French empire on the ground:

Plants, peoples, and knowledge in the service of eighteenth-century Isle de France

Dorit Maria Nicola Brixius

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of History and Civilization
of the European University Institute

Florence, 11 September 2017

European University Institute
Department of History and Civilization

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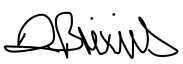

Paris, 22 August 2017

For my family and friends, with gratitude

Abstract

This dissertation examines the globally connected project of plant accumulation on Isle de France in the second half of the eighteenth century, focusing distinctly on the roles and activities of local actors embedded within wider Indo-Pacific networks and environments. Exploring the collection, transfer, and use of plants for subsistence and commerce as localised histories of the plant-related undertakings of a French island colony in the Indian Ocean, this dissertation asks what 'science' and 'empire' meant at a local level. Relying on an in-depth analysis of the plant-based projects of the island 'from below', it raises localised approaches to the transfer, production and practices of plant knowledge and plant material from a cross-cultural perspective. Here, a bottom-up approach tells a very different story than a top-down one would: the whole botanical enterprise was fragile, experiential and significantly shaped by environmental conditions. Above all, it was built on collaboration between French actors and local populations from Africa to Asia.

To tackle, juxtapose, and understand the possibilities and limits of the French actors and to look at plant knowledge as a nuanced localised knowledge-practice conducted by non-elite and elite actors in the Indo-Pacific worlds, this project couples approaches from the history of science and empire, oceanic history, environmental history, economic history, and global history. For this purpose, each chapter explores plant-related themes from different perspectives, arguing for the uncertainty of the cross-cultural botanical project of eighteenth-century Isle de France. For one, the Isle de France project was built extensively on the contribution of widely neglected actors, such as slaves, indigenous informants, and go-betweens. For another, the island's cultivational activities consisted of strongly experiential dynamics of local knowledge deriving from and produced in the Indo-Pacific context.

The major aim of this dissertation is to re-assess the French botanical project in the Indian Ocean in order to understand the social, cultural, and natural complexities of plant-based knowledge production as a practice with respect to their local sites in both the Indo-Pacific worlds and the French colonial island as such.

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Acknowledgements

I am indebted to everyone who encouraged me as I wrote this dissertation. First and foremost, my special thanks go to my *Doktorvater* ('doctoral father' rather than 'supervisor') Stéphane Van Damme for his generosity, enthusiasm, and indispensable comments. Likewise, I wish to thank my second reader Regina Grafe for her sharp mind and essential questions that made me think more deeply about my work. Without the funding of several institutions, I would never have been able to conduct this project. I am very grateful to the German Academic Exchange Service (DAAD), and Gerda Schneider-Schulten in particular, the European University Institute (EUI), and the British Society for the History of Science (BSHS) for their generous financial support for both archival missions and conference travel grants. Before joining the EUI in 2013, the *Institut historique allemand* (IHA) Paris kindly funded my dissertation project during its first steps. The project has taken quite a different direction over the course of intellectual stimulation in various institutions and, of course, because of the material available in the archives.

I wish to thank all the archivists and librarians who supported me while doing research in their institutions, namely in Paris, Aix-en-Provence, Chartres, London, Seville, Saint-Denis (La Réunion), Coromandel (Mauritius). In particular, I wish to thank Sangeeta Mohun (National Archives of Mauritius), Pamela Dookhy (Botanic Garden in Pamplemousses, Mauritius), Kersley Pynee (Herbarium in Réduit, Mauritius), Antoine Monaque and Joëlle Garcia (*Bibliothèque Centrale du Muséum National d'Histoire Naturelle* Paris), Sylvie Pontillo (*Archives nationales d'outre-mer* Aix-en-Provence), and Ana Hernández Callejas (*Archivo General de Indias* Seville) for their kind assistance.

I owe a great deal to the *Centre Alexandre-Koyré* (CAK), in particular Antonella Romano and Anne Sirand. Without their generosity and support, my stay as a visiting PhD student at the CAK in 2016 and 2017 would never have been as rich and fruitful as it was. I am more than grateful to them. My stay in Paris was enriched when presenting my work at the IHA in April 2016; I am indebted to Antoine Lilti, Thomas Maissen, Pascal Firges, Rainer Babel, and the participants of the 'séminaire de recherche sur les Lumières'.

I benefitted greatly from discussions in seminars at the EUI (in particular those on global history run by Jorge Flores and Regina Grafe, on the history of science and the social sciences run by Stéphane Van Damme, and several thesis writing seminars), the CAK's *atelier*

d'écriture, and at several doctoral workshops, including the 'Munich Spring School' on 'Plants, Politics, and Power' (Kochel am See, March 2015), the 'Fourteenth Ischia Summer School on the History of the Life Sciences' (Ischia, June 2015), the 'Göttingen Spirit Summer School' on 'Academic Collecting and the Knowledge of Objects, 1700-1900' (Göttingen, September 2016), and the *Atelier doctorale interdisciplinaire Méditerranée 2* 'Le travail forcé' at the *école française de Rome* (Rome, October 2016). I owe a debt to the organisers of these events, and Dominik Hünniger in Göttingen and Silvia Sebastiani in Rome in particular.

I particularly thank Raine Daston, Minakshi Menon and Gabriela Soto Laveaga at the *Max-Planck-Institut für Wissenschaftsgeschichte* Berlin where I partly wrote chapter five during my stay as a visiting pre-doctoral fellow in September 2015, as well as Peter Boomgaard who made my brief stay at the *Koninklijk Instituut voor Taal-, Land- en Volkenkunde* (Royal Netherlands Institute of Southeast Asian and Caribbean Studies) in Leiden possible during the same period. Like Peter Boomgaard, Romain Bertrand helped me to navigate through the complex geographies and cultures of Indonesian islands. Without their expertise, I would have strayed too easily. I also benefitted greatly from discussions with Dhruv Raina, James Delbourgo, Lissa Roberts, John Mathew, Sarah Easterby-Smith and Pablo Gómez, who have all shared their expertise with me. Nor should I neglect Pierre-Etienne Stockland, Kit Heintzman and Rafaël Thiebaut for providing full references to archival material and even digital copies.

My special thanks also go to all academics and friends in Cambridge where I partly wrote chapter five and six during my stay as visiting PhD student at the Department of History and Philosophy of Science (HPS) in 2015, namely Emma Spary, Sujit Sivasundaram, Simon Schaffer, Nick Jardine, Katrina Maydom, Mélanie Lamotte, Huiyi Wu, and James de Montille. In particular, I am very grateful to Šebestián Kroupa for being a friend and academic companion who has been by my side from almost the very start! I am thankful to Seb beyond words.

Finally, I am indebted to my friend and colleague Mikkel Munthe Jensen for helping me to create maps on a sunny Tuscan Sunday in spring, which he should have spent eating the season's first *gelato*. Furthermore, I express my thankfulness to Leonard Hodges and James White for lending me their eyes for the English language as well as to Maxence Gévaudan and Simon Dumas Primbault for assisting me with formatting this piece.

This dissertation has been written in many different places (Florence, Paris, Cambridge, and Berlin), sometimes while travelling from one place to the other, thousands of metres above the sea while crossing the Atlantic or the Indian Ocean. My family and loved ones

showed a great deal of patience and understanding while I was travelling, ‘hunting’ in the archives, and hiding in libraries without seeing them for months. Without their support, I would never have been able to get through the rollercoaster ride of writing a dissertation. My mum Brigit and dad Gerold kept me grounded even though I was so far away. I owe them all I have because they have taught me to be myself and have always encouraged me to do things my way. It is also important to mention my nan Helene Klee who sadly passed away before this dissertation was finished. Her stories sparked my interest in history as I listened to them while eating her special ‘Marmorkuchen’ when I was little.

Furthermore, I thank my sister Maren and my brother Lennart together with Tina and Nele: they have never understood my academic drivel and therefore brought me back down to earth when I was lost in clouds of academic overthinking. Likewise, I am indebted to my dear friends Abbed Kanoor, Morvarid Ayaz Naimian, Arash Naimian, Déborah Dubald, Catarina Madruga, Francesca Iurlaro, Jennifer Blanke, Pablo Hernández Sau, Bruno Martinho, Jean-Baptiste Goyard, Lavinia Maddaluno, Julie Marquet, Tom Tölle, Francis Poku, Rutger Birnie, Maria José Schmidt-Kessen, Frida Pritzkow, Qassem Massri, Sarah Merten and Andreas ‘Soapy’ Seifen. My friends have always been there for me when I needed them most. Last but not least, I wish to express my gratitude to Fardad Ghaffari for having been a wonderful companion during the very last months of writing this piece.

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Abbreviations

ADL	Archives départementales Eure et Loire
ADR	Archives départementales de la Réunion
ADS	Académie des sciences, Institut de France, Service des Archives, Paris
ADS DB	ADS-Dossiers biographiques
AGI	Archivo General de Indias, Seville
AMAE	Archives du Ministère des Affaires Étrangères, Paris
AN	Archives nationales, Paris
ANOM	Archives nationales d'outre-mer, Aix-en-Provence
BCMNHN	Bibliothèque Centrale du Muséum National d'Histoire Naturelle, Paris
BL	British Library, London
BN	Bibliothèque nationale de France, Paris
BSG	Bibliothèque Sainte-Geneviève, Paris
CIO	Compagnie française pour le commerce des Indes orientales
DMB	Dictionary of Mauritian Biography
DSB	Gillispie, Charles Coulston, ed. Dictionary of Scientific Biography. New York: Scribner, 1981.
EE BSP	Electronic Enlightenment, Project Bernardin de Saint-Pierre, access via: www.e-enlightenment.com.
FGB	Fonds Grandet-Bailly Papiers de Claude Louis Bailly (1679-1797), ADL
HARS	Histoire de l'Académie royale des sciences, Paris
KEW	National Archives, Kew

MA	National Archives of Mauritius, Coromandel
MARS	Mémoires de l'Académie royale des sciences, Paris
NAF	Manuscrits français et des Nouvelles acquisitions françaises, collection at the Département des manuscrits, BN
SE	Savants Étrangers series of the Académie royale des Sciences, Paris
VOC	Verenigde Oost-Indische Compagnie

⌘

Introduction

In the Mauritian folktale *Zistoire léléphant avec Yève dé compères* ('The story of the elephant and the hare'), the elephant tries to convince the hare: 'Let's take a piece of land, we [can] make a garden.'[1] But making a garden in eighteenth-century Isle de France (present-day Mauritius) was not only a matter of taking a piece of land. Rather, it was a matter of making a piece of land profitable – a localised, slow, and complex process, one which this dissertation seeks to explore.

The island belonged (and still belongs) to the Mascarene Islands, a group of islands east of Madagascar consisting of Isle de France, Isle de Bourbon (present-day La Réunion), and Rodrigues. The *Compagnie française pour le commerce des Indes orientales* (hereafter CIO) formally took possession of the remote Isle de France in 1721. In the first place, Isle de France was chosen for geopolitical reasons. The island, however, was relatively vulnerable and isolated with respect to subsistence and sustainability. In order to create life, it was necessary to accumulate plants together with knowledge related to their cultivation and usage because the island itself had barely anything to offer. French colonisers sought to manage the island by growing newly introduced crops. On the one hand, plants for nourishment and everyday subsistence were introduced. On the other hand, the agricultural project focusing on plants with everyday value competed with economic botanical projects, in particular that of the cultivation of spices. This is the main reason why the island is particularly suitable as a case study to explore plant accumulation: it was a creole island both in terms of its population and its flora and fauna.

[1] 'Anons prend impé laterre, nous va faire zardin'/'Prenons un coin de terre, nous ferons un jardin.', 'Zistoire léléphant avec yève dé compères'/'L'eléphant et le lièvre en societé', in *Folk-lore de l'île Maurice (texte créole et traduction française), Édition originale 1887*, ed. Charles Baissac (Rose Hill (Mauritius): Mauritius Printing Specialists (Pte) Ltd., 1998), 112. All translations are mine unless otherwise indicated.

Scholars claim that the European search for economic plants was 'big science' driven by tangible economic interests, involving private and governmental institutions, learned societies, and men funded by metropolitan institutions to gather plants and exploit them economically.[2] Whereas the French botanical enterprise with Europe as the main market has been explored from an institutional and metropolitan top-down perspective, comparatively little work has been done on what was happening 'on the ground' – and this is exactly the starting point of my project, as its title implies. Reversing top-down perspectives of the French colonial enterprise in the Indian Ocean, I suggest understanding the maintenance of Isle de France from its local perspective and related botanical projects for its own purposes.

Inspired by studies in other national contexts, historians of French overseas science, and France's colonial past in general, have slowly started to dismantle the French imperial and centralised system imposing authority and 'science' on the colonies. This dissertation follows recent calls by looking at the local dynamics of knowledge production outside a centre-periphery framework that still dominates the field. As a response to the doubts expressed regarding French colonial politics and science, my study uses local activities and networks of French actors as windows into both social and material practices of knowledge. Contrasting the simplistic narrative of colonisation and plant exploration advancing from the metropolis or grand narratives of glorious French colonial establishments, I take the particular case of a French Indian Ocean island colony during the eighteenth century and set it in the wider context of the time. Not only did both administrators and naturalists on Isle de France have larger ambitions in terms of exploring nature for the island's economic purposes; more importantly did they see the need to improve colonial life by engaging with agriculture. Here, a bottom-up approach tells a very different story to a top-down one: the collection of plants and practices of knowledge production were fragile, uncertain, and above all experiential.[3]

Writing Isle de France's natural history from below, this dissertation seeks to analyse the movement and production of knowledge and plant material as an integrated aspect of Isle de

[2] For recent studies, see Richard Harry Drayton, *Nature's Government: Science, Imperial Britain, and the 'Improvement' of the World* (New Haven: Yale University Press, 2000); Fredrik Albritton Jonsson, 'Natural History and Improvement: The Case of Tobacco', in *Mercantilism Reimagined: Political Economy in Early Modern Britain and Its Empire*, eds. Philip J. Stern and Carl Wennerlind (New York: Oxford University Press, 2014), 117–33.

[3] I make use of the term 'experiential' proposed by Pablo Gómez. Pablo F. Gómez, *The Experiential Caribbean: Creating Knowledge and Healing in the Early Modern Atlantic* (Chapel Hill: UNC Press, 2017).

France's establishment and activities.[4] In so doing, it engages with the dynamics of knowledge production on the island as a process by resituating both non-elite and elite local actors as the knowledge providers. Those actors functioned both within the colony locally and involved wider networks in the Indo-Pacific region and beyond. With such an understanding, I seek to further walk away from the 'colonial' reference and make use of alternative approaches brought forward in recent discussions: for one, writing histories outside the imperial framework centred on Europe and for another, exploring the project's political, social, cultural, and environmental complexity.

In light of a lack of metropolitan support, Isle de France's administration was left alone with the struggle of island life. Therefore, they sought alternatives, relying on personal favours for bringing plants to Isle de France; they adroitly employed commercial and other scientific channels (particularly those serving astronomy), and initiated the search for spices themselves. For that reason, it is deeply misleading to speak of a Latourian 'centre of calculation' or a French 'colonial machine' as the historians McClellan and Regourd have recently suggested, since these top-down approaches do not give a voice to what happened during localised processes.[5] Therefore, contributing to a growing scholarship examining the 'peripheries', this thesis provides alternative parameters or – if one seeks to thinks in the technical terms of a machine – *dispositifs* of a French island colony by placing (non-French) mediators, slaves, environmental conditions, and the plant material itself at the heart of analysis.[6] Only then, I claim, will it be possible to understand the project of Isle de France – literally – in terms of its very nature.

This dissertation follows the plants' paths from their native countries to Isle de France; the selection of geographical places therefore is made according to these countries. I emphasise the connected history between various geographical regions, that is to say, actors' collaboration rather than their disparity. Consequently, the range of participants engaged in the process of knowledge making becomes broader than if we solely focus on Isle de France. As Robert Morrissey observed by echoing the influential historian of British Empire Ronald Robinson, 'collaboration was always a major feature of imperial systems, across time and

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[4] On a discussion 'from below' and its fruitfulness in global history, see, for instance, Lynn Hunt, *Writing History in the Global Era* (New York: W.W. Norton and Company, 2014).

[5] James E. McClellan III and François Regourd, *The Colonial Machine: French Science and Overseas Expansion in the Old Regime* (Turnhout: Brepols, 2011).

[6] The need for 'dispositifs' of science has been fostered by Simon Schaffer. On Schaffer's approaches, see Stéphane Van Damme, 'Laborious nature. Simon Schaffer and the History of Science', essay available at http://www.booksandideas.net/Laborious-Nature.html, last retrieved 24 February 2017.

space'.[7] Isle de France's natural resources were built up by an extensive variety of agents, including traders, farmers, fishers, officials, naturalists, religious men, labourers, and slaves, of Spanish, Portuguese, Dutch, French, Malay, Malagasy, African, Chinese, and Indian origins (and beyond).

Instead of providing a flat picture of the island's activities, this dissertation is inspired by new and vivid calls in scholarship in different colonial contexts. As a particular case study of a French colonial island space, it calls for a multi-dimensional deep history of knowledge practices in an overseas territory rather than a colony serving the metropolis. Following recent claims that knowledge making was polycentric allows us to view a plurality of knowledge systems that had specific forms in specific times and specific places.[8] Critical voices against this approach raise awareness that by stressing the mobility of knowledge, one might run the risk of privileging forms of this mobile knowledge over others; Sarah Easterby-Smith and Emily Senior express their concern about losing focus on the centres, such as the scientific institutions behind the process of knowledge.[9] It is correct that colonial projects cannot be understood without considering the visions of actors behind these institutions. While my study does not neglect the metropolitan visions behind Isle de France, the main concern is to understand the visions and practices of those actors who actually lived and worked in the colony and who in return relied on extensive collaboration with local populations in the Indo-Pacific worlds. Through their eyes, I aim to tackle the search for plants as a practice by examining the exploration, collection, transportation, and naturalisation of the selected plants that were to serve Isle de France for both subsistence and commerce.

When looking at the accumulation of plants on the island, we must not neglect the frictions between two rival ecologies of oeconomic crops that interacted with environmental components.[10] As Lissa Roberts has observed, economic botany was central to the island's development: 'So too did [botanical gardening] position the island's identity relative to tensions between the value attributed to plants as commodities and the plants' own valuation of their adoptive environment – that is, the extent to which this environment provided a

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[7] Robert Michael Morrissey, *Empire by Collaboration: Indians, Colonists, and Governments in Colonial Illinois Country* (Philadelphia: University of Pennsylvania Press, 2015).
[8] Jonardon Ganeri, 'Well-Ordered Science and Indian Epistemic Cultures: Toward a Polycentered History of Science', *Isis* 104, no. 2 (2013): 348–59.
[9] Sarah Easterby-Smith and Emily Senior, 'The Cultural Production of Natural Knowledge: Contexts, Terms, Themes', *Journal for Eighteenth-Century Studies* 36, no. 4 (2013): 472.
[10] On the quarrel between two rival ecologies of commerce see Jonsson, *Enlightenment's Frontier: The Scottish Highlands and the Origins of Environmentalism* (New Haven, London: Yale University Press, 2013), 122–26.

context in which they could flourish.'[11] The collection of 'useful' plants (dietary, economic, mechanical, and medicinal ones) was essential for the making and maintenance of Isle de France. This included the augmentation of agriculture for the settlers' supplies just as a spice project as a way to secure new monopolies and trade. The question of what plants were ought to be 'useful' went hand in hand with the imagined use of the island, its attributed identity as well as the practical application of knowledge as such. The 'usefulness' of a plant determined its value attributed by local administrators and the French ministries yet also by settlers, labourers, and slaves. The plants' usefulness was more than experiential and shifted according to the island's envisioned identities.

In the main period under review, Isle de France's entangled networks for the search of plants were centred on Pierre Poivre (1719-1786) who was appointed the intendant and agronomist (a double position) of the Mascarene Islands between 1767 and 1772. But rather than focusing on Poivre himself, this project uses him as a tool for tracking those actors involved in the accumulation of 'useful plants'. On the one hand during his tenure, Poivre sought to extensively expand the agricultural project that began under the Governor Bertrand-François Mahé de La Bourdonnais (1699-1753) in the mid-1730s. On the other hand, he also aimed to introduce spices that were to make Isle de France economically profitable.

Frictions between local and state administration yet also local governor and intendant were omnipresent. There was as fundamental disagreement on 'useful' plants on eighteenth-century Isle de France. As chapter one explores, the dispute between administrators and settlers became one of the key tensions on the island. The recognition of Isle de France by French ministries was measured in scales that had little meaning at a local island level and which was intensified after the Seven Years' War (1756-1763) when Isle de France was the last man standing within French imperial politics. Isle de France's activities were partially local and partially imperial and the local administration had to balance visions while seeking to implement them within their own visions of the island's identity. For one, mouths had to be fed. Because imported foodstuffs were incredibly expensive and the island not self-sustaining (or supplied by the sister island Bourbon), the idea was to sustain life in the island with the help of domestically produced crops that were mostly gathered in the Indo-Pacific worlds. For another, so that high officials in Paris remained convinced to continue to support the colony, a spice project was to make the island profitable.

[11] Lissa Roberts, '"Le Centre de Toutes Choses": Constructing and Managing Centralization on the Isle de France', *History of Science* 52, no. 3 (2014): 319–42.

The frictions between the introduction of plants and the island's identities became especially evident during the period under review when the kinds of plants cultivated reflected how the island and its role within imperial strategies were perceived and changed. The plant-based projects inflicted each other on the island where its settlers sought to cultivate food crops for their subsistence rather than cultivating spices that were difficult to acclimatise in the first place. Yet both projects co-existed and sometimes went hand in hand during the search for plants both of everyday and economic value when entangled networks of mostly untrained naturalists acted in the Indo-Pacific worlds. Because of the vast range of the geographical networks which constituted Isle de France, the island became a 'plantopia' with all sorts of introduced crops suitable for commerce and food. The gardens of Isle de France served as laboratories for experimenting with local and mostly imported plants in the search for remedies, food, and profitable merchandise. Both enterprises required a sensitive balance to be maintained and intensive oeconomic management that coexisted and sometimes clashed both for the collection of plants outside the island but also for their cultivation inside Isle de France.[12]

Consequently, I suggest to use 'useful' plants in the service of Isle de France in two distinct yet entangled ways. On the one hand, I argue that 'useful' plants were to serve the settlers' subsistence. Numerous crops of everyday value were introduced, that is to say, for nourishment, for construction and to a certain extent for healing. In this context, I use 'useful' as in of 'everyday value' that must certainly be understood in Enlightenment thought and the question of improvement as I will elaborate in chapter two. On the other hand, I look at 'useful' plants of economic value as they were envisioned for the island's financial boost. The spice project was to be a source of commerce. This vision coexisted and clashed with the agricultural enterprise. Outside the island, the networks for the quest for food crops and spices in the Indo-Pacific were entangled as chapters two, five and six suggest. Inside the island, both projects competed with each other since settlers were to cultivate both food crops and cash crops, as I will elaborate in chapters three, four and six. The instructions to do so shifted not only once, depending on the island's needs and perceived identities.

