Cultivating Cinnamon: The Pursuit of Knowledge and its Limits in the Eighteenth-Century Dutch Empire

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MA Colonial and Global History
2018-2019

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Introduction

> ***"Wherever profit leads us, to every sea and shore, for the love of gain the wide world's harbours we explore."*** Joost van Vondel (1639).[1]

This often-cited ode to the directors of the Vereenigde Oost-Indische Compagnie (hereafter, the VOC) by the Dutch Republic's eminent poet, encapsulates the image of the VOC as a trading company ferrying wealth from various corners of the globe back to its metropole. But is the VOC more than just an enterprise whose primary driving force is that "love of gain"? Can we see the VOC itself as an institution of knowledge in the eighteenth century? This case study on the cultivation of cinnamon in eighteenth-century Sri Lanka analyses the extent to which the production of knowledge for the VOC and for scientific purposes were intertwined in the eighteenth century.[2] This case study aims to contribute to existing historiography in three ways. Firstly, there has not been a study of the history of cinnamon in the early modern period. Secondly, there is a lacuna of research on the intersections between VOC and scientific activities in the eighteenth century, where most scholarship on such intersections has focused on the earlier seventeenth century. Finally, this case study provides a clearly defined temporal and geographic scope to investigate the knowledge practices of the VOC on the ground in Asia.

The VOC as a Commercial Enterprise

The VOC, established in 1602, has often been studied first and foremost as a commercial enterprise. The majority of scholarship derived upon the archives of the Dutch East India Company has focused on the spice trade and commodities of empire, such as Els M Jacobs's publication.[3] Research into the history of the VOC which looks at its cultivation practices, primarily view it through the lens of commerce, politics, or land control policies. There have been other case studies focusing on particular plants, for example Jan Breman's publication on labour and the coffee market in colonial Java.[4] Other commodities such as

[1] Julie Hochstrasser, "The Conquest of Spice and the Dutch Colonial Imaginary," in Claudia Swan and Londa Schiebinger, eds, *Colonial Botany: Science, Commerce, and Politics in the Early Modern World* (Philadelphia: University of Pennsylvania Press, 2007), 173.
[2] In this thesis, the term "Sri Lanka" will be used to denote the country, while "Ceylon" will specifically refer to the kantor, or VOC settlement, for example the Governor of Ceylon, or the Council of Ceylon.
[3] Els M Jacobs, *Koopman in Azië: De handel van de Verenigde Oost-Indische Compagnie tijdens de 18de eeuw* (Zutphen: Walburg Pers, 2000).
[4] Jan Breman, *Mobilizing Labour for the Global Coffee Market: Profits from an Unfree Work Regime in Colonial Java* (Amsterdam: Amsterdam University Press, 2015).

pepper and tea have been explored in relation to China.[5] While there is scholarship on other commodities traded by the VOC, such as nutmeg, pepper or tea, there has yet to be a comprehensive study on cinnamon.

Science in the "Dutch Empire"

Furthermore, there has yet to be an attempt to consider how VOC policies in Asia were influenced or facilitated by broader scientific developments as part of the Enlightenment in Europe. While there is much research on the intersections between empire and science, the wealth of scholarship has been devoted to the seventeenth century, long considered the "Golden Age" of the Dutch Republic. The intersections between early modern European networks and the production of knowledge has been well-established in Harold Cook's *Matters of Exchange*, which argues that the Dutch East India Company facilitated the transfer of goods and ideas which contributed to significant developments in natural history and medicine.[6] The role of trading networks in facilitating knowledge exchange is further explored in *Dutch trading companies as knowledge networks* through specific case studies on the accumulation of knowledge in the Indonesian archipelago, through the lives and scientific endeavours of individuals including Carolus Clusius (1526-1609), Jacobus Bontius (1592-1631), Clas Georg Eberhard Rumphius (1627-1702), François Valentyn (1666-1727) and Fredrik Hornstedt (1758-1809).[7] As a comparative framework, there is also existing scholarship on the British Empire's networks of knowledge, or connections in the early modern Atlantic world.[8] Existing scholarship on the Dutch Empire has often focused on scientific activities in the metropole, with a majority developed upon case studies of prominent individuals. The framework of nationalist histories has also led to scholarship on the utility of science as a tool for colonisation towards the 19th century, where more attention is devoted to Dutch activities in Asia.[9] This thesis focuses on the late eighteenth century, aiming to bridge the gap between the two periods in existing historiography which focus predominantly on the seventeenth and nineteenth century respectively.

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[5] Els M. Jacobs, *In Pursuit of Pepper and Tea: the Story of the Dutch East India Company*, 3rd ed (Zutphen: Walburg Pers, 2002).
[6] Harold J. Cook, *Matters of exchange: Commerce, medicine and science in the Dutch Golden Age* (New Haven: Yale University Press, 2007).
[7] Siegfried Huigen, Jan L de Jong and Elmer Koffin, eds, *The Dutch Trading Companies as Knowledge Networks,* eds., (Leiden; Boston: Brill, 2010).
[8] Vinita Damodaran, Anna Winterbottom and Alan Lester, eds, *The East India Company and the Natural World* (Hampshire: Palgrave Macmillan, 2015); Anna Winterbottom, *Hybrid Knowledge in the Early East India Company World* (Hampshire: Palgrave Macmillan, 2016); Londa L. Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World.* (Cambridge: Harvard University Press, 2009).
[9] Take for example, Hans Pols, "European Physicians and Botanists, Indigenous Herbal Medicine in the Dutch East Indies, and Colonial Networks of Mediation," *East Asian Science, Technology and Society* 32, no. 2-3 (2009): 173-208.

According to Peter Boomgaard, a historian who has written extensively on environmental histories and the VOC, the historiography of science in the eighteenth century Dutch Republic has been scarce, due to how scientific activities themselves evolved during this time. Boomgaard suggests a correlation between the decline of Amsterdam as the centre of knowledge production and the shift in the balance of power from Amsterdam to London as the centre of global trade. Boomgaard attributes the decline of scientific activities in the Dutch Republic to the lack of a single cohesive entity driving the funding of large-scale voyages of discovery which would have facilitated the movement of information or objects. In other words, the "Dutch Empire" was not a centralised monarchy which would have supported a single consolidated scientific society, which was the case for scientific societies in Paris (1666) and London (1662), Berlin (1700), St Petersburg (1724), Stockholm (1739), and Copenhagen (1742).[10] This would seem to suggest that the Dutch Republic and the VOC as its major trading company formed a unique circumstance in the eighteenth century and deserves further study. I concur with Boomgaard's assessment, and further suggest that the VOC and the Dutch Republic of Letters in the preceding seventeenth century already successfully established its own networks, therefore having these infrastructures facilitating knowledge production which were well in place and continued to be utilised by. its mobile agents through the eighteenth century.

For the purpose of this thesis, science is defined broadly to include various aspects that intersect with the activities of the VOC, including botany and mapmaking. The purpose of this thesis to consider how the VOC and individuals associated with the VOC approached knowledge production and for what purposes. More broadly, the rational attitude that characterises the Enlightenment includes the accurate gathering of information, the identification and assessment of knowledge, as well as the accumulation and application of knowledge.[11] Furthermore, this thesis uses broadly the term "Dutch Empire" in order to consider the networks of knowledge between Sri Lanka and the Netherlands, as well as to other regions in Asia. Whether or not a formal "Dutch Empire" really existed and to what extent we could ascribe intent in the pursuit of knowledge will be analysed further in Chapter 3 of this thesis.

[10] Peter Boomgaard, "Introduction," in *Empire and Science in the Making: Dutch Colonial Scholarship in Comparative Global Perspective, 1760-1830*, ed. Peter Boomgaard (New York: Palgrave Macmillan, 2013), 14-17.
[11] Klaas van Berkel, "Empire without science? The Dutch scholarly world and colonial science around 1800," in *Empire and Science in the Making: Dutch Colonial Scholarship in Comparative Global Perspective, 1760-1830,* ed. Peter Boomgaard (New York: Palgrave Macmillan, 2013), 95.

Nature, Gardens and the Place of Plants

The history of botany is closely linked to broader discourses on nature. In the context of early modern Netherlands, there is much established research into the history of gardens.[12] A recent paper by Pieter Baas looks into the impact of colonial botany on gardens and herbarium collections in the Dutch Republic.[13] The Boerhaave Museum held an exhibition showcasing research into their collections of early herbaria, which highlights the role of Leiden as a site for botanical research in the seventeenth century.[14] Further research into identifying plant species, cross-referencing herbaria records and identifying botanical drawings have also been undertaken by scholars trained in botany and ethnobotany, such as Tinde van Andel.[15] Claudia Swan and Londa Schiebinger's edited volume *Colonial Botany* surveys how the study, naming, cultivation and marketing of plants were closely associated with colonial practices and commercial enterprises of the early modern period across the globe.[16]

Thus far, however, existing scholarship on early modern nature often frames Asia as predominantly a source of materials in the context of European imperialism and subsequent colonialism. Asia was the site of knowledge-making acted upon by successive European powers, be it the Portuguese, the Dutch, or the British. Peter Boomgaard's case study in his edited volume *Empire and Science in the Making* departs from this trend, highlighting how Batavia (present-day Jakarta), became a site for scientific engagement, especially the role of the Batavian Society of Arts and Sciences.[17] Even here, however, the VOC is still defined primarily as a facilitator, and the focus of the case study is the scientific society itself as the site of knowledge production and practice. Returning back to Boomgaard's earlier assessment about the lack of a state sponsor in eighteenth century Dutch scientific activities, this thesis aims to test the hypothesis whether the VOC as an institution is analogous to a state power. While the VOC behaves like a state in having the right to exercise political, judicial and military

[12] W. K. H. Karstens, *De Leidse Hortus: Een Botanische Erfenis* (Zwolle: Waanders, 1982); W. De Backer and Francine De Nave, *De Botanica in De Zuidelijke Nederlanden (einde 15de eeuw-ca. 1650)* (Antwerpen: Stad Antwerpen, 1993); L. A. Tjon Sie Fat and E. de Jong, eds, *The Authentic Garden: A Symposium on Gardens* (Leiden: Clusius Foundation, 1991).
[13] Pieter Bass, "The Golden Age of Dutch Colonial Botany and its Impact on Garden and Herbarium Collections," in *Tropical Plant Collections: Legacies from the Past? Essential Tools for the Future? Proceedings of an international symposium held by the Royal Danish Academy of Sciences and Letters in Copenhagen, 19th-21st of May 2015*, eds. Ib Friis and Henrik Balslev (Denmark: Det Kongelige Danske Videnskabernes Selskab, 2017), 53-62.
[14] Esther van Gelder, ed, *Bloeiende Kennis: Groene Ontdekkingen in de Gouden Eeuw* (Hilversum: Verloren, 2012).
[15] Tinde Van Andel, Ariane Scholman, and Mieke Beumer, "Icones Plantarum Malabaricarum: Early 18th Century Botanical Drawings of Medicinal Plants from Colonial Ceylon," *Journal of Ethnopharmacology* 222 (2018): 11–20.
[16] Claudia Swan and Londa Schiebinger, *Colonial Botany.*
[17] Peter Boomgaard, "Introduction," in *Empire and Science in the Making: Dutch Colonial Scholarship in Comparative Global Perspective, 1760-1830*, ed. Peter Boomgaard (New York: Palgrave MacMillan, 2013), 1-38; Peter Boomgaard, "For the Common Good: Dutch Institutions and Western Scholarship on Indonesia around 1800," in *Empire and Science in the Making: Dutch Colonial Scholarship in Comparative Global Perspective, 1760-1830*, ed. Peter Boomgaard (New York: Palgrave MacMillan, 2013), 135-164.

powers, it also acts as knowledge broker and producer. How the VOC put the accumulated knowledge into practice is an aspect that has been less studied and will be explored in this thesis.

Positioning Cinnamon as a Case Study

Though cinnamon is always described as the single most important export from Sri Lanka, what is surprising is that there not yet been an in-depth study into the history of cinnamon itself. One of the earliest scholarship on Sri Lanka is by Sinnappah Arasaratnam.[18] More recently, Alicia Schrikker has focused on the Dutch and British in Sri Lanka between 1780 and 1815.[19] There is an earlier article by Vijaya Samaraweera on the cinnamon trade in Sri Lanka, however it focuses on the quantitative aspect and predominantly on the nineteenth century.[20] These existing studies look at cinnamon from their socio-political or economic contexts. From a history of science perspective, Sujit Sivasundaram has written about the British period in Ceylon in the eighteenth and nineteenth centuries, but did not discuss the Dutch period.[21] Lodewijk Wagenaar's publication for the Rijksmuseum comes the closest to discussing cinnamon from a cultural history perspective, presenting an overview of the connections between Sri Lanka and Netherlands through material culture.[22] A most relevant publication for this thesis is the biographical history of the Ceylon governor Iman Willem Falck by Frits van Dulm, especially the chapter on cinnamon which highlights Falck's role as governor.[23]

Cinnamon gardens were successfully established during the governorship of Iman Willem Falck between 1765 and 1785. The seeds for this endeavour had been planted earlier by Jan Schreuder, his predecessor governing between 1757 and 1762, but Falck put in place his own practices. This clearly identified time period for the successful cultivation of cinnamon provides a starting point to study cinnamon from different perspectives and in more depth,

[18] S. Arasaratnam, *Dutch Power in Ceylon, 1658-1687* (Amsterdam: Djambatan, 1958).
[19] Alicia Schrikker, *Dutch and British Colonial Intervention in Sri Lanka, 1780–1815: Expansion and Reform.* TANAP Monographs on the History of Asian-European Interaction, 7 (Leiden: Brill, 2007); Sujit Sivasundaram, *Islanded: Britain, Sri Lanka, and the Bounds of an Indian Ocean Colony* (Chicago: The University of Chicago Press, 2013).
[20] Vijaya Samaraweera, "The Cinnamon Trade of Ceylon," *The Indian Economic & Social History Review* 8, no. 4 (1971): 415-442.
[21] Alicia Schrikker, *Dutch and British Colonial Intervention in Sri Lanka, 1780–1815: Expansion and Reform.* TANAP Monographs on the History of Asian-European Interaction, 7 (Leiden: Brill, 2007); Sujit Sivasundaram, *Islanded: Britain, Sri Lanka, and the Bounds of an Indian Ocean Colony* (Chicago: The University of Chicago Press, 2013).
[22] Lodewijk Wagenaar*, Cinnamon and Elephants: Sri Lanka and the Nederland from 1600* (Amsterdam: Rijksmuseum, 2016).
[23] Frits Van Dulm, *'Zonder Eigen Gewinne En Glorie': Mr. Iman Wilhelm Falck (1736-1785), Gouverneur en Directeur van Ceylon en Onderhorigheden* (Hilversum: Uitgeverij Verloren, 2012), http://hdl.handle.net/1887/18470.

unlike other islands where the VOC also worked to establish monopolies on spices, for example nutmeg on the Banda Islands and cloves on the Makassar islands, which covers a much longer time period and would not lend themselves easily to an interdisciplinary approach incorporating other types of primary sources beyond the VOC archives.

Furthermore, cinnamon from Sri Lanka was considered the best quality but the plant itself was not exclusive to the island prior to the VOC's arrival, nor afterwards. There were various different strains of cinnamon being cultivated in different parts of the world, and it was not as exclusive as nutmeg or cloves to the VOC. It is this very plurality of cinnamon that presents a broader opportunity to consider the circulations of a plant globally in the early modern period, such as the role of cinnamon in intra-Asian networks, and in particular in connection to Manila in the Spanish Philippines which was a gateway to the Atlantic world.

Beyond investigating the intersections of nature and empire, cinnamon also presents a useful case study from an intellectual and cultural history perspective. Cinnamon has been a known spice to the European world since medieval times, arguably even earlier due to its extant descriptions in classical texts. As it was not a new plant introduced to Europe by the VOC, its social and cultural history would also provide insights on whether control of spice trade by the VOC had any impact on how cinnamon was received in the Dutch Republic, in conjunction with other spices from the Indonesian Archipelago such as cloves, nutmeg or pepper.

Source Criticism

The thesis looks at the reporting, transmission and practical application of knowledge about cinnamon found across different primary sources. The first challenge of working on the VOC archives is how to find the information itself. Due to the structure of the archives which mirrors its institutional function, the archive does not lend itself readily to a thematic research. In this instance, there needs to be a manual chronological reading of all types of records across different regions for a specified timeframe in order to be able to collate enough data to determine if there is an overall comprehensive view on nature that can be attributed to the VOC based on its on-the-ground experiences. Ceylon is therefore a good case study specifically because the successful establishment of the cinnamon gardens was contained within a particular time period.

For this case study, the main sources from the VOC archives will be the OBP (Overgekomen Brieven and Papieren) for *kantor* Ceylon on the years between 1765 and 1785. Because the OBP usually covers events for the preceding year, in practice this means going through the OBP records for the years 1765-1786 (which covers reports of events from 1764 to 1785). Even though the majority of the OBP (Overgekomen Brieven and Papieren) series have been inventorised on the TANAP website, this inventory merely includes the titles of each record. For example, a record could merely be catalogued as "Letter from Governor Iman Falck to the Heren XVII". Unless the title of the letter itself says "regarding cinnamon", this letter will not appear under a "free search" of cinnamon in the TANAP database. Therefore, the only way to systematically collate the data on cinnamon is to go through the volumes chronologically.

