The Plantation Gaze: Imperial Careering and Agronomic Knowledge between Europe and the Tropics

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ABSTRACTS

Dieser Beitrag stellt die erste umfassende Studie zum deutschen Agronomen Ernst Fickendey (1878–1958) dar, der innerhalb von fünf Jahrzenten im Dienst von fünf verschiedenen Kolonial- und Kontinentalreichen stand. Ausgebildet in den imperialen Strukturen des wilhelminischen Kaiserreichs, verkörperte er später den Typus eines „wandernden Experten", der mehrere politische Zerrüttungen unbehelligt überstand, indem er sich stets mit anderen politischen und imperialen Regimen verbündete und diverse Plantagenprojekte sowohl in tropischen Kolonien als auch in Europa verfolgte. Der Artikel untersucht, wie der technokratische Blick Fickendeys die menschlichen sowie auch ökologischen Kontexte und Auswirkungen seiner Kautschuk-, Palmöl- und Baumwollplantagenprogramme außer Acht ließ. Ferner zeigt er, wie die Rekrutierung aus dem und der Aufenthalt im Ausland den Deutschen sowohl nach 1918 als auch nach 1945 Möglichkeiten bot, sich an den Entwicklungen des europäischen Imperialismus zu beteiligen und soziale Mobilität zu erlangen. Schlussendlich betrachtet der Artikel, wie Fickendey bei der Kultivierung von langsam wachsenden Pflanzenarten danach strebte, die biologischen Zeitrythmen der Plantagenwirtschaft den temporalen Anforderungen der industriellen Produktion anzugleichen.

This article presents the first detailed study of the German agronomic practitioner Ernst Fickendey (1878–1958), who worked for five different empires over the course of five decades. Trained within the imperial structures of Wilhelmine Germany, he later embodied a type of itinerant expert able to bridge several political ruptures to align himself with varying political and imperial regimes to pursue plantation projects in both tropical colonies and Europe. The article explores Fickendey's technocratic gaze that disregarded human and ecological contexts and

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the consequences of his planting schemes of rubber, palm oil and cotton. It shows how foreign recruitment and sojourning allowed Germans, also after 1918 and 1945, to remain involved in processes of European imperialism and achieve social mobility. With Fickendey cultivating a range of slow-yielding species, the article finally considers also how he sought to adapt the biological rhythms of plantation economies to the temporal orders of industrial production.

Drawing on the example of agronomic expertise and its application to colonial as well as European plantation economies, this article asks how experiences, knowledges and practices could circulate between overseas colonial domains and imperial metropolises.[1] We will investigate a transimperial history[2] of knowledge – including its possibilities and limitations – through the career of tropical agronomist Ernst Fickendey (1878–1958), recognized as the world's leading authority on oil palm plantations by many contemporaries. We consider various vectors of cross-border knowledge exchange, including expert and labour migration, "embodied knowledge", as well as international print culture and the patent system.

Fickendey's influential life and work shed light on these vectors. Yet his highly mobile, decades-spanning career has not previously been the focus of a detailed study, perhaps owing to the fragmentary transmission of personal testimonies.[3] This article is based on previously unknown private and printed materials from eight archives on two continents. However, there are still important gaps: most of these texts are either bureaucratic and commercial documents or writings by Fickendey himself. We know very little about Fickendey's everyday activities on the plantations, his collaboration with colonial officials and plantation company shareholders, the significance of local and vernacular knowledge, or what Fickendey thought of plantation workers' living conditions. The article aims to show, however, that a widespread disregard for these social contexts was a key feature of a technocratic approach where an agronomist like Fickendey may be considered representative.

In particular, the article puts forward three theses. We hope to show, firstly, that imperialism must be understood as a pan-European project that offered rich prospects for social

1 See F. Uekötter (ed.), Comparing Apples, Oranges and Cotton. Environmental Histories of the Global Plantation, Frankfurt am Main 2014; C. Ross (ed.), Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World, Oxford 2017 for an overview on global plantation history.

2 B. Brockmeyer, Der Kolonialbeamte Rudolf Asmis, in: R. Habermas/A. Przyrembel (eds.), Von Käfern, Märkten und Menschen: Kolonialismus und Wissen in der Moderne, Göttingen 2013, pp. 84–96. See N. Heé/D. Hedinger, Transimperial History: Connectivity, Cooperation and Competition, in: Journal of Modern European History 16 (2018) 4, pp. 429–452; D. Hedinger/M. von Brescius, The German and Japanese Empires: Great Power Competition and the World Wars in Trans-Imperial Perspective, in: P. Bang/C. Bayly/W. Scheidel (eds.), The Oxford World History of Empire, vol. 2, Oxford 2020, pp. 1123–1161 for recent approaches to transimperial history.

3 Fickendey is, however, mentioned in several publications, such as B. Zepernick, Zwischen Wirtschaft und Wissenschaft – die deutsche Schutzgebiets-Botanik, in: Berichte zur Wissenschaftsgeschichte 13 (1990) 4, pp. 207–217; K. Linne, Bremer Baumwollhändler in den besetzten sowjetischen Gebieten 1941–1944, in: Bremisches Jahrbuch 81 (2002), pp. 126–155; K. Linne, Baumwollanbau im Zweiten Weltkrieg. Eine "Einsatzfirma" in Südrußland, in: Zeitschrift für Unternehmensgeschichte 48 (2003) 2, pp. 196–214.

mobility to experts like Fickendey even after 1918, when Germany had lost its overseas possessions.[4] Members of the educated middle classes, such as Fickendey, could use the colonies to promote their careers by gaining new knowledge and managerial experience overseas. A focus on the social rank of such experts may provide global history with an important social history component.[5]

Secondly, we argue that the transfer of agronomic knowledge across several continents, and applied to such diverse commodities as rubber, palm oil, olive trees, and cotton, was possible only because Fickendey had a technocratic and instrumental understanding of nature and human labour. Confronted with quite distinct biospheres, he looked at them with a "plantation gaze", *i.e.* he primarily saw their potential for transformation into plantations, and he devoted considerable energy to making this vision a reality. Such "one-dimensional thinking" offered no space for the ethical problems of capitalism and colonialism; instead, it aimed to administer this system as efficiently as possible.[6] The colonies were to function as laboratories of modernity, so to speak, incubators of knowledge that could then be applied in Europe – for instance in the expansionist imperial plans of the "Third Reich", for which Fickendey worked as a scientific adviser after 1939.[7] German colonial agronomy was the product of transnational and transimperial exchanges, training regimes, and expert mobilities, not least for those German practitioners who never worked outside German scientific and colonial structures.

Thirdly, the article will examine how the specific agronomic expertise Fickendey acquired through his training ultimately aimed to adapt the biological rhythms of plantation

4 See S. Conrad, Rethinking German Colonialism in a Global Age, in: Journal of Imperial and Commonwealth History 41 (2013) 4, pp. 543–566 for German colonialism and M. von Brescius, German Science in the Age of Empire: Enterprise, Opportunity and the Schlagintweit Brothers, Cambridge 2019; B. S. Schär, From Batticaloa via Basel to Berlin: Transimperial Science in Ceylon and Beyond around 1900, in: Journal of Imperial and Commonwealth History 48 (2020) 2, pp. 230–262 and U. Kirchberger, Between Transimperial Networking and National Antagonism: German Scientists in the British Empire During the Long Nineteenth Century, in: A. Goss (ed.), The Routledge Handbook of Science and Empire, London 2021, pp. 138–147 for the history of Central European scientists in the colonies of other European powers. By looking at Germans' ongoing involvement in foreign colonial structures in the interwar period, we complement recent studies such as S. A. Wempe, Revenants of the German Empire: Colonial Germans, Imperialism, and the League of Nations, Oxford 2019; K. Wedekind, Impfe und Herrsche: Veterinärmedizinisches Wissen und Herrschaft im kolonialen Namibia 1887–1929, Göttingen 2021, p. 13.