While I do consider plants for nourishment and commerce as a means to build and organise eighteenth-century Isle de France, I suggest that the natural world in the Indo-Pacific was not an object of academic study or of main interest for the European market. Plants were not

[12] Ibid.; Lissa Roberts, 'Practicing Oeconomy during the Second Half of the Long Eighteenth Century: An Introduction', *History and Technology* 30, no. 3 (2014): 1–16.

necessarily – though sometimes envisioned – accumulated as a source of profit. Through the lens of the island's local establishment, practice-based knowledge traditions were the main objective. Here, this project asks about 'useful knowledge' regarding the cultivation, treatment, and preparation methods of plants in the service of the island. It was practice-based traditions which made the plants introduced to the island 'useful'. Botany as an umbrella discipline and its numerous sub-branches mutually supported each other. 'Useful' plant knowledge (practical knowledge) was the substance of agriculture, which proved botany to be useful – above all in the colonies for cultivational techniques, handling, and preparation methods for both subsistence and commerce.[13]

'Useful' plant knowledge for cultivation, nourishment, and preparation techniques must be understood broadly as deriving from numerous knowledge providers. When I speak of 'local knowledge', I use the terms to clarify who the knowledge providers in the Indo-Pacific were. They are not used in opposition to Western science, implying a lesser knowledge. As Jorge Cañizares-Esguerra points out, this has been the case even after the recovery of non-Western indigenous science in the 1990s.[14] In my understanding, knowledge about plants must be seen on two levels: 1) On the level of location, climate, soil, and cultivation and 2) on the level of processing for various purposes. Otherwise, how can a plant be considered 'useful' if we do not know how to make *use* of it? 'Useful knowledge' about the tropical natural world was based on skills and knowledge traditions of those who practised it. Voyagers explored and learned from local expertise because local knowledge was crucial for the ways in which plants were cultivated and processed. Regarding agricultural knowledge in particular, Peter Boomgaard argued that 'the role of indigenous informants was at least as important, if not more so, but European researchers [in the late eighteenth century] collecting this type of information were even less inclined than their predecessors to tell us much about them (…).'[15]

For the agricultural and spice project the French relied on 'useful' knowledge about the cultivation of plants – that is to say 'how' to cultivate them (applied knowledge). They gathered this knowledge together with plants in mainly the Indo-Pacific region. For both subsistence and commerce, knowledge about the cultivation of plants was to be applied once both components arrived in the gardens and small farms of Isle de France. The transmission

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[13] André Bourde, *The Influence of England on the French Agronomes, 1750-1789* (Cambridge: Cambridge University Press, 1953), 10.
[14] Jorge Cañizares-Esguerra, 'Iberian Colonial Science', *Isis* 96, no. 1 (2005): 64–70.
[15] Boomgaard, 'Introduction: From the Mundane to the Sublime : Science, Empire, and the Enlightenment, 1760s-1820s', 23.

and practical application was very complex and often had little outcome. I deem it as important to look at the complexities of the individuals involved and how they sought to understand and apply nature for their purposes. As this dissertation illuminates, there were immense practical challenges in knowledge collection, transmission, and application.

These considerations must be understood as a response to economic theories that seek to understand 'usefulness' for Western economic 'growth' and 'progress'. Economic historian Joel Mokyr has brought forward the very theoretical argument that in eighteenth-century Europe, 'useful knowledge' was accumulated and optimised. Here, Mokyr uses the analytical category of 'useful knowledge' for economic progress leading to (British) industrialisation in the second half of the eighteenth-century (what he calls 'industrial Enlightenment').[16] In other words, Mokyr argues that modern economic growth and expansion is the product of applied knowledge. Historians have expressed their two-fold concerns in relation to Mokyr's theory and which I take up for the framework of this dissertation. For one, as Lissa Robert's has put forward, rather than looking at 'the economy' in the eighteenth century both quantitatively and through 'the claimed agency of concepts and philosophical texts', historians are to emphasise the anachronism of 'the economic'. Roberts stressed that it is more apt to explore 'oeconomic practices', that is to say, the hybridity of practices, instruments, and imaginaries within a spatio-temporally situated realm of activity.[17]

For another, Mokyr stresses the role of science and institutions more than the role of markets, mobility and networks.[18] In Maxine Berg's words by focusing on 'improving technologies as they were used (...), Mokyr gives little space to the social framework of artisanal knowledge.'[19] I extend Berg's and Robert's criticism for my case study: on Isle de France as a creole island where knowledge was being produced, forms of knowledge were very distinct and knowledge dynamics tentative and unsettled. They were being created in socio-cultural spaces and places. Though Mokyr admits that Europeans adopted and adapted from non-Europeans, he uses Europe as the main market and mainly focuses on institutions

[16] Joel Mokyr, *The Gifts of Athena: Historical Origins of the Knowledge Economy* (Princeton: Princeton University Press, 2002).
[17] Roberts, 'Practicing Oeconomy': 2.
[18] Liliane Hilaire-Pérez, 'Technology as a Public Culture in the Eighteenth Centry: The Artisans' Legacy', *History of Science* 45 (2007): 137.
[19] Maxine Berg, 'The Genesis of "Useful Knowledge"', *History of Science* 45, no. 2 (2007): 127. Lissa Roberts, Simon Schaffer, and Peter Dear, eds., *The Mindful Hand: Inquiry and Invention from the Late Renaissance to Early Industrialisation* (Amsterdam: Koninklijke Nederlandse Academie van Wetenschappen, 2007); Pamela Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: University of Chicago Press, 2004); Robert Halleux, *Le Savoir de La Main: Savants et Artisans Dans l'Europe Pré-Industrielle* (Paris: A. Colin, 2009).

where knowledge was turned into science arguing for the rise of the West. It is striking, then, that Mokyr's definition of 'useful knowledge' remains 'Western useful knowledge' largely excluding other knowledge systems. So does, as Maxine Berg suggests, Mokyr's *Enlightenment Economy* in which he neglects the wide non-European framework as a component and source of knowledge for 'Western' knowledge and economy.[20]

Mokyr further argues that 'useful knowledge' should be divided into its component parts: *propositional* and *prescriptive* knowledge. He defines *propositional* knowledge as consisting of both what he considers as formal 'scientific' and informal 'tacit' knowledge about natural phenomena and *prescriptive* knowledge as invention both of a recipe or a technique and which is based upon *propositional* knowledge.[21] As Peter Jones has pointed out in relation to that, the 'breadth of the epistemic base is really the key, then, together with environmental conditions that conduce to the interaction of the two types of knowledge' and European travellers in the eighteenth century can be regarded 'as a combination and amalgamation of these knowledge subsets.'[22] 'Useful knowledge' as Mokyr employs the term in *The Gifts of Athena*, must be understood as an 'equipment' that 'we use against nature.'[23] It seems more appropriate to think in terms of interaction between human actors and nature. As Pierre-Etienne Stockland has pointed out, Science and Technology Studies (STS) concerned with environmental history have recently argued for the integration of nature in socio-technological systems.[24] Even if growth-boosting was envisioned with the help of spices yet also agriculture, the projects did not work out because nature, as an omnipresent component of the story, framed the project. General environmental conditions, the plant material itself, and scant knowledge about tropical agriculture dominated the period under review.[25] I deem it important to explore why visions failed or succeeded when they were put in action and how human actors engaged with nature when seeking to make use of the natural world. Rather than

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[20] Joel Mokyr, *Enlightened Economy: An Economic History of Britain 1700-1850* (New Haven: Yale University Press, 2009). Maxine Berg, 'Useful Knowledge, "Industrial Enlightenment", and the Place of India', *Journal of Global History* 8, no. 1 (2013): 117–41.
[21] Mokyr, *The Gifts of Athena*, 4.
[22] Peter M. Jones, *Industrial Enlightenment: Science, Technology and Culture in Birmingham and the West Midlands, 1760-1820* (Manchester: Manchester University Press, 2008), 14.
[23] Mokyr, *The Gifts of Athena*, 284.
[24] Pierre-Etienne Stockland, 'Policing the Oeconomy of Nature: The Oiseau Martin as an Instrument of Oeconomic Management in the Eighteenth-Century French Maritime World', *History and Technology* 30, no. 3 (2014): 1–25. Cf. M. Reuss and S.H. Cutliffe, eds., *The Illusory Boundary: Environment and Technology in History* (Charlottesville: University of Virginia Press, 2010); Ashley Carse, 'Nature as Infrastructure: Making and Managing the Panama Canal Watershed', *Social Studies of Science* (2012): 540-563.
[25] See also Richard H. Grove, *Green imperialism: colonial expansion, tropical island Edens and the origins of environmentalism, 1600-1860* (Cambridge: Cambridge University Press, 1995).

arguing towards humans *against* nature, this project asks about the *interaction* of human and natural powers and how human actors sought to make use of it. Even while French actors were trying to make nature become more and more open to human intervention, they failed to do so most of the time. Both nature and human efforts to transform and use nature profitably framed those efforts being made.

In short, my considerations complicate the picture of an 'industrial Enlightenment' when underpinning the concept of 'learning by doing' and the social, cultural and environmental spaces in which knowledge was collected, adapted and created.[26] This story is also about the very complex application of knowledge that may have been wrongly transmitted and/or wrongly practiced and that meshed with natural conditions 'in the field'. I suggest that knowledge about the cultivation and preparation of plants remained scant, fragile, and unsettled throughout the period under review. In the first place, this story is about a remote island struggling for survival. The project 'Isle de France' together with its botanical establishment was more than complex and was not only once disrupted by environmental conditions: it was vulnerable, to a certain extent chaotic, and came with many obstacles.

Yet, instead of seeing the success or failure of the various botanical projects built around the island, I explore them as performative acts. I highlight disruption rather than continuous development or even progress of social and material practice. The idea of this dissertation is to understand the complexity that came with it. Even while 'useful knowledge' about plants, that is to say their cultivation and use for either subsistence or commerce were accumulated (what plants and what related knowledge), this project seeks to trace how this knowledge was to be applied in the island's context where it faced environmental reality and a lack of experience with tropical agriculture. Instead, as opposed to a smooth progress, this dissertation asks about the island's slow establishment as a process and maintenance for which 'useful' plants were accumulated. I press on the experiential nature and uncertainty of the project by looking closely at particular encounters both outside and inside the island. Therefore, this dissertation regards knowledge and the collection of plants as a complex interplay of local circumstances on the geographical scale of the Indian Ocean and Pacific worlds, including Madagascar, India, Southeast Asia, and China.

To put it differently, this project seeks to analyse the geographical, social, cultural, and natural components of Isle de France in the making and as elements of a long process. I claim

[26] Kenneth Arrow, 'The economic implications of learning by doing', *Review of economic studies* xxix (1962): 155–73. Cf. Berg, 'The Genesis of "Useful Knowledge"': 127.

that Isle de France's botanical establishment was defined by local negotiation practices as well as the local possibilities and limits of their resources and implementation. The colonial agents' work was locally initiated, largely determined by local circumstances and significantly shaped by local if not native knowledge – factors which the metropolitan institutions did not foresee and which were erased over the course of history writing. It is important to stress and understand the complex interplay between these factors, instructions, theoretical plans, imaginations, and 'reality'. There was not a simple dichotomy between visions and reality: rather, one must consider the interaction between these two elements. The expectations and imaginations of the CIO, the royal government, and the actors on the ground could not be simply imposed on the colonies: they interacted with local circumstances.[27]

In sum, this dissertation calls for a revision of 'empire' as well as 'science' by seeking to move further away from the centre-periphery model and to understand what these terms meant for practitioners working and living in the colony. The case of Isle de France provides fertile ground to explore closely the process and maintenance of Isle de France with the help of plants which were to make the island liveable and profitable. Through the lens of the collection and accumulation of plants of feeding and economic value – as localised histories of the plant-related establishment of a French island colony in the Indian Ocean – it asks what the French 'empire' meant on the ground. The major aim of this dissertation is therefore to re-assess the French experience in an island colony from below, that is to say, to understand cultivational practices from the ground up in relation to its local sites, possibilities, and limits, environmental factors, and the social construction of plant-based practice.[28] To this end, I make extensive use of archival documentation informed by those ideas presented in recent and vivid scholarship in colonial history, oceanic history, environmental history, the politics of empire, the history of slavery and labour, and the history of (global) science with its sub-field colonial botany. I seek to combine these approaches in order to reinforce calls for understanding knowledge-making in the colonies as localised processes. Hence, in the present thesis, I am endeavouring to write a more complete, complex, and comprehensive account of

[27] This argument has been used in relation to law and control, which were matters of implementation and negotiations in the colonies (and elsewhere). For instance, see the case of French Louisburg in A. J. B Johnston, *Control and Order in French Colonial Louisbourg, 1713-1758* (East Lansing: Michigan State University Press, 2001); for German *Implementationsforschung* in a regional case, see Achim Landwehr, *Policey im Alltag: Die Implementation frühneuzeitlicher Policeyordnungen in Leonberg* (Frankfurt a.M.Vittorio Klostermann, 2000).
[28] On such an endeavour, see also the plea made by Withers. Charles Withers, *Placing the Enlightenment: Thinking Geographically about the Age of Reason* (Chicago: University of Chicago Press, 2007), 64–65.

the botanical variety of Isle de France in the making than any big study concerned with the French Indian Ocean colony has hitherto attempted.

HISTORIOGRAPHY

EMPIRE, FRENCH EMPIRE, AND THE FRENCH ATLANTIC

Historians of science must open themselves up to historians of empire in general and enter into more meaningful dialogue. Antonella Romano remarked recently that even if history and history of science 'have often dialogued in the pages of the [French journal of history and social sciences] *Annales*, this is not always the case elsewhere.'[29]

Many scholarly works have inspired me to write the history of Isle de France's botanical establishment from below. Behind this decision was not only French colonial history in general, but also global science approaches which seek to establish a contrast with traditional narratives of colonial science. Traditional literature on French colonial expansion (including science in the French empire) has been mainly concerned with big pictures of empire from a top-down perspective. My concern in the context of France's colonial past is two-fold. First of all, the French empire has been mostly written from a euro-centric view and in the form of longue-durée studies, which dismiss the local perspective (that of the colony) in colonial history.[30] Ever since the rise of cultural history in the 1990s, these approaches have been challenged by cultural studies and alternative approaches to colonial histories, namely Nicholas Dirks' *Colonialism and Culture* and Edwards Said's *Culture and Imperialism*.[31]

In the Atlantic context, in their big study *Histoire de l'Amérique Française,* Gilles Harvad and Cécile Vidal trace the evolution and efforts made by the French in North America and Brazil in terms of exploration, population, colonial institutions, commerce, and the building of new identities in colonial society from the seventeenth to the eighteenth centuries: in short,

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[29] Antonella Romano, '*The History Manifesto*, History of Science, and Big Narratives: Some Pending Questions', *Isis* 107 no. 2 (2016): 338-40.

[30] Traditional colonial French historiography includes Robert Cornevin and Marianne Cornevin, *La France et les français outre-mer: de la première croisade à la fin du second empire* (Paris: Hachette, 1993); Jean Meyer et al., *Histoire de la France coloniale. Des origines à 1914* (Paris: Armand Colin, 1991); Philippe Haudrère, *L'empire des rois, 1500-1789*, vol. 1 (Paris: Denoël, 1997); Pierre Pluchon and Denise Bouche, *Le premier empire colonial: Des origines à la Restauration*, vol. 1 (Paris: Fayard, 1991); Alain Saussol and Joseph Zitomersky, eds., *Colonies, territoires, sociétés: L'enjeu français* (Paris: L'Harmattan, 1996).

[31] Nicholas Dirks, ed., *Colonialism and Cutlure* (Ann Arbor: the University of Michigan Press, 1992); Edward W. Said, *Culture and Imperialism* (London: Chatto and Windus, 1993); For a recent edited volume and culture and colonialism in the French empire, see Romain Bertrand, Hélène Blais, and Emanuelle Sibeud, eds., *Cultures d'empires: Échanges et affrontements culturels en situation coloniale* (Paris: Karthala, 2015).

they provide a more nuanced portrait of French Atlantic colonies.[32] In his comparative study *In Search of Empire* on French Canada, Louisiana, and the Caribbean from the 1670s to the 1730s, James Pritchard addresses the question of identity building, concluding that the French found their prey elusive rather than a coherent 'empire'.[33] Saint-Domingue (Haiti) became more and more popular as a test-site for alternative approaches, particularly in light of the Haitian revolution, as well as new histories of slavery in the French Atlantic context.[34]

Using Allan Potofsky's words, Christopher Hodson and Brett Rushforth characterised research on the French Atlantic as the 'poorer cousin' of British and Iberian Atlantic scholarship.[35] Though no longer new, the growing body of research on the French Atlantic context remains spotty while still struggling to build an antipode to notions of static rule. Such lacunae are even worse regarding the French Indian Ocean: rather than a 'poor cousin', it is an 'embryo', but this means it has lots of potential. Interest in the Mascarene Islands remains limited and draws little attention in studies concerned with the French empire overall. Even the most recent overview *L'empire colonial français de Richelieu à Napoléon* only peripherally touches upon the islands in the Indian Ocean; the Atlantic colonies remain the main actors in the story.[36]

Approaches brought forward by historians in the British colonial context, namely to understand empire-building through networks, collaboration, and mediation, have only slowly entered the context of the first French empire. At a very slow rate, scholars have started to investigate the French Indian Ocean from different angles instead of focusing on purely commercial or geopolitical matters connected with the CIO, such as the works by Philippe Haudrère.[37] For about a decade, the Mascarenes have been put on the map regarding the slave trade, above all by Richard Allen who has argued for the important role of the Mascarene

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[32] Gilles Havard and Cécile Vidal, *Histoire de l'Amérique Française* (Paris: Flammarion, 2014) (2003).
[33] James Pritchard, *In Search of Empire: The French in the Americas, 1670-1730* (Cambridge: Cambridge University Press, 2007), 263.
[34] For the most recent study which gives agency to people of colour in the context of the revolution, see Bernard Gainot, *La Révolution des Esclaves: Haïti, 1763-1803* (Paris: Vendémiaire, 2017); On slaving systems and the lives of individual slaves, see Brett Rushforth, *Bonds of Alliance: Indigenous and Atlantic Slaveries in New France* (Chapel Hill, NC: University of North Carolina Press, 2012).
[35] Christopher Hodson and Brett Rushforth, 'Absolutely Atlantic: Colonialism and the Early Modern French State in Recent Historiography', *History Compass* 8, no. 1 (2009): 101.
[36] Bernard Gainot, *L'empire colonial français de Richelieu à Napoléon (1630-1810)* (Paris: Armand Colin, 2015).
[37] Philippe Haudrère, *La Compagnie Française Des Indes au XVIIIe siècle*, Seconde édition revue et corrigée (Paris: Indes savantes, 2005); Philippe Haudrère, *Les Français dans l'océan Indien, XVIIe-XIXe siècle* (Rennes: Presses universitaires de Rennes, 2014).

Island in slaving voyages.[38] While scholars inspired by postcolonial theories in other imperial contexts have started to rethink and reframe the history of the Indian Ocean together with its colonies, it is dominated by the British context in India or subaltern approaches.[39]

Likewise, eighteenth-century French India has attracted little interest when it comes to testing new approaches. One exception is Danna Agmon's PhD thesis on the interplay between traders, missionaries, and go-betweens in Pondicherry and beyond.[40] The *Outre mers* special issue on *L'Inde et les Français: pratiques et savoirs coloniaux* (2015) likewise has enriched the field with several essays on the paradoxes when colonial visions were confronted with local reality in French India.[41] Other projects and large studies are in the making, such as Damien Tricoire's habilitation on Enlightenment, knowledge, and French-Malagasy relations ('Der koloniale Traum. Aufklärung, Wissen und die französisch-madagassischen Begegnungen der Frühen Neuzeit') at the University of Halle-Wittenberg (Germany).[42]

Only recently have dynamic works started to think beyond the big elephant in the room called 'empire' and invited us to re-examine colonial history from the view of the so-called 'peripheries'. In our collective memory, 'empire' worked in one direction and made us believe in imperial-national categories in order to map and understand the dynamics on a normative basis. Such an approach is easier to apply since one can rely on normative and administrative sources written by people who did not experience the 'periphery' at first hand. Contrasting these views, I regard 'empire' not necessarily as 'empire' or 'colonial'. Rather, I claim that for those in the colonies it was a settler home built according to local possibilities and limits. For that reason, the aim of this dissertation is to break down 'empire', colonial projects, plant accumulation, networks, the 'local', and slavery as coherent or fixed categories in the context of Isle de France. Inspired by recent outstanding studies in the Atlantic context,

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[38] Richard B. Allen, *The Mascarene Slave-Trade and Labour Migration in the Indian Ocean during the Eighteenth and Nineteenth Centuries* (London: Frank Cass, 2003); Richard B. Allen, 'The Constant Demand of the French: The Mascarene Slave Trade and the Worlds of the Indian Ocean and the Atlantic during the Eighteenth and Nineteenth Centuries', *The Journal of African History* 49, no. 1 (2008): 43–72; Richard B. Allen, *European Slave Trading in the Indian Ocean, 1500-1850* (Athens: Ohio University Press, 2014).

[39] Christopher A. Bayly, *Empire & Information: Intelligence Gathering and Social Communication in India, 1780-1870* (Cambridge: Cambridge University Press, 1999); Aśīna Dāsa Gupta, *The World of the Indian Ocean Merchant, 1500-1800 : Collected Essays of Ashin Das Gupta* (New Delhi: Oxford University Press, 2001); Sanjay Subrahmanyam, ed., *Maritime India* (New Delhi: Oxford University Press, 2004).

[40] Danna Agmon, 'An Uneasy Alliance: Traders, Missionaries and Tamil Intermediaries in Eighteenth-Century French India' (PhD Thesis, University of Michigan, 2011).

[41] Julie Marquet and Blake Smith, eds., 'Introduction: L'Inde et les Français: Pratiques et savoirs coloniaux', *Outre-Mers. Revue Historique* 388–389 (2015): 5–18.

