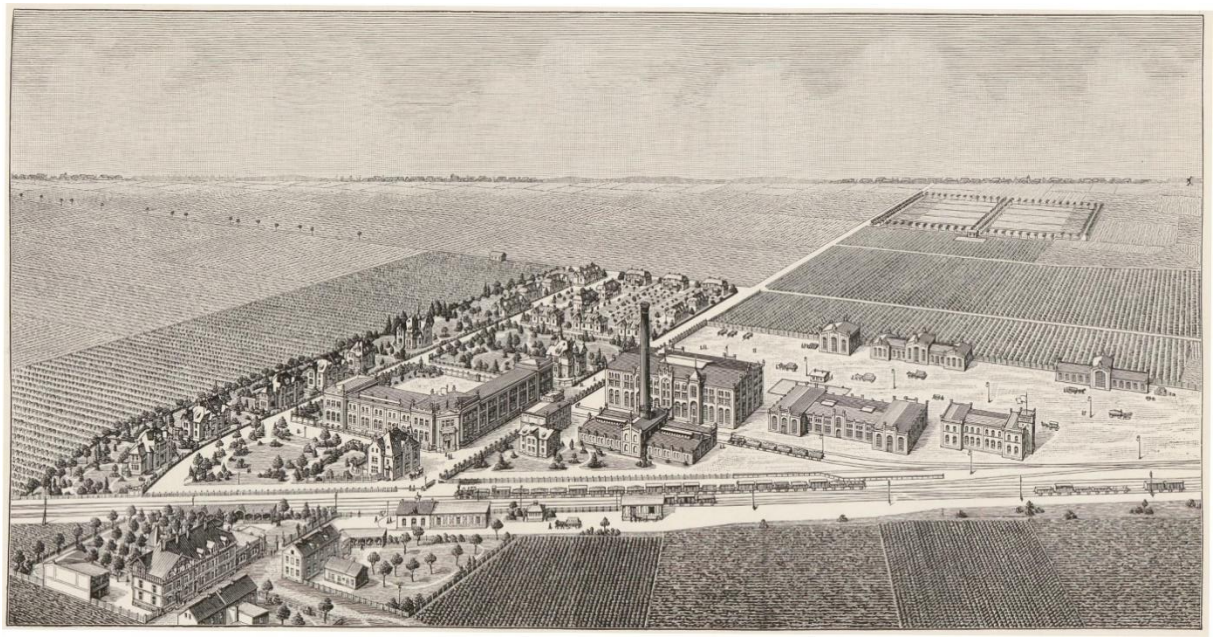
Medicinal Plants, Empires and the Industrialization of Drug Production: A Symposium

Leibniz-Institut für Europäische Geschichte (Mainz)

6-7 June 2024 | org. Bernard Gissibl (IEG) and Matti Leprêtre (Visiting Fellow at the IEG)



Program

Thursday, June 6

1.30-2 pm	**Welcome word and introduction** (Matti Leprêtre, Bernhard Gissibl), presentation of the participants.
2-2.45 pm	**The Missing Workers: Representations and Realities of Labor on Colonial and Postcolonial Cinchona Plantations, ca. 1930 to 1996** (Tristan Ostermann, Leibniz-Zentrum für Zeithistorische Forschung Potsdam).
2.45-3.30 pm	**Plant-based medicines at the interface of science, industrialization, and society** (Sabine Anagnostou, Philipps-Universitäts Marburg).
3.30-4 pm	Coffee break.
4-4.45 pm	**Plant Transfers, Research and Economic Interests. The Role of Medicinal Plants at the Botanical Research Centre for the German Colonies** (Katja Kaiser, Museum für Naturkunde Berlin).
4.45-6.30 pm	**Pharmacy, Plant Studies and Multispecies Histories:** Collective discussion of two texts (see attachment).
6.30 pm	**Dinner at the restaurant.**