The OBP consists of several volumes for each year, generally 4 volumes but at times it can comprise up to 8 volumes. These are compiled reports that arrived from Ceylon to Patria. Generally, one volume would include resolutions of *Raad van Ceylon* which contains the most important and relevant decision-making about cinnamon on the local level. Another volume is generally full of letters from Ceylon written by the governor as well as other key figures such as ambassadors. Another volume includes letters exchanged between Ceylon and other *kantoren* in the region. The last volume of the OBP for the year usually consists of expenses and statistics for Colombo for the preceding year.

Even though it would also be relevant to cover the OBP for the period of the predecessor and successor governors to Falck, the extent of the volume of records that would encompass is beyond the scope of this thesis. Instead, information about the tenure of other governors would be gleaned from their respective *memories van overgave*, a type of report that governors were obligated to write to pass on pertinent information to their successors when they move on from a post. Such a report is generally written upon their departure but may also be delayed by several years. There is no extant *memories van overgave* that could be found by Falck, this was most likely due to the fact that he passed away while he was still governor of Ceylon in 1785. Within the VOC archives, I will also look into the map collections to consider it as one of the main scientific activities undertaken in Ceylon through the eighteenth century.

In order to contextualise these information found in the VOC archives, Falck has left a substantial amount of letters, writings and published texts which can be found in private collections in the Nationaal Archief in the Hague and the Special Collections of the Leiden University Library. Therefore, information on cinnamon in the VOC archives would be complemented with these private collections. I will also look into early modern texts and manuscripts which would be drawn from the collection of the Special Collections of the Leiden University Library. Archives of the Dutch scientific societies can be found in the Noord Holland Archief for Hollandsche Maatschappij der Wetenschappen, and fully digitised online by the Zeeuws Archief for the Zeeland Genootschap der Wetenschappen. Other early modern texts can be found online through Google Books, the Bioheritage Diversity Library, as well as Digitale Bibliotheek der Nederlandse Letteren. While none of these sources that will be used for the thesis are entirely new, the thesis attempts to bring together various types of primary sources to analyse and attempt to connect the practices of knowledge production within the VOC infrastructure alongside other forms of knowledge.

Framework and Methodology

Globalising the Enlightenment

Through this thesis, I aim to highlight Asia not merely as a source of materials and knowledge, or a source of discoveries, but as the site of knowledge production and practice on the ground itself. I suggest that this opens up further possibilities of using a similar approach to trace the trajectories of other plants, highlighting the global dimensions of the Enlightenment and moving beyond the conventional analytical space of Eurocentric sites of knowledge production. This is important not merely as an investigation of whether or not there was cultural commensurability between the Dutch and locals in terms of attitudes to nature, resource management or cultivation, but to open up the debate of what really constitutes the Enlightenment.

The Indian Ocean in the early modern period became connected not only to the Mediterranean but also to the Atlantic as a side effect of commerce.[24] This far-reaching extent of the Indian Ocean facilitated new streams of knowledge. Gommans notes how the terms the 'Renaissance' and the 'Enlightenment' do not fully reflect their global nature.[25] Much earlier scholarship on early modern science were centred upon European perspectives, where terms such as the 'Enlightenment', the 'Industrial Revolution', and 'modernity' were framed as unique historic processes in Europe, distinct from developments in other parts of the world.[26] This mode of scholarship itself has begun to change. In *The Global Renaissance*, Peter Burke et.al. demonstrates that the transmission of knowledge from other parts of the world contributed to what was previously perceived as a European historic process, the Renaissance, between the mid-fourteenth to the late fifteenth century.[27] Burke et. al. uses examples such as precedents of textual practices with parallels to the European context, or possible origins of mathematical theories or printing technologies from other parts of the world to Europe, to present a more global perspective on a historic process.[28] Burke outlines two ways of approaching this broader

[24] Jos Gommans, "Continuity and Change in the Indian Ocean Basin, 1400-1800," in *The Cambridge History of the World, Vol. 6, Part 1: The Construction of a Global World, 1400-1800 CE,* eds. Jerry H. Bentley, Merry E. Wiesner-Hanks and Sanjay Subrahmanyam (Cambridge: Cambridge University Press, 2015), 208.
208.
[25] Ibid.
[26] H. Floris Cohen, *The Scientific Revolution: A Historiographical Inquiry* (Chicago: University of Chicago Press, 1994); Stephen Gaukroger, *The Emergence of a Scientific Culture: Science and the Shaping of Modernity, 1210-1685* (Oxford: Clarendon Press, 2006).
[27] Peter Burke, Luke Clossey, Felipe Fernández-Armesto, "The Global Renaissance," *Journal of World History*, 28 no.1 (2017): 1-30.
[28] Ibid, 5-7; 13-16.

question: the first option, that the Renaissance happened in Europe with global influences, or the second option, that there is also existing scholarship on parallel Renaissances in other parts of the world, which demonstrates that Europe did not have a unique experience.

In my research, I consider these two approaches outlined by Burke and propose a third strand: that Enlightenment as an endeavour did not only happen in Europe, but also elsewhere in the world, not in parallel, but a broadening of scope of what constitutes practices of the Enlightenment, with the cinnamon gardens in Sri Lanka positioned as a case study in this hypothesis. The corollary to this, therefore, is whether we would view this type of 'global' Enlightenment as an imposition of external (European) worldviews alien to local agents, or whether it is truly a shared endeavour between VOC officials and indigenous agents. It would also be important to take into consideration the power imbalance from a post-colonial perspective, whether it is possible to attribute a shared endeavour within such historical contexts.

Post-colonial perspectives

Contemporary debates over who are the true contributors to the *Hortus Malabaricus* (1678-1693), a voluminous treatise on plants from the Malabar coast, compiled and published by Hendrik Adriaan van Rheede tot Drakenstein, suggest the need to give agency back to indigenous actors, which had become subsumed as they are incorporated into European discourses. While the historical sources appear to be difficult to trace in the case of the *Hortus Malabaricus,* in this case study on cinnamon gardens, we have recorded dialogues between the VOC and the cinnamon peelers in Sri Lanka, for example.

The VOC archives necessarily presents the Dutch perspective, or rather, information from the Sri Lankan perspective exists but filtered through Dutch eyes as reported within the VOC archives. This can be seen for example, in the translated Singalese *olas* and letters which are in Dutch, often appended to letters to Patria. Some of the originals of these letters and tributes sent to the VOC still exists in the form of palm leaf manuscripts, in the collection of Museum Volkenkunde in Leiden and in the Bibliothèque Nationale de France in Paris. P. De Silva has fully transcribed the content of two such letters in the catalogue, for example, but it is not accessible to me as I do not read Sinhalese.[29] A few of these have also been translated by

[29] P.H.D.H. de Silva, *A Catalogue of Antiquities and Other Cultural Objects from Sri Lanka (Ceylon) Abroad* (Colombo:Department of Government Printing, Sri Lanka (Ceylon), 1975).

scholars and published, but these published sources are mainly of diplomatic content.[30] Therefore, reading the VOC archives to highlight the agency of indigenous actors in the production and practice of knowledge in relation to cinnamon also means "reading against the grain".[31]

In line with this approach, Matthew D. Sargent's recent article show how a close reading of European texts on local remedies in Southeast Asia offers an approach to enrich the study of knowledge networks.[32] He suggests close reading as a strategy allows us not only to recover tacit knowledge about local medicinal uses, but also consider how cross-cultural knowledge production worked to transform information for codification in European texts.

Interpreting the VOC records as texts

My methodology further draws upon Guido Van Meersbergen's recent call to utilise both the English and Dutch East India Company archives for the study of cultural history. He argues that these archives should be critically analysed as texts in themselves, just as travel accounts, for example, can be subject to textual analysis. Meersbergen particularly sees the value in deconstructing the "role played by implicit ethnographies in shaping Asian-European relations".[33]

In Richard Drayton's *Nature's Government,* a study of the development of British policies of nature alongside the underlying desire to bring "improvement" to the rest of the British Empire, he outlines British and French examples where scientific expeditions were closely entertwined with the imperial agenda, and subsequently the results of such endeavours were published for public information.[34] This closely intertwined sense of purpose, at first glance, does not seem to be the case for the VOC in the eighteenth century. My initial search into the VOC records do not appear to support explicit ideologies like in the British and French contexts, and I rarely come across detailed personal reflections on nature or the environment which allows archival records to be interpreted like texts. Meersbergen's "cultural turn"

[30] Donald Ferguson, "Letters from Raja Simha II to the Dutch," *Royal Asiatic Society (Ceylon Branch)*, 62 (1909): 259-266.
[31] Ann Laura Stoler, *Along the Archival Grain: Epistemic Anxieties and Colonial Common Sense* (Princeton, NJ Oxford: Princeton University Press, 2009).
[32] Matthew D. Sargent, "Marriage Institutions and the Formation of Cross-Cultural Knowledge Networks in Early Modern Southeast Asia," *Journal of Early Modern History* 22 (2018):155-180.
[33] Guido van Meersbergen, "Writing East India Company History after the Cultural Turn: Interdisciplinary Perspectives on the Seventeenth-Century East India Company and Verenigde Oostindische Compagnie," *Journal for Early Modern Cultural Studies* 17, no. 3 (2017): 23.
[34] Richard Drayton, *Nature's Government: Science, Imperial Britain, and the "Improvement" of the World* (New Haven: Yale University Press, 2000).

approach may work for a close reading of moments of cultural encounter, which are about people-to-people interactions and could definitely be found within the VOC archives. It is more challenging, however, to adopt this approach to analyse encounters with the environment or cultivation policies.

In view of that, I am undertaking a close study of knowledge practices within the VOC archives, which will then be studied alongside their contemporary historical sources. This interdisciplinary approach will consider whether the decision-making or reflections of VOC officials may be used to infer broader philosophies. In addition to reading against the grain in terms of indigenous perspectives, my thesis also reads against the "commercial grain" of the VOC archives and adopts an interpretive analysis of the records, which is contextualised through sources which could be found in other types of archives and texts.

Overview of thesis chapters

The first chapter of this thesis introduces the significance of cinnamon as a spice denoted by its long history, and briefly reviews the role of cinnamon in the Dutch Republic through its social and cultural history. It then follows cinnamon through its transmission through texts, to show how different discourses developed around cinnamon.

The second chapter of this thesis analyses how individuals associated with the VOC and the site of Sri Lanka contributed to scientific developments in the early modern period until the eighteenth century. The second half of this chapter looks closely at how the VOC, through the efforts of Governor Iman Willem Falck and leveraging on his academic and scientific connections, managed to successfully cultivate cinnamon. This chapter discusses how science and the VOC's activities were closely intertwined.

The third chapter looks at knowledge practices of VOC officials within the institutional structure and beyond, suggesting how these texts could be read as reflecting broader policies or personal interests. Two types of records will be studied closely in this chapter: the *memories van overgave* genre, as well as maps.

Chapter 1: Cinnamon from antiquity to the eighteenth-century

What is in a name?

A case study of cinnamon allows us to consider how a plant is appropriated and re-contextualised within different value systems: the cinnamon is at once a spice, a drug, an object of knowledge, or a commodity, depending on who was writing about it and what was its perceived value to its contemporary writer or reader. By focusing on the trajectory of a single plant, it is possible to look closer at how knowledge is circulated and transmitted through institutions, networks and texts, especially the role of archives and books as containers of knowledge.

A known spice since antiquity

Cinnamon has had a varied history all over the world, which can be considered a truly global commodity with a long history. The Ancient Egyptians used cinnamon to embalm mummies, while ancient Roman physicians recommended mixing hot liquor with stick cinnamon as a remedy for colds.[35] Pliny the Elder in *Historia Naturalis* (77-79 CE) describes the different stories surrounding cinnamon's origins. One story says that cinnamon are derived from birds' nests located on inaccessible high terrains. Various methods were purportedly employed the collect the cinnamon sticks, either by shooting arrows with lead, or providing these birds with flesh to bring back to their nests, adding weight to these nests to bring down the cinnamon.[36] Another story says that cinnamon can be found in marshes, guarded by clawed bats or winged serpents.[37] In medieval Europe, cinnamon is used in a special sauce with ginger, while incense burners in churches often added cinnamon for scent.[38] The confusion between cinnamon and cassia had already been discussed by these ancient authors, and this lack of clarity persisted through the early modern period.

Cinnamon in discourses of nature, Garcia de Orta's *Colloquies* (1563)

By virtue of having been discussed by ancient authors, cinnamon became significant as the subject of scientific discourses on nature. Much of the scientific knowledge in early modern

[35] Ernest Small, *Top 100 Food Plants: The World's Most Important Culinary Crops* (Ottawa: National Research Council Canada, 2009), 179.
[36] Pliny the Elder, *Natural History*, Book XII, LCL 370, trans. H. Rackham. Loeb Classical Library 370. (Cambridge, MA: Harvard University Press, 1945), 62-63.
[37] Ibid.
[38] Ernest Small, *Top 100 Food Plants,* 179; Leo M. Akveld and Els M. Jacobs, editors. *The Colourful World of the VOC: National Anniversary Book VOC 1602/2002* (Bussum: THOTH, 2002), 26.

Europe emerged through the humanist revival between the fourteenth and sixteenth centuries which included learning from the wisdom of the ancients. This included authorities in Greek and Roman medical and scientific texts, the four most notable figures being Theophrastus (c. 3711-287 BCE), Dioscorides (c.40-90 CE), Pliny the Elder (23/24-79 CE) and Galen (129-c.200/261 CE).

As Susanna de Beer shows in tracing classical reception in the Italian context, cinnamon was one of the plants that was being contested and debated by various authors.[39] In the early modern period, a new genre of text emerged which were critical commentaries on ancient texts. Botanist Jacques Daléchamps, who published a commentary on Pliny's Historia Naturalis in 1587, sought to make it accessible to a broader public, and one example included critically examining claims about the origins of cinnamon, refuting Pliny' claim that it originated in Ethiopia.[40] One strategy adopted by some authors include structuring their commentary around the original source text. Andrea Mattioli's 1544 commentary Dioscorides's *De materia medica*, for example, reflects the extent of this endeavour. While Dioscorides' original text on cinnamon did not even amount to one page, Mattioli's commentary, including references to ancient and contemporary authors as well as his own observations and attempts to find the source of cinnamon, adds up to almost seven folio pages.[41]

As a remedy that has been described since antiquity, learned scholars in the early modern period were driven to identify which was the "true" cinnamon discussed by ancient authors. At this time, there was still lack of clarity whether cinnamon and cassia were one and the same species. Such discourses of cinnamon in medical and scientific texts reveal that one of the key features of scientific activities in the early modern period was the attempt by Europeans to reconcile knowledge inherited from classical reception with new material and reported knowledge coming directly from Asia.

One of the earliest such texts is by the Portuguese Garcia de Orta, *Colóquios dos simples e drogas he cousas medicinais da India* or, *Colloquies on the Simples and Drugs of*

[39] Susanna de Beer, "The Survival of Pliny in Padua. Transforming Classical Scholarship during the Botanical Renaissance," in *Transformations of the Classics via Early Modern Commentaries*, ed. Karl A. E.. Enenkel (Leiden: Brill, 2014), 329-362, https://doi.org/10.1163/9789004260788_013.
[40] Ibid, 338.
[41] Ibid, 342-345.

India (1563).[42] The format of Da Orta's text is such that the other person, Ruano, asks all the assertions that have been written or taken up by other authors, in order to clarify the confusion which had persisted in what was the 'cassia lignae' that is often mentioned in ancient sources, which Da Orta systematically refutes. Through this dialogue format, Da Orta considers the linguistic origins of cinnamon and cassia, discusses the historical trade of cinnamon which brought it to Europe, the intermediary role of Chinese merchants, and also its uses in medicine.[43]

The language, as well as Da Orta's evocation of practical knowledge is in line with textual strategies described in Susanna de Beer's book chapter. Firstly, Da Orta's delves into the linguistic origins of the words "cassia" and "cinnamon" in order to distinguish the two:

> To the bad kind from Malabar and Java they put another name, which is what it is known in Java, *Caismanis*, which means sweet skin in Malay. Though it is one species they put two names, calling the good *Darchini* or Chinese skin, and *Cinamomo*, which is *amomo* of China, and the other *Caismanis* or sweet skin.[44]

In order to substantiate his own explanations and refute other authors' claims, Da Orta asserts his reasoning based on empirical knowledge, compared to perpetuating inherited knowledge from antiquity.[45] Da Orta also mentions other practical knowledge, for example, the fact that the environment in which cinnamon is kept makes a difference, "lasting longer where the humidity is least."[46] He also mentions that the cinnamon tree needs to be left aside for three years to renew its bark after peeling – this number of three years, as we shall see, recurs in various texts in Europe.[47]

Cinnamon in social and cultural life of the Dutch Republic

[42] English translation cited from Garcia da Orta, "Colloquies on the Simples and Drugs of India: Cinnamon, Cloves, Mace and Nutmeg, Pepper," in Spices of the Indian Ocean World, ed. Michael Pearson (Aldershot: Variorum, 1996), 3. Originally published in the Portuguese language in 1563.
[43] Ibid.
[44] Ibid, 7.
[45] Ibid, 8.
[46] Ibid, 11.
[47] Ibid, 13.