[42] Damien Tricoire's publications on French Madagascar in the Enlightenment are forthcoming in 2017, cf. http://www.geschichte.uni-halle.de/mitarbeiter/tricoire/publikationen/, last retrieved 27 March 2017.

particularly through the lens of slavery in relation to the production of natural knowledge and the practice of agriculture, this project breaks down social orders and established models of slaves, locals, and indigenous peoples vs. Europeans.[43] In the context of slavery and colonisation in the eighteenth-century French Empire, Madeline Dobie's research on *Trading Places: Colonization and Slavery in Eighteenth-century French Culture* offers a new and vivid take on tropical raw materials and economic liberalism.[44] Dobie's work, together with the recent volume *French Global: A New Approach to Literary History*, which also contains several essays on French science, can serve as sources of inspiration for historians of science.[45]

While the interest in the history of France's colonial past has been renewed, in the French Indian Ocean context there are very few studies on the French island colonies which engage with innovative historiographical approaches inspired by slavery, cultural or legal history. Those available include Megan Vaughan's work on eighteenth-century Isle de France, Sue Peabody's examination of legal issues in the Mascarenes, and Mélanie Lamotte's study on colour prejudice, in which she even crosses the oceanic division between the Indian Ocean (Isle de Bourbon) and the Atlantic colonies (Guadeloupe, French Louisiana) by following a comparative and trans-imperial network approach.[46] Most prominently, in *Green Imperialism*, Richard Grove has vividly demonstrated that, for Isle de France, there was indeed a tension between Edenic visions of the island and its vulnerability. Because of heavy deforestation throughout the seventeenth and first half of the eighteenth centuries, difficult, indeed dangerous, environmental and climate conditions were the colonial reality. Particularly because of cyclones, the island remained extremely vulnerable, which Poivre sought to balance with new environmental-orientated and local management.[47]

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[43] For most recent studies see Gómez, *The Experiential Caribbean*; Londa L. Schiebinger, *Secret Cures of Slaves: People, Plants, and Medicine in the Eighteenth-Century Atlantic World* (Stanford: Stanford University Press, 2017).
[44] Madeleine Dobie, *Trading Places: Colonization and Slavery in Eighteenth-century French Culture* (Ithaca and London: Cornell University Press, 2010).
[45] Christie McDonald and Susan Rubin Suleiman, eds., *French Global: A New Approach to Literary History* (New York: Columbia University Press, 2011).
[46] Megan Vaughan, *Creating the Creole Island: Slavery in Eighteenth-Century Mauritius* (Durham: Duke University Press, 2005); Sue Peabody, *Madeleine's Children: Family, Freedom, Secrets and Lies in France's Indian Ocean Colonies, 1750-1850* (Oxford: Oxford University Press, forthcoming); Mélanie Lamotte, *Before Race Mattered: Ethnic Prejudice in the French Empire, C. 1635-1767*, in progress.
[47] Grove, *Green imperialism*.

The history of the French Mascarenes, however, has been mostly neglected in recent scholarship.[48] Indian Ocean islands in general have only slowly started to enter scholarship, and mainly in terms of the nineteenth and twentieth centuries, such as Sujt Sivansundaram's study on nineteenth-century Ceylon (present-day Sri Lanka).[49] Narrative studies on the eighteenth-century Mascarenes are outdated and were written in the early twentieth century or in the1960s and 1970s; historians Auguste Toussaint and Madeleine Ly-Tio-Fane must certainly be mentioned for their extensive knowledge of the islands' history.[50] Nonetheless, the historiographical record concerned with the Indian Ocean colonies is spotty and, alas, still rooted in grand narratives of empire. All of these studies remain almost totally beyond the socio-cultural and geographical reach which I propose in the context of my thesis.

ABSOLUTE POWER OVER THE COLONIES?

'"Governance" is not a pretty word', as Lissa Roberts put it: 'too often it conjures images of bureaucratized processes aimed at managing society and "the economy" in line with a particular political vision'.[51] Theories of imperial governance have been written from the view of the state and the success of empire, which led to theories of knowledge production in relation to imperial institutional and non-institutional hybrids. Although some historians have admitted that this scientific-colonial apparatus did indeed break down at times and that institutions had a much lesser degree of influence in distant colonies, French historiography still lacks concrete and substantial case studies; concerned with the Indian Ocean in general and studies concerned with approaches from below in particular. Inspired by Michel Foucault's concept of 'governmentality', that is to say, the means through which a state sought to govern the conduct of both individuals and populations, let us reverse the

[48] Important exceptions are Roberts, '"Le Centre de Toutes Choses"' and Stockland, 'Policing the Oeconomy of Nature'.
[49] Sujit Sivasundaram, *Islanded: Britain, Sri Lanka, and the Bounds of an Indian Ocean Colony* (Chicago: University of Chicago Press, 2013).
[50] Auguste Toussaint, *Port-Louis, deux siècles d'histoire 1735-1935* (Port-Louis: Impr. de la Typographie moderne, 1936); Auguste Toussaint, ed., *L'Administration française de l'Ile Maurice et ses archives, 1721-1810* (Port Louis: imp. commerciale, 1965); Auguste Toussaint, *Histoire des îles Mascareignes* (Paris: Berger-Levrault, 1972); Madeleine Ly-Tio-Fane, *Mauritius and the Spice Trade: The Odyssey of Pierre Poivre;* (Port Louis: Esclapon, 1958); Madeleine Ly-Tio-Fane, *Mauritius and the Spice Trade: The Triumph of Jean Nicolas Céré and his Isle Bourbon Collaborators.* (Paris: Mouton, 1970).
[51] Lissa Roberts, 'Producing (in) Europe and Asia, 1750–1850', *Isis* 106, no. 4 (2015): 862.

perspective: what if we assume that those working in the colonies rather aimed at building up their own identity and life?[52]

While it might be true that the French scientific institutions were highly bureaucratised and gained governmental support, this has led to the assumption that metropolitan power in the colonies was absolutist. Consequently, historians of the French empire took this bureaucratisation for granted without questioning the actual implementation of governmental rule. Historians of colonial science have started to criticise such approaches and dismantled colonial expansion and state centralisation. Instead, they now argue that while metropolitan governments attempted to control the colonies, they were increasingly slipping out of their fingers. Scholars have started to argue that the process and management of knowledge production were multi-centred dynamics of building and organising an empire, but concrete and substantial case studies remain fragmented or are simply absent.[53] Scholars working on the fields of the world or global history of science have started to shed much needed light on the large-scale historical phenomena of empire, thus challenging the established narrative of science and colonialism spreading from the metropolis to the colonies. So too have historical anthropologists, such as François Richard in the context of colonial nineteenth-century Senegalese village landscapes.[54] Historical archaeologist Dan Hicks has explored colonial islands and the question of improvement in the British Atlantic, with a particular focus on sugar plantations on the eighteenth-century Leeward Islands. Hicks insists that landscape and conceptions of materiality can help to broaden our perspectives, which allow us to move away from centralised views focused on a nation and, in his case, 'Britishness'.[55] In accordance with Hick's approach and lending weight to Lissa Robert's work on eighteenth-century Isle de France, I argue against centralisation and the 'Frenchness' of the Indian Ocean enterprise.[56]

State-driven colonial science with its sub-field of colonial botany emerged in the late 1990s, inspired by imperial history, post-colonial theories and the history of science. It was

[52] Michel Foucault, *Sécurité, Territoire, Population: Cours au Collège de France, 1977-1978*, ed. Michel Senellart (Paris: Seuil, 2004), 111–12.
[53] Roberts, '"Le Centre de Toutes Choses". See also the omnibus László Kontler et al., eds., *Negotiating Knowledge in Early Modern Empires. A Decentred View* (Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2014).
[54] François G. Richard, 'Hesitant Geographies of Power: The Materiality of Colonial Rule in the Siin (Senegal), 1850-1960', *Journal of Social Archaeology* 13, no. 1 (2012): 54–79.
[55] Dan Hicks, '"Material Improvements": The Archaeology of Estate Landscapes in the British Leeward Islands, 1713-1838', in *Estate Landscapes: Design, Improvement and Power in the Post-Medieval Landscape*, eds. F. Giles and J. Finch (Woodbridge: Bowdell and Brewer, 2008), 205–27.
[56] Roberts, '"Le Centre de Toutes Choses"'.

rooted in European diffusion models and considered a tool of empire: it has only slowly re-examined as local processes.[57] As part of that narrative, the exploration, introduction, and naturalisation of plants for human profit went hand in hand with their implications in the colonies: this has attracted much historical interest, but mainly from the state's perspective and with a focus on the Atlantic. This simplistic narrative about botany and empire ignores the complex and entangled interplay of plant transfer, environment, and people by suggesting a coherent and smooth picture for the travel of plants. In the wider French colonial science context, historians James McClellan and François Regourd fall into this trap. They refer to the French scientific-colonial administration as the 'colonial machine' – a metaphor which suggests absolutist state-driven power in distant colonies.[58] Despite the rich and detailed presentation of scientific-colonial institutions, *The Colonial Machine* is more than problematic and subordinates colonies to institutions, a view which entirely dismisses the local (colonial) perspective. In works by James McClellan in the French Atlantic context and Richard Drayton in the British context, 'knowledge and empire' suggest an unproblematic interrelation between the interests of the state and its actors and their contribution to the rule of imperial space, its resources and people.[59]

Early modern historians of science have started to mirror the French case and test the 'machine' in context, namely Loïc Charles and Paul Cheney, who dismantled the colonial machine by investigating knowledge production in the French Atlantic, and Lissa Roberts, who argued against the centralisation of eighteenth-century Isle de France.[60] With their articles, these historians of science have provided glimpses into the history of the French scientific-colonial system distinct from the simplistic portrayal of a centralised and absolutist control over science in the colonies. Very recently, Karel Davids raised the point that the particular metaphor of a 'machine' in this context allows one to appreciate that a machine is not run from above but from below. Davids suggests that it would be more appropriate to consider flows of knowledge as a matter of 'self-organisation' and that an examination of networking from below 'is a vital complement to the "machine" metaphor if we want to get a

[57] Valentina Pugliano, 'Non-Colonial Botany Or, the Late Rise of Local Knowledge?', *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 40, no. 4 (2009): 322.
[58] McClellan and Regourd, *The Colonial Machine*.
[59] This critical point is also made by Charles and Cheney, 'The Colonial Machine Dismantled': 130.
[60] Ibid.; Roberts, '"Le Centre de Toutes Choses"'.

better understanding of the global traveling of knowledge'.[61] Davids raised this point in relation to knowledge transmission, an argument with which this thesis is certainly in agreement.

In other colonial contexts, governmentality and its implementation, which were also challenged by global approaches, have been tested. In relation to Iberian science in particular, Robert Aguirre most recently studied the complex interaction between policies and archaeology in the Spanish Americas.[62] Like in the French case, Spanish historiography is dominated by studies focusing on the Atlantic. Not only are the works by Jorge Cañizares-Esguerra of particular importance here, since he underlines the importance of indigenous contributions to the exploration of the Spanish colonies in the Atlantic, but so are those by Antonio Barrera-Osorio.[63] Focusing on sixteenth-century New Spain, Barrera-Osorio argues that empirical science, influenced by the Atlantic world over the course of the sixteenth century, served the interests of the nation state and its empire only once institutionalised.

Historians of empire in other national contexts have started to reframe narratives about 'empire' and the establishment and role of the European trading companies: take, for instance, Philip Stern's examination of the British empire in India.[64] Focusing on British India, scholars have long insisted that the British establishment in India was deeply fragile and fostered chaos rather than coherent rule or central authority.[65] Similarly, historians of the Spanish empire have argued for a while now that the Spanish system of governance was by no means absolutist but instead a matter of local negotiation and local autonomy; the system was flexible rather than fixed.[66] For instance, focusing on the cod trade, Regina Grafe's book *Distant Tyranny* broke new ground by understanding state formation and market integration

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[61] Karel Davids, 'On Machines, Self-Organization, and the Global Traveling of Knowledge, circa 1500–1900', *Isis* 106, no. 4 (2015): 867.

[62] James McClellan, *Colonialism and Science: Saint Domingue in the Old Regime* (Chicago: University of Chicago Press, 2010); Robert D'Aguirre, *Informal Empire: Mexico and Central America in Victorian Culture* (Minneapolis: University of Minnesota Press, 2005).

[63] Jorge Cañizares-Esguerra, *Nature, Empire, and Nation: Explorations of the History of Science in the Iberian World* (Stanford: Stanford University Press, 2006); Barrera-Osorio, *Experiencing Nature*; Antonio Barrera-Osorio, 'Experts, Nature, and the Making of Atlantic Empiricism', in *Expertise: Practical Knowledge and the Early Modern State*, ed. Eric H. Ash, *Osiris* 25 (2010), 129–48.

[64] Philip J. Stern, *The Company-State : Corporate Sovereignty and the Early Modern Foundations of the British Empire in India* (Oxford: Oxford University Press, 2011).

[65] Jon E. Wilson, *India Conquered: Britain's Raj and the Chaos of Empire* (London: Simon & Schuster UK Ltd, 2016); See also Shashi Tharoor, *Inglorious Empire. What the British Did to India* (London: Hurst & Co. Publ. Ltd., 2017).

[66] Examining revenues in the Spanish peninsular and colonies, to name one example, Alejandra Irigoin and Regina Grafe confirmed that even though the crown acted as the ultimate arbiter, it barely controlled the system: see Alejandra Irigoin and Regina Grafe, 'Bargaining for Absolutism: A Spanish Path to Nation-State and Empire Building', *Hispanic American Historical Review* 88, no. 2 (2008): 173–209.

as a long and regionally diverse process. She offers a lively demonstration of the territorial division of political authority, that is to say, the impact of peripheral historic territories and powerful towns in the Spanish interior as opposed to powerful Madrid.[67]

To give another example in the Iberian context and on the question of implementation, Catarina Madeira Santos underlined for the case of mid-eighteenth-century Angola that political models had to be unpacked when confronted with local circumstances in Africa.[68] To name an example for the case of sixteenth-century Habsburg Spain, Arndt Brendecke examined the close relation between power and information, which the Spanish court sought to control through questionnaires in the Spanish Americas: he admits that the system did break down from time to time.[69] This has been long examined in the Portuguese context: Lars Myrup's recent book *Power and Corruption in the Early Modern Portuguese World* insists that the Portuguese empire consisted of extensive networks underneath formal institutions: both allowed the crown to rule from afar and simultaneously lead to a decentralisation of the crown's authority.[70]

Guiseppe Marocci recently proposed that historians of early modern empire would benefit from detaching empires from their European trajectories and focusing on trans-imperial connections across the world instead.[71] Indeed, the Spanish, Portuguese, and British cases invite us to reconsider the metanarrative of the French centralised and absolutist state and its legacy in the colonies. In the context of French New Orleans, Shannon Dawdy argued that 'colonialism [was] fundamentally experimental and usually poorly controlled' and historians of the French Atlantic have welcomed this more flexible perspective, which has long influenced scholarship on Old Regime France under Louis XIV.[72] These studies reveal the

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[67] Regina Grafe, *Distant Tyranny: Markets, Power, and Backwardness in Spain, 1650-1800* (Princeton: Princeton University Press, 2012).

[68] Catarina Madeira Santos, 'Administrative Knowledge in a Colonial Context: Angola in the Eighteenth Century', *The British Journal for the History of Science* 43 (2010): 539–56.

[69] Arndt Brendecke, *Imperium und Empirie: Funktionen des Wissens in der spanischen Kolonialherrschaft* (Köln: Böhlau, 2009).

[70] Erik Lars Myrup, *Power and Corruption in the Early Modern Portuguese World* (Baton Rouge: Lousiana State University Press, 2015); According to reviewer Bryan Givens, Myrup follows rather banal arguments in terms of human relationships, which has long been demonstrated in Portuguese historiography, cf. Bryan Givens, 'Review of Erik Lars Myrup, Power and Corruption in the Early Modern Portuguese World', *Bulletin for Spanish and Portuguese Historical Studies* 40, no. 1 (2015): Article 10.

[71] Guiseppe Marocci, 'Too Much to Rule: States and Empires across the Early Modern World', *Journal of Early Modern History* 20 (2016): 511–25.

[72] Shannon Lee Dawdy, *Building the Devil's Empire: French Colonial New Orleans* (Chicago: University of Chicago press, 2008), 18. For an overview see James Collins, *The State in Early Modern France* (Cambridge: Cambridge University Press, 1995); For studies on the French provinces see William Beik, *Absolutism and Society in Seventeenth-Century France: State Power and Provincial Aristocracy in Languedoc* (Cambridge:

complexity of colonial rule, communication, and negotiation practices, which are also mirrored in a fine study related to the French context, namely Kenneth Banks' study about the fragility and breakdown of communication *Chasing Empire Across the Sea: Communications and the Sate in the French Atlantic, 1713-1763*.[73] As Benjamin Steiner highlighted in his recent work on *Colberts Afrika*, there was indeed a strong tension between local peripheries and global centres of power. Steiner argues that the individual actors in an early modern state were not subordinated to a coherent 'idea' or imagination of the 'state', but were built on familial networks.[74]

SCIENCE AND EMPIRE OR GLOBAL SCIENCE?

Viewing knowledge-making as a decentred matter has indeed entered the discipline, sometimes via a comparative perspective. The recent edited volume on *Negotiating Knowledge in Early Modern Empires* seeks to underline this with its various essays rooted in decentralised approaches or the special issue on 'Accumulation and management in global historical perspective'.[75] Knowledge-making in the European empires has very slowly been claimed as a decentralised process. Mutually dependent, scholars have hence started to search for alternatives, particularly in terms of 'global science' and deep histories. The lively debate about science and empire is crucial, and several unresolved problems remain. This is also the case in current narratives of science, which stress cross-cultural exchanges in knowledge-making while seeking to open up new pathways. The Atlantic context dominates the field: only very few historians of science engage with the French Indian Ocean while drawing attention to the political and scientific context. To name an exception, Stéphane Van Damme examined the case of the first French 'field Indianist' Abraham Hyacinthe Anquetil-Duperron, who sought to gather manuscripts in south India while relying on an extensive network of

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Cambridge University Press, 1985); Gail Bossenga, *The Politics of Privilege: Old Regime and Revolution in Lille* (Cambridge: Cambridge University Press, 1991); See also Hodson and Rushforth, 'Absolutely Atlantic'.

[73] Though not primarily concerned with science and empire, Banks' study on the fragility of the imperial system is a rare exception in the French context: see Kenneth J. Banks, *Chasing Empire Across the Sea: Communications and the State in the French Atlantic, 1713-1763* (Montreal: McGill-Queen's University Press, 2002).

[74] Benjamin Steiner, *Colberts Afrika: Eine Wissens- und Begegnungsgeschichte in Afrika im Zeitalter Ludwigs XIV* (München: De Gruyter Oldenbourg, 2014).

[75] Kontler et al., *Negotiating Knowledge in Early Modern Empires. A Decentred View*; Lissa Roberts, 'Accumulation and Management in Global Historical Perspective: An Introduction', *History of Science* 52, no. 3 (2014): 227–46.

mediators.[76] In the British Indian context, Kapil Raj's study on mapmaking was certainly ground-breaking: here, he unveiled the interplay between local scientists, mediators, Europeans and the discourse which geographical surveys entered.[77]

The Western historiography of science itself has long traditions and narratives which need to be historicised. What began in the Cold War period with diffusion models from the Western centre to the non-Western periphery continued over the 1980s and 90s with the recognition that colonial science was a tool of empire building and a complex matter of non-European and European collaboration. The need for a global science emerged from various critiques of the domination of Western material, which was closely linked to the history of European imperialism. While the common belief in the singularity of science was rising, the master narrative 'the West and the rest' provoked counter-narratives.[78] There is no question that the history of science played a significant role in this master narrative.

Up to the 1960s, it was commonly believed that modern science is based exclusively on Western inventions and, consequently, the interaction with Europeans and their native field gained little interest.[79] George Basalla's model of the Eurocentric diffusion of science from a Western centre to the Eastern periphery has long lost its validity, yet it keeps on popping back up, particularly in our current political climate with conservative clouds high up in the sky.[80] Basalla's article had a great impact on the discipline and initiated a lively debate. Counter-questions were raised which included the demand for different kinds of sciences, new interpretations between geographical and territorial spaces, and the historiographical treatment of the 'local'. Historians of science widely agree on the circulatory property of knowledge.[81] This approach has challenged the institutionalisation and social bounds of science-making, arguing towards connected histories and go-betweens of science as a

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[76] Stéphane Van Damme, 'Capitalizing Manuscripts, Confronting Empires: Anquetil-Duperron and the Economy of Oriental Knowledge in the Context of the Seven Years' War', in *Negotiating Knowledge in Early Modern Empires. A Decentred View*, eds. Kontler et al., 109–28.
[77] Kapil Raj, *Relocating Modern Science : Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900* (Basingstoke, New York: Palgrave Macmillan, 2007).
[78] Niall Ferguson, *Civilization: The West and the Rest* (New York: Penguin Press, 2011); Marwa Elshakry, 'When Science Became Western: Historiographical Reflections', *Isis* 101, no. 1 (2010): 107.
[79] Nicholas B. Dirks, 'Colonial Histories and Native Informants: Biography of an Archive', in *Orientalism and the Postcolonial Predicament: Perspectives on South Asia*, eds. Carol A. Breckenridge and Peter van der Veer (Philadelphia: University of Pennsylvania Press, 1993), 279–313.
[80] George Basalla, 'The Spread of Western Science', *Science* 156, no. 3775 (1962): 611–22.
[81] This observation was made by James Secord some years ago; James A. Secord, 'Knowledge in Transit', *Isis* 95, no. 4 (2004): 655.

practice.[82] While the global science literature tries to overcome the challenge of the 'West and the rest' by looking at the contribution of non-Western cultures to Western science, such approaches nonetheless reinforce the geography of metropolitan centres and colonial peripheries.[83]

In the late 1990s, works in Western Europe emerged in various national contexts which shed new light on colonial science and critically reviewed the literature in the field.[84] There is now a whole subfield exploring the connection between science and empire which has shifted from 'post-colonial' to 'global' approaches. Scholarly works on science and empire largely focus on the (French) Atlantic.[85] The field of colonial science is still rather fragmented and can be seen as a consequence of the socio-cultural turn in historiography. In other words, there has been a shift from the theoretical framework to the practice of science, which has also led us to rethink the 'rise of Western science and modernity' and the question of geography and identity. In this context, and as Valentina Pugliano observed, Alix Cooper's study *Local Knowledge and Natural History in Early Modern Europe* can be seen as a response to the current trends in Anglophone scholarship, namely the interplay between the exotic and the indigenous by revealing the rediscovery of local natural resources: this is natural history as 'located knowledge'.[86]

In order to overcome global challenges, some historians have considered using the label 'contact zone', a term introduced by Mary Louise Pratt to understand the formation of identities of human agents in imperial travel literature.[87] The popular label 'contact zone' has

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[82] Kapil Raj, 'Beyond Postcolonialism … and Postpositivism: Circulation and the Global History of Science', *Isis* 104, no. 2 (2013): 342–43.

[83] See also on the criticism Withers, *Placing the Enlightenment*.

[84] Marie-Noëlle Bourguet and Christophe Bonneuil, 'Présentation', *Revue Française D'histoire D'outre-Mer* 86 (1999): 7–38; Richard Drayton, 'Science, Medicine and the British Empire', in *The Oxford History of the British Empire*, ed. Robin W. Winks, 5 vols (Oxford: Oxford University Press, 1999), 264–76; Juan José Saldaña, ed., *Science in Latin America: A History* (Austin: University of Texas Press, 2006) (Original version in Spanish 1996).