Friday, June 7

9-9.45 am	**Medicinal Plants and Imperial Rivalries: Mapping Commodity Chains in the Age of the Industrialization of Drugs Production** (Matti Leprêtre, EHESS)
9.45-10.30 pm	**Empirical Aims, Empire Gains: Knowledge regimes in the Madagascar herbarium collection at Marseille's Colonial Institute** (Chanelle Adams, Lausanne University).
10.30-10.45 pm	Coffee break.
10.45-12 pm	**General discussion of the presentations and contemporary perspectives on the use of medicinal plants in contemporary India.** (Jean Paul Gaudillière, INSERM/EHESS), followed by a collective reflection with the discussants, Katherine Arnold (Rachel Carson Center) and Bernhard Gissibl (IEG).
12 pm	**Lunch at the IEG.**

Presentation of the talks and participants

The Missing Workers: Representations and Realities of Labor on Colonial and Postcolonial Cinchona Plantations, ca. 1930 to 1996

Tristan Oestermann, Leibniz-Zentrum für Zeithistorische Forschung (Potsdam)

The establishment of cinchona plantations in the European colonies in Asia to produce the antimalarial quinine has been described by a huge number of publicists and analyzed by many historians of empire and science. In the last decades the accounts have moved away from

personalized histories of great European adventurers and their efforts to get seeds and plants out of South America into colonies like Ceylon, British India, and (most importantly) the Dutch East Indies, to histories of imperial science, the role of botanical gardens, and trans-imperial exchange. However, as Marcel van der Linden recently pointed out in his book "The World Wide Web of Work", the transformation of wild growing cinchona trees into a plantation crop was not only achieved by European adventurers and scientists, but also by workers. Nevertheless, these workers, van der Linden wonders, are totally absent from the literature on cinchona plantations and quinine and also in most sources. This paper gives a first account of labor on quinine plantations in the Dutch East Indies and the Belgian as well as the independent Congo. By piecing together the scattered evidence about workers on plantations like photographs and a few eyewitness accounts to be found mainly in the archives of pharmaceutical companies like Hoffmann-LaRoche and Boroughs Wellcome, it makes a first attempt at recon-structing the changes as well as continuities in representations and realities of work on cinchona plantations from the colonial to the postcolonial world. I argue that the silence about laborers was deeply embedded in local as well as European ideas about gender and generation which conflicted with the importance of female workers and child laborers on the plantations until far into the 20th century. By looking at the labor involved in the production of cinchona bark and quinine, the paper offers a new perspective on the history of the pharmaceutical industry which does not highlight science and knowledge but work, production, and exploitation.

Tristan Oestermann is a postdoctoral researcher at the Leibniz-Zentrum für Zeithistorische Forschung Potsdam. He has previously examined the history of labor in the rubber industry of colonial German Cameroon, which was published in the series "Industrielle Welt". Currently, he works on a history of the pharmaceutical industry in the decolonizing world. Taking production, distribution, and consumption of quinine in Indonesia and the Congo as a case study, this project connects the history of decolonization, development, and the Global Cold War with the history of pharmaceutical production. It explores how businessmen, postcolonial politicians, experts, spies, and activists used practices to make business possible or impossible.

Plant-based medicines at the interface of science, industrialization, and society

Sabine Anagnostou (Marburg)

For centuries, Materiae medicae mainly consisted of medicinal plants. In the context of the development and specification of sciences and accompanying changes in classical concepts of sickness and therapies, ideas about their efficacy changed. Trying to explore the effective principles, researchers isolated single substances which were thought to have a highly defined, targeted and well controlled efficacy. Such monosubstances could be obtained from collected respective cultivated plant material from all over the world in special processes until they could be synthesized by new chemical techniques which made production processes highly economic and profitable for the emerging industry. While both, the scientific community and the industry have mainly followed and elaborated the dogma of monosubstances until presence, medicinally used plants gradually fell into oblivion and only became an interesting option for scientific research again in the context of severe side effects of monosubstances like Contergan when also customers asked for new solutions. The scientific investigation of the efficacy of plants is a great challenge and has been neglected for decades even though pioneering approaches were developed in the new pharmaceutical discipline of pharmacognosy in the late 19th and early 20th centuries. Reseachers like Friedrich August Flückiger and Alexander Tschirch considered the typical chemical composition of various substances in plants to be characteristic and determining for the efficacy of the respective preparations and already developed approaches to guarantee identity, quality and safety of the plant material. Such concepts were even taken up the regulatory authorities at the beginning of the third millennium.