The demand for cinnamon in the Dutch Republic was growing fast by the second half of the seventeenth century. The annual demand amounted to approximately 10,000 bales, while the annual supply could only reach around 8,000 bales.[48] In tandem with this real demand, the role of cinnamon in early modern life can be traced through early modern texts, as well as visual and material culture.

In an early *pharmacopeias* such as that published by Jan Ten Hoorn (1683), cinnamon is one of the ingredients that you could buy from a pharmacy. The book also lists cinnamon as ingredients in tonics such as *Aqua Vitae Compositae*, or medicinal concoctions such as *theriacs*.[49] The most famous cookbook of seventeenth century, *De Verstandige Kok*, first published in 1667, also includes several recipes with cinnamon. The range of recipes reflect the versatility of cinnamon as a spice, featured in savoury dishes such as artichoke stew, a sauce for hare, preparations for ox tongue, as well as sweet bakes such as apple pie.[50]

The popularisation of cinnamon in early modern life can be further seen in the sensory descriptions of the spice in various genres of literature. One way in which cinnamon appears is quite literal: reflective of actual cooking recipes as seen in pharmacopeias and cooking books as outlined earlier. Travelogues often repeat what was widely known about cinnamon and its uses. One of the earliest travel journals of Ceylon published in 1668 was written by Johannes von den Behr, which includes a recipe for coconut syrup with cinnamon peel as a flavouring.[51] Spices are also used to denote a certain social status, as remarked in P. C. Hooft's play *Schijnheiligh* from circa 1617-1618, where cinnamon, lemon and sugar constituted the ingredients in a meat stew, to make "a soup fit for a count".[52]

[48] *Memoir of Julius Stein van Gollenesse Governor of Ceylon 1743-1751 for His Successor Gerrit Joan Vreeland 28th February 1751*, trans. Sinnappah Arasaratnam (Colombo: Department of National Archives, 1974), 23-24.
[49] Jan ten Hoorn, *Pharmacopaea Amstelredamensis, of d' Amsterdammer apotheek, in welke allerlei medicamenten, zijnde tot Amsterdam in 't gebruik, konstiglijk bereid worden*. (Jan ten Hoorn: Amsterdam 1683), https://www.dbnl.org/tekst/_pha001phar02_01/colofon.php
[50] *De verstandige kok of sorgvuldige huyshoudster: beschrijvende hoe men op de beste en bequaamste manier allerhande spijsen sal kooken* […] (Marcus Doornick: Amsterdam, 1699), 3, 67, 70, 73. Originally published by anonymous author in 1667, with a renewed edition of recipes in the second edition of 1668.
[51] "Diarium or Day-Book Kept from Day to Day in a Nine-Year's Journey by Water and Land in the service of the United Dutch East-India Company in which are described The Inhabitants, their Beliefs, Customs, and Clothing by Johann von der Behr," in *Germans in Dutch Ceylon by Von der Behr (1668), Herport (1669), Schweitzer (1682) and Fryke (1692)*, trans. R. Ravenhart (Colombo: Colombo National Museum, 1953), 5. Originally published in Breslau, 1668.
[52] P. C. Hooft, "Schijnheiligh, spel, gevolght na 't Italiaensch van P. Aretijn," in *De Dietsche Warande*. Jaargang 2. (C.L. van Langenhuysen: Amsterdam, 1856) https://www.dbnl.org/tekst/_die003185601_01/_die003185601_01_0019.php#19. Originally published circa 1617-1618.

The second common feature of cinnamon in literature is its taste, usually described as sweet. In Adriaen Poirter's work from 1646-1649, he describes a fresh water stream to be very sweet, as though it had run through a cinnamon forest or a grove of sugar canes.[53] Cinnamon was also described in terms of smell. Erasmus Desiderius in his 1560 text mentions pejoratively that the smell of cinnamon is analogous to "the filth of dogs". The 1560 original manuscript is explicit about the negative connotations of the smell, whereas a revised version of the text used more ambiguous syntax to refer to"the excretions of these animals, just as pleasant as that of kaneel", clearly "pleasant" meant to be taken emphatically in the negative sense here. The use of the term from the Latin term "cinanomum" had also changed to the vernacular "kaneel" by this time.[54]

Perpetuating the myth of cinnamon

Vernacular literature in the form of travel accounts became a flourishing genre during the early modern period. As early as Jan Huygen van Linschoten's *Itinerario* (1596), travel accounts include mentions of cinnamon, and often refer to Ceylon as having the best sort.[55] One common description is the peeling of the cinnamon bark. The fact that cinnamon trees had to be left alone to renew its bark, which was earlier given as three years in Da Orta's *Colloquies* of 1563, is reiterated in a similar manner by Johann von der Behr, a German in the employ of the VOC who published one of the earliest accounts of Europeans in Ceylon. In his 1668 account, he names the interval as two to three years.[56] A year later, Albrecht Herport's 1669 account noted how cinnamon in Ceylon "excels all other Cinnamon in all the Indies." [57] His account of the peeling of cinnamon is remarkably similar to Von den Behr's, as is Christopher Fryke's account from 1692.[58] Table 1 in the appendix includes a comparison of these

[53] Adriaen Poirters, *Het masker van de wereldt afgetrocken*, eds. J. Salsmans en Edward Rombauts (Uitgeverij Oisterwijk, Oisterwijk, 1935), https://www.dbnl.org/tekst/poir001jsal01_01/colofon.php. Originally published in 1646.
[54] In the 1560 original manuscript, the sentence reads: "Ick meyne oock als sy der Honden*d*reck reucken, dattet hen Cinanomum schijnt." Desiderius Erasmus, *Dat constelijck ende costelijck Boecxken, Moriae Encomion: Dat is, een Lof der Sotheyt*, trans. Johan Geillyaert (Willem Geillyaert: Embden, 1560)
https://www.dbnl.org/tekst/eras001lofd01_01/colofon.php
In the 1909 version of the text, this sentence became "Vergis ik mij niet, dan lijkt hun reuk van de uitwerpselen dezer dieren even aangenaam als die van kaneel."
[55] Jan Huygen van Linschoten, *Itinerario: Voyage ofte Schipvaert van Jan Huygen van Linschoten naer Dost ofte portugaels* […] (Cornelis Claesz: Amsterdam, 1596), 88.
[56] "Day-Book by Johann von der Behr," 6.
[57] "A Short Description of a Nine-Year East-Indian Journey in which are Described Many East-Indian Islands and Countreys Together with the Inhabitants, their Customs and religions, the Fruits, and Wild Beasts and shown in Several Copper-Plates by Albrecht Herport, Freeman of the City of Berne and Amateur of the Painter's Art," in *Germans in Dutch Ceylon by Von der Behr (1668), Herport (1669), Schweitzer (1682) and Fryke (1692)*, trans. R. Ravenhart (Colombo: Colombo National Museum, 1953), 30. Originally published in Berne, 1669.
[58] Ibid.

descriptions next to each other, showing how these travelogues perpetuated knowledge about cinnamon peeling.

Aside from the cinnamon peeling, Fryke's account further describes how cinnamon is found, noting that "the Trees grow wild, without planting, and grow so thick together, that they make a great Coppice of themselves; and require no other hand than that of Nature." [59] Fryke also reiterates another point that was discussed earlier by Da Orta, that of distinguishing between true cinnamon and the variant species found in other parts of Asia. Fryke notes that the cinnamon grown in Malabar is known as "*Canella de Matto*, but it is a bastard kind, and nothing near so good."[60]

Many travel accounts describing an encounter with cinnamon reiterate the abundance on Ceylon, and include similar types of information. Travel accounts were quickly becoming a staple in the booming printing industry of seventeenth century Europe, therefore it is possible that the constituent elements of this genre of writing were becoming standardised. Most travelogues include a chapter or section on flora and fauna of distant places. However, the extent of description varies. Some authors focus on impressions of the landscape, others on utility of the plants or on anecdotes relayed to them by local inhabitants. The myth that cinnamon grew in the wild persisted through the early modern period, with the earlier stories described in Pliny of the daunting task of gathering cinnamon in impossible places still holding sway, and being perpetuated by some authors in their books.

Religious and moral reflections on cinnamon

As one of the earliest spices, cinnamon is also mentioned in Biblical passages, which features in the Statenbible of 1657.[61] Adriaen Poirter's poetry often alludes to its religious connotations, by discussing "forests of cinnamon" as one of God's gifts to men, or suggesting that cinnamon comes out of Paradise.[62]

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[59] "Christopher Fryke's East-Indian Journeys and Service in the Wars with a Full Account of all that occurred to him and to his comrades from 1680 to 1685 by Sea and Land In which are also Described Various Foreign Peoples, Animals, and Plants," in *Germans in Dutch Ceylon by Von der Behr (1668), Herport (1669), Schweitzer (1682) and Fryke (1692)*, trans. R. Ravenhart (Colombo: Colombo National Museum, 1953), 84. Originally published in Ulm, 1692.
[60] Ibid.
[61] *Biblia, dat is: De gantsche H. Schrifture, vervattende alle de canonijcke Boecken des Ouden en des Nieuwen Testaments*. 2nd ed. (Paulus Aertsz. van Ravesteijn: Amsterdam, 1657). https://www.dbnl.org/tekst/_sta001stat02_01/colofon.php
[62] Adriaen Poirters, *Het duyfken in de steen-rotse.* (Jacob van Meurs: Amsterdam, 1657), https://www.dbnl.org/tekst/poir001duyf01_01/colofon.php; Adriaen Poirters, *Het pelgrimken van Kevelaer, inhoudende de litanien, hymni, liedekens, herders-dichtjens, en reys gebeden voor de processie van Kevelaer* (Z.n.: Roermond, 1655), https://www.dbnl.org/tekst/poir001pelg01_01/colofon.php

Another poet who features cinnamon is Jacob Cats, one of the most widely read authors of the early modern period whose poetry often have moralistic overtones. Cats wrote about incoming VOC goods in his poem "Op suycker en kruyt" from 1655. In this poem, he evokes the abundance of spices to encourage the people of the Dutch Republic to reflect on the boons which God had bestowed upon them, to be able to receive so much fine spices which do not grow in their own homelands:

> The Indies' crops of pepper, mace, and nuts,
> Becomes overflowing here upon the lofts, just like the grains:
> People pick no cinnamon here, nor other precious spices,
> We distribute them nevertheless, with entire ships full.[63]

Aside from texts, still life paintings as one aspect of visual culture have been interpreted as moral admonishment for the rich tastes of the new bourgeoise in the early modern period. [64] They have often been seen as a moral admonishment for the rich tastes of the new bourgeoise. These paintings often feature luxurious goods which reflect the incoming goods from overseas places facilitated by the VOC and global trade, including lemons, Chinese porcelein, pepper or salt. Curiously, however, cinnamon is absent from most of these still life extravaganza tables. Could it be because cinnamon was less 'exotic', having been a known spice in European households for many centuries compared to the newer spices like pepper and nutmeg? Another possibility may be more practical: that these still lifes were also a way that painters liked to advertise their virtuosity in painting textures and reflections: embodied in the meticulously rendered glass or silver, peeling oranges and lemons, or fine condiments such as salt and pepper. It is also possible that a stick of cinnamon just do not represent the richness of colour and texture that would integrate well into such tableaus. The only appearances of cinnamon in these still life paintings are implicit, for example the depiction of a turkey pie in Pieter Claesz's 1627 *Still Life with a Turkey Pie* (Figure 1), turkey pie being a savoury gamey dish which often included cinnamon as an ingredient.

[63] Jacob Cats, "Op suycker en kruyt," in *Alle de werken. Deel 2*, ed. J. van Vloten (De Erven J.J. Tijl: Zwolle 1862), https://www.dbnl.org/tekst/cats001jvan03_01/cats001jvan03_01_0191.php. Originally published in Amsterdam, 1655.
"Het Indisch rijck gewas van peper, foely, noten,
Wort hier, gelijck het graen, op solders uyt-gegoten:
Men pluckt hier geen kaneel, geen ander edel kruyt,
Wy deelen 't evenwel met gantsche schepen uyt."
[64] Julie Hochstrasser, "The Conquest of Spice," 169-186.

Distinct from these oil paintings which could only be afforded by the wealthy, cinnamon also left traces in everyday material culture, suggesting its ubiquitousness in society. For example, the jars in the collection of Museum Boerhaave are decorated with painted labels such as "R. Cort Cinamomi" or Aq. Cinnam. Card.", indicating remedies in which cinnamon was an important component (Figure 2).[65] These jars were commonly found in apothecary stores, generally laid out with rows of shelves in storage as suggested by the painting of an apothecary by Frans van Mieris II from 1714 (Figure 3).[66] Other examples of material culture include scent balls, which were used to store fragrant spices such as cinnamon as perfume.[67]

Cinnamon at the heart of relations between the Kingdom of Kandy and the VOC

While the role of cinnamon in the social and cultural life of the Dutch Republic has thus been demonstrated, cinnamon played a particularly significant political role between the VOC and the Kingdom of Kandy. The contact between the Dutch and Sri Lanka occurred for the first time in 1602, undertaken by the Dutch admiral Joris van Spilbergen (1568-1620).[68] Cinnamon was already involved in the negotiations from the early stages of Dutch arrival on the island, beginning with an initial misunderstanding over the payment for VOC support against the Portuguese.[69] The VOC was offered payment in kind through natural products including cinnamon.[70] The cultivation of cinnamon by the VOC officially began in 1771.[71] Prior to this, the VOC relied upon the gathering and collecting wild cinnamon through the labour of the Salāgama caste.[72] This meant that the VOC was heavily reliant on an unpredictable source of supply, as they were only allowed within the cinnamon-growing lands by the permission of the King of Kandy.[73] During the governorship of Jan Schreuder between 1757 and 1762, the VOC encountered many challenges with maintaining their supply of cinnamon, including illegal felling of cinnamon trees.[74] While the VOC had regulations to

[65] Akveld and Jacobs, *The Colourful World of the VOC,* 29.
[66] There are also a wide range of prints by early modern printmakers which show interiors of apothecary stores with similar shelving. Much of these prints were intended for the frontispieces of *pharmacopeias* or medical texts. Some were likely intended as more allegorical rather than literal representations of what an actual pharmacy in the early modern period looked like. However, given the majority of these prints depict a very similar outlook to this painting, and the fact that apothecary cabinets from the period still survive, it is likely that some version of this type of shelving did feature in actual pharmacies.
[67] Akveld and Jacobs, *The Colourful World of the VOC,* 30.
[68] Wagenaar, *Cinnamon & Elephants*, 23.
[69] Jacobs, *Koopman in Azië*, 39.
[70] Ibid.
[71] Nirmal Ranjith Dewasiri, *The Adaptable Peasant: Agrarian Society in Western Sri Lanka under Dutch Rule, 1740-1800*, (Leiden: Brill, 2008), 78.
[72] The cinnamon peelers are usually described in the VOC records as the *chalia* or *sjalia* caste. This refers to the Salāgama caste in Sri Lanka.
[73] Dewasiri, *The Adaptable Peasant*, 78.
[74] Ibid, 79.

restrict damage to cinnamon plants, these were often not heeded.[75] The upkeep of household gardens and chenas often had detrimental effects on cinnamon trees.[76] There was also growing social discontent due to the oppression of the cinnamon peelers by their headmen who were responsible for maintaining production levels. In 1758, this led to the enactment of 53 clauses which was meant to address problems associated with the cinnamon peeling.[77] This excessive curtailment of the rights of the cinnamon peelers to their own lands, amongst other reasons, led to a war between the VOC and the Kingdom of Kandy between 1762 and 1765. A new governor, Iman Willem Falck, was brought in to replace Jan Schreuder in the aftermath of the war, to restore relations and find ways to resolve extant problems with the cinnamon peeling. The uncertainty of cinnamon supply was also partially restored in the Peace Treaty of 1766, which ceded littoral territories to VOC control and granted permission to cinnamon peelers in the employ of the VOC access to designated Kandyan lands.[78]

Conflating science with rhetoric in cinnamon politics

The preceding sections of this chapter have outlined how cinnamon existed in various discourses. In the eighteenth-century, a few instances show the scientific aspects of cinnamon becoming evoked to support political rhetoric. Casparus de Jongh in his pamphlet of 1769 draws upon the earlier myth that cinnamon grows only in the wild and claims to have the betterment of local inhabitants in mind when he suggests the continuation of the pepper plantations was necessary for the growth of cinnamon:

> The Cinnamon Tree cannot be reproduced, or be cultivated, from its seed. One plants the Fruit of these, and nothing comes of it. One transplants the young shoots, and the same does not appear. People say that Crows and Cinnamon Doves prey upon on these Fruits, and if they by chance drop a Pit from these Fruits upon the new Cultivated Lands, wherefrom a Cinnamon Tree appears, from there it can be concluded that the Cinnamon Trees are to be found close to each other, but widely dispersed and must be searched for, along the length and breadth in young forests which the nature brings forth. If, during the cleaning, there was already such a Cinnamon-Shoot discovered here and there on the perimeters of the laid-out Plantations, or within the same Plantations,

[75] Dewasiri, *The Adaptable Peasant*, 79.
[76] Ibid.
[77] Ibid.
[78] Ibid.