5 See C. Dejung, Transregional Study of Class, Social Groups, and Milieus, in: M. Middell (ed.), The Routledge Handbook of Transregional Studies, Abingdon/New York 2019, pp. 74–81 for a discussion of global social history as a distinct approach, and K. Manjapra, The Semiperipheral Hand. Middle-Class Service Professionals of Imperial Capitalism, in: C. Dejung/D. Motadel/J. Osterhammel (eds.), The Global Bourgeoisie. The Rise of the Middle Classes in the Age of Empire, Princeton 2019, pp. 184–204 for the role of middle classes as helping hands of European imperialism.

6 H. Marcuse, One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society, Boston 1964.

7 See A. L. Stoler/F. Cooper, Between Metropole and Colony: Rethinking a Research Agenda, in: F. Cooper/A. L. Stoler (eds.), Tensions of Empire: Colonial Cultures in a Bourgeois World, Berkeley 1997, pp. 1–56; D. van Laak, Kolonien als "Laboratorien der Moderne"?, in: S. Conrad/J. Osterhammel (eds.), Das Kaiserreich transnational: Deutschland in der Welt 1871–1914, Göttingen 2004, pp. 257–279 for discussion of whether colonies can be considered laboratories of modernity. For the question whether the Third Reich can be interpreted as an interior backlash of European overseas expansion, see, among many, A. Mbembe, Politiques de l'inimitié. Paris 2013; J. Zimmerer, Von Windhuk nach Auschwitz? Beiträge zum Verhältnis von Kolonialismus und Holocaust, Münster 2011; R. Gerwarth/S. Malinowski, Hannah Arendt's Ghosts: Reflections on the Disputable Path from Windhoek to Auschwitz, in: Central European History 42 (2009) 2, pp. 279–300.

economies both overseas and in Europe to the temporal order of industrial production. Fickendey's implementation of an ideology of value creation was defined by an instrumental view of the environment, the native workforce and progress. Fickendey mainly wrote articles on rubber for trade journals as well as lengthy studies on the cultivation of palm oil with a comparative focus on East Africa and Sumatra. Yet his interests extended far beyond this specialized terrain. Having earned his doctorate in the natural sciences in 1904,[8] he went on to publish on locust plagues and biological insect control in tropical agriculture, on the olive tree in Asia Minor, and on how to increase the output of tropical plantations, which he was quick to grasp as "industrial enterprises".[9] Between 1908 and 1914 in German Cameroon and later in the Dutch East Indies (1920–1938), Ernst Fickendey was responsible for the experimental, large-scale cultivation and processing of numerous agricultural crops, especially rubber and palm oil. In addition, he managed a number of successful, internationally imitated industrial plants for the effective processing of these products.[10] We will therefore discuss the temporal dimensions of the tropical agronomy he documented at such length in his own writings. By juxtaposing agrarian time with industrial time, this article will also shed light on the temporality of global capitalism.[11]

1. Competitive Collaboration: Fickendey in German Cameroon

As the privately tutored son of a well-to-do landowner, Ernst Fickendey spent the two-and-a-half years following his high-school graduation in 1896 engaged in agricultural practice in the Duchy of Braunschweig. His father, Heinrich Fickendey, considered himself a "practical farmer". He was open to agronomic research and collaborated with the Agricultural Institute of Göttingen University on "cultivation experiments" financed and published by the German Agriculture Society.[12] This was the experimental agricultural milieu in which the young Fickendey grew up. His studies in agriculture and chemistry at Leipzig University culminated in a doctorate *summa cum laude* in organic chemistry. His highly specialized expertise in this field was to have a lasting influence on his agronomic practices and projects. He worked for two years as assistant at the Agricultural Institute of Königsberg University in Prussia (1904–1906), followed by a year-long stint

8 E. Fickendey, Beiträge zur Isomerie der Oxime, Universität Leipzig, Leipzig 1904.

9 E. Fickendey, Die Plantage, eine industrielle Unternehmung, in: Deutsche Wacht (Batavia) no. 8 (1923), pp. 14–16. See S. Mintz, Sweetness and Power: The Place of Sugar in Modern History, New York 1985 for the claim that early modern sugar plantations could in fact be interpreted as "factories in the field".

10 E. Fickendey, Zur maschinellen Aufbereitung der Ölpalmenfrüchte, in: Der Tropenpflanzer 20 (1917), pp. 69–77.

11 See V. Ogle, Time, Temporality and the History of Capitalism, in: Past & Present 243 (2019) 1, pp. 312–327.

12 Dr Liebscher, Anbau-Versuche mit verschiedenen Roggensorten: Auf Veranlassung der Deutschen Landwirtschafts-Gesellschaft, Saatgut-Abteilung, in Verbindung mit praktischen Landwirten (= Arbeiten der Deutschen Landwirtschafts-Gesellschaft, Heft 13), Berlin 1896, pp. 17–18.

in a commercial laboratory in Dortmund. [13] The papers he published during this time had a clear geographical and thematic focus on European agriculture.[14]

Fickendey entered imperial service (*Reichsdienst*) in 1907 with an assistant position at the Imperial Institute for Biology in Berlin-Dahlem. After only a year, Fickendey moved to German Cameroon, where he worked as a chemist at the Versuchsanstalt für Landeskultur in Victoria (Research Institute for Land Improvement, Victoria), established in 1889. Reflecting his change in geographical location, his research interests took a new turn. In quick succession, Fickendey published several articles in the flagship journal of German colonial botany, agriculture and cattle-breeding, *Der Tropenpflanzer* (Tropical Planter), on crops such as cacao and different species of rubber and on the promotion of "indigenous crops" for developing a profitable soil culture. Fickendey's growing international reputation led to his appointment as director of the tropical institute in 1910. Within a few years of arriving in Africa, he also became involved in various transimperial cooperative research projects.[15]

The tropical research station in Victoria, Cameroon provides evidence that German science in the tropics was always transimperial, even for those practitioners who worked in formally German colonial territories alone. After all, during this period, not only was German a global scientific language, but the practices of tropical agronomy were hardly ever autochthonously developed; they were, rather, the product of practitioners' mobilities, transimperial training regimes and the circulation and reception of printed works and ideologies of colonial agronomy. On the most fundamental level, the leading tropical research stations in Imperial Germany's African colonies – the East African Amani Institute and its West African pendant in Victoria – were both directly modelled on the then leading botanic garden (cum research station and laboratories) in the tropical world, the Dutch tropical research centre at Buitenzorg in Java, part of the Dutch East Indies.[16]

It was at Buitenzorg that a new approach to colonial agronomy and plantation cultures had been developed since the 1880s, the so-called "Eastern model" of colonial agriculture. It was distinguished from an earlier, slavery-based "Western model", which had shaped the sugar, tobacco and cotton estates of the Caribbean and the American South.[17]

13 Bundesarchiv Berlin (BArch Berlin), R 9361-II/233139: NSDAP-Parteikorrespondenz, Prof. Dr. Ernst Fickendey, Lebenslauf, autobiographische Schrift, verfasst Berlin, 28 April 1941.