Both, the paradigm of monosubstances and the postulate of an effective plant composition, were highly influenced by scientific, technical, economic, sociocultural, ideological, and legal frameworks, just to name a few, which have neither been explored nor evaluated sufficiently. This presentation tries to explore some of the complex reasons for the long neglection of scientific research concerning medicinal plants and options which the revival in a new scientific approach could offer.

Professor Sabine Anagnostou is the former President of the German Society for the History of Pharmacy (DGGP) and Professor for the History of Pharmacy, Philipps-Universität

Marburg. She specialises in missionary pharmacy (16th to 18th centuries), the development of networks for international drug transfer and influences on different materiae medicae. Prior to joining the research faculty of Marburg, from 2001-2004 Prof. Anagnostou was a Scholar of the Deutsche Forschungsgemeinschaft (DFG) for the project: "Pharmacies of religious orders in Central-Europe and Spanish-America as institutions of the exchange/transfer of medicinal drugs and pharmaceutical knowledge (16th -18th c.)". She was also Fellow of the International Society for the History of Pharmacy in 2004.

Prof. Anagnostou has written on topics relating to the history of botany, history of medicinal plants, ethnopharmacy, and traditional medicinal plants as modern phytotherapeutics. She was lauded as a Privatdozent for her 2009 book *Missionary Pharmacy*, which was awarded Habilitation status by the University of Marburg, and won the Dalhberg Prize by the Academy of Erfurt in 2011. Her doctoral thesis "Jesuits in Spanish-America transferring medical knowledge" was published as a book in 2000 and was awarded the "Prix Carmen Francés" by the International Society for the History of Pharmacy in 2003. In 2011 she co-edited the book *A Passion for Plants. Materia medica and botany in scientific networks from the 16th to 18th centuries*.

Prof. Anagnostou is a registered pharmacist, having studied Pharmacy at the Bayerischen Julius-Maximilians-Universität in Würzburg. She earned her PhD in the History of Pharmacy at the Philipps-Universität in Marburg.

Plant Transfers, Research and Economic Interests. The Role of Medicinal Plants at the Botanical Research Centre for the German Colonies

Katja Kaiser, Museum für Naturkunde (Berlin)

The Botanical Research Centre for the German Colonies was established at the Botanic Garden and Botanical Museum in Berlin in 1891. Based on a contract between the Foreign Office and the Prussian Ministry of Culture−to which the Berlin botanical institutions were affiliated as part of the university−it received funding from these two ministries. Its primary tasks included the transfer of tropical useful plants to the colonies and the scientific examination of plants sent in from the colonies. Like its role model, the Royal Botanic Gardens at Kew near London, the Botanic Garden Berlin operated as a central point within an international network of botanic gardens, political institutions and companies that stretched across the whole globe.

The focus of the Botanical Research Centre for the German Colonies was on useful plants, especially rubber, gutta-percha, fiber plants and timber. Medicinal plants were also part of plant transfers and research from the very beginning. Of particular interest were plants that were important for the chemical industry and for medicinal purposes, such as camphor and soap trees. Tanner acacia and eucalyptus were not only used for medicinal purposes but also in reforestation projects. Trees from which cinchona bark, Peru balsam and tolu balsam could be extracted were–together with coca–among the medicinal plants most commonly shipped to the colonies. Tropical plants for shipment to the German colonies often came from the botanical gardens of other European colonial powers or from commercial nurseries and seed suppliers in Germany, the Netherlands and Belgium.

Cooperation with the Colonial Chemistry Department of the adjacent Pharmaceutical Institute in Berlin Dahlem was indispensable for the examination of medicinal plants sent in from the colonies. The Botanical Research Centre for the German Colonies also maintained contacts with state institutes and companies that were dependent on the supply of tropical products and used these connections for knowledge exchange. This involved pharmaceutical-chemical companies like Merck in Darmstadt and Gehe in Dresden that still exist today. Thereby, the Botanical Botanical Research Centre for the German Colonies also followed the example of Kew and the Botanical Garden Buitenzorg/Bogor by passing on colonial products for examination to experts from the field. In doing so, it made use of the expertise and research possibilities of specialists in areas that went beyond the botanical knowledge available at the Botanical Garden and Museum.