[85] François Regourd, 'Sciences et colonisation sous l'Ancien Régime: Le cas de la Guyane et des Antilles françaises, XVIIe–XVIIIe Siècles' (PhD Thesis, Michel de Montaigne Bordeaux 3, 2000); McClellan, *Colonialism and Science Saint Domingue*. Beyond the French context, see also James Delbourgo and Nicholas Dew, eds., *Science and Empire in the Atlantic World* (New York: Routledge, 2008); Neil Safier, *Measuring the New World: Enlightenment Science and South America* (Chicago: University of Chicago Press, 2008).

[86] Alix Cooper, *Inventing the Indigenous Local Knowledge and Natural History in Early Modern Europe: Local Knowledge and Natural History in Early Modern Europe* (Cambridge: Cambridge University Press, 2007); See also Valentina Pugliano, 'Non-Colonial Botany'.

[87] Pratt introduced the 'contact zone' and inspired further works, Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (London: Routledge, 1992); Kapil Raj, 'The Historical Anatomy of a Contact Zone: Calcutta in the Eighteenth Century', *Indian Economic & Social History Review* 48, no. 1 (2011): 55–82; Elizabeth Green Musselman, 'Indigenous Knowledge and Contact Zones: The Case of the Cold Bokkeveld Meteorite, Cape Colony, 1838', *Itinerario* 33, no. 01 (2009): 31–44; See also James McClellan, 'Science &

been critically reviewed by historians such as Lissa Roberts and Kapil Raj, who suggested that not only 'contact' took place.[88] Rather, such zones must be seen as

> spaces in which asymmetrical relations might be (at least temporarily) suspended or modified in favour of more local economies of dependence and interests. This allowed for a kind of geographically based displacement, in which local needs and desires shaped exchanges in ways that did not always reflect developing power relations writ large and which afforded results that could have a highly productive impact on scientific (or other "western") development(s).[89]

As a different label for such encounters, James Delbourgo used the term 'middle ground', which was introduced in the classic by Richard White on the early modern Great Lakes Region. Focusing on the eighteenth-century Caribbean region, where political, commercial and socio-cultural relations were being negotiated, Delbourgo argues that individuals moved in and beyond the region, thus mediating materials and knowledge and shaping European systems of knowledge.[90]

Historians of science have started to look for alternative approaches that allow us to appreciate several kinds of knowledge. One methodological approach for overcoming source problems has been to emphasise the mobility and circulation of knowledge.[91] This approach has challenged the institutionalisation and social boundaries of science-making and has argued for connected histories and go-betweens of science as a practice, namely the Go-betweens project, which fostered important studies along those lines.[92] As Chambers and Gillespie argue, science in the colonies relied on local cross-cultural networks with different centres and peripheries as well as regional specifies, and was a process and product shaped by local circumstances.[93] To link localities with one another, that is to say through local production, interpretation, appropriation, reinterpretation, and modification, James Secord has developed a concept which allows us to regard this process as a continuous path with various

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Empire Studies and Postcolonial Studies: A Report from the Contact Zone', in *Entangled Knowledge: Scientific Discourses and Cultural Difference*, ed. Klaus Hock and Gesa Mackenthun (Münster: Waxmann, 2012), 51–74.

[88] Lissa Roberts, 'Situating Science in Global History: Local Exchanges and Networks of Circulation', *Itinerario* 33, no. 1 (2009): 9–30; Raj, 'The Historical Anatomy of a Contact Zone Calcutta in the Eighteenth Century'.

[89] Roberts, 'Situating Science in Global History', 14.

[90] James Delbourgo, 'Fugitive Colours: Shamans' Knowledge, Chemical Empire and Atlantic Revolutions', in *The Brokered World,* eds. Schaffer et al.; Richard White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650-1815* (Cambridge: Cambridge University Press, 1991).

[91] Safier, 'Global Knowledge on the Move': 136; On the transfer of knowledge in the Atlantic world, see Delbourgo and Dew, eds., *Science and Empire*.

[92] Schaffer et al., *The Brokered World*; See also Alida C. Metcalf, *Go-Betweens and the Colonization of Brazil, 1500-1600* (Austin: University of Texas Press, 2005).

[93] David Wade Chambers and Richard Gillespie, 'Locality in the History of Science: Colonial Science, Technoscience, and Indigenous Knowledge', in *Nature and Empire: Science and the Colonial Enterprise* ed. Roy MacLeod, *Osiris* 15 (2000): 223.

local contact and exchanges.[94] In other words, it was, as Secord puts it, 'knowledge in transit' and, in my understanding, a literal and intellectual transplantation of knowledge-practice as opposed to a simple collection of knowledge. Rather than simply comparing them, I consider the transmission and transition of knowledge as a work in progress.

The current trend is to regard knowledge production as a hybridised process. As a study *par excellence*, Anna Winterbottom's very recent book *Hybrid Knowledge in the Early East India Company World*, which covers ethnography to agriculture in different parts of the world from the late seventeenth to the early eighteenth centuries, explores the linkages between learned societies, commerce, and non-elite actors contributing to knowledge transmission.[95] In the Indian Ocean context, Lauren Minsky radically removes the strict limitations of conventional geopolitical spatial categories, such as empire, colony, civilisation, and area study. She puts forward the healing cult dedicated to Khizr, an enigmatic water saint and patron of the Sufis, as an example of a sacred geography of healing in the wider Indian Ocean that could act as a basis for writing global histories of science, technology, and medicine outside common national or geographical frames.[96] By doing so, Minsky argues for a better understanding and appreciation of non-Europeans (and amongst those the non-elites) during the early modern period.

Even though the global turn did widen our perspective, only a few works can be considered 'global'. I am very hesitant with this term. Globalisation is a theory and can likely be confusing because it is 1) not clear if it actually lead to something homogenous and universal while flattening everything out and 2) it reinforces the local by separating and distinguishing it from the universal. It is as difficult to use static categories as it is to use no categories or messy definitions. I am hesitant with the term 'global' for various reasons, which I explain in the following.

First but foremost, the term is wishy-washy, and it has never become clear to me what it actually means. Built around Isle de France, the European search for useful plants was not a 'science' or a joint project to which all parties contributed equally. Instead, locals/indigenous peoples decided to contribute (or not) to the service of colonial attempts, while at the same time they had to consider if it was lucrative (both economically and politically) for them or

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[94] Secord, 'Knowledge in Transit': 654–72.
[95] Anna Winterbottom, *Hybrid Knowledge in the Early East India Company World* (Houndmills, Basingstoke, Hampshire: Palgrave MacMillan, 2016).
[96] Lauren Minsky, *Cultivating Health: Commercial Agriculture, Material Religion, and Collective Healing in the Punjab from Late Medieval to Modern Times* (book manuscript in progress).

not. It would be false to detach the underlying reasons, as it is also false to detach the importance of indigenous and local informants and knowledge providers in the colonial context. These contributions, however, were lost over the course of transplantations, printed records, and history writing. It is thus of great importance to look at accounts on the ground, into archival material related to the spice voyages. Here, we see that Europeans relied heavily on local informants: sometimes they are mentioned with their name and praised for their service to the spice quest.

Rather than the term 'global' knowledge, I use the term 'cross-cultural'. The previous leads to confusion and is rather 'empty', as I have stated earlier. How can a French actor who encountered one non-European culture or several cultures in a row be considered global when we are speaking of only *two* cultures? Critical voices against global approaches claim that 'global' is a too vague category and simply a new label for 'post-colonial' and 'de-colonised' while trying to overcome the problems which post-colonial approaches have not been able to solve.[97] One must be aware that the 'global' as a historiographical category arose as a concept in the 1990s, when the world was 'globalising' and the climate changing. Therefore, political economy must not and cannot be detached; otherwise we run the risk of losing the context in which knowledge was being produced. Further, global knowledge approaches tend to forget what happened to knowledge once it was collected from a native source and how it was employed in a different context ('knowledge on the move').

This critique has recently been brought forward. While global trends in the history of colonial science are emerging, there is a tendency to see global processes without giving a voice to individuals.[98] As Lissa Roberts claims in the introduction to the recent special issue of *History of Science* on 'Accumulation and management in global historical perspective', it is 'difficult to understand how accumulation of various sorts was initiated, managed and put to work without delving into the roles played by individuals who tied these processes to realizing their visions of the future – generally merging concern for their own careers, the careers of the locations in which they operated and the policies, promises and challenges that shaped the networks of which they were a part.'[99]

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[97] This was stressed by Sarah Hodges (University of Warwick) at the conference 'Exploring Traditions. Sources for a Global History of Science', held at the University of Cambridge, 30 May 2014.
[98] For an exception see Schaffer et al., *The Brokered World*.
[99] Roberts, 'Accumulation and Management in Global Historical Perspective': 231.

Following this concern, I insist that even though there is a growing body of dynamic research on France's colonial past (albeit primarily concerned with the Atlantic), much needed histories from below are lacking, overshadowed by (sometimes global) top-down histories of the French empire which neglect the local. This criticism has been raised under the new label 'global microhistories'. Here, we go from the local to the global and back again to the local, a process sometimes denoted by the obscure word 'glocal'. Rather than imposing the global by looking at the trans-oceanic travel of plants, my study revisits local practices, which as deep histories turned out to be – if one insists on calling it so – 'global', or rather 'cross-cultural' because of the variety of actors and cross-regional connections.

One could argue that this doctoral thesis – at least partly – has the character of a global microhistory. I consider it a deep history which investigates human and environmental interactions with one another in different places connected by necessity. Historians of France's past certainly raised the points made by micro-studies, which sometimes led to the history of the 'common man', including women, and the history of artisans more widely.[100] Only by looking closely at what was happening on the ground both inside and outside this island in the Indo-Pacific region is it possible to write the history of plants and peoples who were involved in the case of Isle de France. Naturally, and as a consequence, the history of the island is a cross-cultural one. Using Suman Seth's words, 'that knowledge is hybrid (...) may be considerably less important than how such hybridity is enacted and regulated in transnational fields; fields in which 'locality' both comes with and commands a price.'[101]

Rather than *de*constructing knowledge and empire, as has been extensively done under the influence of postcolonial theories, my methodology aims to *re*construct the history of Isle de France through its multinational and multidirectional networks and put the regional spots and social spaces of knowledge in the right places. Then, the history of Isle de France becomes a multi-sided, multi-sited and cross-cultural process. When researching Isle de France's botanical legacy 'on the ground' as a vibrant area of inquiry, its history becomes a very located one because forgotten actors and the linkages between Isle de France and both other European colonies and regional kingdoms in the Indo-Pacific are resituated. Seeking to deepen our understanding of the establishment of a French colonial island in the Indian

[100] Michelle Zancarini-Fournel, *Les luttes et les rêves: une histoire populaire de la France de 1685 à nos jours* (Paris: Zones, 2016); Halleux, *Le savoir de la main*; Smith, *The Body of the Artisan*.
[101] Suman Seth, 'Putting Knowledge in Its Place: Science, Colonialism, and the Postcolonial', *Postcolonial Studies* 12, no. 4 (2009): 380.

Ocean, my study explores the pursuit of natural history and colonial history 'from below'. Such an approach, I hope, has the power to illuminate the entangled and complex nature of knowledge-making in the French colony by looking at how individual actors experienced and shaped the island's botanical establishment both outside and inside the island.

In turn, economic and agricultural goals stimulated the search for plants and thus cannot be neglected. I consider the enterprise originating from Isle de France's actors, whose attempts – and this I stress – were radically transformed and depended on cross-cultural encounters in the region. The French endeavours intertwined with and relied upon local collaborators and informants. Hence I do not focus on one individual collector or collections but on the plurality of individuals embedded in this complex and entangled story. I consider the island a centre where plants and knowledge about them was accumulated: in doing so, I decentralise not only metropolitan institutions but also Pierre Poivre as a 'great man'. I consider Isle de France rather as a centre of accumulation around which I situate the chapters. However, my research is primarily concerned with the multiple centres where knowledge and plants were collected. Hence, I do not abandon the French attempt to turn Isle de France into a flourishing centre, just as I cannot detach the whole story from very complex and entangled metropolitan and local aims. In a nutshell, I can radically transform the great narrative of a 'colonial machine' run by French male characters whose power spread to the colonies because I appreciate several forms of knowledge, informal networks, local negotiation practices, the impact of nature, and the legacy of slavery. These entanglements between plants, peoples, and nature in the Indo-Pacific world have not been sufficiently considered in the historiography concerned with the 'French' Indian Ocean.

BOTANY AND THE COLONIES

Colonial science, and colonial botany more particularly, can be seen as an encounter between imperial history, the history of science, and post-colonial theories. Studies concerned with colonial politics of botany have unveiled how natural knowledge remained strategically important.[102] However, scholarly works which examine colonial botany as a project in

[102] John M MacKenzie, *Imperialism and the Natural World* (Manchester: Manchester University Press, 1990); Marie-Noëlle Bourguet and Christophe Bonneuil, *De l'inventaire du monde à la mise en valeur du globe: botanique et colonisation, fin 17e siècle - début 20e siècle: dossier thématique* (Saint-Denis: Société française d'histoire d'Outre-mer, 1999); A. L. Rice, *Voyages of Discovery: Three Centuries of Natural History Exploration* (New York: C. Potter, 1999).

relation to commerce and European great power rivalry have been challenged by global science studies in different colonial contexts.[103] In the history of science, the cultural turn caused a shift from a theoretical and intellectual history of science and institutions to a practice-based history of botany.[104]

Even though historians have argued for a while now in favour of the significance of social networks within the making of science in and beyond institutional and national boundaries,[105] colonial botany and tropical agriculture as 'bioprospecting' have been mainly explored from a top-down perspectives in which the accumulation process is always centred on an European institution and/or botanical gardens. In recent years, the key question for historians of colonial botany has been to understand how plants and knowledge about them were used for practical ends. Primarily in the eighteenth century and the Atlantic context, these ends included local knowledge and bioprospecting bolstering the search for 'green gold' and medical plants.[106] Colonial botany was by no means a purely intellectual matter but was intertwined with economic interests. Then again, it was also not a purely commercial one, and networks must be re-examined from several angles in order to understand their complex interaction. Emma Spary has suggested that we must open up the perspective of interaction between scientists and governmental institutions in relation to their economic and colonial interests and integrate early modern naturalists in the overall administrative interests.[107]

For quite a while now, the term 'network' has been used as a central tool to understand complex interactions in both contemporary social analysis and historical perspective. With regard to connected communication and exchange about botanical knowledge, historians have explored this enterprise with an interest in the role of the academiesand learned societies and

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[103] On a discussion of the global turn in the history of science, see Fa-ti Fan, 'The Global Turn in the History of Science', *East Asian Science, Technology and Society* 6 (2012): 249–58; On methods and theories, see Sujit Sivasundaram, 'Sciences and the Global: On Methods, Questions, and Theory', *Isis* 101, no. 1 (2010): 146–58, as well as the other essays published in the *Isis* special issue; Kapil Raj and Heinz Otto Sibum, eds., *Histoire des sciences et des savoirs 2: Modernité et globalisation* (Paris: Éditions du Seuil, 2015).

[104] Nick Jardine, James Secord, and Emma C. Spary, eds., *Cultures of Natural History* (Cambridge: Cambridge University Press, 1996); Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (New York; Cambridge, Mass.: Zone Books, Distributed by the MIT Press, 1998). Schiebinger, *Plants and Empire*; Barrera-Osorio, *Experiencing Nature*; Roy M MacLeod, ed., *Nature and Empire: Science and the Colonial Enterprise*, *Osiris* 15 (2000); Londa Schiebinger, ed., *Focus: Colonial Science*, *Isis* 96 (2005).

[105] For the European plant trade and botany, see Sarah Easterby-Smith, *Cultivating Commerce: Connoisseurship, Botany and the Plant Trade in France and Britain, C. 1760 - C. 1815* (forthcoming).

[106] See in particular on medicinal usage, Samir Boumediene, *La colonisation du savoir. Une histoire des plantes médicinales du Nouveau Monde (1492-1750)* (Vaulx-en-Velin: Editions des mondes, 2016).

[107] Spary, 'Botanical Networks Revisited'.

the emergence of scientific periodicals in Western Europe.[108] Networks were more than an intellectual affair and more complex than a bilateral exchange between the metropolis and the colonies. Scientific institutions, such as the academies and scientific periodicals emerging from the second half of the seventeenth century, offered important frameworks for knowledge exchange and epistemological networking. These networks cannot be seen in isolation since transferred plants were not sold as 'beautiful knowledge' but were to be turned into 'green gold' by using them for commercial exchanges, agriculture, and medical products.[109] These insights were echoed in *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* and in the collection of essays in *Merchants and Marvels: Commerce, Science and Art in Early Modern Europe.*[110] With the exception of the latter, however, 'multiple engagements', like those Roy MacLeod seeks to bring forward, are rarely achieved.[111]

Individuals often communicated with people in one region at the same time, and their relationships were multilateral.[112] Though the Latourian actor-network theory (ANT) allows us to appreciate the plurality of contributors, Latour claims that European scientific establishments were 'centres of calculations' where new forms of scientific knowledge were accumulated, with Europe as the main market.[113] Spary echoes this train of thought when elaborating that

> On the one hand, central calculating naturalists had to change the world at a distance in order to obtain the botanical specimens they sought. On the other hand, the specimens in their turn operated a transformation at the centre, on a local sense by raising the status of the centres of natural history, or, in more fundamental ways, by transforming the terms of global trade in certain commodities or even altering domestic subsistence patterns.[114]

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[108] Alice Stroup, *A Company of Scientists: Botany, Patronage, and Community at the Seventeenth-Century Parisian Royal Academy of Sciences* (Berkeley: University of California Press, 1990).
[109] I take the expression 'beautiful knowledge' from Sarah Easterby-Smith, 'Selling Beautiful Knowledge: Amateurship, Botany and the Market-Place in Late Eighteenth-Century France', *Journal for Eighteenth-Century Studies* 36, no. 4 (2013): 531–43.
[110] Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007); Pamela H. Smith and Paula Findlen, eds., *Merchants and Marvels: Commerce, Science and Art in Early Modern Europe* (New York, London: Routledge, 2001); Delbourgo and Dew, *Science and Empire in the Atlantic World*.
[111] Roy M MacLeod, 'Introduction', in *Nature and Empire: Science and the Colonial Enterprise, Osiris* 15 (2000): 6.
[112] Karel Davids, 'The Scholarly Atlantic: Circuits of Knowledge between Britain, the Dutch Republic, and the Americas in the Eighteenth Century', in *Dutch Atlantic Connections, 1680–1800: Linking Empires, Bridging Borders*, eds. Gert Oostindie and Jessica V. Roitman (Leiden: Brill, 2014), 224–48.
[113] Bruno Latour, *Science in Action. How to Follow Scientists and Engineers Through Society* (Cambridge, Mass.: Harvard University Press, 1987); Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, Clarendon Lectures in Management Studies (Oxford: Oxford University Press, 2005).
[114] Spary, 'Botanical Networks Revisited', 53.

In her study on the Parisian *Jardin du Roi*, Spary has uncovered the manipulation of botanical voyagers to speed up the import of new specimens: this is exemplified by the networks of the Parisian head gardener André Thouin.[115] She argues that botanists in the centre required a 'rigidly structured, unvarying, universally agreed upon method of describing and inscribing', which meant the plants were gathered according to their placement and role in European botany and agriculture.[116] Following a similar argument for the wider construction of natural history, Bertrand Daugeron examined in *Collections Naturalistes: Entre Sciences et Empires* the placement of collections in the political and scientific contexts of late eighteenth-century France centred on the *Cabinet du Roi*, which became the *Muséum national d'histoire naturelle* after the Revolution. Daugeron argues that the pursuit of collecting was not mere accumulation but rather the construction of knowledge about the collections, which was also based on mediators in the colonies and on amateur cabinets.[117] Focusing on the construction of the *Muséum* in the revolutionary years, Pierre-Yves Lacour's *La République naturaliste* also places the construction of natural history collecting in the wider political context of the Revolution by analysing the evolution of natural objects from 1789 until 1804.[118]

While Lacour's and Daugeron's studies certainly underline the political dimension of science-making, which tends to be forgotten, both works, together with Spary's *Utopia's Garden*, follow a Latourian approach by focusing on a metropolitan 'centre of calculation' and therefore neglect the perspective from the colonies. In short, I claim that Spary's plea to integrate naturalists in the overall scientific-colonial framework is certainly justified – yet this is not the end of the matter. ANT, observed in relation to contemporary science studies and postcolonial theory, requires decolonisation and demasculinisation.[119] While my work will only allow glimpses into the latter aspect by including several female actors in the story, such as Poivre's wife Françoise, women colonists, the role of women slaves and slave traders, free

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[115] Emma C. Spary, *Utopia's Garden: French Natural History from Old Regime to Revolution* (Chicago: University of Chicago Press, 2000), part. 61–88.
[116] Ibid., 84.
[117] Bertrand Daugeron, *Collections naturalistes: Entre sciences et empires (1763-1804)* (Paris: Publications scientifiques du Muséum national d'histoire naturelle, 2009), 503, 514.
[118] Pierre-Yves Lacour, *La République naturaliste: Collections d'histoire naturelle et Révolution française, 1789-1804* (Paris: Muséum national d'histoire naturelle, 2014). On the development of French natural history at the turn of the nineteenth century, see also the collection of essays Sue Ann Prince, ed., *Of Elephants & Roses: French Natural History, 1790-1830* (Philadelphia: American Philosophical Society, APS Museum, 2013), in particular part II on 'Gardens and gardening' and part III 'Cultivating useful knowledge'.
[119] Seth refers to Warwick Anderson's criticism of ANT: Suman Seth, 'Putting Knowledge in Its Place: Science, Colonialism, and the Postcolonial', *Postcolonial Studies* 12, no. 4 (2009): 380.

women of colour, and women's practices and uses of plants, my work tries to overcome the challenge of decolonising ANT by regarding Isle de France not as a simple colony but as a vivid place of knowledge in the process of being made.

Scholars have shown that Kew Gardens played a similarly significant role as the *Jardin du Roi* in its attempt to control and regulate the flow of botanical information.[120] Much in contrast to the French, where the state played an active role in science from the eighteenth century onwards, in the British case the colonies were not formal but run by the English East India Company or individuals working overseas along with those employed by the state.[121] Here, the 'informality of institutional linkages' created a bond within British networks; the state was not yet as intensively and actively involved as in the French case.[122] Following James Secord's plea to see the large connections of science, in the Jesuit context Šebestián Kroupa examines the work of the Bohemian Jesuit father Georg Joseph Kamel, who was stationed in Manila under Spanish authority but also entered the networks of the famous English apothecary James Petiver based in London.[123] Through the lens of Kamel's case, Kroupa underlined the importance of transoceanic botanical networks determined by things other than nationality.