14 E. Fickendey, Notiz über die Schutzwirkung von Kolloiden auf Tonsuspensionen und natürliche Tonböden, in: Zeitschrift für Chemie und Industrie der Kolloide 1 (1907), pp. 371–373.

15 On Fickendey's promotion, see: Aus dem Schutzgebiet, Kamerun Post (Duala), no. 5, 23 October 1912, p. 2.

16 Buitenzorg served as a model for new tropical research stations across the tropics, or to enlarge existing ones – including within the British Empire, whose botanic gardens at Calcutta and Kew had fallen behind the innovativeness and reputation of its Javanese counterpart: A. Zangger, Koloniale Schweiz: Ein Stück Globalgeschichte zwischen Europa und Südostasien (1860–1930), Bielefeld 2011, pp. 383–385; A. Goss, The Floracrats: State-sponsored Science and the Failure of Enlightenment in Indonesia, Madison 2011; see also O. Warburg, Der botanische Garten von Buitenzorg – ein Vorbild für unsere tropischen Versuchsstationen, in: Der Tropenpflanzer 2 (1898), pp. 329–334.

17 F. Wagner, From the Western to the Eastern Model of Cash Crop Production: Colonial Agronomy and the Global Influence of Dutch Java's Buitenzorg Laboratories, 1880s–1930s, in: J. Regan/C. Smith (eds.), Agrarian Reform and Resistance in an Age of Globalisation: The Euro-American World and Beyond, 1780–1914, London 2018, pp. 137–152.

While partly a self-serving "myth", this eastern model promised to be beneficial to colonizers and colonized alike. It was discursively tied to the ideology of development and improvement as cash crop cultivation in Europe's overseas possessions was to be based on the newest agronomic protocols, imported and improved seeds, and on extensive instruction regimes to bolster indigenous smallholder production. The widespread success and diffusion of the Buitenzorg model to many European colonies in Africa established between the 1880s and the early 1900s owed much to the willingness of foreign specialists to undergo training and instruction *in situ* in Java: an instance of globalization by attraction.[18] While the Dutch colonial state profited from the influx of expertise by subsidizing research stays by foreigners in their trial fields, labs and extensive gardens, foreign national governments provided stipends for study trips to Java, eager to tap and bring back the most recent useful knowledge and normative protocols for colonial *mise-en-valeur*.[19]

In other words, when Fickendey took up his position as a chemical assistant at Victoria in 1908, he entered an official structure that was itself the result of transimperial connections and borrowing. While Victoria had been established simply as a botanical garden in the late 1880s, its real significance only emerged when its entire architecture was redesigned and enlarged to reflect the extensive experimental structures and chemical and botanical labs at Buitenzorg. The *spiritus rector* of this revamp was the German botanist Otto Warburg, who had spent a year attached to Buitenzorg Gardens in 1886 to study under the guidance of its director, the botanist Melchior Treub.[20] Later taking an active part in the early years of German colonial rule overseas, Warburg, among other things, had co-founded the journal *Der Tropenpflanzer*, and was also involved in the foundation of the Colonial Economic Committee (Kolonialwirtschaftliches Kommittee, or KWK) in 1896, partly funded by the German Colonial Ministry and partly through private donations.[21] While poorly subsidized, the KWK was a significant actor in shaping the pursuit of agronomic sciences in the German Empire. Shortly before the turn of the twentieth century, Warburg – with the full endorsement of the KWK – successfully put forward the idea of imitating the experimental structures of Buitenzorg in Cameroon's botanic garden.[22]

18 J. Belich/J. Darwin/C. Wickham, Introduction: The Prospect of Global History, in: J. Belich/J. Darwin/C. Wickham (eds.), The Prospect of Global History, Oxford 2016, pp. 3–22, at 5.

19 In the case of Germany, around fifty practitioners were funded by the Dutch and German governments to undergo training at Buitenzorg; lists and descriptions are held in BArch Berlin, R 73/16724, 1933: "Tropenstipendium" and R 86/2560, 1905–1907: "Buitenzorg-Stipendium". Similar funding existed in other countries, including Switzerland: Zangger, Koloniale Schweiz, p. 386.

20 Warburg had studied in the Royal Botanic Gardens, Kew, then visited India and Ceylon in the late 1880s to study their flora. After his Buitenzorg stint, he travelled to Japan, China and Australia. The authoritative account on the garden is R.-J. Wille, De stationisten: Laboratoriumbiologie, imperialisme en de lobby voor nationale wetenschapspolitiek, 1871–1909, Nijmegen 2015.

21 R.V. Pierard, A Case Study in German Economic Imperialism: The Colonial Economic Committee, 1896–1914, in: Scandinavian Economic History Review 16 (1968) 2, pp. 155–167.

22 O. Warburg, Warum ist die Errichtung eines wissenschaftlich-technischen Laboratoriums in dem botanischen Garten zu Victoria erforderlich?, in: Der Tropenpflanzer 3 (1899), pp. 291–296.

Such a reformed institution promised to satisfy many demands of the colony:

> *agricultural engineers would improve the fertilization of the soil, phytopathologists would combat the pests infecting tropical crops, zoologists could improve stockbreeding* […] *and chemists could examine new elements unknown in Europe*.[23]

The ambition of imitation went so far as to ultimately mirror Buitenzorg's attraction for foreign researchers, and to lure non-national experts to work at and contribute to Victoria's future development – with the colony's planter community financing their stay and, in return, being able to use the accumulated results and discoveries to maximize profits on private estates.

Yet, the politics of colonial comparison meant that Victoria's foreign connections always transcended the ties to Buitenzorg in the Dutch East Indies.[24] Its director until 1902, the traveller and botanist Paul Preuss, had, for instance, undertaken extensive research trips to different British colonies in Africa and visited several Central and South American countries to study propagation techniques and acquire specimens of various cash crops he later introduced to Victoria for cultivation – including cocoa and various rubber species such as *Hevea brasiliensis* and *Castilloa elastica*.[25]

Likewise, one of Fickendey's colleagues, August Schulte im Hofe, had undertaken study trips to British India in the late nineteenth century to inspect local cultivation and processing methods for tea, indigo, and other agrarian products – explicitly "with an eye to the economic value of tea cultivation for the German colonies".[26] Using his observations in colonial India, Schulte even took out a patent for a new process of indigo manufacture in 1892, which was tested by British agronomists and producers in the years to come.[27] Building on earlier inter-imperial experiences and ties, Schulte and Fickendey cooperated in the early 1910s with a group of British colonial botanists on a comprehensive study of the "fermentation of cacao" and related experiments with the "oxidation, and drying of coffee, tea, tobacco, indigo, &c., for shipment". While the study was edited by the British expert Harold Hamel Smith, Fickendey had a hand in several of its contributions.[28] In a vivid demonstration of how European empires could compete with each other on the political, economic, and military fronts while still cooperating scientifically

23 F. Wagner, Inventing Colonial Agronomy: Buitenzorg and the Transition from the Western to the Eastern Model of Colonial Agriculture, 1880s–1930s, in: U. Kirchberger/B. Bennett (eds.), Environments of Empire: Networks and Agents of Ecological Change, Chapel Hill 2020, pp. 103–128, at 117.