This contribution outlines the tasks of the Botanical Botanical Research Centre for the German Colonies and and places the role of medicinal plants in the overall spectrum of the state-directed and state-financed assignments. It presents some insights into the research on specific medicinal plants at the Botanical Botanical Research Centre and the Pharmaceutical Institute and highlights the role of indigenous knowledge. It also points to the networks of scientific experts and commercial stakeholders to emphasise the entanglement of political, economic and scientific interests.

Katja Kaiser is a historian specialized in colonial history, museum and collection history and gender studies. She has published on the emigration of German women to the colonies and on the colonial history of the Berlin Botanical Garden and Museum. Her book “Wirtschaft, Wissenschaft, Weltgeltung. Die Botanische Zentralstelle für die deutschen Kolonien am Berliner Botanischen Garten und Museum 1891–1920“ (2021) focusses on botany and

colonialism in the German Reich and on the colonial history of the institution and the collection of the Berlin Botanical Garden and Museum. An earlier English article provides a summary of that research: Exploration and exploitation. German colonial botany at the Botanic Garden and the Botanical Museum Berlin, in: Geppert, Dominik/ Müller, Frank Lorenz (eds.), Sites of imperial memory. Commemorating colonial rule in the nineteenth and twentieth centuries (= Studies in Imperialism), Manchester University Press 2015, 225–242. International cooperation and competition are discussed in: Duplicate Networks. The Berlin botanical institutions as a 'clearing house' for colonial plant material, 1891–1920, in: Buschmann, Rainer/Heumann, Ina/McKinney, Anne (eds.), The Issue of Duplicate (= British Journal of the History of Science) https://doi.org/10.1017/S0007087422000139

Her ongoing interest in the political framework of colonial collecting and transdisciplinary collecting practices is reflected in the following (translated) text: Bipindi - Berlin. A Contribution to the History of Science on the Practice and Politics of Collecting in the German Colonial Empire." *Berliner Schriften zur Museumsforschung* 39 (2023): 81–130, Open Access: https://www.vandenhoeck-ruprecht-verlage.com/themen-entdecken/geschichte/geschichte-der-neuzeit/58381/georg-zenker-bipindi-berlin

She has been involved in various exhibition and research projects in cultural history museums and natural history museums. Since 2020 she is a researcher at the Museum für Naturkunde Berlin, Humanities of Nature, and works on guidelines on dealing with natural history collections from colonial contexts. She is also part of the team that organizes TheMuseumsLab, a platform for joint learning, exchange and education regarding the future of museums in Africa and Germany.

Medicinal Plants and Imperial Rivalries: Mapping Commodity Chains in the Age of the Industrialization of Drugs Production

Matti Leprêtre, EHESS (Paris)

How can we analyze the effects of industrialization on the cultivation and harvesting of medicinal plants? This contribution mobilizes digital history and cartography to analyze the effects of industrialization on two scales: first, on the scale of Germany, then on a global scale. The aim is to use cartography to visualize and analyze the effects of different types of industrialization. First, the industrialization of drug production, which led to an increase in the scale of production and thus in the quantities of medicinal plants used in the production of

drugs, thus transforming global supply circuits in a context of struggle between empires seeking to appropriate these strategic resources. Second, the industrialization and intensification of agriculture, which not only transformed landscapes and, in some places, caused medicinal plants to disappear – due to the development of weeding, the cultivation of weeds and the disappearance of hedges between fields – but also transformed the organization of agricultural work. These two dimensions are analyzed in the light of the notion of workscape, now central to environmental history. Finally, we'll be looking at the effects of industrialization and factory development, which also influence the amount and timing of labor available in the countryside: the flight of peasant women to industry, seasonal labor movements and the possibility of free child labor are all factors that will be analyzed here.

Matti Leprêtre is a doctoral student at the EHESS, currently Visiting Fellow at the Leibniz-Institut für Europäische Geschichte on a DAAD fellowship. As an undergraduate he trained in postcolonial studies and earned a dual degree from Sciences Po Paris and Columbia University in the City of New York in 2017. He then joined the EHESS where he pursued a first MA in medieval history and a second in medical anthropology. His theses focused respectively on the use of medicinal plants in the writings of Paracelsus and among French herbalists today. His PhD dissertation traces the transformations undergone by herbal remedies in Germany between 1884 and 1945, centrally considering the crossed influence of colonization, proto-environmentalist movements, Nazism and the industrialization of drugs production on the process.