> where it is not too shady, one could let it stay until it obtained age in order to be peeled, and actually ensure that the Peper Plantations does not completely become wild.[79]

Another text is by Major C. F. Reimer, a military engineer who was working in Ceylon, who has direct experience and cites verifiable scientific knowledge, but concludes by saying that it was not advisable to continue the cinnamon cultivation. Similar to De Jongh, he also invokes the betterment of the local population as one of his reasoning.

> The worst is, that we have to fear, because of these [plans] which were planted with haste, and have been applied too far, that this crop over the whole of Ceylon can be seen degenerating, or that perhaps the good sorts will soon become even scarcer than ever before, on account that, on the one hand, the good sorts everywhere are tracked down by the cinnamon peelers with so much alertness, that almost none of them there in the Company's areas could grow into the age and size, in which they can bear the same kind of good fruits, because they were being cut down and peeled in the first years […] it is enough that we know how through the manner of planting, the choosing and division of lands, and even through the collecting of the seeds, the artificial reproduction of the cinnamon in the ground is broken, and provided the expansion of the cinnamon over the whole area of the Company on Ceylon, maybe will have irreparable negative consequences, of which the final results are cannot be foreseen.[80]

How did the scientific knowledge related to cinnamon become intertwined with political rhetoric in this way? What kind of knowledge practices enabled this state of affairs in the late eighteenth century? This would be further explored in the next two chapters of the thesis.

[79] Casparus de Jongh, *Noodzakelyke verdediging, wederlegging en opheldering, voor het belang van de Nederlandsche Oost-Indische Compagnie* […] (n.p., 1768), 65-66. With thanks to Mr. René Wezel for his guidance with this translation and C. F. Reimer's text.
[80] NA 1.10.59, inv.nr. 447, folder nr. 8.

Chapter 2: Cultivating the gardens of knowledge

Agents of knowledge in Asia: Paul Hermann's herbaria

How did Europeans come by new knowledge from Asia, including that involving cinnamon? How was the knowledge collected in Asia, and what was the subsequent impact of this knowledge, whether in Asia or in Europe? By looking at a few examples, we consider how mobile individuals associated with the VOC facilitated the production of knowledge in Sri Lanka and beyond. One such figure was Paul Hermann, a physician in the service of the VOC in Ceylon between 1672 and 1677.[81] He made a significant contribution towards knowledge production in Europe through his collection of herbaria from the 1670s, which today is considered one of the oldest herbaria from Asia, divided across collections in Leiden, London, Erfurt, and Oxford.[82] Hermann's herbaria shows his effort at gathering knowledge about local plants in Ceylon and the region. It also reveals, however, the challenges of identifying plants during Hermann's time.

Specimen 831 in Hermann's herbarium, for example, is identified through its original inscription as *Cinnamomum javanicum* from Java (Figure 4), while Specimen 835 is noted as *Cinnamomum zeylanicum* from Sri Lanka (Figure 5). As is often the case in herbaria collections which are updated through time, inscriptions in a later hand reveal the cross-referencing that occurs when more updated information have emerged in order to correctly identify specimens. The current data portal of the Natural History Museum, London, now identifies both as the *Cinnamomum verum* species.[83] This shows, therefore, even though Hermann would have had extensive knowledge about plants as a physician, he also made mistakes in identifying the leaves of cinnamon plants, showing how the process of verification of knowledge contained in herbaria could manifest later through time.

Aside from the herbaria themselves which contain specimens for further study, Hermann's knowledge also had significant afterlives as revealed through its provenance history.[84] Hermann's notes from Sri Lanka came into the possession of William Sherard, who

[81] "About Paul Hermann: The Collection," *Natural History Museum London*, https://www.nhm.ac.uk/research-curation/scientific-resources/collections/botanical-collections/hermann-herbarium/about-paul-hermann/index.html
[82] "Digitised Hermann Herbarium," *Natural History Museum London*, https://data.nhm.ac.uk/dataset/hermann-herbarium/resource/939d44eb-5bb3-4482-9434-380f8b430b9f
[83] Ibid.
[84] "About Paul Hermann: The Collection."

published *Musaeum Zeylanicum* in 1717.[85] Thereafter, the collection went to the Danish Apothecary-Royal, August Günther in 1744.[86] Günther subsequently gave these volumes to Carl Linnaeus, who invented the taxonomy that would revolutionise the scientific classification system. Linnaeus's *Flora Zeylanica* of 1747 drew heavily upon Hermann's work in Sri Lanka as it contained many plants which were new to Linnaeus. The activities of Hermann therefore, shows scientific activities occurring on the ground in Sri Lanka, while also subsequently having direct or indirect broader contributions in Europe.

An unknown VOC physician's *Icones Plantarum Malabaricum*

While Paul Hermann's herbaria have become more well-known, *Icones Plantarum Malabaricum* is a lesser known manuscript which also reflect scientific activities in Sri Lanka. It has been attributed to an unknown physician who was also probably working for the VOC between 1694 and 1718.[87] This two-volume manuscript of drawings and handwritten text include the local names of plants in the Tamil as well as Sinhalese languages. The significance of this album lies in its detailed descriptions of the medicinal uses of these 261 plants, which was likely to have been informed by local knowledge. It still follows in the tradition of humoral medicine in Europe, which classifies plants according to their nature, whether cold or warm. The drawing of cinnamon in particular has the following inscription: "Caruwa, named by the Malabars and by the Sinhalese koerundoe, and by the Dutch Caneel. It is of a hot nature, has a warming, removing power. Grows on Ceylon."[88]

The existence of this manuscript reiterates that there had been scientific activities occuring in Ceylon, if not on a large-scale basis instituted by the VOC, then at the very least, on a personal level, for example within the context of individuals' employment as VOC physicians. The stark difference in terms of whether or not such material and textual accumulation of knowledge had any relevant impact in scientific developments, however, might also be a matter of historical circumstance. Tinde Van Andel and her colleagues have provided the provenance of this manuscript in their article, and raised the question of why this

[85] Tony Rice and David Bellamy, *Voyages of Discovery: Three Centuries of Natural History Exploration* (London: Natural History Museum, 2000), 60-61.
[86] Ibid.
[87] Tinde van Andel et. al., "Icones Plantarum Malabaricarum," 20. Despite its name, this manuscript was most likely made in Ceylon, though the author had much familiarity with the Tamil names.
[88] English translation of the inscription provided on "Cinnamomum verum J.Presl, f032x1v-033r," *Icones Plantarum Malabaricum*, Leiden University Library (last Accessed 28 December, 2019), http://hdl.handle.net/1887.1/item:937812

manuscript was never published.[89] This highlights how the scholarship on scientific activities has been been skewed towards major figures with extensive bodies of archives or published materials, or by focusing on the role of institutions, such as academies, scientific societies or universities. Through gathering evidence of the activities of individual persons as well as lesser-studied manuscripts such as this, I suggest it is possible to build a picture of the local sites of knowledge production in Asia, such as Sri Lanka.

Joan Gideon Loten's commissioned natural history drawings

While Paul Hermann and the unknown author of *Icones Plantarum Malabaricum* were both working as physicians under the employ of the VOC, another group of individuals who were also interested in scientific activities include the educated elite, such as governors and directors of the VOC. One governor who was known for his interest in natural history is Joan Gideon Loten. Alexander Raat in his dissertation on Loten has demonstrated, however, that Loten's interest in natural history while based in Sri Lanka was secondary to his primary interest in astronomy.[90] Based on the activities he undertook after he returned to Europe in 1758, he became more invested in making use of the materials he had already collected, when he saw how such new knowledge were valued in scientific discourses in Europe.[91]

These drawings commissioned by Loten were made by a local artist of mixed Dutch-Sinhalese heritage based in Ceylon, by the name of Pieter Cornelis de Bevere. This shows again the role of local intermediaries in the production of scientific knowledge by newly-arrived Europeans such as Loten. These drawing themselves are remarkable because a few include inscriptions which show the process of making. On the verso of a drawing of an ape dated 1784, it is written that the drawing is ¾ of the natural size of the specimen.[92] There are two drawings of identical blue parrots, one complete, the other unfinished. The unfinished drawing may be a draft, upon which Loten himself had commented that the colouring on the head of the parrot must be more blue (Figures 7, 8). Some of these drawings, but not all of them, were inscribed and identified by referencing other well-known botanical texts.

On the reverse of a drawing of Godha para is one such inscription (Figures 9, 9b):

[89] Tinde van Andel et. al. "Icones Plantarum Malabaricarum," 18.
[90] Alexander Raat, *The Life of Governor Joan Gideon Loten (1710-1789): A Personal History of a Dutch Virtuoso* (Hilversum: Uitgeverij Verloren, 2010), Chapter 9, 1-2. http://hdl.handle.net/1887/15514
[91] Ibid.
[92] *Tekeningen en aquarellen van indische dieren en planten vervaardigd door P.C. de Bevere (1722-1781?) in opdracht van J.G. Loten*, inv. nmr. 149d, Collection Teylers Museum.

> *Godha para*
> My co-artist de Bevere has spelled this wrongly as *Godde Para*,
> in his careful picture, drawn from life in Colombo.
> Dillenia Linn. Syst. Nat. XII Tom. II.
> Rumph. Amb. II. Hort. Mal III.
> Burman. Thes. Zeylan. p. 30. Houttuyn Natuurlj. Hist. II. Stuk III.[93]

From this inscription, there are several things of note. Firstly, the commissioned artist had spent some time in Colombo, where some of the drawings were made – another example of scientific activities occurring in Sri Lanka in the eighteenth century. Secondly, it also highlights another convention in illustration and evidence practices. In the early modern period, "naar het leeven", or "from life", is a significant marker to indicate the truthfulness of a depiction. Finally, this inscription also reflects the textual strategies of validating information and identification of plants, which is to compare to other publications in Europe which, to a certain extent, would have been considered the standard works by this time. This included Carl Linnaeus' *Systemae Naturae* (1735), Georg Eberhard Rumphius' *Het Amboinsche Kruidboek* (1741-1750), Hendrik Adriaan van Rheede tot Drakenstein *Hortus Malabaricus* (1678-1693), Nicolas Burman's *Thesaurus Zeylanicus* (1737), as well as Martinus Houttuyn's *Natuurlijke Historie* (1761-1785).

Aside from the process of making natural history drawings and identifying species, Loten's inscriptions also shed light on his own collecting practices. In a drawing of a crown bird, his comment reads:

> Crown bird, as we call a sort of wood pigeon coming from the Islands of Banda, it is only here but half of its natural bigness in length from the point of its beak to the end of its tail (or in folio as 1 to 8) I brought four of those the preceding year 1758 with me a live in Europe.[94]

Loten thereafter settled in London and was elected as a Fellow of the Royal Society in London in 1760. Though his natural history drawings were never published, he allowed access to them

[93] *Tekeningen en aquarellen door P.C. de Bevere.* Original inscription in Dutch: "Mijn mede tekenaar de Bevere spelde het bij zijne op Colombo naar het leeven gedaane nauwkeurige afbeelding Godde Parra mal."
[94] Ibid.

for other important publications, including George Edwards' *Gleanings of Natural History* (1758-1764), as well as J. R. Foster's *Indische Zoologie* (1781) and Thomas Pennant's *Indian Zoology* (1769).[95]

Nicolas Witsen's *Plantae Javanicae pictae ex Java transmissae anno MDCC*

Another unpublished manuscript which also reveals the subsequent transmission of scientific knowledge about cinnamon and other plants from Asia is an eighteenth century volume compiled by Nicolas Witsen, who was the was the mayor of Amsterdam between 1682 and 1706.[96] Witsen's commissioned drawings of Javanese plants contain different inscriptions, by at least three different hands. Some of these plants were already labelled at the time of their drawing, with some of the original Malay names inscribed. However, some drawings show later inscriptions which were added by Nicolas Burman in 1758, who was the director of the Hortus Botanicus in Amsterdam. Burman cross-references the species and added Latin names in line with Linnean taxonomy. These inscriptions and references reveal how identification and classification were practiced by scientists in the early modern Europe.

This accumulation of knowledge on the very pages of the Witsen album also connects back to Hermann's earlier contributions. The inscriptions on Witsen's drawings show that Burman's identifications in *Plantae Javanicae* links to Linnaeus' *Flora Zeylanica* (1747) which itself drew upon Paul Hermann's earlier drawings and herbaria. Furthermore, similar to Loten's inscriptions, some plates in this album also cite major scientific texts of the time, including Rumphius's *Het Amboinsche Kruidboek* (1741-1750) and Hendrik Adriaan van Rheede tot Drakenstein *Hortus Malabaricus* (1678-1693). One example of a drawing which features all three references is that of plate number 128 in the album, *Pohon Pinang* (Figure 10).[97] Interestingly, Witsen's album also includes the Javanese *Cajoe Manis* (the colloquial Malay term for cinnamon), but it was not scientifically identified as a *cinnamomum* species by Nicolas Burman in his later annotations.[98] This included Carl Linnaeus' *Systemae Naturae* (1735), Georg Eberhard Rumphius', , Nicolas Burman's *Thesaurus Zeylanicus* (1737), as well as Martinus Houttuyn's *Natuurlijke Historie* (1761-1785).

[95] Rice and Bellamy, *Voyages of Discovery,* 58-59.
[96] "Witsen (Nicolas)," *Nieuw Nederlandsch Biografisch Woordenboek*, part IV, 1473-1479, last accessed 28 December, 2019.
http://resources.huygens.knaw.nl/retroboeken/nnbw/#page=744&accessor=accessor_index&view=imagePane&source=4&size=745
[97] Nicolas Witsen, *Plantae Javanicae pictae ex Java transmissae anno MDCC*, inv. nmr. 141c-83, Collection of Teylers Museum, plate 128.
[98] Nicolas Witsen, *Plantae Javanicae*, plate 215.

The role of cross-cultural knowledge exchange in the production of this volume can also be inferred, as some plants were identified as many as three different local names, as well as Dutch or Portuguese names. This suggests that Witsen, or his commissioned artist Herbert de Jager, gathered this knowledge locally, most likely relying on local intermediaries. The album also contains several unidentified plants, which may be new plants that were not yet described or depicted, and therefore did not feature in existing European botanical texts for reference purposes.[99]

Sri Lanka as a site of knowledge production in Asia

Starting with the knowledge practices associated with Paul Hermann, the preceding paragraphs demonstrate how material and textual knowledge derived from Sri Lanka contributed to subsequent European discourses on nature by key scientific figures including Carolus Linnaeus, Carl Thünberg, and Joseph Banks, the connections of which have to be contextualised through the textual transmission as well as provenance history of these collections.[100] Therefore, the collective contributions of botanical specimens and knowledge from VOC settlements in Asia, such as Sri Lanka, towards these European scientific discourses remain to be highlighted. These examples have shown typical knowledge practices which contributed to science, including the gathering of information on the ground, the practice of drawing from life with revisions for accuracy as necessary, and the collecting material specimens (in the case of Loten, even live specimens!). The abundance of local names and utility of plants in a few manuscripts being studied here further suggests that most of the collecting and gathering of information were most likely facilitated by local intermediaries.

One significant aspect of scientific classification includes cross-referencing newly found specimens with established authorities. At times, the practice of identification could also be proven incorrect by later scientists, or limited by the discovery of native flora or fauna that has not yet been identified within the existing classification system. This suggests that knowledge production also goes through a certain amount of trial and error through practice.

Asian centres of knowledge production

Thus far, the aspects of knowledge production discussed are in line with the fundamental premise of Harold Cook's book, which has also been reiterated in recent scholarship in the history of science focusing on the role of trading companies as facilitators

[99] Ibid, plates 60-61.
[100] Rice and Bellamy, *Voyages of Discovery,* 60-61.

of knowledge production in relation to European centres of production.[101] Continuing upon the earlier trajectory of examining locally-based activities in Sri Lanka, however, it would also be possible to consider the role of Asian centres of knowledge production, and how it relates back to European discourses. As we shall see through the knowledge practices associated with cinnamon cultivation, similar processes also contributed to knowledge production in Asia, and the flow of material and textual knowledge also works in reverse, from Europe to Sri Lanka.