24 A. L. Stoler, Tense and Tender Ties: The Politics of Comparison in North American History and (Post) Colonial Studies, in: Journal of American History 88 (2001) 3, pp. 829–865.

25 P. Preuss, Expedition nach Central- und Südamerika 1899–1900, Berlin 1901.

26 A. Schulte im Hofe, Die Kultur und Fabrication von Tee in Britisch Indien und Ceylon mit Rücksicht auf den wirtschaftlichen Wert der Teekultur für die deutschen Kolonien, in: Beihefte zum Tropenpflanzer II:2 (1904), pp. 37–117; A. Schulte im Hofe, Indigokultur und Fabrikation in Britisch Indien, in: Der Tropenpflanzer 5 (1902), pp. 70–128.

27 Patents, in: Times of India, 3 November 1892, p. 7; on subsequent trials with Schulte's patented method, see T. E. Thorpe, Natural Indigo, in: T. E. Thorpe, A Dictionary of Applied Chemistry, New York 1912, pp. 109–127, at 116.

28 H. H. Smith (ed.), Fermentation of Cacao, with which is Compared the Results of Experimental Investigations into the Fermentation, Oxidation, and Drying of Coffee, Tea, Tobacco, Indigo, &c., for Shipment, London 1913.

to "valorize" their tropical territories,[29] Fickendey was sent numerous research papers by British colleagues as part of their common endeavour to identify best practices.[30]
It is, however, salient to note that Victoria not only received precious knowledge, seeds and trained workers from other imperial systems but had become (well before Fickendey's arrival) a global hub where seeds and agronomic practices were actively studied and acquired by outsiders. Within the period from July 1900 to June 1901 alone, Paul Preuss's yearly station report noted that, for instance, "seeds of Kickxia elastica were dispatched to Togo, East Africa […] and to South Sea islands", while the seeds of other cash crops were transmitted "to the botanic gardens in Demerara, Grenada, Trinidad and Jamaica".[31] Useful biota was also exchanged with a seed trader in Berlin, while "several hundred cacao fruits were sent to the Société agricole de N'Kogo in the French Congo". In the same period, the "Forest inspector" of the French Congo, Mr Gentil, took with him "a number of useful plants" after he had visited the Cameroon gardens, which by that time relied on the work of sixty African staff.[32]
Fickendey himself developed a new process to treat the bark of *Hevea brasiliensis* rubber trees in order to increase yields. He registered the method in 1913 with a view to making a fortune, as he rightly predicted the British and Dutch empires – by the early 1910s the most important rubber producers in the world – would be interested in the technique. It is thus imperative to take seriously the polyvalence of the "global": it is not only a current historiographical perspective, but also very much an actors' category. Taking seriously how the world beyond imperial borders was imagined and targeted helps to explain much of the universal ambition of agronomic science and techniques in this period.
An article published in July 1914 in the Singapore *Straits Times*, headed "New Tapping Method. German Scheme to Extract More Latex", reported almost breathlessly that tree trunks "so scraped nearly always yielded twice the normal output of rubber and in some cases four times the amount".[33] As a state employee, Fickendey was required to cede all patent rights to the German government. News of the method spread like wildfire: within a year of registration, patents had been granted "in England, Germany, France, Holland and their Colonies, the Straits Settlements, as well as practically every rubber-producing country in the world".[34] While further experiments showed that initial enthusiasm was unfounded, Fickendey's patent demonstrates that the patent system was a

29 For the institutionalized inter-imperial exchange of colonial knowledge, see U. Lindner, New Forms of Knowledge Exchange between Imperial Powers: The Development of the Institut Colonial International (ICI) since the End of the 19th Century, in: V. Barth/R. Cvetkovski (eds.), Imperial Cooperation and Transfer, 1870–1930: Empires and Encounters, London 2015, pp. 57–78; on contemporary perceptions of such cooperation, K. Rathgen, Institut Colonial International, in: H. Schnee (ed.), Deutsches Kolonial-Lexikon, vol. 2, Leipzig 1920, pp. 99–100.

30 Smith (ed.), Fermentation, p. 266.

31 P. Preuss, Jahresbericht über den botanischen Garten und die Versuchspflanzung in Victoria, 1900–1901, in: P. Preuss, Die Pflanzungen und der Botanische Garten in Victoria (Kamerun) im Jahre 1900/01: Bericht, Berlin 1902, p. 20.

32 Ibid., p. 18.

33 National Library Singapore, Lee Kong Chian Reference Library, Microfilm Reel NL00400: New Tapping Method: German Scheme to Extract More Latex, in: The Straits Times, 4 July 1914, p. 10.

34 Ibid.

transimperial vector for transmitting knowledge and know-how that has too often been overlooked.[35]

In sum, in terms of agricultural raw materials such as seeds and seedlings; in terms of received agronomic intelligence and accumulated experience through trial-and-error projects in other countries and colonies; and in terms of its personnel and the very ideology of colonial "improvement", Victoria was a remarkably international site within a formal German colony. Taking such transimperial connections and entanglements seriously helps to challenge the false dichotomy of the "local" versus the "global". As the above examples of mobility, material, intellectual and ideological transfers have shown, it would be highly misleading to conceive of the tropical research centre in Cameroon as a mere product of German interest, ambition, and ingenuity. Rather, the entire institution was fundamentally constituted through the global circulations of knowledge, people, and specimens.

2. The First World War: Captivity and Deployment in Europe

After war had broken out, British troops seized the tropical research station in Victoria in the fall of 1914. According to matching German accounts, they destroyed the carefully accumulated herbarium, Fickendey's extensive private library, as well as the trial fields and some of the surrounding colonial plantations. The military conflict quickly ended what had been a long-lasting series of transimperial collaborations between German, French, Dutch, and British agronomists and botanic gardens that converged on the research institute in Victoria. Fickendey later testified that "Civilian Commissioner Powl explained the motive [of destruction] to me by saying: 'What interest do we have in German plantations? If they are ruined, so much the better for us.'"[36] Like other German officials from the colony, he was captured and deported to a British prison camp.

Fickendey was released from British captivity in early 1916 on health grounds (other reports had him "exchanged" for British prisoners of war).[37] He then returned to Germany, where he published papers begun earlier on the integration of African producers into the palm oil plantations of newly occupied Cameroon.[38] During the last two years of the Great War, Fickendey then worked as "Inspector-General of the Turkish Agriculture

35 Experiments in Java on the Fickendey Method of Tapping Hevea brasiliensis, in: International Review of the Science and Practice of Agriculture 7 (1916), p. 228.

36 His testimony was taken at Bad Kissingen, 22 February 1916, and is printed as appendix 41, in: Verhalten der englischen und der unter englischem Oberbefehl stehenden französischen Truppen gegen die weiße Bevölkerung der deutschen Schutzgebiete Kamerun und Togo, Berlin 1916, pp. 154–156, at 155.

37 Rückkehr von Deutschen aus den Kolonien, in: Deutsche Kolonialzeitung, no. 1 (1916), p. 14; and Personalien, in: Der Tropenpflanzer 20 (1917), p. 84.