Empirical Aims, Empire Gains: Knowledge regimes in the Madagascar herbarium collection at Marseille's Colonial Institute

Chanelle Adams, Lausanne University

The Colonial Institute of Marseille, founded by Dr. Édouard Heckel in 1893, was created as a scientific institution to classify and order information from France's expanding territories. Founded during a period when French troops faced formidable tropical diseases, the Institute turned its attention towards the medical potential of Madagascar's flora. The Institute's botanical knowledge production in Madagascar, which asserted Marseille's scientific, medical, and industrial relevance within the French empire, would not have existed without Malagasy

informants. Despite the colonial order's reliance on local knowledge production, Malagasy sources are discredited or omitted in this archive. As such, this paper offers a close reading of the Institute's herbarium and corresponding *Annales de musée colonial de Marseille* to show *how* the Institute positioned itself as a filter that imposed knowledge regimes, drawing lines between what could be considered scientific knowledge and what could not - reinforcing epistemic hierarchies and binaries between colonists/the colonized in the *Annales* and herbarium collection. Beyond reading natural history archives for presences and absences, this case study focuses on "how" the colonial order refuted Malagasy knowledge while simultaneously relying upon it. In conclusion, this paper's case study suggests natural history collections might be used to detail the mechanics through which epistemic contributions of the colonized are simultaneously absorbed, absented, and discredited.

Chanelle Adams is a doctoral student of Political Ecology at the Institute of Geography and Sustainability, University of Lausanne. She is a Fulbright scholar, having earned her B.A. in Science and Technology Studies from Brown University and her M.A. in Comparive Social Science Research from the Ecole des hautes etudes en sciences sociales with an emphasis on the history of science, epistemologies of healing and colonial botany.

Her research centers on therapeutic plants in Madagascar, investigating their local values, colonial appropriations and global circulations. Her current dissertation project delves into the volatile global market for therapeutic essential oils produced in Madagascar in the Covid wellness economy.

Additionally, Adams is committed to communicating academic research to broader audiences. She has written for publications such as The Drift, The Funambulist, and Ada Magazine.

Discussants:

Katherine Arnold is a historian of the German, British, and Dutch Empires, the history of science and the environment, and transnational and global history of the nineteenth century. She is primarily interested in subjects related to natural history collecting and collections, nonhuman and multispecies histories, botany and botanic gardens, and taxonomic debates. Katherine holds BA degrees in history and anthropology from the University of South Carolina,

an MA in European history from University College London, and has undertaken research through affiliations with the University of Cape Town and the Free University of Berlin. She completed her PhD in international history at the London School of Economics and Political Science in 2021.

Katherine is currently transforming her PhD research into a monograph focusing on a set of "entrepreneurial" natural-history collectors in nineteenth-century southern Africa. It will focus on the devastating nature of their collecting practices: their violence toward the Khoekhoe, San, and Xhosa peoples, uninhibited extraction from the environment, and ultimately the failure of their work to contribute to the production of knowledge on South African flora.

Jean-Paul Gaudillière is a historian of science and medicine, a research director at Inserm and at the EHESS. He has worked on how the relationship between knowledge of living organisms and medicine changed in the 20th century, on the industrialization of pharmaceuticals in France and Germany from the 1930s onwards, and on the history of North-South relations and global health. He is also a specialist of the effects of the industrialization of drugs production on traditional medicines, including phytotherapy, in contemporary India.

Bernhard Gissibl is a wissenschaftlicher Mitarbeiter at the Leibniz-Institute of European History in Mainz. Before coming to Mainz, he taught at LMU Munich, Jacobs University, and the University of Mannheim, where he earned his PhD in 2009. His research areas are the history of nature and wildlife conservation in a transnational and global perspective, and the environmental history of German colonialism. He investigates how concepts and ideas of conservation traveled across borders to become implemented in differing social, political, and ecological contexts. His first book, *The Nature of German Imperialism: Conservation and the Politics of Wildlife in Colonial East Africa* (2016), analyzes the origins and political ecology of Tanzania's wildlife conservation complex as it emerged in the decades of German colonial rule, prior to the First World War.