The gathering of local information

One of the first tasks for the VOC when they arrived in Ceylon was to gather information about the local environment. In one of the earliest missives from the governor and council in Colombo to the Heren XVII, dated 12 December 1699, there is a list of all the known types of cinnamon on Ceylon, including their names, their origins, and uses.[102] The significance of gathering practical information in relation to cinnamon can also be seen in the instructions given to land surveyors on 10 April 1745, and subsequently on 3 October 1758. The first set of instructions require surveyors to actively look out for lands upon which cinnamon or other useful trees are found. When such lands are found, they are supposed to report their findings immediately.[103] The second set of instructions show that land surveyors have to pay attention to the type of soil that they come across, and to especially take note if they are the white-sandy soil which are especially well-suited for cinnamon and other useful trees.[104]

Correspondence networks facilitating knowledge transfer to and from Asia

How did Falck make a breakthrough in the cultivation of cinnamon? Firstly, Falck was connected to scholarly correspondents in the Netherlands, and he was a member of the first Dutch scientific society established in Haarlem in 1752, the Hollandsche Maatschappij der Wetenschappen. Through his correspondences with key persons in the Netherlands, it is possible to trace the transfer of material and textual knowledge occurring between Falck and his correspondents, which went in both directions.

[101] Harold J. Cook, *Matters of Exchange*; Huigen Siegfried et. al., *The Dutch Trading Companies as Knowledge Networks*.
[102] NA 1.04.04, inv.nr. 1615A, folios 220v-228v.
[103] L. Hovy, *Ceylonees Plakkaatboek: plakkaten en andere wetten uitgevaardigd door het Nederlandse bestuur op Ceylon, 1638-1796*, Vol. 2 (Hilversum: Verloren, 1991), 510-512.
[104] Ibid, 623-627.

A copy of his correspondence in the Haarlem society archives show Falck's remarks on the different types of cinnamon in Ceylon.[105] He reflects on another article containing inaccuracies which he feels compelled to correct, and he sent along an annotated copy of the article to highlight these inaccuracies.[106] Falck further explains that his remarks had been partly informed by his interactions with Mr. Sluysken, who was the captain of the cinnamon peelers during his time as governor, and partly by his own findings in Sri Lanka. Falck's writing was eventually published as an article in the proceedings of the Haarlem Hollandsche Maatschappij der Wetenschappen in 1774.[107] His other letters to the society also showed that he had sent a few specimens of naturalia to the society, as well as a booklet explaining the Arabic script.[108] In this way, therefore, Falck contributes to knowledge production in the Dutch Republic, just as other figures connected to the VOC had done in the preceding section of this chapter.

For a closer look on the results of Falck's knowledge accumulation, table 2 in the appendix shows a comparison between the types of cinnamon described in reports, from the earliest VOC report in 1699, to Falck's publication in 1774 informed by his experience on the ground in Sri Lanka. As can be seen, all four reports list the same ten types of cinnamon, with slight variants in spelling to render the Sinhalese language. Just based on comparing the descriptions (such as a certain type being sweet, bitter, or smelling of camphor), there are no major differences even across the span of 73 years.

However, Falck's descriptions are more nuanced than other authors, even compared to Pieter Sluysken's manuscript. For example, he explains alternative names which were interchangeably used for the same types of cinnamon, such as Pennie Koerondoe for Rasse-Koerondoe and Wal-Koeroendoe for Mal-Koerondoe.[109] By closely comparing the descriptions between Sluysken and Falck's texts, additional information by Falck which reveals further about the process of cinnamon collecting, and suggests these particular remarks might have been based on his own findings. In the description of Sewel-koeroendoe, Falck notes that this type of cinnamon is never peeled for the VOC, unless through sheer ignorance by new cinnamon peelers who had just begun to peel cinnamon, and therefore still needed to learn to

[105] Noord-Holland Archief, inv.nr. 448, folder nr. 48; A. Van der Kroe and Yntema en Tiboel, editors, "Beschrijving van de verschillende soorten van Kaneel-boomen op Ceylon," *Vaderlandsche Letter-oeffeningen* III, no. 2 (1773): 251-256.
[106] Ibid.
[107] Iman Willem Falck, "Bericht wegens de kaneel, opgemaakt uit de toegezonde beschrijving van den Heer Im. Will. Falck, gouverneur van Ceylon," *Verhandelingen, uitgegeeven door de Hollandsche Maatschappye der Weetenschappen te Haarlem* 15 (1774): 278-286.
[108] Noord-Holland Archief, inv.nr. 448, folder nr. 48.
[109] Iman Willem Falck, "Bericht wegens de kaneel," 278-286.

distinguish the different types of cinnamon trees.[110] Both Falck and Sluysken noted that the Sinhalese use Dauvel-koeroendoe as a remedy, but only Falck's description goes further how it is used: they make use of the bark, the roots and the leaves, mixed with other roots and herbs, to make a concoction.[111] Compared to Falck, Sluysken's manuscript describes the management of cinnamon peeling and collecting in more detail, especially in terms of social hierarchy, including the complexity of the village distribution where the cinnamon peelers live, for example, noting which villages solely consist of 'real' *chalias* while others may include inhabitants of different castes.[112] Much of these details, therefore, could be considered tacit knowledge that could only be gathered through experience, codified into text by Sluysken. However, there is no evidence that Sluyskens' manuscript had any subsequent circulation.[113] Both Falck and Sluysken's texts, therefore, reflect the process of accumulation of knowledge based on both men's practical experience in Sri Lanka.

In another letter, the Leiden Professor of Botany Daniel van der Royen gave Falck advice on how to better store seeds.**[114]** From this letter, Falck put into practice such received knowledge with the help of his local intermediaries. He translated the instructions about seed storage into Sinhalese, in order to be given to his "Kruidenzoeker" ('herb collector').[115] He reserves doubt whether the man could follow the instructions carefully, and resolved to take heed on the matter himself in due course.[116] Furthermore, Falck appeared to have kept himself informed about botanical experiments in other European overseas settlements, claiming to have tested the results of experiments on Ile de France (present-day Mauritius):

> Once I have seen two cloves from there, which were tasteless, and I add herewith a stick of cinnamon, received from there, and that which can be considered as the false sort, like those which grows on Malabar, Java and Philippines, and so on.[117]

[110] Iman Willem Falck, "Bericht wegens de kaneel," 280.
[111] Ibid, 281; Pieter Sluyskens, *Eene beschryving van de landdienst op Ceylon*, folio 128. Falck's spelling is used here, Sluysken spells this type as Dawal Coeroendoe.
[112] Pieter Sluyskens, *Eene beschryving van de landdienst op Ceylon* […], 1784, folios 97-102.
[113] Similar to the case of *Icones Plantarum Malabaricum*, the manuscript contains significant knowledge that becomes useful for historians now to contextualise what kind of knowledge production occurred in the eighteenth century, but its unpublished nature means it is challenging to trace the impact of this knowledge during its own time.
[114] Herbarium Library, inv.nr. 1.64. With thanks to Dr Frits van Dulm for sharing his copy of these two letters from the Herbarium Library. I was not able to access the originals during the writing of this thesis. The English translations are my own.
[115] Ibid.
[116] Ibid.
[117] Ibid. "Eenmaal heb ik er tweekruidnagelen van gezien, die smaakloos waren, en ik voeg hierbij een stukje kaneel, van daar ontvangen en 't welk met als voor de onechte soort, zoo als die op Mallabaar, Java, de Filypijnen enz., groeit, gehouden kan worden."

Ironically, in the preceding period, both the British and the French were seeking to break the spice monopoly of the Dutch by attempting their own cultivation of other spices through smuggled seeds, such as nutmeg.[118] In this letter, Falck himself showed an interest to keep abreast with French experiments both on Ile de France and Jardin du Roi in Paris.

Falck mentioned he was first inspired to experiment with cleansing the soil by reading *Beschrijving van Zuid-Amerika*. He did not specify specifically whom the author of this text was. There is no book before the mid-eighteenth century with this exact same title, but the most likely candidates can be extrapolated by looking for titles with most similarity within the probable time of publication. The most likely candidate, therefore, would be *Historische reisbeschrijving van geheel Zuid-America* by Don George Juan.[119] Chapter eight of this two-volume series is entitled "Fertility of the land of Lima. Types and abundance of fruits which it brings forth, in addition to the ways of customary agriculture there."[120] Therefore, Falck's connections to the Dutch Republic gave him further information for his experiments.

An initial experiment at cultivating cinnamon

Other practical experiments had already been undertaken through trial and error in Sri Lanka, even prior to Falck's arrival. One such experiment is described in Governor Joan Gideon Loten's memoir of 1757. Loten outlines an attempt by Commander De Jong of Gale to clear the wooded hill Oenewatte.[121] The result of this clearing was that the cinnamon had grown in its place, and Loten estimated the grounds would yield as much as 200 bales. Together with this report, Loten reiterates the difficulty of managing the local inhabitants' chena cultivation. He noted in De Jong's case, clearing the dense hill had resulted in "light and room" which allowed the cinnamon to "grow luxuriantly."[122] In his memoir, Loten urged his successor to

[118] Anna Winterbottom, "Producing and Using the 'Historical Relation of Ceylon': Robert Knox, the East India Company and the Royal Society," *The British Journal for the History of Science* 42, no. 4 (2009): 515–38; Dorit Brixius, "A Hard Nut to Crack: Nutmeg Cultivation and the Application of Natural History between the Maluku Islands and Isle de France (1750s–1780s)," *The British Journal for the History of Science* 51, no. 4 (2018): 585-606.
[119] This account was originally published in Spanish (1748), then in French (1752) and finally in Dutch (1771-1772). As the breakthrough in cinnamon cultivation was in the early 1770s, Falck might have had access to the earlier French edition. There is no other major account of South America with a similar title. Other major known texts of South America from the earlier period include Willem Piso's *Historia Naturalis Brasiliae* (1648), or Arnoldus Montanus' *De Nieuwe en Onbekende Weereld: of Beschryving van America en 't Zuid-Land […]* (1671). However, none of these texts describe at length the process of agriculture as can be found in the Don George Juan's account, so this remains one most probable source.
[120] Don George Juan, "Vruchtbaarheid der grond van Lima. Soorten en overvloed van Vruchten die dezelve voortbrengt; benevens de wyze der landbouw aldaar gebruikelyk," *Historische reisbeschrijving van geheel Zuid-America; gedaan op bevel des konings van Spanje* […] (n.p. 1772), 84-91.
[121] *Memoir of Joan Gideon Loten Governor of Ceylon Delivered to his Successor Jan Schreuder on February 28, 1757,* trans. E. Reimers (Colombo: Ceylon Government Press, 1935), 39.
[122] Ibid.

continue with these experiments and implement it in other densely wooded hills as he was optimistic in the efficacy of this method of stimulating the growth of cinnamon.[123]

Experimental gardens

The use of gardens for utilarian purposes can be inferred in a drawing by Cornelis Steiger from 1710 (Figure 11). In this drawing, the garden behind the governor's house is still largely laid out in systematic grids. The compound of the garden is walled off from public access. Most of the plants depicted varies according to the rows, suggesting there was an attempt at growing different plants. In the middle of the compound, four trees of varying heights, surrounded with new shoots, showing the rate of progress in the garden is different and suggesting it is continually maintained. Falck probably began his cultivation experiments in a garden just like this one.

König shines a light

In addition to practical experiments, Falck was also helped in his breakthrough by the arrival of the botanist König, who helped him with his research into cinnamon. In his letter to Daniel van der Royen, Falck describes the man as having spend many years on the sub-continent.[124]

> Recently arrived here from Coromandel is the well-known botanist Konig, who is in the service of the English, and who has already been making collections for dozens of years in these lands. This man, 52 years of age, is still strong, and works assiduously. He has dared to spend a certain time in Siam, where the government nowadays is completely tyrannical. In Ceylon, he means to stop over for just a few months, and he shall be able to bring to perfection the botanical discoveries regarding the hidden varieties of cinnamon.

At this point, Falck already knew that certain soils work best for the cultivation of cinnamon, particularly white-sandy soil. These observations had already existed since the descriptions of different types of cinnamon trees, as early as 1699. In another letter, Falck writes:

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[123] Ibid.

[124] Herbarium Library, inv.nr. 1.64. **"**Onlangs is hier van Kormandel overgekomen de wel bekende Botanicus Konig , die in Engelschen dienst, en al een een doezijn jaaren in deeze lande verzamelingen gemaakt heeft; Die heer, schoon 52 jaaren oud, is nog sterk, en arbeidt onverdrooten. Hij heeft zich zelf een geruimen tijd gewaagd in Siam daar de regering tans geheel tiranisch is. Op Ceilon meent hij zeer eenige maanden op te houden, en zal de Botanische ontdekkingen omtrent de versrieden soorten van kaneel tot volkomenheid kunnen brengen."

> There are only for certain the western and southern regions of this island, there one finds the true cinnamon, and there the aroma itself differs much, because of the nature of the soil, the white-sandy soil gives the more delicious cinnamon, and the botanist König will therefore be able to bring the most careful affairs into the light.[125]

König's expertise in botany, coupled with what was likely to be a familiarity with similar climate, appeared to have been the deciding factor, particularly as keeping the right amount of water seemed to be significant.[126] These inputs of König, combined with Falck' practical experiments, finally led to the breakthrough that was necessary to successfully cultivate cinnamon. Through trial and error, they learnt how to maintain the cinnamon gardens, the right distance with which to plant the seeds, how to select the best seeds, and how to identify the most suitable lands for cultivation.[127] Falck would subsequently summarise his efforts on this cultivation of cinnamon by publishing his findings in the proceedings of the Haarlem Maatschappij der Wetenschappen of 1774. He first reiterates the known myth of cinnamon only growing wild, then he describes the method he perfected:

> The propagation of the cinnamon trees has heretofore only left to nature. She uses for this purpose the roots of the peeled or cut trees, which, just as we have already reported above, shoot out new shoots, which grow into trees. There is also a sort of Doves, which men call Cinnamon-eaters or Cinnamon-doves, which prey upon the ripe Cinnamon-fruits, and scatter the pits, mixed with their leavings, as it were, sowing them everywhere […][128]

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[125] Herbarium Library, inv.nr. 1.64. "Daar zijn maar zekere westelijke en zuidelijke streeken van dit eiland, daar men echte kaneel vindt, en daar zelfer verschilt de geurigheid veel van den aart der gronden, witte zand-gronden geeven de lekkerre kaneel, en de Botanicus König zal daarom de naauwkeurigste zaaken kunnen in 't lucht geeven."

[126] Iman Willem Falck, "Bericht wegens de kaneel," 285.
"De ondervinding heeft nu ook geleerd, dat luchtig bosschaadjen, op gunstigen grond staande, met goeden uitslag, kunne bepoot worden met Kaneel. Men neemt hier toe de regentyd waar, en drukt de rype vruchten een weinig onder de oppervlakte van den grond. By drooge tyden moet men dien tweemaalen daags met water bevogtigen, en hier mede aanhouden, tot dat de spruitjes of boompjes den ouderdom van anderhalf jaar of twee jaren bereikt hebben. Hier naa kan men ze veilig aan de natuur overlaaten. Op deeze wyze zyn onlangs eenige gronden met ene ontelbaare menigte Kaneelboompjes beplant, die, even zo welig als de natuurlyk voortgebragten, groeien."

[127] Els M. Jacobs, *Koopman in Azië*, 50.

[128] Iman Willem Falck, "Bericht wegens de kaneel," 284.
"De voorteeling der Kaneelboomen is voorheen alleen aan de natuur overgelaaten geweest. Zy gebruikt hier toe de wortelen der geschilde en afgehakte boomen, die, gelyk wy boven reeds gemeld hebben, wederom nieuwe spruiten uitschieten, welken tot boomen opwassen. Ook is 'er een soort van Duiven, die men Kaneel-eeters of Kaneel-duiven noemt, welken op de rype Kaneel-vruchten aazen, en de pitten, met hunnen afgang vermengd, strooien, en als 't ware, alom zaaien."

> The experience has now also informed, that light-filled forests, standing upon favourable grounds, with good result, can become planted with cinnamon. One takes heed for this purpose the rainy season, and press the ripe fruits a little under the surface of the ground. In the dry season one must twice a day moisten [the ground] with water, and continue with this, until the shoots of the trees has reached the age of one-and-a-half to two years. Thereafter one can safely leave them to nature. In this way, a few lands have recently been planted with an uncountable number of cinnamon trees, which grow, just as lush as those naturally-occurring.[129]

Reinforcement of practical breakthrough with legislation

While the initial success of cinnamon cultivation relied heavily upon Falck's personal networks, the continuation and expansion of the cultivation system also relied upon the infrastructure of the VOC in Sri Lanka. The VOC's attempts to maximise their collection of cinnamon has been documented since their first arrival in Ceylon. Most of these earlier attempts included issuing regulations to control the local population's cutting of cinnamon trees and minimising the impact of their shifting cultivation practices on the growth of cinnamon trees, at times with inadequate enforcement.[130] In the aftermath of the war with Kandy in 1766, the VOC changed to an incentive policy as opposed to a punitive policy, in order to stimulate further cinnamon collection.[131] This incentive policy continues with the establishment of private cinnamon gardens.