38 E. Fickendey, Mittel zur Förderung der Ölpalmenkultur der Eingeborenen im tropischen Westafrika, in: Der Tropenpflanzer 20 (1917), pp. 301–310.

Ministry in Anatolia".[39] Between February and late October 1917, he examined olive plantations in Turkey. His studies extended to the locust plagues that had been sweeping across the countryside for years, causing outbreaks of famine in several Ottoman provinces in 1915.[40] Fickendey and his colleague Heinrich Bücher, likewise in Turkish service as head of the German Locust Commission, classified pest control into physical, chemical, and biological methods and described their mission as a "veritable campaign against pests".[41] Carried out "under the direction of German experts" in the Ottoman Empire (Anatolia, Syria, and Mesopotamia), the operation assumed enormous dimensions, not least through the large-scale forced mobilization of the regions' inhabitants: "the civilian population in the 11 combat zones in West Anatolia was required to provide an unpaid labour force of 450,000 to 500,000 workers each day".

On 20 May 1919, Fickendey commenced "provisional employment" in the Außenhandelsstelle (Foreign Trade Department) of the Foreign Office in Berlin.[42] This reform-oriented Department X of the Foreign Office, "set up in close cooperation with the Ministry of Economics and business circles", was intended to "promote practical opportunities and provide economic information for parties interested in trading abroad" – and thereby respond to the criticism that the Foreign Office was not doing enough for the cause of "German foreign commerce".[43] On 3 January 1920, however, Fickendey was already writing to the director of the Außenhandelsstelle requesting "six months' leave of absence from 25 January for a voyage to the Dutch East Indies".[44] The request was approved. The justification makes clear that the mission was very much in the Foreign Office's interest. Fickendey was to place his services "at the disposal of the Society for Technology, Berlin […] for an economic research trip to the Dutch East Indies".[45] Rather than being granted leave without pay, Fickendey would continue to draw his "previous salary". In the words of the Director of the Außenhandelsstelle, he would be "obliged to carry out" a number of "duties" – including examining the state of the art of rubber, coffee, sugar, tobacco, and cinchona cultivation.[46]

39 See "Auszug aus den Akten des Reichsministeriums der Kolonien betr. den Chemiker Dr. Fickendey, Ernst", in: Politisches Archiv des Auswärtigen Amtes, Berlin (hereafter Polit. Archiv AA), "Fickendey, P 5-4".

40 H. Bücher (ed.), Die Heuschreckenplage und ihre Bekämpfung: Auf Grund der in Anatolien und Syrien während der Jahre 1916 und 1917 gesammelten Erfahrungen dargestellt und im Auftrage des Kaiserlich Osmanischen Landwirtschaftsministeriums, Berlin 1918; E. Fickendey, Der Ölbaum in Kleinasien, Leipzig 1922.

41 G. Bredemann, Die Heuschreckenplage in Anatolien und Nordsyrien und ihre Bekämpfung im Jahre 1916, in: Die Naturwissenschaften 15 (1917), pp. 240–241.

42 Polit. Archiv AA, P 5-4: Reichskolonialminister an das Auswärtige Amt, Berlin, 20 May 1919.

43 H. G. Sasse/E. Eickhoff, 100 Jahre Auswärtiges Amt 1870–1970, Bonn 1970, p. 37.

44 Polit. Archiv AA, P 5-4: Fickendey to Herrn Geh. Legationsrat Prof. Dr. Wiedenfeld, 3 January 1920.

45 Polit. Archiv AA, P 5-4: Wiedenfeld to E. Fickendey, Berlin, 7 January 1920.

46 Ibid.

3. Transnational Knowledge Transfer: The Plantation Economy in Southeast Asia

The planned six-month trip to Sumatra stretched out to eighteen years. As Fickendey informed the Foreign Office in September 1920, he had "received an offer from the Rubber Cultuur Maatschappij 'Amsterdam' [RCMA], one of the largest Dutch plantation companies in the Dutch East Indies, to serve them as scientific adviser".[47] The Sumatra-based RCMA had originally specialized in rubber cultivation. In 1920, the year Fickendey arrived in Southeast Asia, the company began diversifying into palm oil, not least due to the collapse in rubber prices after the First World War.[48]

In the years after Fickendey joined the RCMA, the company massively ramped up production. Whereas in 1920 it had cultivated rubber on 11,173 hectares and palm oil on 1,419 hectares, twelve years later the rubber plantations had expanded to 27,033 hectares and palm oil to 12,224 hectares. The growth in crop yields was even more impressive. In 1920, 376 kilograms of rubber and 577 kilograms of palm oil were harvested per hectare. By 1932, these figures had climbed to 552 kilograms per hectare for rubber and a staggering 2,565 for palm oil – more than a fourfold increase in twelve years.[49] Much of the credit could go to Fickendey. In a 1938 article in the *Sumatra Post* occasioned by the agronomist's return to Europe, Fickendey was said to have made a vital contribution to setting up large-scale agriculture run on scientific principles in Sumatra in the 1920s. He had introduced new extraction methods that had resulted in improvements in both the quantity and quality of harvested goods.[50]

Fickendey's activity was part of an ongoing process, continuing into the 1930s, aimed at transforming Indonesia into a vast plantation complex. The Dutch colonial power had started establishing tobacco plantations on Sumatra in the 1860s. Other products such as coffee, rubber, palm oil, and tea were subsequently cultivated.[51] Agronomist knowledge and "Western experts" such as Fickendey played an important role in this transition. In research institutes such as the Buitenzorg botanic gardens in Java, botanists developed seeds and plants that gave higher yields and had better disease resistance.[52] The scientific management of agriculture was one of the reasons that Southeast Asia began to outstrip West Africa as exporter of palm oil in the 1920s; even though research initiatives were taken in stations such as Victoria, the establishment of palm oil research stations proved to be much more difficult in the European colonies in West Africa than in the Dutch East Indies due to local resistance and problems in coordinating research

47 Polit. Archiv AA, P 5-4: Fickendey, Batavia, 21 September 1920, an das Auswärtige Amt/Außenhandelsstelle, durch das deutsche Generalkonsulat Batavia.

48 Nationaal Archief, Den Haag (NA), 2.20.40: RCMA Inventory number 275, Overzicht van de resultaten 1908–1932; V. Giacomin, The Transformation of the Global Palm Oil Cluster: Dynamics of Cluster Competition between Africa and Southeast Asia (c. 1900–1970), in: Journal of Global History 13 (2018) 3, pp. 374–398, at 379.