In the French case, the administration of the *Jardin du Roi* worked closely with the French navy, yet the purpose of the garden was to bring useful knowledge and botanical prosperity to metropolitan France rather than its colonies.[124] The intention behind the King's Garden was to consolidate power within France and not necessarily in its overseas territories.[125] In different national contexts, works emerged in which eighteenth-century botany has been used to understand how plant knowledge circulated in botanical networks.[126] The links between systematic botany, useful plants, and commerce only developed at a slow rate, yet volumes

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[120] Lucile H. Brockway, 'Science and Colonial Expansion: The Role of the British Royal Botanic Gardens', in *Postcolonial Science and Technology Studies Reader*, ed. Sandra G. Harding (Durham: Duke University Press, 2011), 128.
[121] Mark Harrison, 'Science and the British Empire', *Isis* 96, no. 1 (2005): 56.
[122] Benedikt Stuchtey, ed., *Science across the European Empires, 1800-1950* (Oxford: Oxford University Press, 2005), 35, 2.
[123] Sebestian Kroupa, 'Ex Epistulis Philippinensibus: Georg Joseph Kamel SJ (1661–1706) and His Correspondence Network', *Centaurus* 57, no. 4 (2015): 229–59.
[124] Londa Schiebinger and Claudia Swan, 'Introduction', in *Colonial Botany*, ed. Schiebinger and Swan, 5.
[125] Chandra Mukerji, 'Dominion, Demonstration, and Domination: Religious Doctrine, Territorial Politics, and French Plant Collection', in *Colonial Botany,* ed. Londa Schiebinger and Claudia Swan (Philadelphia: University of Pennsylvania Press, 2005), 19–33; On the botanical gardens in French Guyana, see Julien Touchet, *Botanique & colonisation en Guyane française, 1720-1848: le jardin des Danaïdes* (Petit-Bourg: Ibis rouge, 2004).
[126] Besides Schiebinger (2004), see David Philip Miller and Peter Hanns Reill, eds., *Visions of Empire: Voyages, Botany, and Representations of Nature* (Cambridge: Cambridge University Press, 1996).

emerged a decade ago that contributed to the field of colonial botany in various geographical contexts. These often reached similar conclusions for botanical practice in very different parts of the globe, such as in Schiebinger and Swan's edited volume *Colonial Botany*.[127] Even though the significance of natural history as a global enterprise has been highlighted in recent works, colonial botany has been treated in Anglophone literature as an almost exclusively British endeavour. Here, the particular focus was on the nineteenth and twentieth centuries, when the Royal Botanical Garden in Kew was used as a laboratory for the study and cultivation of plants.[128] In this respect, *Colonial Botany* offers great insight into different colonial enterprises by exposing the diversity of economic botany within different European institutions as well as in the different parts of the world. The volume demonstrates in several colonial contexts that plant transfer and the search for new remedies were more than an intellectual exchange inevitably linked to utility, and must certainly be considered as a marriage of colonial objectives with scientific practices.

Similarly, the omnibus *The Botany of Empire in the Long Eighteenth Century*, which was only published in late 2016, underlines the diversity of botanical enterprises and imperial expansion in very different national contexts in Africa, Asia, the Americas, the Ottoman Empire, and Europe. Discussing developments of specimen transfer, taxonomic innovation, global networks, patronage, politics, visualisation strategies, gardens, and beyond, the edited volume revisits the meaning of botany in different parts of the world. [129]

As part of the volume, Sarah Easterby-Smith opened the view of the French Mascarenes in the context of a socio-cultural approach while presenting much-needed research on diplomacy and botanical gifts in the French Indian Ocean context.[130] The link between the travel of plants for profit and the rise of early modern European empires has gained a greater amount of scholarly attention, but with a primary concern for European colonies in the Atlantic: the Indian Ocean, and particularly the French colonies, lacks concrete and coherent studies. Only recent PhD dissertations reflect the interest in French economic botany on a global scale, namely Elisabeth De Cambiaire's dissertation (defended in 2015) concerned with the botanical establishment of the French Mascarenes, and, although concerned with the French

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[127] Roy E. Schreiber, 'Colonial Botany and Tropical Agriculture', *Itinerario* 29, no. 3 (2005): 115.
[128] De Vos observed this some years ago. Paula De Vos, 'The Science of Spices: Empiricism and Economic Botany in the Early Spanish Empire', *Journal of World History* 17, no. 4 (2006): 403.
[129] Yota Batsaki, Sarah Burke Cahalan, and Anatole Tchikine, eds., *The Botany of Empire in the Long Eighteenth Century* (Washington D.C.: Trustees for Harvard University, 2016).
[130] Sarah Easterby-Smith, 'On Diplomacy and Botanical Gifts: France, Mysore and Mauritius in 1788', in ibid., 193–212.

Atlantic, Chris Parsons' dissertation, which focuses on the cultivation of French colonies in this part of the world in the late seventeenth and early eighteenth centuries: here, Parsons also insists on local mediation and the importance of indigenous knowledge.[131]

Similar to the claim I raised in the context of French empire studies in general, the historiography of French overseas science in the East Indies has only progressed slowly in recent years; the eighteenth-century 'French' Indian Ocean can be considered a desert rather than flowing waters. The Indo-Pacific colonies remain marginally explored and appear in 'big histories' of economic botany, that is to say in Eurocentric metanarratives and in terms of the presumed success of individuals. In the French case of the Mascarenes, these narratives are encouraged by 'great man stories' – in other words, the available secondary literature centred on Pierre Poivre and the highly publicised case of the introduction of spice plants.[132] Only a few studies aim to understand Poivre's practice and politics as micro-studies, such as Emma Spary's article on the introduction of spice plants and botanical identity in the 1750s, Pierre-Etienne Stocklands's research on the introduction of the Mynah bird during Poivre's tenure, or Richard Grove's chapter on Poivre's environmentalist attempts.[133]

In other colonial contexts, it has been put forward that tropical plant knowledge was by no means linearly produced but instead required a long and communicative process performed in specific localities with specific tools and instruments. This knowledge was produced and developed in the overseas territories rather than exported to them. Different knowledge traditions were brought together, specimens were collected, and territories were measured locally, while locals, mediators, and indigenous peoples were involved in these processes.[134] Europeans who came to unknown territories also entered an epistemological space which did

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[131] Christopher M. Parsons, 'Plants and Peoples: French and Indigenous Botanical Knowledges in Colonial North America, 1600 –1760' (PhD Thesis, University of Toronto, 2011). Elisabeth De Cambiaire, 'Enlightened Alliance. Nature, Botany and France's Expansion to the East Indies: The Colonization of the Mascarenes (1665-1775)' (PhD Thesis, UNSW, 2016), available at: http://handle.unsw.edu.au/1959.4/5619, last retrieved: 16 December 2016. I thank Hélène Blais for providing me with the full reference.

[132] Ly-Tio-Fane, *Mauritius and the Spice Trade,* 2 vols.; Louis Malleret, *Pierre Poivre* (Paris: Adrien-Maisonneuve, 1974); Olivier Le Gouic, 'Pierre Poivre et les épices: une transplantation réussie', in *Techniques et colonies (XVIe-XXe siècles)*, eds. Sylviane Llinares and Philippe Hrodej (Paris: Publications de la Société française d'Histoire d'Outre Mer et de l'Université de Bretagne Sud-SOLITO, 2005), 103–26; Denis Piat, *L'île Maurice: sur la routes des épices, 1598-1810* (Paris: les Éd. du Pacifique, 2010).

[133] Emma C. Spary, 'Of Nutmegs and Botanists: The Colonial Cultivation of Botanical Identity', in *Colonial Botany*, eds. Schiebinger and Swan, 187–203; Stockland, 'Policing the Oeconomy of Nature'; Grove, *Green Imperialism*, ch. 5.

[134] That overseas science was not exported to the colonies but locally produced has been argued before, see Mark Harrison, 'Science and the British Empire', *Isis* 96 (2005): 60.

not correspond to their own understanding.[135] Rather than ignoring this kind of knowledge, I argue that they embraced it because they had to rely on it.[136] To put it polemically, what else would you do in the middle of a jungle of plants you have never seen before and which you get to know through the ways of local people name, describe, cultivate, and use them? Using this perspective, it is not necessarily true that from the late seventeenth century onwards botany and botanists were devoted to specialised knowledge about plants; Londa Schiebinger and Claudia Swan claim that the sciences experienced a fundamental shift from a practice-based tradition to the academic study of the natural world, and only after the 1730s did botany become a tool of empire as a commercial branch and a governmental instrument.[137]

The influence of extra-European plant knowledge systems on colonial botanists cannot be denied. My work will therefore also pay attention to the interaction of different knowledge systems and how non-European knowledge contributed to the search for 'useful' natural knowledge for both agriculture and nourishment. Early colonial knowledge making, especially in relation to plants, was as much of a competing discourse of knowledge as local/indigenous knowledge was varied. When these traditions were brought together in contact zones, an intense exchange of ideas, values, and cultures alongside the different forms of science practices took place. Therefore, I do not only aim to see the cultural encounter in contact zones but also consider them as trading zones in which knowledge emerged and was negotiated.[138] Here, I will take up on Peter Galison's 'trading zone' of modern physics, in which he identified the different languages of theories, experiments, and instruments of cultural hybridity, encounter, and exchange.[139]

This exchange took place on several levels and in different contexts. Following Elizabeth Green Musselman's claim, I regard knowledge as something which was 'created in chaotic, improvisational contact zones, and not every party walked away form that zone with the same

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[135] This point is made by Cohn in relation to the British in India. Bernard S. Cohn, *Colonialism and Its Forms of Knowledge: The British in India* (Princeton, NJ: Princeton University Press, 1996), 4.
[136] An earlier example is the *Hortus Indicus Malabaricus* (1678) or in the Atlantic context the *Historia Naturalis Brasiliae* (1648).
[137] Schiebinger and Swan, 'Introduction', in *Colonial Botany*, eds. Schiebinger and Swan, 11.
[138] The concept of 'trading zone' can be traced back to Peter Galison, who focused on the emergence of mircrophysics. See Peter Galison, *Image and Logic: A Material Culture of Microphysics* (Chicago: University of Chicago Press, 1997); See also Pamela O. Long, 'Trading Zones in Early Modern Europe', *Isis* 106, no. 4 (2015): 840–47.
[139] For a critique on 'trading zone', see Richard Drayton, 'Synchronic Palimpsets: Work, Power and the Transcultural History of Knowledge', in *Entangled Knowledge : Scientific Discourses and Cultural Difference*, ed. Klaus Hock and Mackenthun (Münster: Waxmann, 2012), 31–50.

understanding of what just happened.'[140] Devoting her interest to plants in particular, Londa Schiebinger extended this 'contact zone' to the 'bio contact zone' to restrict it to plant exchange between local people and Europeans.[141] As Schiebinger correctly points out, metropolitan institutions could neither control nor standardise what was happening in these places.[142] Despite all the criticism that 'contact' implies Europeans versus the 'other' (Schiebinger criticises herself), the prefix 'bio' does not contribute to the understanding and is in fact overkill. Above all, it is misleading, particularly because plant and knowledge exchange were matters of negotiation practices and not the pure accumulation of plants and knowledge relating to them.

Local plant knowledge was essential to Europeans who came to natural environments and climates unknown to them. Therefore they relied on local knowledge, information, experience, and expertise, which sometimes included other European explorers, captains, pirates, middlemen, brokers, and go-betweens who had an established relationship with indigenous cultures. In *Plants and Empire*, Schiebinger follows the question why the peacock flower, which was used by the local population as an abortifacient, never became popular in European medical care: in doing so, she opens a perspective on gender and race in the Caribbean area.[143] She argues that the drug was mainly given by local women of the Caribbean who were either Indians or resident African slaves to women of their own race and not to Europeans. While her book remains quite speculative, particularly by only focusing on one single plant and therefore running the risk of generalising and making a single case a paradigm, it nonetheless underlines that Europeans valued local knowledge.[144] A more elaborate study making a significant contribution to the field is that of Samir Boumediene, in which he examines in different European contexts the influence of indigenous medicinal plant knowledge in the Americas from the arrival of Columbus to the mid-eighteenth century. In *La colonisation du savoir*, he concludes that the period was an episode of the colonisation of

[140] Musselman, 'Indigenous Knowledge and Contact Zones', 32.
[141] Londa Schiebinger, 'Prospecting for Drugs: European Naturalists in the West Indies', in *The Postcolonial Science and Technology Studies Reader*, ed. Sandra Harding (Durham and London: Duke University Press, 2011), 110–26.
[142] Ibid., 116.
[143] Schiebinger, *Plants and Empire*.
[144] Londa Schiebinger's book has been criticised for this exact reason by other scholars. For an exceptionally great study on Victorian reviews of one single book, see James Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation* (Chicago: University of Chicago Press, 2000).

both geographical and intellectual territory when Europeans sought to make use of those plants, as well as the knowledge and rituals related to them.[145]

In other, non-French contexts, there are also new and vivid works related to the Indian Ocean. Minakshi Menon focused on the explicit connection between the emergence of botanical surveys and the commercial interests of the British East India Company in late eighteenth- and early nineteenth-century India, arguing that natural history and the Company's interests were co-constitutive.[146] Ines Zupanov and Ângela Barreto Xavier in turn highlighted the Portuguese attempts to bioprospect in South India and beyond, reinforcing Richard Grove's arguments for the significance of South-West Indian knowledge for the Portuguese and Dutch construction of tropical nature.[147]

Local knowledge, however, too often disappeared in printed accounts, and it is hence important to work extensively with archival material in which knowledge is still somewhat 'raw' and random as part of the process. Europeans encountered practical knowledge in relation to plants, which only became 'scientific' once it was squeezed into European 'scientific' printed accounts. Daniela Bleichmar, for instance, stressed that it was *not* in the New World but back in Europe where *colonial* science was often enacted.[148] In the context of the Franco-Spanish mission to the Andes, Neil Safier illuminated that the indigenous knowledge and local voices of the Andes and the Amazon were radically modified, if not completely erased, when new findings entered the scientific discourse, as exemplified by Denis Diderot's *Encyclopédie*. As Safier puts it, 'only by reconstituting the material practices, the social relationships of the actors involved, and the successive stages of textual elaboration and production can we understand the broad contours and unintended consequences of science and its representations during this period.'[149] Similarly, the plant knowledge of slaves was too often erased.

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[145] Boumediene, *La colonisation du savoir*.
[146] Minakshi Menon, 'Making Useful Knowledge: British Naturalists in Colonial India, 1784-1820' (PhD Thesis, University of California, 2013).
[147] Ines G. Zupanov and Ângela Barreto Xavier, 'Quest for Performance in the Tropics: Portuguese Bioprospecting in Asia (16th-18th Centuries)', *Journal of the Economic and Social History of the Orient* 57 (2014): 511–48; Richard Grove, 'Indigenous Knowledge and the Significance of South-West India for Portuguese and Dutch Constructions of Tropical Nature', *Modern Asian Studies* 30, no. 1 (1996): 121–43. Peter Boomgaard underlines the multinational and cross-cultural contributions to Dutch botanical networks in Batavia. I thank Peter Boomgaard for providing a copy of his unpublished work entitled 'A Hub of Plant Exchange: Batavia (Java), the Dutch East India Company, and the Networks of European Botanists, 1620s to 1850s'.
[148] Daniela Bleichmar, 'Books, Bodies, and Fields: Sixteenth-Century Transatlantic Encounters with New World Materia Medica', in *Colonial Botany*, eds. Schiebinger and Swan, 83–99.
[149] Safier, *Measuring the New World*, 9.

In order to explore the local knowledge and indigenous expertise on which Europeans relied, it is necessary to appreciate both European and non-European forms of knowledge as legitimate systems of understanding.[150] To my mind, this has nothing to do with political correctness but is rather the logical conclusion in light of my explanations above. Therefore, I avoid the term botanical 'science' because this episode of plants in the French colonies is not about the taxonomy of plants but horticulture, which looks at a plant's utility and familiarity with the conditions under which a plant could be transplanted and cultivated. Even the UNESCO claim: '[...] sophisticated knowledge of the natural world is not confined to science. Societies from all parts of the world possess rich sets of experience, understanding and explanation. Local and indigenous knowledge refers to the understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings'.[151] Similarly, Jorge Cañizares-Esguerra pointed out that the term 'science' is particularly misleading and problematic in relation to early modern descriptions and perceptions of nature; while the term began to be used in a sense with which we familiar today, it does not do justice to early modern ideas and practices.[152]

Thinking along these lines, I use 'plant knowledge' as opposed to 'botanical science', which in my opinion leaves enough room for knowledge systems and patterns from different cultural backgrounds literally and metaphorically transplanted into other cultures and grounds. Rather than labelling the cross-cultural work of a huge variety of participants as 'science', I consider it as the exchange of expertise and making of knowledge. Additionally we cannot even speak of a European 'science' because Europeans encountered a territory with which they were unfamiliar and where new impressions and findings were overwhelming. The French sought to classify plants according to their appearance, needs, and usage for nourishment, medical remedies or economic value.

I suggest – and of course I am not the first – that we must think outside categories such as 'nation' and even 'science' and move away from romanticising events to considering them as a matter of evolution. Therefore, I engage with the recent dynamic historiographical fields which the previous section on historiography considered. Combining cultural, colonial, global, and knowledge approaches greatly inspired by works on the Atlantic or non-French

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[150] This is put forward by Neil Safier. Safier, 'Global Knowledge on the Move'.
[151] 'Local and Indigenous Knowledge | United Nations Educational, Scientific and Cultural Organization', www.unesco.org/new/en/natural-sciences/priority-areas/links (retrieved 6 November 2013).
[152] Cañizares-Esguerra, *Nature, Empire, and Nation*, 1.

contexts in other parts of this world, this dissertation is the first in-depth study aiming to understand a small French Indian Ocean island on both a larger geographical scale and with alternative approaches to science, empire, and colonial botany.

RESEARCH QUESTION AND METHODOLOGY

In the case of Isle de France, it is misleading to speak of a European 'centre of calculation' where inscriptions were produced, accumulated, and recombined to produce new forms of knowledge.[153] What if we assume that it was actually not in European centres but rather in a colony, such as Isle de France and its wider oceanic connections, where knowledge was manipulated and instructions implemented? Here, I argue that the 'centre' had limited control over what was happening in the 'periphery'.[154] Rather than considering Isle de France as a peripheral colony, I situate the island regionally as a territory or space of knowledge-making and plant accumulation. This being said, my project does not follow a *republic des lettres* approach in which I examine the intellectual exchange between botanists working in the colonies as the periphery and the metropolitan garden in the centre, as many scholarly works on the epistemologies of botany have done. Likewise, this project is not about the botanical-scientific and intellectual examination of the flora of the French islands. Rather, this dissertation is about the knowledge-practice of plants for subsistence and commerce introduced and employed with a specific purpose on Isle de France.

Assuming that metropolitan strategies in reality found little fertile soil in the colonies, my question starts with a simple aspect which has nevertheless been widely neglected in face of its very complex answer: what did people *do* in practice on Isle de France? Who were the actors and how did they seek to self-organise the island? What were their strategies, their struggles, and their goals? In face of the local strategies to engage with the introduction of useful plants and useful knowledge, how did the island itself, and environmental factors more generally, facilitate or complicate these strategies? How did self-organised, decentralised, and multicultural networks in the service of Isle de France contribute to the building of the self-identity of Isle de France (or not)?

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[153] For a discussion of Latour's 'centre of calculation' in relation to Paris, see Stéphane Van Damme, *Paris, capitale philosophique: de la Fronde à la Révolution* (Paris: O. Jacob, 2005).

[154] On the role of imperial cities such as Paris and their role in this context, see Antonella Romano and Stéphane Van Damme, 'Science and World Cities: Thinking Urban Knowledge and Science at Large (16th-18th Century)', *Itinerario* 33, no. 1 (2009): 79–95.

Against the backdrop of agricultural and commercial goals, the aim is thus to understand Isle de France through the lens of plant transfer and horticultural practices, that is to say how peoples used plants to establish an island colony and which local factors determined their progress, success, or failure. My overall research question will constitute the core of my investigations: through the lens of the French botanical enterprise, how did historical actors try to establish and maintain an island colony in the middle of the Indian Ocean? Given that the island originally offered barely any useful plants, where did the introduced plants come from and what knowledge came with them to the island? When the French sought to collect plants outside the island, where and how did they collect plants, which plants did they collect and why, and who were their informants? What challenges did they have to face? Assuming that plant accumulation was a long and challenging process, how did people seek to overcome problems and how were they involved in the development of this process?

These questions seek to understand the complexity of the links between socio-cultural, power-political, institutional, environmental, and personal factors of the botanical enterprise. Using these overall questions as a red thread, my project elaborates on a set of question for the historical study of Isle de France's (artificially created) fauna. These questions link the chapters: (Chapter one) Why, or rather was, Isle de France important and what role did the colonial-scientific institutions play? Who were its actors and what was the role of the *voyageur naturaliste* in this context? How were they involved and what were their tasks? (Chapter two) How and under which conditions did the plants reach Isle de France and what were the reasons and goals for collecting and negotiating specific sorts of plants in the service of the island? What role did local knowledge providers play?

(Chapter three) How did the local administration seek to employ plants? How was practical knowledge adopted and modified according to environmental and social conditions? How did they try to feed the island's population? Was there a deeper relationship between the large number of slaves and certain food crops in this context? (Chapter four) What was the role of slaves on the island with regard to cultivational activities and botanical explorations? (Chapter five) Did local mediators assist in the French spice quest given that they could not simply enter Dutch territory in the Malay world? Who were the actors and what did local populations in the region gain from working with the French? (Chapter six) How were spice plants transported from Asia to Isle de France and in what condition did they arrive? Can we actually speak of Poivre's success as is suggested in the historiography?

In order to answer these questions, I worked primarily with accounts from the ground created by local knowledge recipients and knowledge producers in the colonies themselves. In

focusing on these practical aspects, I highlight not only the social but also the environmental dimension of plants and knowledge 'on the ground', as my title implies. Instead of seeing colonial botany on a macro-level, I aim to tackle the multiple interest groups in the French colonial system and its dichotomy of colonial agents. Rather than looking upon Isle de France from a metropolitan perspective, I offer an in-depth analysis of the island colony according to its own needs and the goals set up by local agents. The interaction between people, plants, and information not only took place on Isle de France, but also outside the islands, in middle grounds in the Indian Ocean world where actors explored and collected practice-based plant knowledge in the service of Isle de France. While Isle de France as a creole island can be regarded as a 'blank space' because it had no indigenous islanders, the French encountered islanders and mainlanders during their search for plants. It is thus important to understand what happened in these places and spaces because the French encountered inhabited lands.

I combined the colonial archives with those of scientific institutions such as the *Muséum nationale d'Histoire naturelle* (the former *Jardin du Roi*) and the *Académie royale des Sciences*, the manuscript department and cartography and maps department of the *Bibliothèque nationale de France*, several departmental archives including La Réunion and Chartres, local archives in Mauritius, the *Bibliothèque Sainte-Geneviève*, the National Archives in the Kew, the British Library manuscript department, and to some extent Spanish archival and Dutch printed sources related to the French contacts with the Philippines and the Moluccas. My research combines analysis of archival material, including governmental, secret, and private correspondence, private (travel) journals, notes, drafts, instructions, official reports like registers or yearly statistics, periodicals, memoirs, botanical examinations, and printed travel accounts – enriched by images and literary reflections about Isle de France. Reading the archives against a colonial approach, I extensively used the French colonial archives. Of chief importance is the series C *Correspondance à l'arrivé* of the *Archives nationales d'outre-mer* with its sub-series *Bourbon* (C3), *Ile de France* (C4), and *Madagascar* (C5), containing copied letters of the governors and the administration. I did not read them for the knowledge exchange between the metropolitan institutions and the colonies but in terms of the information they contained in relation to the engagement with useful plants in the service of Isle de France. These included extracts of journals and notes related to both the spice quests and the search for plants in the Indo-Pacific.