Following the successful experiments, Falck put in place regulations governing the maintenance of cinnamon gardens in a mandaat-ola to the headmen and inhabitants of the Dessavonies of Colombo and Matara and the Gale Corle, on 22 March 1776.[132] It requires the owners of the cinnamon gardens to keep a fence around their gardens and to take care of the trees so that the garden is not too overgrown.[133] Under the law, no cinnamon peelers will have

[129] Iman Willem Falck, "Bericht wegens de kaneel," 285.
"De ondervinding heeft nu ook geleerd, dat luchtig bosschaadjen, op gunstigen grond staande, met goeden uitslag, kunne bepoot worden met Kaneel. Men neemt hier toe de regentyd waar, en drukt de rype vruchten een weinig onder de oppervlakte van den grond. By drooge tyden moet men dien tweemaalen daags met water bevogtigen, en hier mede aanhouden, tot dat de spruitjes of boompjes den ouderdom van anderhalf jaar of twee jaren bereikt hebben. Hier naa kan men ze veilig aan de natuur overlaaten. Op deeze wyze zyn onlangs eenige gronden met ene ontelbaare menigte Kaneelboompjes beplant, die, even zo welig als de natuurlyk voortgebragten, groeien."
[130] Hovy, *Ceylonees Plakkaatboek,* Vol. 1, 363-367, 378-379; Vol. 2 484-485, 499-500, 508, 516-517, 541-543, 574-575, 589-590.
[131] Els. M. Jacobs, *Koopman in Azië*, 50.
[132] Hovy, *Ceylonees Plakkaatboek,* 781-784.
[133] Ibid, 782.

access to these gardens which only belong to their owners[134]. These private gardens must be registered in a book, where the number of cinnamon trees would be recorded, and owners were not allowed to plant other fruit trees in these gardens[135]. The regulations also set out the procedures by which the cinnamon must be peeled, how the owners would be paid, and the punishments for any wrongdoing associated with the maintenace of these gardens.

These regulations are further reinforced subsequently under Willem Jacob van der Graaf's governance, with instructions for the sabandaar of Gale Korle issued on 19 March 1785.[136] The instructions include various administrative matters, with regards to the cinnamon cultivation was the requirement that the sabandaar must make sure that the native headmen look after the cultivation of cinnamon, including choosing the best and most suitable grounds for planting.[137] Similar instructions were also issued for the head of Morrua Korle on 31 May 1785 as well as the headmen of the Colombo Dessavony on 9 August 1785, which also includes details of incentives such as a gold medallion for setting up new plantations.[138]

The VOC as an active driver of knowledge?

By looking closely at the circumstances surrounding the breakthrough in cinnamon cultivation, the knowledge practices discussed in the first section of this chapter are still present: the gathering of local information, the application of knowledge gained from European scientific networks, the exchange of specimens with botany professors, and even access to published texts and proceedings from Europe , as well as up-to-date information regarding the activities of other Europeans in their overseas settlements. Having considered these major factors which enabled the success of Falck's cinnamon cultivation, now it is possible to turn to Peter Boomgaard's conundrum about the lack of institutional support for eighteenth-century science in the Dutch Republic, suggesting that the VOC is not analogous to the central state power as in Britain or France. In response to this assertion, I would suggest there is one distinction that makes a difference between the VOC being an inadequate facilitator of science with respect to the Dutch Republic and the VOC being in a position to stimulate science in the context of its overseas settlements. This difference lies in the power of governance that the

[134] Ibid.
[135] Ibid.
[136] Ibid, 839-841.
[137] Ibid.
[138] Ibid, 843-850; 852-853.

VOC held over its territories, as seen in the regulatory attempts to stimulate the local population to engage in cultivation practices that benefited VOC's interests.

Significance of local intermediaries

The success of the VOC's cultivation policy, however, also depended upon local cooperation. As early as Rijkloff van Goen's memoirs, there was already mention of the importance of relying on intermediaries for local knowledge, when Van Goens names three persons for his successor: Don Jan Mudaliyar of Colombo, as well as Moety Apohamy and Jacondouwa Apohamy.[139] In Loten's memoirs, he had devised a new experiment to clear densely wooded hills to stimulate the growth of cinnamon trees. Loten noted that for these experiments to succeed, it needed "faithful management" by the Mahabadde, Korles, Pattus, and the native headmen.[140] This was indeed how it eventuated during Van der Graaf's time, where he drew upon the initial success of cinnamon cultivation by Falck in the gardens, to establish larger-scale planting of cinnamon, with the assistance of a local intermediary:

> The recently deceased Mahamodliaar Nicolaas Dias, who was to help the Company with this impossible task, which indeed appeared almost insurmountable, was the first I had in mind, to task with dividing the cinnamon lands amongst the cinnamon peelers, under the stipulation that each of the piece [of land] that was to be allocated to them, upon which they were obligated to peel cinnamon, must be kept clean.[141]

Measuring success

Was the VOC's cinnamon cultivation endeavour successful? As Falck did not leave any memoir upon his passing, the most relevant reflections on the cultivation of cinnamon would be that of his successor Willem van der Graaf. In his memoirs of 1794, Van der Graaf gives an overview of the state of the abundant cinnamon supply for the VOC by this time, which reflects his positive view:

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[139] *Memoir of Ryckloff van Goens Governor of Ceylon Delivered to his Successors Jacob Hustaart on December 26, 1663 and Ryckloff van Goens the Younger on April 12, 1675,* trans. E. Reimers (Colombo: Ceylon Government Press, 1932), 19.
[140] Reimers, *Memoir of Joan Gideon Loten*, 39.
[141] NA 1.04.17, inv.nr. 856, section 28.
"De onlangs overleedene Mahamodliaar Nicolaas Dias, was de eerste, die om de Komps te helpen uit deeze ongeleegenheid, die inderdaad bij na onoverkoomerlijk scheen, mij in gedachten gaf, om de kaneel gronden onder de kanneelschillers te doen verdeelen, onder voorwaarde dat een elk het stuk dat hem zouden werden toegedeld om daar op zijne verplichte kaneel te schillen, zoude moeten schoon houden."

> […] besides the good cinnamon lands which undoubtedly will proffer more through time than they have done until now, so too there is an abundance of cinnamon lands which were first laid out in the earliest years, and of which until now, have not been peeled.[142]

Van der Graaf also appears to have been concerned for the long-term sustainability of the cinnamon-producing lands. He suggests that the lands may have to lie fallow for some of the time, acknowledging that there is still much that is not known about the cultivation process:

> I also think that it is good, for this [cinnamon cultivation] to carry on in the same way, until one sees what the cinnamon lands in the long run could give, and especially until one sees whether or not some of the cinnamon lands at some point would be impoverished and therefore it would be necessary for such lands [for] a period of time and until they have restored themselves, to be allowed to grow into forests.[143]

For a more quantitative measure, drawing upon Van Den Belt's data on the auction revenues of various Ceylonese products, it is possible to calculate the percentage of cinnamon in relation to all Ceylonese products, as well as the percentage of cinnamon in relation to all goods auctioned by the VOC. As shown in table 3 in the appendix, the revenues from the sale remained relatively stable in the latter half of the eighteenth century, even after Falck's cinnamon gardens were established, at an average of approximately 5,000,000 guldens per interval. As a percentage of all VOC goods, cinnamon accounts for approximately 10-12% of sales. While there is a marked increase in cinnamon in the period 1780/81 to 1782/83, this is likely to be an outlier due to the impact of the Anglo-Dutch War, as Van den Belt also notes.[144] Furthermore, the numbers for cinnamon itself remain stable throughout the period. The percentage increase to 19% is purely due to the fact that the total VOC auctions were

[142] NA 1.04.17, inv.nr. 856, section 19.
"En dit is ook vrij aanneemlijk, want behalven dat de goede kaneel gronden door den tijd ongetwijffeld meer uitleeveren dan ze tot naer toe doen, zoo zijn er ook naar een menigte van kaneel gronden die eerst in de jongste jaaren zijn aangelegd, en waar op tot naer toe niet geschild is." With thanks to Dr. Lennart Bes for his guidance on translating Van der Graaf's memoir.
[143] NA 1.04.17, inv.nr. 856, section 27.
"In de land togten die ik te meermaalen gedaan heb, om het werk opteneemen, vond ik nu en dan verscheide gronden, die niet tegenstaan de alle voorzorgen, wederom zodanig begroeit waaren dat 't klaarlijk bleek dat er andere en meer toerijkende middelen moesten worden g'emploijeerd, zoo men het gedaane werk op den duur wilde goedhouden."
[144] Albert van den Belt, *Het VOC bedrijf op Ceylon: Een voorname vestiging van de Oost-Indische Compagnie in de 18de eeuw* (Zutphen: Walburg Pers, 2008), 66.

disproportionately low at around 25,000,000 guldens for this period, as opposed to the usual around 50,000,000 to 60,000,000 guldens.

Even though there was no marked increase in profit in the cinnamon trade, success could be better measured in terms of the reduced dependence on the Kandyan forests as a source of cinnamon, which was the main impetus for the VOC to support cinnamon cultivation in the first place. According to Els M. Jacobs, the yield from these cultivated efforts had reached 55,000 pounds by 1787.[145] By the middle of 1790, the yield from the private cinnamon gardens together with the Company's cultivated lands were sufficient to meet the 'eisch' from the Heren XVII. As one of the impetus for the VOC to experiment with cinnamon cultivation was to reduce their reliance on Kandyan forests, arguably this could be considered a measure of success. According to Van Den Belt, the 'eisch' for Ceylon usually requires the sending of "kaneel, zoveel mogelijk" ('cinnamon, as much as possible').[146] In commercial terms, these figures suggest that the cinnamon quantities only maintained the status quo in the later eighteenth century, even with the successful cultivation practices.

Another important concern for the VOC, as seen through the continuous debates of the importance of cultivating the correct "taste", that the cinnamon harvested from the gardens should produce the same taste as that grown in the wild and peeled from the Kandyan King's forests.[147] Since these debates about "smakeloos" ('tasteless') cinnamon persisted for some time, the fact that Falck finally managed to acquire approval on these grounds could be counted as another measure of success.

The afterlives of knowledge in the British period

Another possible measure of success in scientific terms may be to consider what impact the knowledge accumulation of the Dutch had on subsequent British rule. Knowledge about cinnamon that was contained within the Dutch administrative records, as well as the method of working with local inhabitants, is something that continued to be of interest to EIC officials during the British period. For example, the Mackenzie papers include a bound volume of a

[145] Els M. Jacobs, *Koopman in Azië*, 50.
[146] Van den Belt, *Het VOC bedrijf op Ceylon*, 48.
[147] Van Dulm, *'Zonder eigen gewinne en glorie'*, 265, 270-271.

copy of all cinnamon-related Dutch records dated from 1664 to 1766.[148] The records within this volume includes not only general letters from Ceylon, but also resolutions of the council, instructions regarding cinnamon as well as problems arising due to cinnamon. Either Mackenzie himself or another person in the employ of the English East India Company (EIC) had taken time to look through extant Dutch administrative records in order to extract relevant information and compile this volume for their reference purposes.

Gardens as allegory for learning

Chapter 2 has shown that trends in scientific activities between the Dutch Republic and local establishments in Asia, such as Sri Lanka, maintained some aspects of the earlier seventeenth century. The VOC as an institution facilitated access and transfer of knowledge back to the metropole, but at the same time, the personal networks of interested governors and VOC officials such as Iman Willem Falck arguably sustained local initiatives in Asia. Falck was able to experiment and successfully cultivate cinnamon due to his networks of correspondents who provided him with botanical advice and texts. He also facilitated the travels of significant scientists through Sri Lanka such as Carl Thünberg. The lack of discussion about Sri Lanka as a site of knowledge production in the historiography of science is a serious lacuna, given that it directly or indirectly contributed to important developments in European scientific progress.

[148] British Library, Mss Eur Mack Trans XIV.34.

Chapter 3: Knowledge production within the VOC infrastructure

Reading the VOC archives

In Chapter 1, the significance of cinnamon in the Dutch Republic is discussed, and the scholarly discourses around cinnamon resulted in a particular state of knowledge about cinnamon by the eighteenth century. Chapter 2 analyses the role of Sri Lanka as a site of knowledge production in Asia, and traces how the VOC successfully cultivated cinnamon on Sri Lanka through the endeavours of Governor Iman Willem Falck. In this chapter, I analyse two particular types of VOC records, the *memories van overgave*, as well as maps, to consider how VOC officials accumulated, generated and applied knowledge. I aim to consider if there is a way of reading the VOC archives not merely for the historical data it contains, but also how the knowledge was accumulated and applied, and what these practices signify for the VOC as an institution of knowledge.

Accumulation of knowledge in *memories van overgave*

One genre of VOC records that discusses cinnamon at length and in more reflective terms is that of *memories van overgave*, or memoirs of succession. Such a report was generally written upon their departure but might also be delayed by several years depending on circumstances. There are, unfortunately, no extant *memories van overgave* that could be found by Iman Willem Falck (1765-1785) who was the governor of Sri Lanka during the period of this case study. This was most likely due to the fact that Falck passed away while he was still governor in 1785. While Falck's memoirs do not exist, such reports exist for other governors covering their respective governorships, such as Gustaaf Willem van Imhoff (1736-1740), Jan Schreuder (1757-1762), and the successor to Iman Willem Falck, Willem Jacob van de Graaf (1785-1794). Van Imhoff is included in this analysis as he considers himself to be a different type of governor from those who came before him, and his position as an 'enlightened' governor of Sri Lanka has also been acknowledged, as seen in the preface to his translated memoirs.[149] This perception that governors of Ceylon were 'enlightened' is a trend that continues in Sri Lankan historiography, and will be discussed later in this chapter. Of the three governors most relevant to this case study, the governor Jan Schreuder explicitly modelled his *memories van overgave* based on Van Imhoff's text.[150]

[149] *Memoir left by Gustaaf Willem Baron van Imhoff, Governor and Director of Ceylon, to his Successor, Willem Maurits Bruynick, 1740,* trans. Sophia Pieters (Colombo: H. C. Cottle, Government Printer, Ceylon, 1911), iii, 1.
[150] *Memoir of Jan Schreuder, Governor of Ceylon delivered to his successor Lubbert Jan Baron van Eck on March 17, 1762,*

The *memories van overgave* genre is arguably a form of textual transmission within the VOC archives itself. These reports offer a reflection by governors of their years in service. The tacit knowledge gathered by governors through their own experience on the ground is translated into text, codified, and becomes a guideline for subsequent governors. Van Imhoff's 1740 memoir makes clear reference to this genealogy of knowledge production by successive governors in his memoirs, by citing earlier governors whose texts he had referred to. Such referencing and citing of earlier memoirs should not be seen merely as an expedient measure, but as a type of reinforcing existing knowledge and adding to the corpus of accumulated knowledge within the VOC. Van Imhoff emphasises the significance of this accumulated knowledge, by noting that Governor Joan Maetsuyker's memoirs to his successor Jacob van Kittensteyn in 1650 is considered a most important reference, which had already been quoted often in other memoirs of succession.[151]

In fact, the deliberate elision of information in memoirs can be inferred as the flip side of this reliance on reference and citation of existing knowledge in previous memoirs. In discussing cinnamon, Van Imhoff notes that "everything that may be written on the subject is to be found in the various documents, and especially in the Memoir by His Excellency van Rhee of February 25, 1697, who dealt at length with this subject, and to which document I would here refer."[152] Aside from citing his predecessors, Van Imhoff also did not neglect to highlight his own contributions: "What has been done in regard to this during my administration is shown in the Resolutions of May 7, November 5, and December 11, 1737, and also in the letters sent both to Batavia and to the Netherlands during the same period. I would therefore refer to them here. I have nothing to add to the information there contained."[153]

In Jan Schreuder's memoirs of 1762, he similarly cites a long line of earlier reports by Maetsuyker (1650), Van Goens the Elder (1663, 1675, 1679), the Governor-General of Batavia (1664), Pyl (1692), Van Rheede (1697), Simonsz (1707), Becker (1716), Pielaat (1734), Van Imhoff (1740), Overbeek (1749), Van Gollenesse (1751) and Loten (1757). In citing these previous memoirs, Schreuder gives credit to this wealth of accumulated knowledge, acknowledging that "although one includes more and the other less information, they all

trans. E. Reimers (Colombo: State Printing Corporation Sri Lanka, 1946), v.
[151] Pieters, *Memoir left by Gustaaf Willem Baron van Imhoff*, 3.
[152] Ibid, 48-50.
[153] Ibid.

collectively contain the necessary particulars regarding the state, the advantages, and the importance of this government."[154]

Through these memoirs, governors suggest to their successors which are the significant documents to be read to prepare for their appointment. From the *writing* of these memoirs, it is clear that the governors had developed a deft understanding of the existing corpus of knowledge by the time they left their post, as some governors cite different records within the VOC archives, distinct from their predecessors. This suggests that by the time they wrote the memoirs, these governors had developed a sense of which documents would be more important to refer to for their successors, at that particular moment in time. Whether newly appointed governors actually read these referenced documents at the beginning of their appointment, however, is difficult to determine.