49 NA, 2.20.40: RCMA Inventory number 275, Overzicht van de resultaten 1908–1932.

50 Upon the Departure of Dr. Fickendey, in: Sumatra Post, Friday, 14 October 1938.

51 Zangger, Koloniale Schweiz, p. 170.

52 Wagner, Inventing Colonial Agronomy.

and cultivation, even if resistance also existed in the Dutch East Indies that led to the introduction of Javanese and Chineses indentured labourers to Sumatra.[53]

From the nineteenth century onwards, the Southeast Asian plantation system combined monoculture, coercive working conditions, and routinized labour processes.[54] Fickendey also mentioned specialization and a strict division of labour as its key characteristics:

> *The work of the plantation labourer is* […] *uniform. One man spends all his days tapping rubber, another knocks down palm fruits, one woman is continuously occupied with weeding, another with picking tea.*

Plantation activity thus proved very similar to the Taylorist concepts of labour that were the subject of intense debate in Western industrial societies around the same time. As Fickendey argued, the plantation "exhibits all the features of a capitalist industrial operation, it is a genuine 'enterprise'".[55]

According to Fickendey, this type of agricultural production was nonetheless specific to the tropics and differed markedly from agriculture in Europe. There, small farms managed by the owner or tenant provided for their own needs and only secondarily produced for the market. By contrast, plantations were owned by corporations and produced exclusively for the global market.[56] Yet such a dichotomy was mere fantasy. Fickendey could only maintain it by ignoring how capitalist principles had increasingly come to dominate European agriculture from the eighteenth century and been succeeded by a wave of mechanization in the early twentieth century.[57] By positing a clear contrast between a traditional, European form of farming geared towards subsistence economy, on the one hand, and a rationalized, capitalist agriculture in the colonies, on the other hand, Fickendey called into question the conventional view of Europe as the engine of global progress; or rather, this conception arguably had the effect of outsourcing the modernization of agriculture to the colonies. Fickendey referred to the "creation of a global market", which fuelled a "demand for all possible tropical plant products […] that inhabitants of the tropics, standing at a lower stage of economic development, were unable to satisfy".[58]

In claiming that those who dwelled in the tropics occupied a lower rung on the civilizational ladder, Fickendey drew on the colonial temporal order that posited the economic and cultural backwardness of "natives" and denied them contemporaneity with their "white masters", as Johannes Fabian has demonstrated.[59] The "progressiveness" of the

53 Giacomin, Transformation, pp. 386–387.

54 K. Manjapra, Asian Plantation Histories at the Frontiers of Nation and Globalization, in: Modern Asian Studies 52 (2018), pp. 2137–2158; D. Tomich, Rethinking the Plantation: Concepts and Histories, in: Review (Fernand Braudel Center) 34 (2011) 1/2, pp. 15–39.

55 Fickendey, Die Plantage, p. 14.

56 Ibid.

57 J. Auderset/P. Moser, Die Agrarfrage in der Industriegesellschaft: Wissenskulturen, Machtverhältnisse und natürliche Ressourcen in der agrarisch-industriellen Wissensgesellschaft (1850–1950), Vienna 2018.

58 Fickendey, Die Plantage, p. 14.

59 J. Fabian, Time and the Other: How Anthropology Makes its Object, New York 1983.

European economy rested on a very particular temporal regime: the plantation brought with it the ability to adapt biological time as closely as possible to the rhythmically organized "task time" that E. P. Thompson has identified as typical for industrial production.[60] With regard to oil palm cultivation, Fickendey contended that Sumatra enjoyed "a strong climatic advantage […] over Africa" due to its "more favourable rainfall patterns, more – and more prolonged – sunshine, lower humidity, and healthier climate". That is why the "performance of oil palms […] is considerably greater in Sumatra than in their African homeland. The time taken from germination to fruiting is reduced to four years, the yields are considerably richer, […] and upward growth proceeds more quickly."[61]

An additional advantage of palm oil cultivation in Sumatra was that the plantation economy allowed for the regular supply of fruits to processing plants. Through mechanized processing, more and better-quality oil could be extracted from palm fruits than with the traditional methods employed in Africa until the turn of the century.[62] In Africa, fruits from oil palms growing in the wild were harvested by indigenous workers and delivered to newly built factories.[63] Since the fleshy fruits decomposed rapidly after harvest, they had to be processed as quickly as possible.[64] However, only in exceptional cases would "natives be willing to bring fresh batches to the factory in a satisfactory state of ripeness, which is the precondition for producing quality oil".[65] On the one hand, then, the processing plants called for a regimented harvesting schedule, since mechanized processing meant better quality and higher output. On the other, they demanded continuous increases in the area under plantation, since the factories involved economies of scale that made them profitable only when plantations had reached a certain size.[66] Monoculture and increasing mechanization ultimately led Fickendey "to see the plant as a machine".[67] In reality, the fact that oil palms were still shaped by natural cycles prevented plantations from being transformed into fully industrialized operations. As Fickendey acknowledged in a 1917 essay:

> *The oil palm bears fruit all year round, but it does so unevenly. Crop yields depend on rainfall distribution. Rain instigates the fruiting process, and because the fruit takes four to six months to mature, peak harvest mostly occurs in the dry season*. […] *In countries where the dry season is even longer, the harvest is compressed still further; factory operation is here very much seasonal work and hence becomes far more expensive*.[68]

60 E. P. Thompson, Time, Work-Discipline, and Industrial Capitalism, in: Past & Present 38 (1967) 1, pp. 56–97.
61 E. Fickendey, Die Kultur der Ölpalme, Berlin 1924, p. 7.
62 Ibid., p. 1f.; E. Fickendey, Eingeborenenkultur und Plantage, Berlin 1941, p. 89.
63 Fickendey, Zur maschinellen Aufbereitung, p. 77; Fickendey, Kultur der Ölpalme, p. 19.
64 Fickendey, Die Plantage, p. 15.
65 Fickendey, Eingeborenenkultur, p. 95.
66 Fickendey, Zur maschinellen Aufbereitung, p. 77; Fickendey, Kultur der Ölpalme, p. 19.
67 Fickendey, Die Plantage, p. 16.
68 Fickendey, Zur maschinellen Aufbereitung, p. 77.

Furthermore, it soon became apparent that palm oil production in Sumatra was plagued by problems unknown in Africa. Oil processed from fresh fruit was found to be beset by impurities, since the shorter ripening period made Sumatran fruit significantly more watery. The fruit therefore had to be dried before pressing to achieve the same clarity as African oil.[69] Fickendey thus facilitated transimperial transfer processes in various ways: among his many professional concerns, he was involved with the oil palm, a plant brought by European colonial powers from West Africa to Southeast Asia, and he shared the knowledge he had acquired in German colonies in Africa with the owners of plantations in the Dutch colonies in Southeast Asia.[70]

Fickendey approached plants with a decidedly technocratic gaze. In lengthy explanations, he described the influence of climate and soil condition on growth, shared tips on pest control, and advised growers to plant plantains or coffee trees between oil palms to increase yields.[71] From a similarly instrumental perspective, he commented on the labour question, a perennial thorn in the side of plantation owners since sugar plantations had first been established in the Caribbean in the sixteenth century. From the late nineteenth century onwards, hundreds of thousands of contract workers, mostly from Java and China, had been brought to Sumatra when it was found that the local Batak refused to work on the plantations as plantation work was characterized by physical force, rigid labour hierarchies, and extreme hardship.[72] Mortality rates among the "coolies" were extraordinarily high. Performance-linked wages meant that workers themselves bore much of the risk of lower harvests through adverse climatic conditions or pests. A number of scholars have therefore concluded that contract labour, despite the payment of a salary, was hardly better than slave labour.[73]

Fickendey categorically rejected calls to abolish contract labour. Workers needed to be legally bound to their employers to ensure they stayed on the plantation:

> *At their current stage of economic development, most Javanese would lose their best qualities and values if granted the freedom of movement of a European worker, and Sumatra's flourishing economy would run the risk of collapse*.[74]

In comparison to the close attention he paid to climatic, biological, and technical details, there is scant discussion of labour conditions in Fickendey's writings. Nonetheless, in the mid-1920s he saw labour problems looming for plantations:

69 E. Fickendey, Von einem Pflanzengummi im Fleische der Oelpalmenfrucht, in: Kolloid-Zeitschrift 33 (1923), pp. 107–109.