These series not only allowed me to gain insights into the management of Isle de France in general, but also – because of Poivre's double position as naturalist and intendant – on the negotiation and collection of knowledge on the ground outside Isle de France. Rather than

keeping in mind a division between science and/or knowledge, I focus on the cross-cultural practices of botanists in terms of exploration and horticulture. At the same time, I consider nature and material culture, that is to say the natural environment as well as the explored plants together with their specimens and seedlings, as part of the network. In order to understand the fundamental meaning of plants and related knowledge in eighteenth-century Isle de France, I shed light on the material and social practices and the physical space of plants rather than the abstract ideas about nature, economic botany, or agriculture circulating within metropolitan circles. Even though I do make use of Poivre's correspondence with metropolitan and colonial officials due to source problems, I read these letters with regard to social, material and knowledge practices.

By understanding plants and practice as tools to make the island autonomous from metropolitan financial aid, I shift the focus to the island by situating it within botanical-commercial networks determined in ways other than metropolitan dependence or national categories. Richard Grove's work has underlined the island as a space where the ecological fragility of Isle de France led to environmental consciousness, yet he neglects the political, socio-cultural, and scientific dimensions of the time.[155] Fredrik Albritton Jonsson's *Enlightenment's Frontier*, in which he explores the environmental foundation of the Scottish Enlightenment, has inspired me to understand the complexity of the political and scientific dimensions of improvement and Enlightenment thinking.[156] Islands as a microcosm and an unbound space in the Indian Ocean must be explored according to their own notion of space. As Sujit Sivasundaram argued for the case of nineteenth-century Ceylon, an island's making went along with discourse and as an intensive space of colonialism.[157] Isle de France, in that sense, serves as a test site which was slowly built up.

Previously, islands have been treated as isolated laboratories: this I seek to repurpose by using the island's isolation and setting it in the wider Indo-Pacific world, entangling it with its maritime, natural, and social context. Sivasundaram argued that by focusing on a unit within imperial strategies, 'the danger of being stranded in the sea, without a sense of perspective or without a limit to the local, is avoided.'[158] While using Isle de France as a focal point and instead of looking at elite actors exclusively, this project seeks to highlight the importance of

[155] Grove, *Green Imperialism*.
[156] Jonsson, *Enlightenment's Frontier*.
[157] Sivasundaram, *Islanded*, 25.
[158] Ibid., 26.

local mediators outside the islands, slaves on the island, and the role of environmental factors in order to rewrite the history of science and colonialism. Hence, against the backdrop of economic motives, I situate the island and its establishment in the cross-cultural Indo-Pacific world by arguing that it was only thanks to the assistance of wider connections to these worlds that the island could build its botanical legacy. Using botany as an inroad and information and knowledge about plants as the medium of communication between non-elite and elite actors, I argue that the case of Isle de France can serve as a particular place-in-the-making in order to understand the wider French imperial system and knowledge production from the overseas actors' point of view.

Spicing up the existing historiography concerned with science in the French empire, this dissertation explores Isle de France's botanical legacy in its very essence: the peoples and plants which constituted it on the ground. I claim that it is only possible to understand the establishment of Isle de France through the social and material practices of the involved interest groups and independent actors who became part of the networks. While this dissertation looks at Isle de France itself and turns it into a focal point in the Indian Ocean, it also examines the connecting links with the Indo-Pacific. By necessity, it considers those diverse geographical places and socio-cultural spaces in the wider Indo-Pacific worlds. Here, important encounters occurred which became part of the connecting web of the French island. It looks at the interplay of these worlds, arguing that Isle de France's networks consisted of peoples, plants, and objects circulating in the Indo-Pacific region rather than means sent from Europe to the Indian Ocean. As opposed to a smooth and coherent project supported by metropolitan institutions, the highly entangled and complex enterprise 'Isle de France' was reliant on intersections between local knowledge, environmental factors, and informal networks flowing via channels determined by means other than nation or governmental Parisian actors. Instead, so I argue, they were built on informal relations and entangled affairs between Isle de France and the Indo-Pacific world.

I consider the actors as mobile agents from different backgrounds: I identify them and move beyond the common institutions and societies of science. For this purpose, I look at the informal exchange between settlers, merchants, scientists, pirates, slaves, and beyond.[159] In so doing, I add a vertical dimension to the networks, which allows me to work with several centres that only together constructed Isle de France's botanical identity in the making. Such

[159] This has been advocated by Lissa Roberts and Neil Safier: Roberts, 'Situating Science in Global History'; Safier, 'Global Knowledge on the Move'.

an approach was also made necessary by the lack of coherent botanical correspondence centred on one particular person. Only by bringing together all these little archival jigsaw pieces related to Isle de France was I able to understand the island's dynamics. Hence, instead of focusing on one individual, I gave consideration to the connection, motion, and development between actors in the service of Isle de France. In short, I will make use of the term 'network' as a central key category in order to understand complex interactions – no more and no less.

The acclimatisation gardens on Isle de France appeared for the purpose of experimenting with plants locally in the colony, with particular regard to domestically produced stock rather than experiments in the service of the metropolis. Rather than serving the metropolis in Europe, the colony of Isle de France remained a marginal island for scientific institutions, the CIO, and for the Ministry of the Navy and the Colonies. It was a very expensive enterprise and became the test site for experiments in colonial autonomy, which correlated with metropolitan ideas on how to use the island. Dismantling these power relations served as a common ground for the underlying argument that the colonial enterprise did not only work in one direction centred on the metropolis. Bringing the story to the next level, this dissertation is an in-depth case study to understand the multidirectional and multinational ways of building an island colony through the lens of plant accumulation. These plants were either to be employed to feed and stock the island or used for commerce. In that sense, I make use of the alternative approaches proposed by early modern historians of (global) science while putting them into action. Here, the underlying argument is based on the assumption that Isle de France was an enterprise shaped by its local possibilities and limits. Coming from this angle, my overall question tackles what actually happened in the colonies, from below and on the ground, as self-constituting processes.

Chapter by chapter, I reconstruct what 'empire' meant in several plant-related contexts centred on Isle de France. Taking Isle de France as a case study, I investigate the process and multi-directional travel of plants and plant knowledge in the service of the colonial island. Following a new avenue of investigation, I seek to understand the cross-cultural and natural contribution to Isle de France in the making in a bottom-up perspective, in other words the local parameters and the constitutive elements of plants accumulated in a French colony. I argue that Isle de France's botanical establishment was built on local circumstances including its multi-directional and multi-cultural networks in the Indo-Pacific. In so doing, I explore colonial botany on a global scale in order to de-centre French metropolitan rule, which had very little to say at a local (colonial) level.

This dissertation consists of six thematic chapters in addition to an introduction and a conclusion. The submitted six chapters - of different lengths and serving different purposes - follow interlocking questions of political, commercial, social and environmental contributions which encouraged or hindered, firstly, negotiation and collection (outside Isle de France) and, secondly, the acclimatisation and cultivation (on Isle de France) of plants for both subsistence and commerce. Considering 'botany' as both specimen transfer and practical knowledge, each chapter explores examples in the wider Indo-Pacific and specifically on Isle de France, spanning the period between roughly the 1750s and the 1780s. In the period under review and between 1767 and 1772 in particular, there was a strong tension between the cultivation of staple crops and economic plants such as spices, particularly because of the island's intendant Pierre Poivre who envisioned the augmentation of both. Therefore, chapter two and three are concerned with the question of subsistence and the creation of life on the island; chapter five and six focus on the collection and accumulation of spices. Both projects went hand in hand for the search of 'useful' plants outside the island but also coexisted and clashed on the island while the local administration had to balance the interest groups. Both enterprises were to strengthen the island from the inside. They cannot be understood by taking into consideration only the one or the other.

My research offers a fine-grained analysis of individual cases relating to plant knowledge and its practices in its various forms, ranging from the socio-cultural interaction between local populations and Europeans, from the plants' countries of origin to the practical implication of plants and knowledge in the French colony itself.

The chapters are thematic because they serve to dismantle the thick, yet simplistic, narrative of both the scientific-company-state and the role of Isle de France in relation to geopolitics and plant accumulation in several social and regional contexts. The claim here is three-fold. Firstly, in order to create life on the island, the introduction of food crops was more important to the colonists than the cultivation of spices. Chapters two and three focus on everyday subsistence by considering plants that were to be 'useful' for nourishment. The search for and travel of both spices and food crops was reliant on local knowledge in their countries of origin and the cross-cultural and multi-national networks consisting of European travellers, marine officials, merchants, pirates, locals, and local mediators and informants – in other words, by no means was it built by actors sent from the metropolis. Thirdly, the plants' cultivation on Isle de France was shaped significantly by social factors and environmental conditions. Focusing on one of these factors, each chapter proposes a micro study of how the cultivation of plants on Isle de France was shaped by the lack of governmental support and

provision on the island ('envisioning empire'), accumulated and travelling local knowledge in the Indian Ocean worlds ('blue empire' representing the ocean), the role of agriculture on Isle de France ('green empire' symbolising plants), the slaves' agency in the gardens of Isle de France ('black empire' in this context is self-evident), the multinational and cross-cultural networks during the spice quests ('invisible empire' as in forgotten and invisible actors), and the material practice and fragility of transportation ('fragile empire' referring to the instability and chaos of the plant material and environmental conditions). These I bring together when concluding on a 'remaining empire'.

All six chapters tackle French encounters with the flora of the Indo-Pacific worlds according to various themes. Each chapter adds a new layer to the previous discussion. Plants and knowledge on Isle de France did not consist of a single aspect, and they certainly were not centred on the island as such. Instead, I follow the travel of the plants' native place of growth to the colony, which was rooted in the local French actors' attempts to improve the island and make it profitable. Each chapter represents a coherent part of my thematic approach – but only together do they sustain my larger claim that overseas knowledge production can only be understood from the development of their local perspectives ('settler knowledge') and multiple engagements rather than seeing 'big science' and 'empire'. As opposed to being built on metropolitan bureaucracy, each chapter seeks to advance the historical understanding of the early modern French empire from a local point of view by focusing on the regional contexts and botanical exchanges and their actors between different cultural and national backgrounds. I follow this strategy by examining practical operations and the broader cultural, political, and economic significance of plants.

In the first chapter ('Envisioning empire'), I situate the Mascarenes in the geopolitical, economic and botanical context of the French colonial attempts. I maintain a two-fold strategy, first, by providing an insight into the history of Isle de France and its regional context, including geopolitics, commerce, the slave trade, and warfare, and, secondly, by understanding the place and meaning of the French Crown and metropolitan institutions. As I explain in this substantial chapter, Isle de France was much more marginal and vulnerable in terms of both imperial strategies and botanical significance than historical works have suggested. Reinforced by a lack of metropolitan support, the island's local administration sought to engage more closely with networks in the Southwest Indian Ocean and the wider Indo-Pacific.

The island's commercial isolation forced a reliance on a broad range of trans-imperial and cross-cultural networks aiming at the regional exchange of primary necessities and the

introduction of slaves, new food crops, and other useful plants. That these plant networks were not bound to national categories or worked in a one-way direction connects chapters two, four, and five, which are primarily concerned with the cross-cultural and non-elite contributions to Isle de France in the making.

Based on extensive research in the French colonial archive and the archive of the *Jardin des Plantes*, chapter two ('Blue empire'), on the search and collection outside the island, and chapter three ('Green empire'), on the cultivation of those plants inside the island, focus on the efforts to transform the island for everyday subsistence: this was linked to the ideology of improvement, amelioration, and physiocracy. They explore the search for plants for nourishment, which the French sought to introduce to Isle de France in order to make the island self-sustaining. This followed and was enriched by the agricultural practices on the island: in other words, useful knowledge directed to specific contexts. In order to increase cultivational activities on the island, it was necessary to import specimens of food crops and other plants, which were then employed for the island's needs. The latter aspect is the red thread for chapter three, while the former will guide the reader through chapter two. The idea is to understand how newly introduced and 'old' plants were cultivated on Isle de France and how local knowledge, which was gathered together with the plants in their country of origin, was implemented.

Bridging the introduction of staple crops and the spice project (chapter five and six), chapter four ('Black empire') explores the agency of slaves on Isle de France's gardens. In relation to the slaves' hierarchy and race, it engages with the slaves' agency in and knowledge of the gardens and botanical explorations. More widely, it insists on the larger connection between the need for food provision and the large number of enslaved Africans, Malagasies, and Asians. In small plantation societies, slaves were to cultivate staple crops yet, particularly in the acclimatisation gardens, slaves were also responsible for the cultivation of spices.

Chapter five ('Invisible empire') examines the invisible networks and the search for spices in the East Indies as a response to state-driven scientific-colonial strategies. I explore cross-cultural cooperation along the shores of the Indo-Pacific at the beginning of the French spice quests in the 1750s and during the final 'success' in the early 1770s by identifying the local contributors who facilitated the collections of specimens from Dutch territory, which was closed to French vessels. On the one hand, this chapter seeks to demonstrate the central importance of informal relations and patronage in the Malay-Philippine region for the spice project. On the other, it explores the mutual interdependence between French actors and islanders in Southeast Asia, stressing the profit-making activities of local cultures. I insist on

the role of middlemen for the French spice quests as brokers across cultural divides. Closely connected to the spice quests, chapter six ('Fragile empire') focuses on the material practice of specimen transportation and acclimatisation in order to underline the fragility and tentative nature of the whole project to introduce spices on Isle de France.

Each chapter presents an in-depth analysis of relevant episodes of Isle de France's botanical identity in the making on the basis of both archival and to a lesser extent printed sources. By necessity, it covers the native countries of plants introduced to Isle de France by focusing on its actors and networks. Members of these networks worked side by side, interacting and cooperating with each other: these were largely built upon the services of middlemen and brokers who interacted between different cultural understandings and languages. Unlike a multitude of studies that give preference to Pierre Poivre, my dissertation treats actors within Poivre's networks according to their contributions and how they facilitated (or hindered) the collection of plants as material and intellectual knowledge. Therefore, the chapters unravel the multiple dimensions of plants in the colonies by focusing on various regional, commercial, scientific, social, cultural, material, and environmental aspects. In other words, my work integrates the social and material history of knowledge-practice in the history of the eighteenth-century French colonial enterprise and the emergence of a French colonial identity, which intertwines with the goal to classify nature not according to a taxonomic system but as 'useful' and 'and not useful' in terms of whether they could be employed in the service of Isle de France for its subsistence and an envisioned breakthrough of the spice project.

This dissertation discusses science and empire while focusing on a French Indian Ocean island colony. It argues that plant acclimatisation on Isle de France was based on encounters with peoples of the Indo-Pacific world and was therefore a matter of self-organisation and cross-cultural networks in the region, involving non-elite and elite actors both inside and outside the island. In short, I intend to retell the story of colonial botany and its local actors between combat and collaboration, nation-building and survival, rivalry and love, between famine and food crops, between the dream of a paradise island and the harsh reality of colonial life. Using different terms, the aim of my thesis is to tease out meaningful local practices and to challenge the French conceptual and imperial 'machine' as the framework of science production in the colonies. Instead of understanding Isle de France from an Atlantic perspective, this thesis is about the micro-histories of non-elite and elite actors who tied together the French Indian Ocean colonies with the Indo-Pacific world. By engaging with the island's multiple standpoints and centres, it breaks down 'colonial science' as a coherent and

smooth thing. As an alternative, it seeks to understand what constituted plant knowledge and plant transfer in the process. Instead of regarding Isle de France as a mere case for micro-history, it must be regarded as a place whose establishment and maintenance was determined by environmental, social, and cultural factors from below, which, in turn, connected the island colony on a cross-oceanic and cross-cultural scale.

1

Envisioning empire:
Isle de France, insularity, geopolitics, and plants (1721-1789)

'What a sweet and delicate life I could still have if I had not been so foolish as to go to this dog of a country.'[1]

– Madame Renouf La Coudraye
from Isle France to her friend in Aury (Brittany)
27 March 1778.

'Of all parts of the world where Europeans have establishments, there are none where one could be further away from one's friends than on Isle de France. The Company's vessels only come here twice per year. It is very rare to see other nationalities, unless there is an unfortunate vessel ill-treated by the storms. The freshest news is always 6 months out of date, and when one wishes to write one's friends one has to wait until the following year for their response.'[2]

– Jacques-Henri Bernardin de Saint-Pierre to
Elźbieta Lubomorska, 6 December 1768.

Looking at the contemporary descriptions of life in eighteenth-century Isle de France quoted above, which depict the island as remote and boring rather than a paradise, one may very well ask the question: why Isle de France? Why was the island chosen as a French colonial island and why is it of interest for historians of knowledge? The promise of this chapter is to answer these questions by looking at various historical phases and processes throughout the eighteenth century. It is dedicated to understanding the geographical, geopolitical, commercial, social, scientific, and administrative context in which I am anchoring this project. For this purpose, this chapter situates Isle de France within French scientific-imperial strategies and reflects on the island as an insular space and the connected maritime tensions.

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[1] '(...) quelle vie douce et delicieuse ne menerais-je pas encore si je n'avais pas été assez folle que de passer dans le chien de pays', Madame Renouf La Coudraye to her friend in Aury (Bretagne), Port Louis, 27 March 1778, KEW HCA 30/290, unfol.

[2] 'De toutes les parties de la terre où les Européens ont des établissements il n'y en a point où l'on soit plus éloigné de ses amis que l'île de france. Les vaisseaux de la compagnie n'y viennent que deux fois par an. Il est très-rare d'y voir d'autres nations, si ce n'est quelque malheureux vaisseau maltraité par les tempêtes. Les nouvelles les plus fraiches ont toujours six mois de date, et lorsqu'on écrit à ses amis on ne doit attendre leur réponse que l'année suivante.' Jacques-Henri Bernardin de Saint-Pierre to Elźbieta Lubomorska, princesse Lubomirska, 6 December 1768, EE BSP_0107.

Further, it introduces the reader to the historical development of Isle de France throughout the eighteenth century, from the beginning of the French settlement in 1721 until the revolutionary years. Broadly, the French encounters with Isle de France in the Old Regime can be divided into two major parts. The first period of the *Compagnie française pour le commerce des Indes orientales* lasted from the settlement in 1721 until the end of the Seven Years' War (1756-1763), a period in which the island was mainly used as a *rélache* (a 'stepping stone') on the shipping routes connecting Europe and Asia. The second period, the royal administration, began after the Peace of Paris in 1763, which ended the Anglo-French war: after this, the Mascarene Islands were handed to the French crown and placed under the Ministry of the Navy and the Colonies in 1766.

Why was Isle de France chosen as an imperial island, what did it mean in the eighteenth century, and how did the island and its geographical position contribute to its history? What did it mean to the metropolitan administration and did the meaning of Isle de France change over the course of the eighteenth century? What did it mean to live on the island? In order to follow these questions, this chapter proceeds in six parts. It kicks off with the early French settlement of Isle de France, followed by the impact of Anglo-French rivalry in the Indian Ocean and the politics of the CIO. Subchapters two and three are mainly concerned with the island during the *époque royale* and the aftermath of the Seven Year's War. In particular, I expose how metropolitan aims clashed with local circumstances on the island. Subchapter five elaborates on colonial life, the introduction of slaves, productivity, and provision. The latter was connected to networks in the Southwest Indian Ocean, so I have included a discussion of the island's dependence of food networks in the region. Lastly, this chapter ends with the lack of interest of metropolitan botanists in the Mascarene Islands. Only in the late 1770s (perhaps even the 1780s) did the *Jardin du Roi* make efforts to establish a correspondence with the Indian Ocean colonies. In short, the overall aim of chapter one is to understand the role of Isle de France as an island colony within French imperial strategies, colonial botany, and the Indian Ocean world more widely.

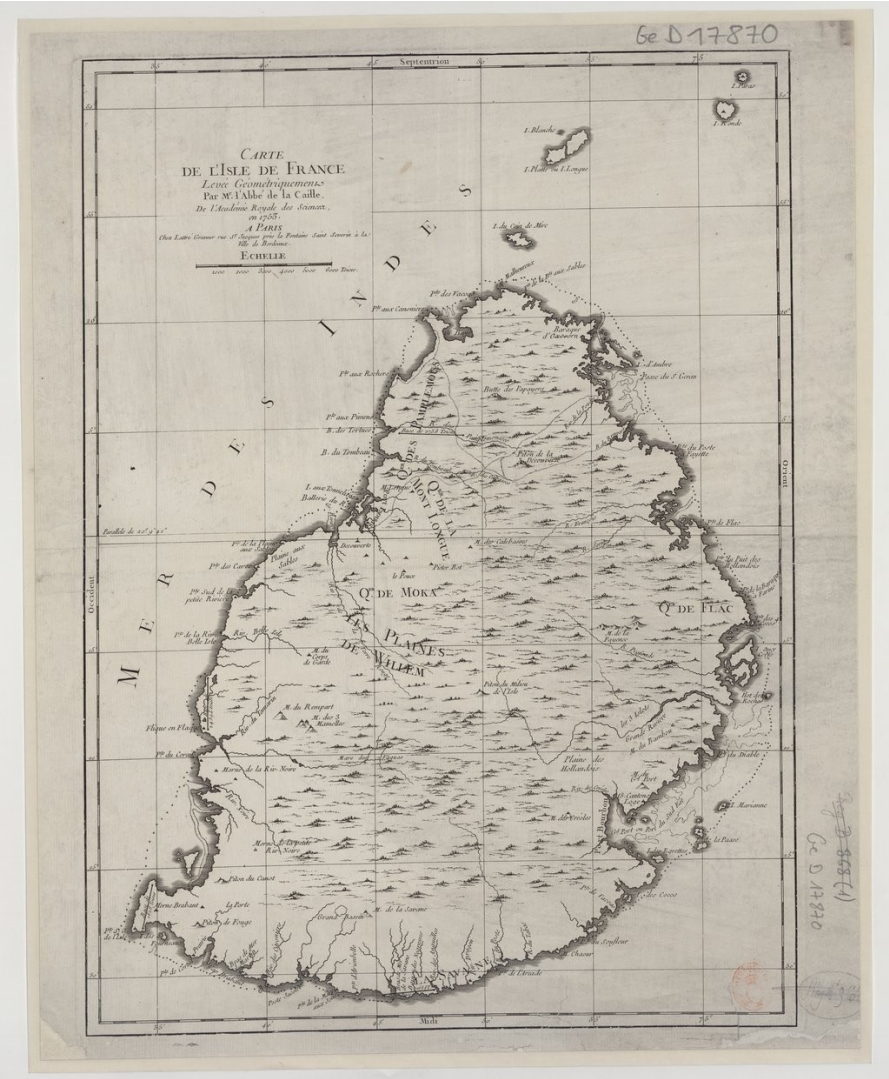

Figure 1. Carte de l'Isle de France levée géométriquemet par Mr. l'abbé de la Caille (1753), available at Gallica: ark:/12148/btv1b84954682 , last accessed 13 January 2017.