The accumulation of knowledge in these memoirs does not only provide general information to aid in the governance of Sri Lanka in general, but also becomes evident in the particular details about cinnamon that is passed down through such texts. The consistency with which cinnamon as a product is highly regarded perpetuates in similar terms through subsequent memoirs of succession. This ranges from Van Imhoff's epithet that "so far as is known, cinnamon is found nowhere of such good quality as in Ceylon" to Jan Schreuder's description that cinnamon is "a product that in quality and quantity can be found nowhere else than in Ceylon."[155] Aside from citing his predecessors, Van Imhoff also did not neglect to highlight his own contributions:

> What has been done in regard to this during my administration is shown in the Resolutions of May 7, November 5, and December 11, 1737, and also in the letters sent both to Batavia and to the Netherlands during the same period. I would therefore refer to them here. I have nothing to add to the information there contained.[156]

In addition to referring to earlier documents, Van Imhoff's memoirs also attempt to value the knowledge that has perpetuated in public discourse about Sri Lanka. He criticises one of the most prolific (and plagiaristic) author in the Dutch Republic, François Valentyn:

[154] Reimers, *Memoir of Jan Schreuder*, 3.
[155] Pieters, *Memoir left by Gustaaf Willem Baron van Imhoff*, 1; Reimers, *Memoir of Jan Schreuder,* ix.
[156] Pieters, *Memoir left by Gustaaf Willem Baron van Imhoff*, 48-50.

> Among the writers whose works appeared in print, but who often departed from the truth, is Mr. Valentyn, who wrote very prejudicially to the Company in his well-known work 'The Old and New East Indies'.[157]

While being critical of outside sources, Van Imhoff further notes that the VOC as an institution had an interest in maintaining the accuracy of their records, which was evident in previous attempts to reconcile discrepancies in different memoirs, where *Raad van Indie* passed a resolution in 1681 and in 1696 to revise Instructions.[158]

Van Imhoff also suggests that gaining knowledge on the interests of the VOC depends upon "a clear insight and personal experience".[159] In his view, therefore, his own memoirs and other sources may function as guiding points, but the most significant knowledge to be gained was through personal experience. The significance of each governor developing his own stores of tacit knowledge from experience was also advocated in other governors' memoirs, though not always in the same positive tone. For example, Schreuder paints a pessimistic view of relations with the Kandyan court, and emphasizes that the reality on the ground would be "even more ugly, so to speak, than I have been able to paint".[160] In this way, close reading of the memoirs by governors such as Van Imhoff and Schreuder provides insight into one genre within the VOC archives that perpetuates knowledge, while also continually refreshing this knowledge with new information from each successive governor's practical experience.

Mapping knowledge

Similar to the *memories van overgave*, mapping as an endeavour also involves reconciling accumulated knowledge with new information. The VOC's interest in natural resources of Ceylon was evident from the earliest Dutch map of the island by Joris van Spielbergen, made on the account of his visit in 1602 and published in *Historiael Journal* of 1605. The cartouche of this map describes the Portuguese as staying "in and about Colombo, where most cinnamon is extracted".[161] The description also mentions other spices including

[157] Pieters, *Memoir left by Gustaaf Willem Baron van Imhoff*, 3.
[158] Ibid, 4.
[159] Ibid, 3.
[160] Reimers, *Memoir of Jan Schreuder,* 13.
[161] Paranavitana and de Silva, *Maps and Plans of Dutch Ceylon,* 28.

pepper and cardamom, as well as other natural resources such as precious stones, silver and gold mines, well as pearl fishery.[162]

Beyond this, it is also possible to read VOC's priorities taking shape through subsequent mapping and naming of the landscape. Soon after the Dutch established themselves in Sri Lanka, Baldaeus' map of 1672 showed a cartouche with an elephant and cinnamon, both of major significance for the VOC, as well as the annotation "Caneel Landen" ('cinnamon lands') in the southern regions of the island (Figure 12). This deliberate naming by the map-maker reflects the VOC's interests.

Mapping can be seen to reflect the VOC's scientific endeavours in Sri Lanka in two ways: firstly, the skill required to survey the lands and create these maps, contributed to accumulated knowledge and of VOC governance of Sri Lanka, enabling more elaborate map-making which gained sophistication over the years, through to the end of the eighteenth-century. Secondly, the expansion of Dutch control over cultivated lands was itself aided by scientific knowledge, as discussed in Chapter 2 of this thesis. Maps subsequently became an output through which to stake these claims visually for the public.

The progress of Dutch mapping of Sri Lanka can already be seen in Johannes van Keulen's map of 1681 (Figure 13). While the use of a general compass rose for directions is already present in Baldaeus' 1672 map, this map uses multiple compass roses, also positioned across the island to denote directions. The map features more details than Baldaeus', as a result of surveys undertaken under the order of Governor Rijklof van Goens.[163] The map depicts not only features on the landmass, including rivers and vegetation, but also charts coastlines around the island and sea-depths.[164] The density of vegetation on the island is indicated by the spacing and clustering of trees. The cartouche also mentions that this map was "brought to light by Joannes van Keulen."[165] This use of the phrase "brought to light" evokes knowledge production within the broader milieu of the Enlightenment.

Knowledge production within the context of map-making involved reconciling discrepancies and establishing a standard method of gathering information. Under the purview

[162]Paranavitana and de Silva, *Maps and Plans of Dutch Ceylon,* 28.
[163] Ibid, 36.
[164] Ibid.
[165] Ibid.

of Governor Gerrit de Heer from 1697 onwards, land surveyors and military engineers began surveying by drawing upon on existing Portuguese land registers, but realised the inadequacies of the information required them to begin anew.[166] Challenges in surveying persisted even nearly a century later. Van Gollenesse remarked in his memoir that there was no general established scale of measurement, for example, paddy fields were measured in sowing extent. Differing cultivation practices meant the people who cultivated the fields were free to declare their extent of lands based on varying measures.[167] Van Gollenesse attempted to standardise these varying measures by converting them to the measurement of *roods*.[168]

Mapping was thought to have reached new heights under the governance of Isaac Augustijn Rumpf (g.1716-1723), who championed mapmaking and personally toured the island between 1717 and 1721, keeping a diary which shows the hand of at least three land surveyors.[169] This diary includes several coloured manuscript maps, one of which is of the whole island of Ceylon (Figure 14). This map is also a reflection of accumulated survey information taken between 1717 and 1719, whose principal aim was to map the cinnamon lands.[170] This map's colour-coding and various components reflect both the VOC's interest in cinnamon as well as suggests an intent for the map to have practical purposes. For example, a brown line delineate the boundary with the Kandyan King's territories, while a red line encompasses the cinnamon districts, the annual route usually taken by the captain of cinnamon is indicated from numbers 1 to 46. Red circles indicate locations where the cinnamon peelers typically set up their tents to collect and dry the cinnamon bark.[171]

Another map which can be read in conjunction with the commissioning governor's own interests would that by Van Imhoff of 1740 (Figure 15). Taking central position on this map is a large swath of the island, described as "De Woeste en Onbeboude Landen" ('The Wild and Uncultivated Lands'). As discussed earlier, a memoir of succession usually reflect each governor's interests, providing their own justifications which may not appear explicitly in other types of records within the VOC infrastructure. In his memoir, Van Imhoff reflects that better cultivation of the lands could stimulate good diplomatic relations with the Kandyan Kingdom

[166] Paranavitana and de Silva, *Maps and Plans of Dutch Ceylon,* 21.
[167] Ibid.
[168] Ibid.
[169] Ibid, 52.
[170] Ibid.
[171] Paranavitana and de Silva, *Maps and Plans of Dutch Ceylon*, 51.

and the local population, and thereby preserve the VOC's unique access to the island.[172] Reading this map together with the memoirs of succession, therefore, would suggest this map might not necessarily only reflect the VOC's interest in cultivation, but could also have been a reflection of Van Imhoff's views as the commissioner of this map.

Mapping also functioned as the output of years of accumulated knowledge through surveys undertaken by successive land surveyors and military engineers. One of the VOC's cartographers, Jean du Perron, who worked on Van der Graaf's commission, completed a map within a year after his arrival in 1778. The cartouche attributes this fast turn-around to the "latest surveys carried out by various persons at different times".[173]

The VOC and emphasis on utility

Mapping and surveying was one of the pursuits of knowledge that was permitted, and even encouraged, within the VOC infrastructure. What other pursuits of knowledge could be gleaned from the VOC archives? The decisions of the directors at the top-most level are reported in the *Haags Verbaal*, which is signed by all directors, reflecting their collective decision-making. Van Den Belt notes the logistical challenge in the transport of cinnamon is that it could incur losses of up to 8% of the total volume, termed "spillagie," which covers instances such as loss due to crushing, due to seawater seepage, or drying out of the cinnamon.[174] Such concerns are reflected in the *Haags Verbaal*. In the decision made in the meeting of 23 July 1776, the directors gave instructions that ships from Ceylon must be better caulked (sealed to prevent water seepage) and that the best quality of cinnamon must be picked for sending to the Netherlands.[175] The discussion over packing materials can be found in various types of VOC records. Loten, for example, reported in his memoir for his successor to note that he had experimented and concluded that compared to Malabar hides, small Java vides were suitable, but not large ones.[176] In the resolutie of 1768, the Council of Ceylon set out the guidelines with which goods must be packed, including general instructions as well as more specific information for linen, for example.[177] In another resolutie of 30 November 1779, the guidelines for packing *arrak* is set out.[178] Furthermore, information that is relevant to these

[172] Pieters, *Memoir left by Gustaaf Willem Baron van Imhoff*, 11-12.
[173] Paranavitana and de Silva, *Maps and Plans of Dutch Ceylon*, 66.
[174] Van den Belt, *Het VOC bedrijf op Ceylon*, 49. http://hdl.handle.net/1887/12688
[175] NA 1.04.02, inv.nr. 4493.
[176] Reimers, *Memoir of Joan Gideon Loten*, 39.
[177] NA 1.04.02, inv.nr. 3203, folios 1479v-1493.
[178] NA 1.04.02, inv.nr. 3546, folios 524v-529v.

type of packing concerns was forwarded to Patria, presumably the Heeren XVII would be interested in such measures. An example can be seen, in a French letter of 1786 on the use of vinegar as an antipestilence measure to safeguard goods in transit, which was appended with a Dutch language translation.[179]

Aside from these concerns that recur within the VOC archives, as in the case of mapping, individuals associated with the VOC could also take initiative to stimulate knowledge production on their own topics of interest. Daniel Radermacher was a former councilor for the city of Middelburg, a director for the VOC in its Zeeland Chamber (from 1761 onwards), as well as one of the directors of the Hollandsche Maatschappij der Wetenschappen in Haarlem.[180] Radermacher had an interest in shipbuilding, so through the Zeeland Society of Sciences, he provided funds for a shipbuilding competition for the best ships of the VOC.[181] He was also one of the judges for the prize-giving, in which he reviewed the 5 answers received for the competition and selected his choices for the gold and silver medals.[182]

Other ways in which the pursuit of knowledge was encouraged for utilitarian purposes include the improvement of irrigation for nelij cultivation, as well as the drainage system of paddy lands in order to support rice cultivation.[183] Waterworks was one endeavour in which VOC officials often planned in advance, for example the construction of the Urubokka dam located in the Dissavany of Matara in 1787.[184] The Ceylon government issued orders in 1706 to the Engingeer Jan Christiaanz Toorze to connect a route between the Puttalam lagoon in the north and the Beruwala in the south, and governor Baron van Imhoff was instrumental in establishing this canal between Putalam and Colombo.[185]

The English East India Company

In comparison to the Dutch emphasis to utility, one example of an EIC report from 19 August 1840 discusses the difference between cinnamon and cassia, still an ongoing cause for concern even at this time:

[179] NA 1.04.02, inv.nr. 3691, folios 764-782v.
[180] "Notulen der vergaderingen van directeuren, van algemene vergaderingen en van de vergaderingen van het perpetueel committé, 1769 mrt 22-1772 feb. 25," *Zeeuws Archief, Middelburg,* inv. nmr. 26, folder 3, folio 3.
[181] "Radermacher (Daniel)," *Nieuw Nederlandsch Biografisch Woordenboek*, part II, 1152-1153, last accessed 28 December 2019,
http://resources.huygens.knaw.nl/retroboeken/nnbw/#page=581&accessor=accessor_index&view=imagePane&source=2
[182] "Brief van Daniel Radermacher aan N.N., 1779," *Zeeuws Archief, Middelburg,* inv. nmr. 1923.
[183] NA 1.04.02, inv.nr. 3203, folios 1371-1382; K. D. Paranavitana and R. K. de Silva, *Maps and Plans of Dutch Ceylon: A representative collection of cartography from the Dutch period.* (Colombo: The Central Cultural Fund, Sri Lanka-Netherlands Association, 2002), 22-23.
[184] Paranavitana and de Silva, *Maps and Plans of Dutch Ceylon*, 22-23.
[185] Ibid, 23.

> The investigations of Dr Wigt have thrown much light on the subject, which is interesting in a commerical as well as **merely in a scientific point of view**, and we trust that, the further enquiries which he was about to institute will have settled the long disputed question as to the distinctions between the plants from which these spices are obtained.[186]

While this is but one example, the English East India Company's scientific policy which began to take on moral and philosophical impetus has been demonstrated convincingly by Richard Drayton in his book *Nature's Government*.[187] On the other hand, as has been explored through this thesis, the VOC seems to regard the pursuit of knowledge as a practical necessity that was not always actively encouraged, but dependent upon the personal motivations of different individuals associated with the VOC infrastructure. The explicit encouragement of science, as noted in the above EIC record, is difficult to find within the VOC archives.

Cinnamon as rhetoric, revisited

Returning to the end of Chapter 1 of this thesis, I posed a question: how did the state of scientific knowledge, the knowledge practices of the Enlightenment, and the politics of cinnamon trade and cultivation become so intertwined? The two particular texts by Casparus de Jongh and C. F. Reimer were clearly written in response to VOC policies – but did the VOC have a broader philosophy behind their policies? In this chapter, a close reading into knowledge practices within and beyond the VOC archives has allowed us to reconsider the extent to which VOC was driven primarily by commercial gains. Could we infer a deeper engagement with science than initially assumed? The seminal text upon which much scholarship has been founded upon is Harold Cook's *Matters of Exchange*. In this book, Cook suggests that trading companies such as VOC were not founded for the "disinterested pursuit of knowledge" – that is, they had vested interests in making use of knowledge for their commercial enterprises.[188] The eighteenth century is far from a barren time period for science for both the VOC, especially taking into consideration utilitarian pursuits of knowledge which could be put into practice in the Asian settlements. A close reading of the VOC archives reiterates the close intertwining of

[186] Emphasis mine.
[187] Drayton, *Nature's Government*, 262-268.
[188] Cook, *Matters of Exchange,* 416.

both commercial and scientific pursuits, even if the broader philosophies may not be made explicit.

Conclusion: Absences in the archives

This thesis has become a reflection on the history of absences. Firstly, why has there been so little written about the eighteenth century in the Dutch historiography of science? The first reason could be that there are insufficient major bodies of archival materials. The historiography of science is now replete with studies led by actor-network theory, which more often than not, still revolve around key scientific figures with major bodies of archival materials. As this thesis shows, the richness of activities during the eighteenth century can still be extrapolated by drawing upon dispersed archives and contextualising connections through close reading of textual transmissions as well as the provenance history of specific scientific collections. Paul Hermann is one such figure, whose personal archives are not extant, yet his Sri Lankan herbaria is now found in both Leiden and London, while his Cape town herbaria can be found within Sloane's Herbarium and at Oxford. Here is a figure whose personal, direct contributions to science might not have been notable in comparison to very well-known figures with connections to the VOC such as Georg Eberhard Rumphius or Hendrik Adriaan van Rheede tot Drakenstein. However, the afterlives of his knowledge, his notes, and his herbaria, had passed through the hands of and left influence on important key figures in the history of science, including Carolus Linnaeus and Joseph Banks.

The second glaring absence is the lack of scholarship on Sri Lanka which considers it from a knowledge production perspective, aside from Sujit Sivasundaram's works which predominantly focus on the British period.[189] The majority of scholarship on Sri Lanka focuses on its socio-political and economic histories in the early modern period. Obvious reasons for this would be that the British only established the Peradeniya botanical gardens in 1822 and the Royal Branch of Asiatic Society, Ceylon Branch in 1845.[190] Even though the botanic gardens had been located on a previous temple garden by a Kandyan king, there are scarce records that could be used to research further into these pre-European knowledge practices. Admittedly, the examples in this thesis reinforce that the extent of scientific activities was still driven by figures such as Ceylon governors, VOC physicians, or scientists and scholars travelling through the region. While we cannot claim that there was any significant (European)

[189] Sujit Sivasundaram, *Islanded*; Sujit Sivasundaram, "Sciences and the Global: On Methods, Questions and Theory," *Focus – ISIS* Vol. 101, no. 1(2010): 152.
[190] "Society." Royal Asiatic Society of Sri Lanka. Last Accessed 28 December, 2019. http://www.royalasiaticsociety.lk/society/

scientific milieu in early modern Sri Lanka itself, it is still possible to study the production of knowledge more broadly by closely reading the accounts of Europeans who lived or passed through Sri Lanka, and especially the reports of interactions between Europeans and local inhabitants which shed light on the role of cross-cultural knowledge production, as well as complicate what we may now term 'science'. Once we manage to unpack local knowledge production in this manner, we could connect this body of knowledge with the constant production of knowledge about Sri Lanka that existed in Britain and in the Dutch Republic. This would be one step closer to considering what a "global" history of the Enlightenment could look like.