70 Upon the Departure of Dr. Fickendey.

71 Fickendey, Kultur der Ölpalme, p. 37.

72 On the Bataks' hesitance to work for Europeans due to their knowledge of the cruel working conditions on plantations, see J. Breman, Koelies, planters en koloniale politiek, Dordrecht 1987.

73 J. Breman, Taming the Coolie Beast: Plantation Society and the Colonial Order in Southeast Asia, Delhi 1990; A. L. Stoler, Capitalism and Confrontation in Sumatra's Plantation Belt, 1870–1979, Ann Arbor 1985; Zangger, Koloniale Schweiz, pp. 170–187.

74 Fickendey, Kultur der Ölpalme, pp. 13 and 15. All following quotes from ibid.

> *The Dutch government has the far from easy task of reconciling capital and labour through social welfare measures. It is not just the plantations' future that depends on bridging this gap, but the preservation of Dutch rule itself.* […] *In this situation, a policy of 'Laissez faire, laissez aller' will inevitably lead to catastrophe.*

Hence the importance of bringing about "a symbiosis between whites and coloureds […], a mutually advantageous coexistence and collaboration". The argument occasionally heard from Europeans that "whites run the colonies solely for the sake of the natives" he dismissed as "repulsive […] hypocrisy".

Notwithstanding this muted criticism of working conditions on plantations, Fickendey helped ensure that the plantation system continued to operate and generate profits for its European shareholders. Until his return to Germany in 1938, he was thus a fixed element in a system of colonial exploitation. Shortly before his departure, the *Sumatra Post* claimed that Fickendey had always shown fellow-feeling with others, fought against injustice and tried to make the world a better place, even at personal cost.[75] In light of the above, this claim can only be met with scepticism.

4. Fickendey, War Plantations, and the Nazi Empire in Europe

Ernst Fickendey's career bears the hallmarks of a "broken circle" in the service of German imperial projects. After three decades with numerous overseas experiences and postings, Fickendey returned to planning and in part implementing agricultural projects for a Germany that, now calling itself the "Third Reich", was again expanding abroad.[76] After he left his position in the Dutch Empire in Sumatra, he returned to his fatherland in 1938. In 1939, he joined the influential Gruppe Deutscher kolonialwirtschaftlicher Unternehmungen (Group of German Colonial Economic Enterprises, or Deko), for which he drafted business simulations and wrote numerous studies on raw material in the years to come. Furthermore, he established colonial political cooperations, especially with Dutch authorities and planters. Obviously deceived by National Socialist colonial propaganda promising a return of the African territories lost after the First World War, he embarked on a research trip to Cameroon in August 1939, only weeks before the outbreak of war. Taken by surprise by the upheaval of war, he managed to return to the "Third Reich" via Murmansk.[77]

After visiting the occupied Netherlands in 1940, not least to initiate collaboration with Dutch colonial planting societies, Fickendey wrote and sought to distribute a highly

75 Upon the Departure of Dr. Fickendey.

76 S. Baranowski, Nazi Empire: German Colonialism and Imperialism from Bismarck to Hitler, Cambridge 2011; M. Mazower, Hitler's Empire: How the Nazis Ruled Europe, New York 2009.

77 BArch Berlin, R 9361-II/233139: NSDAP-Parteikorrespondenz, Prof. Dr. Ernst Fickendey, Lebenslauf, autobiographische Schrift, verfasst Berlin, 28 April 1941.

critical report on Nazi occupation policies.[78] This put a target on his back, and he was forced to join the NSDAP in 1941.[79] Recommended to Heinrich Himmler as a leading plantation authority by one of his German acquaintances in the Dutch East Indies, Otto Ambros, Fickendey from then on confined his activities in the service of Hitler's empire to the occupied eastern territories, especially Ukraine.[80] Here, he was charged with putting his tropical experiences with various monocrop cultures to good effect. As part of a wider scheme centred on the agricultural research station in Kherson by the Black Sea (which had earlier been founded by the Soviets), Fickendey became centrally involved in the German war effort to cultivate cotton within subjugated territories. For that purpose, he undertook several study trips to eastern and southeastern Europe, gave lectures, and published on the prospects and duties of colonial agriculture both in Germany's *Ostgebiete* and in an imagined future German empire that was to be reclaimed in Africa.[81]

Kherson, as part of a whole network of Nazi research stations and with Fickendey's vigorous participation, became a transnational project of landscape modernization and exploitation in occupied eastern Europe.[82] Thus, the German director of Kherson, Dr Morgenroth, emphasized in 1942 that

> *I would very much welcome the use of Dutch scientists in Russia and, with regard to my special field, especially of scientists who have dealt and wish to continue to deal with the culture and cultivation of cotton. The multitude of problems requires a large number of scientists and specialists to harness the vast eastern region for Europe; biologists, physiologists, entomologists* […] *find a wide field of activities here*.[83]

Fickendey explicitly welcomed this German-Dutch collaboration. But not only Dutch experts were involved; "a good five thousand Dutch citizens […] during the war went voluntarily to the eastern territories conquered by the Wehrmacht" as part of the Dutch colonisation of the East (1941–1944). The majority "travelled under the flag of the Ned-

78 Bericht des Professors Fickendey über die Lage in den besetzten Niederlanden, 28 January 1941, in: F. Hartmannsgruber (ed.), Die Regierung Hitler, vol. 8, Boppard am Rhein 2017, pp. 61–65.

79 BArch Berlin, R 9361: NSDAP-Gaukartei, IX KARTEI, 8651386; Fickendey joined on 1 October 1941.

80 On Fickendey's recruitment to the Nazi party through Himmler, Stadtarchiv Nürnberg, APO 696-A: Office of Chief of Counsel for War Crimes, US Army, 1942/43, Fickendey NI 13501.

81 E. Fickendey, Vorträge zu dem vom Reichskommissariat Ukraine, Abteilung Ernährung und Landwirtschaft in Gemeinschaft mit dem Baumwoll-Forschungsinstitut Cherson abgehaltenen Lehrgang für La-Führer über die Baumwollkultur und andere technische Sonderkulturen vom 10. bis 12. September 1942 am Baumwoll-Forschungsinstitut in Cherson, Berlin 1942; E. Fickendey, Koloniale Landwirtschaft, in: Reichsforschungsrat, Kolonialwissenschaftliche Abteilung (ed.), Aufgaben der deutschen Kolonialforschung, Stuttgart 1942, pp. 159–167.

82 S. Heim, Die reine Luft der wissenschaftlichen Forschung: zum Selbstverständnis der Wissenschaftler der Kaiser-Wilhelm-Gesellschaft, Berlin 2002, p. 28.