ISLE DE FRANCE: A SECOND FRANCE IN THE INDIAN OCEAN?

Navigating somewhere on the *Comte d'Argenson* in the middle of the Indian Ocean, the astronomer Alexandre-Gui Pingré remarked in his journal on 15 March 1761: 'Today we had to discuss a question: it was the matter of whether a stay in the Bastille was preferable to the one on our ship or not.'[3] We can well imagine the feeling under the soles of his feet when

[3] Alexandre-Gui Pingré, *Voyage à Rodrigue: le transit de Vénus de 1761, la mission astronomique de l'abbé Pingré dans l'océan Indien*, ed. Sophie Hoarau, Marie-Paule Janiçon, and Jean-Michel Racault (Saint-Denis (Réunion): SEDES Université de la Réunion, 2004), 90.

they finally touched the ground – for the first time in five months – in Port Louis, the main harbour in the northwest of Isle de France.[4]

Many explorers, merchants, and travellers experienced this relief after months of navigation, and Isle de France was a welcome place of rest and refreshment. This was not the only reason why the small island far off the Malagasy east coast was a subject of interest. Lying on the major commercial shipping routes connecting the West and East Indies in the Indian Ocean and thus midway between the Atlantic and the Pacific, Isle de France was of great strategic interest for the competing colonising powers in terms of geopolitics, communication, and trade. Although traders from the Mediterranean and Arabian regions had already been crossing the Indian Ocean for more than 2,000 years, the Mascarenes, a group of islands consisting of Isle de France, Bourbon, and Rodrigues, remained hidden by their geographical position well south of regular trade routes. There is evidence that Arab travellers encountered them as late as 1300, but there are not any known documents which prove the landing of proto-Malagasy people from Southeast Asia prior to this point.[5] Sailors from the Indian and Arabic worlds had surely discovered the island long before any European foot was set on it, but according to Islamic studies scholar Shawkat Toorawa, Isle de France did not play any significant role for the Arabic world, although scholarship has tried to imbed the island in the wider Islamic context.[6] The significant position of Isle de France became more and more evident during French colonisation, particularly after the Seven Years' War as this chapter explores in greater detail.

Yet, it was not the French who discovered the Mascarene Islands first. Of all European traders, the Portuguese probably dropped anchor first off the coasts of Bourbon in 1510 and Isle de France in 1516.[7] Almost a century later, the Dutch landed in 1598, and the fear of French and English rivalry led to colonisation in 1638, naming the Dutch establishment 'Mauritius' in honour of Prince Maurits van Nassau.[8] Yet, the island remained only a minor outpost for the Dutch *Verenigde Oost-Indische Compagnie* (hereafter the VOC), which had its

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[4] Ibid., 127.
[5] Anthony S. Cheke and Julian Pender Hume, *Lost Land of the Dodo: An Ecological History of Mauritius, Réunion & Rodrigues* (London: T & AD Poyser, 2008), 21.
[6] Shawkat M. Toorawa, Wâq al-wâq: 'Fabulous, Fabular, Indian Ocean (?) Islands…'. In *Emergences* 10 (2000): 387–402. Cf. Vaughan, *Creating the Creole Island*, 3.
[7] Regarding the study of known early voyages in the Indian Ocean, see Alfred North-Coombes, *La découverte des Mascareignes par les arabes et les portugais: rétrospective et mise au point, contribution à l'histoire de l'Océan Indien au XVIe siècle* (Port-Louis: Service Bureau, 1979).
[8] Auguste Toussaint, *Histoire des Iles Mascareignes* (Paris: Berger-Levrault, 1972), 24.

headquarters in Southeast Asia. This being said, under Dutch rule the island did not generally affect European imperial strategies.[9]

As for the French enterprise, it was initially the island of Bourbon that attracted French merchants because of its fertility. Here, after unsuccessful attempts to domesticate clove (1681) and pepper (1702), the CIO tried to make a fortune with the cultivation of coffee.[10] The first coffee plants arrived in Bourbon when the Dutch abandoned Mauritius in 1710: France formally took possession of the island in 1715, renaming it 'Isle de France'.[11] Only six years later – and this was quite late, since the English governor of St. Helena had also flirted with the idea of resettling inhabitants in Mauritius – did the French administration attempt to act on this possession in 1721.[12] The French's chief interest was in the two established ports of the island, important harbours which neighbouring Bourbon lacked. Whereas under Dutch rule Isle de France was mainly used as a 'stepping stone' for merchants in the Indian Ocean, the new French administration aimed at using the island more and more for their colonial enterprise. The French had had their eye on the islands in the Indian Ocean since the CIO's founding under France's finance minister Jean-Baptiste Colbert in 1664. Under Colbert, Madagascar had become an object of colonial interest and expeditions were undertaken – thus, the settlement of Isle de France cannot be grasped without considering the French attempt to establish a colony in Madagascar.

PLANTING A COLONY BETWEEN COLLABORATION, RIVALRY, AND INDO-PACIFIC EXPANSION (1735-1764)

First things first: it is in fact false to speak of a singular *Compagnie des Indes Orientales*. From its foundation in 1666, the French trading company changed radically three times.[13] The

[9] Robert Roos, 'The Dutch as Globalisers in the Western Basin of the Indian Ocean?', in *Globalisation and the South-West Indian Ocean*, ed. Sandra Evers and Vinesh Y. Hookoomsing (Réduit: University of Mauritius, 2000), 7–16.
[10] Toussaint, *Histoire des Isles Mascareignes*, 38.
[11] For the Isle de France before the arrival of La Bourdonnais, see particularly Marcelle Lagesse, *L'Ile de France avant La Bourdonnais* (Port-Louis: M. Coquet, 1978).
[12] Cf. Richard Grove, 'Conserving Eden: The (European) East India Companies and Their Environmental Policies on St. Helena, Mauritius and in Western India, 1660 to 1854', *Comparative Studies in Society and History* 35, no. 2 (1993): 328. 'Prise de possession de l'Ile de France par Jean-Baptiste Garnier du Fougeray, 23 September 1721', printed in Huguette Ly Tio Fane-Pineo, *Île de France, 1715-1746: L'émergence de Port Louis* (Moka: Mahatma Gandhi Institute, 1993), 285–86. See also 'Acte de prise de possession de l'Ile de France du 20 Septembre 1715' par Dufresne d'Arsenal, in ibid., 283–84.
[13] On the CIO and especially on its development, see the works by Haudrère. Philippe Haudrère, *Les Compagnies Des Indes Orientales: Trois Siècles de Rencontres entre Orientaux et Occidentaux, 1600-1858*

most crucial period was the aftermath of the Seven Years War when, in 1769, the CIO was 'suspended' due to the post-war introduction of free trade. It is also false to speak of private interests when it came to the CIO. The French trading companies were closely related to the royal government and even run by government insiders.[14] When the CIO was founded, the nomination of CIO directors was approved by the king, which meant that the crown decided the political state of the CIO. The king's ministers also defined the limits of the CIO as well as its privileges: the monopoly over commerce in the colony, exclusive commercial traffic between the colony and the metropolis, certain exemptions from custom rights on imported and exported commodities, and the recruitment of subaltern agents.[15] In return, the CIO was obliged to bring colonisers to new lands, which was also linked to a Catholic mission.

Despite its origins as a strictly commercial enterprise, the CIO developed into a political instrument of conquest over the course of the eighteenth century. For the trading companies, moneymaking was part of imperial strategies, and although Europe was not poor, the continent 'did lack many things for which consumers developed a taste and in which entrepreneurs saw a profit.'[16] However, Isle de France was used as a treaty port in the Indian Ocean long before the rising conflicts between the mercantile interests of England and France.

The shift in French imperial politics towards an increasingly global trade inspired by a mercantilist economy brought a new meaning to the CIO and its strategies, which were tested in the Mascarene Islands. The intense deforestation and clearing of the island through the CIO – also reported in the years of the Dutch settlement in the seventeenth century – disturbed the ecological system. Against the CIO's motto '*florebo quocumque ferar*', rather than promoting the island's blossoming, Isle de France was deforested.[17] 'Sustainability' was a dead letter in the CIO's policy. Under the CIO's administration, the island was to be turned into a place of profit without consideration of the long-term consequences of its exploitation. Particularly during the first decades of the CIO's governance, settlers were lured with the promise of

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(Paris: Desjonquères, 2006); See also Catherine Manning, *Fortunes à Faire: The French in Asian Trade, 1719-48* (Adlershot:Variorum, 1996).

[14] Haudrère, *La Compagnie Française Des Indes Au XVIIIe Siècle*, 147–53, part. 153.

[15] Ly Tio Fane-Pineo, *Île de France,* 13.

[16] Robert Aldrich and Kirsten McKenzie, 'Why Colonialism?', in *The Routledge History of Western Empires*, eds. Robert Aldrich and Kirsten McKenzie (Hoboken: Taylor and Francis, 2013), 4.

[17] Arthur Percival Newton, *The Cambridge History of the British Empire* (Cambridge: CUP Archive, 1936), 36.

building a life without having to pay financial awards to the crown.[18] The Scottish geographer Alexander Dalrymple (1737-1808) commented on this in the late 1750s:

> The sooner to improve Isle de France, the French Company gave the inhabitants of Bourbon great encouragement to transport themselves thither. M. de la [Bourdonnais] was sent from France in quality of governor of both islands. A man who was every way qualified for executing the great designs the Company had formed, of great experience and a good seaman, merchant and mechanic. It is to this gentleman's great capacity, and indefatigable industry that the French Company owns all the advantages they now enjoy from one of the most flourishing colony and best ports in all India.[19]

Under the CIO's aegis, Isle de France was to serve as a merchant base rather than a home for settlers. The establishment and maintenance of Isle de France was not an easy task and came with many difficulties, which the CIO ignored because of their unwillingness (or inability) to invest. While early Dutch records describe Mauritius as covered with trees and being a 'very highly goodly and pleasant land, full of green & fruitful vallies', the natural environment changed a lot over the course of the eighteenth century.[20] Soon after French possession, a grim picture was drawn of Isle de France and its natural resources. A major factor in the environmental changes on Isle de France was the CIO's aim to establish a profitable colony. With the idea of bringing life to the island, the CIO imported slaves from the African coasts and Madagascar and offered concessions – free of charge – to whoever wished to settle and work in the new island colony. The first French families who sought their fortune on Isle de France arrived on *Le Bourbon* on 1 August 1728.[21]

The consequences of a rapid settlement were crucial. Resources were soon depleted due to extensive hunting and fishing. The director of the colonies in the East, Pierre-Christophe Lenoir (1683-1743), had reported as early as September 1726 that hunting had to be prohibited by law.[22] Already in 1724, the island lacked edible goods as well as primary necessities, and when a famine broke out, provisions had to be imported from Madagascar.[23] Nonetheless, Lenoir recommended keeping Isle de France because of its ports and the high

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[18] N. R Brouard, *A History of Woods and Forests in Mauritius,* (Port Louis: J.E. Félix, I.S.O., Govt. Printer, 1963), 10.
[19] Geographical collections of Alexander Dalrymple', BL Add MS 33765, fol. 2v.
[20] *True Report of the Gainefull, Prosperous and Speedy Voiage to Iaua in the East Indies, Performed by a Fleete of Eight Ships of Amsterdam: Which Set Forth from Texell in Holland, the First of Maie 1598, Stilo Nouo, Whereof Foure Returned Againe the 19. of Iuly Anno 1599. in Lesse Than 15. Moneths, the Other Foure Went Forward from Iaua for the Moluccas* (P.S., 1599). This is the earliest account by the Dutch to be translated into English.
[21] Brouard, *A History of Woods and Forests in Mauritius,* 10; Ly Tio Fane-Pineo, *Île de France,* 101.
[22] Brouard, *A History of Woods and Forests in Mauritius,* 10–11.
[23] Ly Tio Fane-Pineo, *Île de France*, 94.

quality of the soil. Once cultivated, as he envisioned it, the island could supply its inhabitants and sailors who sought refreshment. This was a huge miscalculation, and food shortages occurred throughout the eighteenth century: the local administration had to explore new ways to secure food on the island by increasing agriculture, which I explore in detail in chapters two and three.

The recommendations made by Lenoir and the CIO were very ambiguous and, in fact, contradictory. While in 1727 the new inhabitants were encouraged to engage in the cultivation of coffee and edible goods, such as rice and wheat as well as pepper and other spices, instructions from 24 September 1729 enjoined them to abandon the plantation of coffee and focus on food crops instead.[24] But the inhabitants lacked fundamental agricultural know-how: plants would not grow in the insufficiently prepared soil. The discontent of the colonists grew and the CIO declined every day.[25] A journal by Captain Jonchée de la Goleterie relating to his voyage to the Indies (October 1727 - April 1729) provides a different insight into the island's agricultural goods: it had wheat, rice, corn, beans, vegetables, sugar cane, pineapple, figs, oranges, lemons, and generally all fruit that grew in the Americas, as well as grapes, peaches, figs, and mulberries from Europe, and 10,000 square feet of coffee.[26] The variety of fruit and vegetables was rich, yet the captain also remarked that for the development of the colony slaves had been introduced to the island: they could not be fed sufficiently and were likely to revolt.[27]

In the years of the early settlements (until 1735, the year when La Bourdonnais was appointed governor of the Mascarenes), Isle de France was by no means the CIO's new 'pearl'. The *entrepôt* of commerce was and remained the French colony of Pondicherry in India. Indeed, in the East Indies, Pondicherry was the only well-established French possession, but it needed the support of a naval base less distant than France. Pondicherry was not very active itself and did not possess ports of sufficient quality.[28] According to the CIO's plan, Isle de France seemed to be a far better option as a supply base for ships. In other words,

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[24] Albert Lougnon, ed., *Correspondance du Conseil supérieur de Bourbon et de la Compagnie des Indes (1724-1750)* (Saint-Denis: G. Daudé, 1933), I: 61.
[25] This is what Haudrère obeserves in the Memoir of Philibert Orry, dated 28 July 1730, AN B/3/302, see Haudrère, *La Compagnie Française Des Indes Au XVIIIe Siècle*.
[26] Extrait du journal du vaisseau Le Mars, Capitaine Jonchée de la Goleterie durant son voyage aux Indes commencé le 27 octobre 1727 et terminé en avril 1729 (= M.A. X14/4/5b/1), printed in Ly Tio Fane-Pineo, *Île de France*, 287–90.
[27] Ibid.
[28] Toussaint comes to this conclusion : Toussaint, *Histoire des Îles Mascareignes*, 47.

Isle de France was needed as an instrument for communication, refreshment, and trade on the long route between Europe and South Asia.[29]

After 1735, the sister islands Isle de France and Bourbon served as such establishments, the first as a port base and the second as the former's supplier. No sooner said than done, the administration's offices moved from Bourbon to the new possession.[30] Yet, because of an outbreak of leprosy in 1729, creoles from Bourbon were not permitted to transfer to Isle de France.[31] In general, Bourbon was to serve as the granary of the Mascarene Islands, so the cultivation of grain and other food plants was encouraged. But despite this attempt, Bourbon produced insufficient food for both islands and further primary necessities had to be imported from the wider Indian Ocean world, mainly the Cape of Good Hope and Madagascar. These circumstances made Isle de France more dependent on a wider network, which I explore in the last sub-chapter.

Under La Bourdonnais' administration, agricultural activities were increasingly encouraged, in particular, rice and wheat, sugar cane and *fangourin* (a kind of fermented wine).[32] Nonetheless, the establishment of the island required a lot of local management. The governor introduced manioc from Brazil, mainly as a crop to feed the increasing slave population and experimented with drought-resistant plants and mulberry trees (the planting of the latter was also aimed at developing domestic silk production).[33] The conflicting views between the local governor and the far-away CIO on how to use the island hindered the whole project. While the governor aimed at creating a base and settler home indispensable to the CIO, he had to face the consequences of the fact that the island's task was to supply landing French ships with food, water, and medical care. Yet, the island was not productive enough,

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[29] For life on board during these long journeys, including water supply, food, and other difficulties, see Arlette Girault-Fruet, *Les voyageurs d'îles: sur la route des Indes aux XVIIe et XVIIIe siècles* (Paris: Éd. Classiques Garnier, 2010), 71–98. On the other hand, goods were also sent from Pondicherry to Isle de France, Ānantaraṅkap Piḷḷai and John Frederick Price, *Private Diary of Ananda Ranga Pillai: Dubash to Joseph François Dupleix, a Record of Matters Political, Historical, Social, and Personal, from 1736 to 1761*, 12 vols (Madras: Gov't Press, 1904), VIII (May 1751-December 1753), passim.

[30] The fact that Isle de France became the centre of operations after 1735 is also reflected in a lack of records about Bourbon for the second half of the eighteenth century.

[31] 'Extrait du journal du vaisseau Le Mars, Capitaine Jonchée de la Goleterie durant son voyage aux Indes commencé le 27 octobre 1727 et terminé en avril 1729' (= M.A. X14/4/5b/1), printed in Ly Tio Fane-Pineo, *Île de France*, 289. On leprosy and other sicknesses in Bourbon during the CIO's administration, see ADR C° 936–39.

[32] See the memoir by Père Cossigny's son: Joseph-François Cossigny de Palma, *Mémoire sur la fabrication des eaux de vie de sucres* (Isle de France: Imprimerie Royale, 1781). For an illustration of the big sugar mill introduced by La Bourdonnais in 1744, see: Denis Piat, *L'île Maurice: sur la routes des épices, 1598-1810* (Paris: les Éd. du Pacifique, 2010), 66–7.

[33] Lissa Roberts, "'Le Centre de Toutes Choses': 323.

which the CIO directors criticised harshly. On the other hand, the CIO's monopolistic policies did not enable the island to break the circle. The great financial investment required to build up a proper depot and improve the fortifications remained a thorn in their side.

A persistent problem was the Mascarenes' geographical isolation. Lying in the middle of the Indian Ocean, the Mascarene Islands were very isolated and geographically more than 800 kilometres off Madagascar's coast. Their distance to Europe, the demands and ignorance of the CIO, and the indifference of the government also interfered with the island's value.[34] As Lissa Roberts observes, La Bourdonnais had to employ two mutually-reinforcing strategies: first, he had to strengthen the island's position by fostering infrastructure and organising knowledge as well as natural and human resources, and, second, he had to combine the sometimes ambivalent visions of both the CIO and the Ministry of the Navy and the Colonies.[35] The clash between the governor and the CIO administration illustrate the difficulties of managing Isle de France. At the same time, it highlights that the local administration was dependent on high officials in institutions based in France and India. Although these connections could help La Bourdonnais make a career in the networks of the CIO, they ended abruptly when the different patronage networks pulled the strings in different directions. La Bourdonnais' governorship ended when he was arrested, accused of insubordination to the CIO and the crown. He was taken back to France where he died only a few years later a broken man.[36]

Although the situation of Isle de France improved after 1746 under La Bourdonnais' successor Pierre Félix Barthèlemy David (nominated 1746-53), who had been governor of the outpost in Senegal, the island could not prove its worth to the CIO. A particular problem remained the fact that it was not self-sufficient, which had two consequences. On the one hand, it was extremely vulnerable in the event of a blockade, while, on the other, the lack of provisions made it impossible to supply French soldiers adequately.[37] La Bourdonnais had not achieved a breakthrough – nor did his governorship stimulate explorations or new discoveries. Yet, he had laid the foundation for the future of the island. However, the success of the island was a long way off. Furthermore, the economist Pierre-Samuel Dupont de Nemours remarked

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[34] Henri Bourde de la Rogerie, *Les bretons aux îles de France et de Bourbon (Maurice et la Réunion) aux XVIIe et XVIIIe siècles* (Rennes: La Découvrance, 1934), 9.
[35] Roberts, '"Le Centre de Toutes Choses"': 323.
[36] Ibid., 324.
[37] These are the two major problems that occur throughout the correspondence between the CIO director Dupleix and Isle de France's new governor Lozier-Bouvet in 1753, see ANOM Col C/4/7: Correspondence Générale 1751-1753.

that what La Bourdonnais as a governor had tried to establish on Isle de France was soon destroyed by his CIO successor due to consistently poor administration.[38] This said, Dupont did not take into account that the long-term plans for the establishment of Isle de France were interrupted by war: first the War of the Austrian Succession (1740-1748) and then the Seven Years' War (1756-1763).[39]

Under the rule of the CIO, Isle de France was not only used as a *rélache* but also for exploration and the import and cultivation of spices. La Bourdonnais had already seen the potential of cultivating plants as sources of food and industry. So did the CIO, with a chief interest in the value of economic botany and particularly timber: however, this came at the expense of the island. The French astronomer Guillaume Joseph Hyacinthe Jean-Baptiste Le Gentil de la Galaisière (1725-1792, Le Gentil for short), who discovered and measured the Indian Ocean and stayed for a while on Isle de France in the early and late 1760s, observed that the trees were not growing back and assumed that – if the CIO's policy continued – the island would soon become a desert.[40] About ten years prior to Le Gentil's observation, the French astronomer and cartographer Nicolas-Louis de La Caille (1713-1762) who became particularly famous for the first accurate map of Isle de France (1753) [cf. figure 1], perceived the island's forests quite differently. He described the island as almost entirely covered with all kinds of timber.[41]

Over the years of the CIO's presence on the island, they had failed to either build up storage space or even plan for it, which clashed with individuals on the island. When La Bourdonnais was working on Isle de France as governor (1735-46), plants became more and more an object of interest and were associated with the business of economic botany. In the era of the War of the Austrian Succession, French botanists, together with political patrons, pushed for an economic use of plants and forests in the service of the CIO's wealth. Isle de France's experimental gardens were to serve as a new tool for the acclimatisation of imported plants. The first acclimatisation garden *Monplaisir* in the quarter Pamplemousses close to Port Louis was established by La Bourdonnais, and it later served as the administrators' residence

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[38] Pierre-Samuel Dupont de Nemours, *Notice sur la vie de M. Poivre, chevalier de l'ordre du roi, ancien intendant des isles de France et de Bourbon* (Philadelphia: Moutard, 1786), 36.
[39] On the role of Mauritius during the War of the Austrian Succession, see Toussaint, *Port-Louis*, 47–55.
[40] Guillaume Joseph Hyacinthe Jean Baptiste Legentil de la Galaisière, *Voyage dans les mers de l'Inde: fait par ordre du roi, à l'occasion du passage de Vénus, sur le disque de soleil, le 6 juin 1761, & le 3 du même mois 1769* (Paris: Imprimerie royale, 1779).
[41] Nicolas-Louis de La Caille, *Journal historique du voyage fait au cap de Bonne-Espérance , par feu M. l'abbé de La Caille* (Paris: Guillyn, 1763), 222, 226–28, the original manuscript of the *Journal historique* is available on microfilm in the Observatory, Paris, as Ms C3 26.