The third absence to speak of, is to what extent we can talk about the VOC and science, or perhaps even more broadly, the "Dutch Empire" and science. Scholars such as Andrew Fitzmaurice and Alicia Schrikker have reflected more broadly on the intellectual histories of the "Dutch Empire" and highlighted the challenges in trying to write about ideologies of an empire that "never have been clearly articulated".[191] Richard Drayton's argument in *Nature's Government* which convincingly links British and French imperial endeavours with science work because these two empires have professed moral and philosophical ideologies in the eighteenth century. Schrikker suggests that those officials working for the VOC would have had their own perceptions of what the Dutch Empire should be, and she demonstrates this by reconstructing the possible Enlightenment ideals that could have affected Dutch policy by Sri Lankan governors.[192] During this time, various directors and governors of the VOC, as well as intellectuals in the Dutch Republic such as the Hogendorps, had penned many a thought about what the VOC should be, as demonstrated through genres such as *memories van overgave* or political pamphlets.

We are, therefore, dealing with two compounded absences: that of a philosophy of governance that could be ascribed to the VOC, and the attitude towards the pursuit of knowledge that could conceivably be inferred in relation to the latter. As there is already a certain amount of extrapolation when ascribing a philosophy or ideology to the VOC as if there ***were*** a "Dutch Empire", it is perhaps one step too removed to subsequently argue the "Dutch Empire" had certain broader principles in mind in their pursuit of knowledge. In the absence

[191] Andrew Fitzmaurice, "The Dutch Empire in Intellectual History," *Low Countries Historical Review*, Vol. 132, no. 2 (2017): 97-109; Alicia Schrikker, "Visions of Dutch Empire: Introduction," *Low Countries Historical Review,* Vol. 132, no. 2 (2017): 77-78.
[192] Schrikker, *Colonial Intervention in Sri Lanka*.

of explicitly articulated interest in science, this case study on cinnamon has nevertheless attempted to highlight various ways in which the VOC's aims and the pursuit of knowledge were closely intertwined. The absence of something, however, ultimately could not be used as evidence either for or against any principled stance on science, particularly since the VOC, though it behaves like one, was not truly a state power. The sparseness of self-reflexive description in most of the VOC records limits how much we can infer into the archives, when reading against the "commercial grain" of the VOC as a trading company. It also demonstrates, ultimately, the limits of "Enlightenment" and "science" as theoretical frameworks to closely interpret VOC archives as texts.

Appendix I: Excerpts

Excerpt from Casparus de Jongh, *Noodzakelyke verdediging, wederlegging en ophelderinge, voor het belang van de Nederlandsche Oost-Indische Compagnie* […], 1768[193]

The Cinnamon Tree cannot be reproduced, or be cultivated, from its seed. One plants the Fruit of these, and nothing comes of it. One transplants the young shoots, and the same does not appear. People say that Crows and Cinnamon Doves prey upon on these Fruits, and if they by chance drop a Pit from these Fruits upon the new Cultivated Lands, wherefrom a Cinnamon Tree appears, from there it can be concluded that the Cinnamon Trees are to be found close to each other, but widely dispersed and must be searched for, along the length and breadth in young forests which the nature brings forth. If, during the cleaning, there was already such a Cinnamon-Shoot discovered here and there on the perimeters of the laid-out Plantations, or within the same Plantations, where it is not too shady, one could let it stay until it obtained age in order to be peeled, and actually ensure that the Peper Plantations does not completely become wild.

Den Caneel- Boom is niet voort te planten, of te Cultiveeren, van deszelfs saat of jonge Telgen, plant men dies Vrugt daar komt niet van, verplant men jonge Spruiten, dezelve komen niet voort, men zegd dat de Kraaijen en de Caneel Duiven op deze Vrugt aasen, en bygeval een Pit van die Vrugt op nieuw Gecultiveerde Landen loosende, daar een Caneel Boompje van voortkomt, waar uyt is op te maken de Caneel-Boompjens niet digt op den anderen gevonden, maar wyd en zyd verstrooit in jonge Bosschjes die de natuur voortbrengt moet opgezogt werden; wierd ‘er over zulks nu al eens hier en daar aan de buitenkanten van de aangelegde Plantagien of binnen dezelve daar niet veel lommer is by het schoonmaken een Caneel-Spruitje ontdekt, men kon het laten staan tot een bewkwamen ouderdom om geschild te werden, en egter zorgen de Peper Plantagien niet geheel kwamen te verwilderen […]

[193] Casparus de Jongh, *Noodzakelyke verdediging, wederlegging en ophelderinge, voor het belang van de Nederlandsche Oost-Indische Compagnie* […] (n.p., 1768), 65-66.

Excerpt from Major C. F. Reimer, *Bedenkingen der de aanplantingen van Caneel op Ceijlon*[194]

The worst is, that we have to fear, because of these plantings which were adopted with haste, and have been applied too far, that this crop over the whole of Ceylon can be seen degenerating, or that perhaps the good sorts will soon become even scarcer than ever before, on account that, on the one hand, the good sorts everywhere are tracked down by the cinnamon peelers with so much alertness, that almost none of them there in the Company's areas could grow into the age and size, in which they can bear the same kind of good fruits, because they were being cut down and peeled in the first few years […] it is enough that we know how through the manner of planting, the choosing and division of lands, and even through the collecting of the seeds, the artificial propagation of the cinnamon in the ground is *cracked*[195], and provided the expansion of the cinnamon over the whole area of the Company on Ceylon, maybe will have irreparable negative consequences, of which the final results are cannot be foreseen.

Het ergste is, dat te vreezen staat door deze met verhaasting geadopteerde en reeds veel te vergetrokke aanplantingen, dit gewas over geheel Ceylon te zien ontaarden of misschien de goede zoorten binnen kort nog ongelijk schaarser te zien worden, alsoort te voren, vermits aan de een kants deze goede zoorten overal met zo veel oplettendheid door de caneelschillers worden opgespoord dat bij kans geen een daar van in S'Comps gebied tot dien ouderdom en groote kan opwassen, en welken dezelve eerst goede vrugten kunnen geeven, wordende in de eerste jaaren afgehakt en geschild […] genoeg is 't dat wij weeten hoedanig door de manier van aanplanting, de verkiezing en verdeeling der gronden en zelvs alreeds door de verzameling der zaaden, de konstige voortteeling der caneel in de grond is gekraakt, en mits de uijtbreijding derzelve over het geheel gebied der Ed. Maatschappij op Ceijlon misschien onherstelbaar nadeelige gevolgen zal hebben, welker eijndelijke uijtwerkzelen nog niet zien te voorzien.

[194] NA 1.10.59, inv.nr. 447, folder nr. 8.
[195] The word "gekraakt" is usually used to describe physical breakage. In Dutch it does not usually have the English expression of "cracked" which means to have find a solution to a problem. The use here is ambiguous whether it is meant in a positive or negative way, given the author was not in favour of continuing this system of cultivation.

Table 1
Cinnamon peeling described in published travel accounts of Ceylon

No.	Author	Publications	Description of peeling cinnamon
1.	Johann von den Behr	"Day-Book by Johann von der Behr," 1668	The Wood of this Tree hath neither Smell nor Taste, when the Bark is off it (and then it is much us'd for firewood). But this Tree hath a Double Bark, the outer is a well-flavour'd Skin, so thin that it can be taken off only when it is green; the inner is smooth and sticky on the tongue, and is rolled into such Pipes, as are brought to Europe after it has been dry'd in the Sun, which Eats up all its moisture and makes it reddish; and they can be peel'd again in two, or at most three years.[196]
2.	Albrecht Herport	"Nine-Year East-Indian Journey by Albrecht Herport," 1669	They are peel'd at the beginning of the Monsonn [sic], in that the Bark is cut around and then lengthways, which can then easily be strip'd off. Then they scrape away the outermost and innermost skins from it, and lay it in the Sun to dry. But the Tree must afterwards grow for three years, before the Bark is good again.[197]
3.	Christopher Fryke	"Christopher Fryke's East-Indian Journeys," 1692	The Tree hath two Barks, the Cinnamon is the inner one of them, which is peeled off the Tree, and cut in square pieces; then laid in the Sun to dry, which makes it rowl up together, as we see it in Europe, and changes its colour, which is at first near upon Ash-colour, into a reddish tint as we find it here. When the Trees are peeled in this manner, they are let alone for three years, in which time they have regained their Coats as before.[198]

[196] "Day-Book by Johann von der Behr," 6.
[197] "Nine-Year East-Indian Journey by Albrecht Herport," 30.
[198] "Christopher Fryke's East-Indian Journeys," 84.

Table 2
List of cinnamon names in various reports

No.	Author	Texts[199]	List of names
1.	Governor and Council of Ceylon	Letter of 12 December 1699 to Heeren XVII	Rasse Coronde Cappoeroe Coronde Cahatte Coronde Welle Coronde Sewel Coronde Nieke Coronde Dawel Coronde Katte Coronde Tonpat Coronde Male Coronde
3.	A. Van der Kroe and Yntema en Tiboel, editors of *Vaderlandsche Letter-oeffeningen*	"Beschrijving van de verschillende soorten van Kaneel-boomen op Ceylon," 1773	Rasse Coronde Canatte Coronde Capperoe Corondoe Wellé Coronde Sewel Coronde Nieke Coronde Davet Coronde Catte Coronde Muel Coronde Toupat Coronde
4.	Iman Willem Falck	"Bericht wegens de Kaneel," 1774	Rasse-Koerondoe / Pennie Koerondoe Kahatte-koeroendoe Kappoeroe-koerondoe Wellie-Koeroendoe Sewel-Koeroendoe Nieke-Koeroendoe Dauvel-koeroendoe Kattoe-Koeroendoe Mal-koeroendoe / Wal-koeroendoe Toenpat-koeroendoe
5.	Pieter Sluysken	*Eene beschryving van de landdienst op Ceylon,* 1784	Rasse Coeroendoe Cappoeroe Coeroendoe Cahatte Coeroendoe Welli Coerondoe Sewel Coeroendoe Nieke Coeroendoe Dawal Coeroendoe Kattoe Koeroendoe Toenpat Coeroendoe Malle Coeroendoe

Table 2

[199] Full references are stated earlier in the thesis as well as in the following bibliography, only short titles are cited in this table.

Cinnamon: revenue of all sales (in guldens)[200]

Period (3 year intervals)	Cinnamon	All Ceylonese products	Total VOC auctions	Cinnamon as percentage of Ceylonese products	Cinnamon as percentage of total VOC auctions
7th 1765/66 – 1767/68	6,047,971	9,877,056	66,913,910	61%	9%
8th 1768/69 – 1770/71	6,862,585	8,374,045	63,027,971	81%	10%
9th 1771/72 – 1773/74	7,354,563	8,467,515	57,949,225	86%	12%
10th 1774/75 – 1776/77	6,771,891	8,416,413	61,059,021	80%	12%
11th 1777/78 – 1779/80	4,055,392	6,328,968	60,274,046	64%	7%
12th 1780/81 – 1782/83	5,009,027	6,034,925	25,919,612	83%	19%
13th 1783/84 – 1785/86	7,225,557	7,872,425	52,456,478	91%	14%
14th 1786/87 – 1788/89	4,897,457	7,122,906	46,586,226	68%	11%

[200] Revenue data is sourced and translated from Dutch original in Albert van den Belt, *Het VOC bedrijf op Ceylon: Een voorname vestiging van de Oost-Indische Compagnie in de 18de eeuw* (Zutphen: Walburg Pers, 2008), 67 table 13. The 15th time period consists of Van Den Belt's extrapolation due to missing data, so it is included in this table. Calculations of cinnamon as percentage of total in the last two columns are my own.

Appendix II: Illustrations

List of Illustrations

Thesis cover image
Close-up detail from Figure 6

Figure 1
Pieter Claesz, *Still Life with Turkey Pie*, 1627, Oil on panel, 75 cm x 132 cm, Collection of Rijksmuseum, Amsterdam
Source: http://hdl.handle.net/10934/RM0001.collect.8143

Figure 2
Apothecary jars for medicines with cinnamon or tamarind, eighteenth century, 8 to 35 cm, Collection of Museum Boerhaave
Source: Leo M. Akveld and E. M. Jacobs, eds., *The Colourful World of the VOC: National Anniversary Book VOC 1602/2002* (Bussum: THOTH, 2002), 29.

Figure 3
Frans van Mieris II, *The apothecar*, 1714, oil on panel, 39.5 x 33.5 x 4.5 cm, Collection of Amsterdam Museum
Source: Leo M. Akveld and E. M. Jacobs, eds., *The Colourful World of the VOC: National Anniversary Book VOC 1602/2002* (Bussum: THOTH, 2002), 28.

Figure 4
Specimen 831, *Cinnamomum javanicum*, 1670s, Herbarium of Paul Hermann, Collection of Natural History Museum, London
Source: https://doi.org/10.5519/0062484

Figure 5
Specimen 835, *Cinnamomum verum*, 1670s, Herbarium of Paul Hermann, Collection of Natural History Museum, London
Source: https://doi.org/10.5519/0062484

Figure 6
Artist unknown, *Cinnamomum verum*, coloured drawing in *Icones Plantes Malabaricum*, eighteenth century, Collection of Universiteitsbibliotheek Leiden, BPL 126 D
Source: http://hdl.handle.net/1887.1/item:937812

Figure 7
P. C. de Bevere, drawing of a blue parrot (unfinished), late 18th century, coloured drawing on paper, commissioned by Joan Gideon Loten, Collection of Teylers Museum
Source: own photograph, with kind permission of Teylers Museum

Figure 8
P. C. de Bevere, drawing of a blue parrot (finished), late 18th century, coloured drawing on paper, commissioned by Joan Gideon Loten, Collection of Teylers Museum
Source: own photograph, with kind permission of Teylers Museum

Figure 9
P. C. de Bevere, *Godha para,* coloured drawing on paper, commissioned by Joan Gideon Loten, late 18th century, Collection of Teylers Museum
Source: own photograph, with kind permission of Teylers Museum

Figure 9b
Detail of inscription on the verso of the drawing
Source: own photograph, with kind permission of Teylers Museum

Figure 10
Herbert de Jager, *Pohon Pinang*, coloured drawing in Nicolas Witsen's *Plantae Javanicae pictae ex Java transmissae*, 1700, Collection of Teylers Museum
Source: own photograph, with kind permission of Teylers Museum

Figure 11
Cornelis Steiger, *Het Gouverneurshuis met de tuin te Colombo op Ceylon*, 1710, paper and deck paint, 26.6 cm x 44.2 cm, Collection of Rijksmuseum
Source: http://hdl.handle.net/10934/RM0001.COLLECT.234876

Figure 12
The island Ceylon, also Taprobane, now Lankawn by the inhabitants, 1672, engraving in Philip Baldaeus' *Nauwkeurige beschrijving Malabar en Choromandel, derz. aangrenzend rijken, en het machtige eiland Ceylon*, 29.5 cm x 39 cm
Source: Paranavitana K. D. and R. K. de Silva. *Maps and Plans of Dutch Ceylon: A Representative Collection of Cartography from the Dutch period* (Colombo: The Central Cultural Fund, Sri Lanka-Netherlands Association, 2002), 31.

Figure 13
Johannes van Keulen, *Map of the island of Ceylon, surveyed on orders of Rt Hon Sir Rijklof van Goens,* 1681, coloured printed map, 51 cm x 59 cm, Collection of Universiteitsbibliotheek Leiden
Source: Paranavitana K. D. and R. K. de Silva. *Maps and Plans of Dutch Ceylon: A Representative Collection of Cartography from the Dutch period* (Colombo: The Central Cultural Fund, Sri Lanka-Netherlands Association, 2002), 36.

Figure 14
Joannes van Campen, *'T Eyland Ceylon,* 1719, coloured manuscript, from the diary of Isaac Augustijn Rumpf, 86 cm x 148 cm, Collection of Nationaal Archief
Source: http://proxy.handle.net/10648/4560afc0-3688-34a2-0ac8-4867e226e55a

Figure 15
Map of the landscape Carretchie, 1739*,* coloured manuscript, from the diary of Gustaff Willem Baron van Imhoff*,* 53 x 74 cm*,* Collection of Nationaal Archief

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1.07.17 Hoge Regering
Inv.nrs. 856

1.10.46 Collectie Hope
Inv.nrs. XXX

1.10.59 Collectie Nederburgh
Inv.nrs. 447, folder nr. 8

1.10.69 Collectie Radermacher
Inv.nr. 430

4.VEL Verzameling Buitenlandse Kaarten Leupe
Inv.nrs. 996.

4.VELH Verzameling Buitenlandse Kaarten Leupe: Eerste Supplement
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