83 M. M. Rost van Tonningen, Bericht von Dr. M.M. Rost van Tonningen, Präsident des Aufsichtsrates der Nederlandsche Oost Compagnie N.V., gegründet am 6. Juni 1942 in Den Haag, über die bisherige und zukünftige geplante Aufbau-Arbeit der Nederlandsche Oost Compagnie N.V. in den besetzten Ostgebieten, Den Haag 1943, pp. 63–64. On such German–Dutch collaborations, see most recently, M.B. Miller, When East Met East: Dutch East Indies Planters and the Ukraine Project (1942–1944), in: Central European History 53 (2020) 3, pp. 613–635.

erlandsche Oost Compagnie (NOC, Dutch Eastern Company) – a semi-governmental institution coordinating the deployments".[84]

As an indication of how radicalized Fickendey had become as the war went on, in 1942 he stated unambiguously: "The army needs cotton and we have to provide it at any cost."[85] Objections to his plans for a German cotton culture in occupied Ukraine as unprofitable and too costly were not valid, he claimed, because in war only the factor of urgency counted. Thus Fickendey, who himself had once risked draconian punishment at the hands of the Nazi regime, concluded his statements with the unambiguous warning: "Anyone who advises giving up cotton cultivation in Ukraine is committing war sabotage." As long as Germany did not hold overseas territories that could be defended in the event of war and that "offered more favourable conditions for cotton cultivation", Ukraine was Germany's special source of war supplies, and nothing stood "in the way of extensive cotton cultivation" there.[86] For this purpose, Fickendey resorted to the tropical production form so familiar to him – the plantation. He thereby transferred the experiments and leadership experiences he had previously made in German Africa and in Southeast Asia to the forcibly subjugated, genocidally "cleansed", and ruthlessly exploited occupation areas in eastern Europe. Here, the direction of knowledge transfer clearly pointed from the colonies to the occupied territories of the Nazi empire. Indeed, the reprint of the 1942 lectures in Kherson opened with the following remark:

> *The scientific work, especially questions of breeding, pest control, etc., was carried out by the Cotton Research Institute in Kherson, whose work in connection with the Baumwoll AG was organized by the* Group of German Colonial Economic Enterprises with the help of their cotton experts who had proved themselves in the colonial environment.[87]

As part of Nazi war production, cotton was to be grown in an area stretching from the Bug in the west, through Novo-Odessa in the north, east between Nikopol and Berdyansk, and the Black and Azov Seas in the south.[88] Around 80,000 hectares of land were cultivated in the spring of 1942, but a variety of obstacles soon appeared. In addition to fuel and seed shortages, the main problem was a noticeable "scarcity of labour", increasingly exacerbated by the deportation of workers to the German Reich territory. What was promoted as a voluntary "recruitment campaign" in the occupied Soviet territories showed evident traits of forced labour by the end of 1941. Young people from the age of 15, men and women seized in the open street as well as Soviet prisoners of war were

84 G. von Frijtag Drabbe Künzel, Die niederländische Ostkolonisation (1941–1944), in: F. Wielenga/L. Geeraedts (eds.), Jahrbuch des Zentrums für Niederlande Studien 40 (2011), pp. 81–101; see also F. Wielenga/L. Geeraedts, Hitler's Brudervolk: The Dutch and the Colonization of Occupied Eastern Europe, 1939–1945, New York 2015.

85 E. Fickendey, Die wirtschaftliche Bedeutung der Baumwolle für Deutschland und in der Welt und ihre Anbaugebiete, in: Fickendey, Vorträge, pp. 3–9, at 9.

86 Ibid.

87 Fickendey, Vorträge, no page number (emphasis added).

88 Linne, Baumwollanbau.

deployed in the cotton fields. Fickendey tolerated these forms of forced labour for the cotton project; while in 1940 he had denounced the exploitation of the Dutch *Kulturvolk* by Germany, he now pursued the achievement of agricultural production goals in the east "at any cost".[89]

In Kherson, too, considerations of the scheduling of agrarian regimes and their particular difficulties for planters played a significant role. According to the president of the Dutch Eastern Company, van Tonningen, the challenge

> *of cotton cultivation* […] *in southern Ukraine was that the cotton seed may only be sown when the soil temperature is above 15°, i.e. late in spring, and as a result of the weather conditions a more or less large number of buds do not ripen before the first cold weather and therefore yield raw cotton of poor quality*.[90]

However, agronomic practices should change the natural growth rhythm of the plants: "That is why you have to bring the cotton to a premature ripening, partly by planting them very close together and shortening the growth period." From 1943, after Stalingrad, however, the front shifted increasingly to the disadvantage of the German plans for the east, and the expansion of the plantation economy became obsolete. The natural rhythms of agricultural production, which could not be suspended and depended on the change of seasons, were ultimately incompatible with political and military developments and rapidly changing front lines in the age of motorized warfare.

5. Conclusion

After the war, Fickendey was never charged with any Nazi crimes. However, his private fortune in the form of multiple life insurances and deposits at Dutch banks was confiscated as "enemy property".[91] This forced him to continue looking for employment. In 1949, he was offered a position in a Spanish palm oil plantation company, the Sociedad Colonial de Guinea (SOCOGUI), which aimed to establish further planting estates in the West African Spanish colony. SOCOGUI, founded in 1921, was from the outset involved in palm oil production, but also in the exploitation of the colony's rich timber resources. SOCOGUI belonged, by the time Fickendey entered its service, to the five largest timber companies in the colony, being active in a concession in the vicinity of Cabo San Juan, a city in which Fickendey also took up residence.[92] Fickendey continued to provide expertise for the cultivation of palm oil in Spanish West Africa until 1955.[93]

89 Fickendey, Die wirtschaftliche Bedeutung, p. 9.

90 Tonningen, Bericht, p. 61.

91 NA, 2.09.16.04: Nederlands Beheers Instituut BHI Beheersdossiers Inventory no. 205053, Fickendey E.H., letter (from Monte Coello, Las Palmas de Gran Canaria) to the Nederlands Beheersinstituut, 11 November 1951, to the "Termination of Enemy Status" department.

92 La produccion forestal de los territorios españoles del Golfo de Guinea, in: Ministero de Agricultura, Servicio de Estadistica (ed.), Estadistica Foresta de España, Año 1948–49, Madrid 1951, pp. 20–23, at 21.

93 Polit. Archiv AA, P 18-597, Fickendey: Dr Pochhamher, Foreign Office, to the Bundespräsidialamt, 18 September 1953.

For this task, he could once more, among others, advocate the cultivation of the Southeast Asian Deli oil palm variety in order to increase production.[94] This demonstrates that colonial plantations in the tropical world continued to give scientific experts such as Fickendey the opportunity to earn a living even in the wake of the Second World War, after Hitler's Reich had collapsed while other European empires survived.[95] In addition, it confirms that the plantation system continued to be a transnational affair even in the twilight of European imperialism. National affiliation was less important than the expertise these scientists and agronomists could provide. The structures established in the Age of Empire often remained in place after the end of colonial rule. They evolved into a vast, and ever-growing, plantation complex in the global South that is still a key component of the capitalist world economy today.[96]

94 E. Fickendey, Posibilidades del cultivo de la palmera de aceite en la Guinea espanñola, in: Archivos del Instituto de Estudios Africanos 7 (1954) 29, pp. 25–30, at 29.

95 F. Cooper, Epilogue: Beyond Empire?, in: Bang/Bayly/Scheidel (eds.), Oxford World History of Empire, pp. 1249–1278, at 1259.

96 D. Haraway, Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin, in: Environmental Humanities 6 (2015) 1, pp. 159–165.