on the island.[42] Voyagers and CIO agents in the East Indies closely observed the potential of spice projects. To name one example, Captain Gennes de la Chancelière had already observed in 1735:

> As it is not sufficient to restore a flourishing island which had abandoned its food supplies and refreshments, and on top does not produce any particular products that could serve as a base for substantial trade, and which causes its possessors great expense in order to keep it, it would be convenient, so I think, to encourage the inhabitants to cultivate trees and plants, which could serve the trade and the interests of the Company.[43]

Gennes de la Chancelière expressed the need to turn Port Louis into a second Batavia, since the spice project could bring great profit to the CIO. According to Gennes de la Chancelière, the CIO could challenge the Dutch islands, since Isle de France could not only become a *relâche* on the new routes to China and Indonesia but could also be turned into a great island of commerce.[44]

The CIO captain's starting point for his conclusion was his observations on the quantity and quality of coffee cultivated on Isle de France. He invited his readers to think about the plantation of olive trees, since olive oil was rare and expensive in the European colonies, cacao, pepper, indigo, sugar cane, and other products cultivated in the Americas.[45] Further, he pointed to the fact that sugar was not the best option for making a profit, since it was already a common product in Europe. According to him, one should rather experiment a little with the market and look at what flavours the inhabitants developed. He sought to conduct this by first sending all sorts of cereals from France, together with olive trees, and importing coffee from Bourbon, mulberry trees from China, and also cotton and pepper. Secondly, he provided one or two slaves for each inhabitant in order to work the fields; thirdly, he obliged every new inhabitant arriving on Isle de France to plant food crops and a certain quantity of spices.[46]

In light of Gennes de la Chancelière's earlier suggestion, boosting the island by augmenting agriculture in the service of both the inhabitants and trade was by no means an

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[42] Grove, *Green Imperialism*, 175.
[43] 'Comme il ne suffit pas, pour rendre une colonie florissante, qu'elle ait abondance de vivres et de rafraichissements, si d'ailleurs elle ne fournit pas quelques productions particulières qui puissent servir à un commerce solide, et dédommager les propriétaires des grandes dépenses qu'on est obligé de faire pour l'entretenir, il conviendrait, selon moi, pour le bien du service d'encourager les habitants a cultiver les arbres et les plantes qui peuvent servir au commerce, tant pour l'utilité particulière que pour l'intérêt de la Compagnie.', Gennes de la Chancelière, 'Observations Sur Les Isles de Rodrigue et de France En Mars 1735. Réflexions Sur Ce Qui Peut Tendre À L'accorissement Du Commerce', *Recueil Trimestriel de Documents et Travaux Inédits pour servir à l'Histoire des Mascareignes Françaises* 3 (1933): 223–24.
[44] Ibid., 228, 236.
[45] Ibid., 223–25.
[46] Ibid., 226.

idea which developed only after the Seven Years' War. The crucial point here though is that the ideas Gennes de la Chancelière developed either went unheard or were widely ignored. Only in 1748 did the CIO agree to financially support the spice project spearheaded by Poivre. It is important to underline though that the spice project was not an idea that Poivre alone developed, as he himself – self-promoting though he was – highlighted in both his unpublished and published writings. Chapter five, concerned with a new perspective on the French acquisition of nutmeg and clove in the middle decades of the eighteenth century, discusses this matter in depth by reinstating the agency of the multiple brokers involved in facilitating Poivre's attempts to acquire spice plants. Ideas about the acquisition of spices had been circulating for some time before Poivre's proposition to the CIO in 1748. In an anonymous *mémoire* about commercial relations between Europe and China from 1733 to 1735, the author reflects about opportunities in China, where one could find cinnamon of a better quality than in Ceylon (however, according to the *mémoire*, this was a rumour and needed to be confirmed) and also nutmeg and clove, although this could not compete with the 'Malay crop' (the crop from the Moluccas).[47] In the early 1750s, cinnamon was transplanted from Karikal, a French *comptoir* south of Pondicherry, to Isle de France, followed by pepper from the Indian coasts and seeds from Indonesian islands, which Cossigny smuggled in the early 1760s.[48]

On a different note, there is evidence that the CIO was indeed interested in the cultivation of rice. Yet, this enterprise was not considered for the sake of the island's population but for trade with France. The *Mémoire sur le riz* unveils that the CIO made a proposal to the crown: the introduction and cultivation of rice in France under the condition of the exclusive privilege of trade.[49] The CIO must have been interested in the cultivation of rice, but it remains unclear why they did not follow such a plan on Isle de France. Apparently, as far as the document by hand can explain, the trading privilege was given to the CIO, but there is no evidence that the CIO fully supported the cultivation of rice on the island. Indeed, the period of its management ended after the Seven Years' War, when the island's management was entirely taken over by the Ministry of the Navy and the Colonies. Finally, by *Ordonnance* of

[47] 'Commerce européen avec la Chine' (1733-1735), NAF 9347, fol.19r.
[48] Drayton, *Nature's Government*, 75.
[49] See also 'Mémoire sur le riz' (n.d.), NAF 22253, fols. 242r–245v, 243r.

13 August 1769, the exclusive privileges of the CIO were suspended, which gave all French subjects the right to trade in the Indies.[50]

In the first two decades of the settlement (1720s and 1730s), much hope was placed on several timbers, which could be used for naval ships. In 1752, however, and as CIO specialist Philippe Haudrère remarks, Isle de France's timber did not give great benefits to the naval port in Lorient, one of the CIO's main ports in France.[51] Timber growing on Isle de France was mainly used for fortifications on the island itself. In 1732, Jean-François Charpentier de Cossigny (1690-1789), *ingénieur ordinaire du Roi*, developed plans for a proper fort with strong walls, since he was convinced that the island occupied a good geopolitical and strategic position.[52]

Although Isle de France's governor Nicolas de Maupin (who was in office between 1729 and 1735 as La Bourdonnais' predecessor) expressed his concerns about such an expensive project in a letter to the CIO in 1733, engineer Cossigny received the green light for his plans in 1734.[53] Yet, there were no resources, neither men nor material, to start his work. Governor Maupin reported to the Minister of the Navy and the Colonies, the Comte de Maurespas, on 17 March 1735 that Cossigny had abandoned his work for no obvious reason other than that he preferred to spend time on Bourbon than on Isle de France.[54] The reasons might not have seemed obvious to the governor, yet Cossigny's letters give away that he personally clashed with La Bourdonnais. Cossigny claimed that La Bourdonnais was jealous of everything that he did on the island.[55] Personal issues and conflicts might have been the reason why the engineer stayed away from Isle de France when he was not obliged to be there.

Although Governor Maupin's successor La Bourdonnais pushed for the greater and proper usage of the northwest of the island, both for the defence of Pondicherry and to provide a living for the island's inhabitants, the CIO remained stolid and insisted on using the island as

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[50] Toussaint, *Histoire des îles Mascareignes*, 84.

[51] Philippe Haudrère, *Les Français dans l'océan Indien, XVIIe-XIXe siècle* (Rennes, France: Presses universitaires de Rennes, 2014), 122. Haudrère relies on a document dated 1752, AN Marine B/2/343.

[52] Cossigny's son stressed that his father was the first to propose this project in 1733. Joseph-François Charpentier de Cossigny, *Lettre à M. Sonnerat, Commissaire de la Marine, Naturaliste, Pensionnaire du Roi, Correspondant de son Cabinet & de l'Académie Royale des Sciences de Paris, Membre de celle de Lyon* (Palma: Imprimerie Royale, 1784), 2 .

[53] Letter from Maupin to the CIO, 19 March 1733, ANOM Col C/4/3.

[54] Letter from Maupin to the Minister, 17 March 1735, M.A. X14/5/2(1), printed in Ly Tio Fane-Pineo, *Île de France*, 303–304. On Cossigny's work and his struggle with the governors, see 'Papiers concernant M. de Cossigny', 31 pieces, MA OA 97.

[55] 'Extrait du lettre de Cossigny à M. le Contr. general (...), Isle de France, 25 Xbre 1736', NAF 9344, fol. 193r.

a mere stopover in the East Indies.[56] Even though the CIO directors agreed to the general advantages of having the island as an *entrepôt* for French vessels, they were more concerned with the great investment needed for building up a proper depot and upgrading the fortifications. The investment would be too high for too little outcome. Hence, the CIO directors declared that 'the Company will never think about forming a depot on Isle de France.'[57]

La Bourdonnais' vision of a more pleasant existence was disrupted by the Company's unwillingness to create a parallel French society in the East Indies. He explains in his long *mémoire* that Isle de France did not offer the same advantages as Bourbon in terms of the number of inhabitants or for the plantation of coffee, and that it was therefore necessary to support living and working in the island colony.[58] La Bourdonnais continued that even if the CIO expected the colony only to perform its task as a 'stepping stone', Isle de France was much in need of inhabitants committed to the island and their lives there. Only with a society committed to its living space, so he argued, was the island sustainable.

The governor did not abandon his plans and tried to convince the metropolitan institutions. In October 1740, at the beginning of the War of the Austrian Succession, he presented his plans for a campaign in the Indian Ocean, in which he explained the current state of the colonies in the East Indies and the necessity of fortifying Isle de France.[59] The conflict between La Bourdonnais and the general commander of the East Indies, Joseph François Dupleix (1697-1763), can serve as another example that this was not only a dispute between two high officials, but was also about the conflicting views on French expansion in the Indian Ocean. At the end of the day, it was the Ministry of the Navy and the Colonies which was most likely to sympathise with this proposal.[60] While the French islands with their strategic position remained important to the Ministry of the Navy and the Colonies, the CIO rather aimed for the short-term exploitation of the island's natural resources and the forced migrants

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[56] On La Bourdonnais in the service for the CIO see Philippe Haudrère, *La Bourdonnais: marin et aventurier* (Paris: Desjonquères, 1992).
[57] Letter from the directors of the CIO to La Bourdonnais, 20 November 1737, M.A., X14/6/2 (a) 2, printed in Ly Tio Fane-Pineo, *Île de France*, 305–6.
[58] Bertrand-François Mahé de La Bourdonnais, *Mémoire Historiques de B.F. Mahé de La Bourdonnais, Gouverneur des Îles de France et de Bourbon* (Paris: Pélicier et Chatet, 1827), 14. A draft of this memoir can be found as a manuscript in the BN; NAF 9344, fols. 197r-239r.
[59] 'Plan de Campagne dans l'Ocean Indien présenté par La Bourdonnais au Ministre de la Marine en date du 17 octobre 1740', printed in Ly Tio Fane-Pineo, *Île de France*, 308–13.
[60] Auguste Toussaint, *Histoire des Îles Mascareignes*, 51.

taken to the island as slaves. To them, Isle de France was a means for the defence of Pondicherry.

The advantages of Isle de France did not remain unobserved by the English. Dalrymple observed in 1756:

> I am much afraid the port [of Isle de France] will give [the French] greater advantage over [the British] in India, than we at present seem sensible of [and he continues that Britain should have taken the island] instead of making that unsuccessful attempt against Pondicherry. By all accounts I have been able to obtain, it would have been an easy & certain conquest. It was not then fortified as it is at present. Many of the inhabitants were discontented & secretly wished for a change of government and by the reinforcement they went to Pondicherry they were left bare of troops.[61]

French colonial and mercantile interests overlapped with those of their British counterparts not only in the Atlantic, but also in the Indian Ocean. Both states developed a larger interest in the natural and human resources gathered in outposts in several parts of the world. So long as the states maintained control over ambitious merchants, it was indeed possible to negotiate with their counterpart and avoid open conflicts, as we see in the treaty of 8 June 1755, which ended hostilities between the CIO and the British East India Company.[62] But the growing importance of Isle de France's ports attracted other European powers. Although the main Anglo-French disputes occurred in South Asia, where the trading companies were properly established, this rivalry was felt in trading networks throughout the Indo-Pacific regions and on Isle de France as a strategically-located island, base, and naval station for the CIO. By the mid-eighteenth century, France and Britain sought to measure their naval power and financial stamina beyond Europe's borders.[63] The journals of Isle de France's new governor René Magon unveil the struggle to manage the island in times of war, which remained its biggest problem over the course of the eighteenth century: food was scarce and the mortality rate of slaves was high.[64]

While Isle de France served the French forces more and more as a place of rest when troops were sent to South Asia, the British were close on French heels. The British Royal Navy attempted to attack the French possession several times after British colonial offices pointed to its growing importance. In a letter dated 11 April 1761 from the principal officers in Madras to George Pigot and the Gentlemen of the Council of Fort George concerning their

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[61] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fol. 12r.
[62] Matt Schumann and Karl W. Schweizer, *The Seven Years War: A Transatlantic History* (London and New York: Routledge, 2009), 7.
[63] Daniel Albert Baugh, *The Global Seven Years' War, 1754-1763: Britain and France in a Great Power Contest* (Harlow, New York: Longman, 2011), 1.
[64] Correspondence Générale 1755-1757, ANOM Col C/4/9.

proposed expedition against the French islands, the importance of the British attempt to attack the Mascarenes becomes more than obvious: 'We shall only add that this enterprise [an attack] in the present happy situation of the English affairs in India appears to us to be the only expedition that can be undertaken for the advantage and honour of the Nation, and the East India Company trade in particular.'[65] The officers insisted that the success of such an operation required immediate action, and the ministers thus expected conformation in order to send troops as soon as possible, preferably starting an expedition by September of the same year (1761).

An additional document, which refers to the said letter, explains why the British should conquer the French islands. The secret committee in Madras and Bombay recommended weakening both Isle de France and Bourbon, particularly the former:

> The blow of such a conquest must give to the French Trade in India, and the difficulty of repairing or protecting their ships during the war, when deprived of the islands, pointed out to the English Company the importance of the undertaking and made them urge their thru Presidencies to exert their united [endeavours] in such an expedition, previous to any other. [66]

The document also underlines that

> the happy period (…) hoped for is now arrived; and so much more favourable to the company's views (by the total expulsion of the French from Asia) than the most sanguine Politicians could reasonably have imagined. It is therefore highly incumbent that those on whom the prosecution of the island expedition does depend, should in preference to any particular schemes, lend their at most attention to an enterprise which the Ministry as well as the Company sum to think a principal object.[67]

This letter highlights that the British had planned an expedition to capture the Mascarene Islands in early 1761, in the middle of the Seven Years' War. Although the secondary literature suggests that this plan was abandoned for the sake of conquering the Belle Isle in the Bay of Biscay (a strategic island close to Lorient and French Brittany), there is evidence that the British not only planned but indeed *conducted* an expedition against the French Islands which nonetheless failed.[68]

A supplement to a letter from the Company's General of St. George (India) to Lord Clive, dated 8 April 1762, points directly to this unsuccessful operation:

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[65] BL MSS EUR/ORME OV 325, fol. 9r.
[66] Ibid., fol. 4r, unsigned, no date.
[67] Ibid.
[68] Jonathan R. Dull, *The French Navy and the Seven Years' War* (Lincoln: University of Nebraska Press, 2005), 211–12.

> The miscarriage of the expedition against the French islands (...) under Commod. Keppler joining Rear Admiral Cornish[69] with the ships under his command was in itself a great disappointment and gives us great concern, but the misfortune was the more interest by the loss of such a great number of men in the tedious cruise off Diego Rais, it is some consolation to us however that this has not happened through any default on the part of the company or their servants.[70]

The overall attempts of the CIO to establish an island colony remained limited and rather unsuccessful. In general, the CIO did not put much effort into the establishment of the Indian Ocean outposts: they focused on Senegal, for instance, because it was easier to find volunteers who would transfer to the African mainland.[71] A *mémoire* about Isle de France states: 'Isle de France is the door to all Indies'.[72] Furthermore, in 1770, the Abbé Raynal observed: 'Somewhat remote from the ordinary routes, [Isle de France] is the surest of the secrets of armaments. Those who imagine it closer to our continent do not see that it would consequently be impossible to transport oneself to the Coromandel coast in two months or more to the most distant gulf, a priceless advantage for people who do not have any port in India.'[73] Was Raynal right?

Although British forces could not take possession of the island, the CIO did not heed La Bourdonnais' warnings and failed to build the storage which French forces lacked during the years of war. When French forces were sent for the first time to the Indian Ocean in order to defend Pondicherry, Isle de France was incapable of supplying all the men both in terms of food and material to repair and restore their ships.[74] Thus, during the Seven Years' Wars, the importance of Isle de France remained limited. In fact, the overall importance of Isle de France remained limited under the CIO's administration in terms of agriculture, commerce, and military forces. Throughout the eighteenth century, there was great disappointment about the West Indian Ocean colonies: the recommendation to drop the Mascarenes, particularly in

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[69] Admiral Sir Samuel Cornish, 1st Baronet, 1715-1170, leader of the expedition of Manilla in 1762.
[70] Company's General Letter to Fort St. George, sent to Lord Clive, 9 March 1763, BL IOR/E/4/862, fols. 597r-678r, Sup' Letter, 8. April 1762, par. 5, fol. 668r.
[71] Bourde de la Rogerie, *Les bretons aux îles de France et de Bourbon*, 137–38. See also 'Rapport de la mission du sieur Poivre', NAF 9377, fols. 54r-67v.
[72] 'L'Isle de France est à la porte de toutes les Indes', Anon. Mémoire sur l'Isle de France, unpaginated, no date or author given, consulted at the AN in Paris on microfilm, ANOM Col C/4/153/1.
[73] 'Un peu écartée de la route ordinaire, [l'Isle de France] en est plus sûre du secret des armemens. Ceux qui la desireroient plus près de notre continent, ne voyent pas qu'il seroit alors impossible de se porter en un mois à la côte de Coromandel, & en deux ou plus dans les golphes les plus éloignés, avantage inestimable pour un peuple qui n'a aucun port dans l'Inde.', Guillaume-Thomas Raynal, *Histoire philosophique et politique des établissements et du commerce des Européens dans les deux Indes, Tome 1: Livres I-V*, ed. Anthony Strugnell et al. (Ferney-Voltaire: Centre international d'étude du XVIIIe siècle, 2010), book IV, chapter 32, 445. The quotation refers to the 1770 edition and was deleted in the 1780 edition since action was taken regarding the fortifications: see page 719 of the 2010 critical edition.
[74] Toussaint, *Histoire des Isles Mascareignes*, 61.

view of the bad weather conditions, was made more than once.[75] However, and as a *mémoire* from 1752 underlines, the French were in great need of a 'stepping stone' on the long route to India, and Isle de France was the only feasible option.[76]

In a letter about the present state of Bourbon to the *contrôleur générale* Lenoir in Pondicherry, dated 24 August 1727, Governor Benoît Dumas argued that both islands were exposed to the enemy from within and without, noting that 1,000 revolting slaves had to face only 180 inhabitants who could hold a weapon and 45 soldiers on the entire island of Bourbon. He continues that there were not enough soldiers on Isle de France and touched upon the fact that the island was left alone without any external security.'[77] Just as Dumas was puzzled by the faintheartedness of the administration in the first half of the eighteenth century, I am left with the same questions for the rest of the century.

CHOISEULS' AMBITIONS AND THE LEGACY OF THE SEVEN YEARS' WAR (1763-1785)

The island proved its worth in the context of the Seven Years' War and the loss of French colonies in the Atlantic and in India. Thanks to the global dimension of the Seven Years' War (after all the war unfolded in theatres on four continents), its aftermath had a clear impact on the development of Isle de France in the second half of the eighteenth century.[78] After the CIO was suspended, the island's administration changed: it was governed directly by the Ministry of the Navy and the Colonies from 1764 to 1790. Poivre and Dumas were sent to Isle de France as intendant and governor respectively to clean up the mess that the CIO's political and commercial programme had left on the island. The new royal government's vision of the usage of the island differed from the CIO's prior to 1763. It was, however, the colony of Saint-Domingue (present-day Haiti), as the most lucrative colony, which attracted metropolitan attention. Isle de France remained in the shade of the French Caribbean possessions. Post-war Saint-Domingue, when properly colonised, was to become a base of

[75] Vaughan, *Creating the Creole Island*, 37.
[76] Mémoire 10, piece 38, June 1752, anonymous, ANOM DFC IV. Also Vaughn makes a reference to his said memoir, cf. Ibid.
[77] Dumas to M. le Contrôleur général 24 August 1727, NAF 9343, fols. 198r-198v.
[78] On the global dimension of the Seven Years' War see especially Baugh, *The Global Seven Years' War, 1754-1763*; Frans De Bruyn and Shaun Regan, eds., *The Culture of the Seven Years' War: Empire, Identity, and the Arts in the Eighteenth-Century Atlantic World*, (Toronto: University of Toronto Press, 2014); and also John Gascoigne, *Encountering the Pacific in the Age of Enlightenment* (Port Melbourne: Cambridge University Press, 2014).

operations for the French navy: if it had fallen into British hands, it would have given great asset for the English East India Company in this part of the world.

The Seven Years' War was a disaster for France: Louisburg and Gorée fell in 1758, Québec and Guadeloupe in 1759, Montréal in 1760, Pondicherry in 1761, and Martinique in 1762. The Treaty of Paris, signed on 10 February 1763, humiliated Louis XV as few monarchs had been humiliated before.[79] Although France kept its Caribbean colonies, the territorial downsizing in the Atlantic was significant for the financial crisis of the French monarchy. Particularly in the three decades after the Seven Years' War, French imperialism transformed significantly. The French defeat was a major reversal for the on-going colonisation, since the Treaty of Paris of 1763 ratified the losses in Canada, Louisiana, and India. The response was the French colonial administration's attempts to compensate for the loss of its possessions in the Atlantic and the Indian Ocean. This crucial moment overlapped with colonial innovations and traditional approaches.[80] It was also at this moment, when expansion in overseas territories went hand in hand with the rising military dominance of the British in the Indian Seas, that the French were forced to extend their commercial expansion to the Indo-Pacific region.[81] The rivalry between the great European powers turned to new paths and European interest in trade and imperial advantage moved towards the Pacific: this meshed with the promotion of knowledge and resulted in increasing contact with the Pacific world.[82]

In the East Indies, Isle de France was the principal establishment from 1735: it was certainly the only stable French establishment throughout the eighteenth century not occupied by British troops.[83] After the French navy was defeated, the Canadian colonies lost, and the South American projects had failed, all hope was put onto the small island of Isle de France. In order to assure the links between the metropolis and branches in the East Indies, the French king – or rather his minister – declared the return of the Mascarenes from the CIO to the

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[79] Christopher Hodson, *The Acadian Diaspora: An Eighteenth-Century History* (Oxford: Oxford University Press, 2012), 79.
[80] Pernille Røge, 'A Natural Order of Empire: The Physiocratic Vision of Colonial France after the Seven Years' War', in *The Political Economy of Empire in the Early Modern World*, eds. Sophus A. Reinert and Pernille Røge (Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2013), 32.
[81] Madeleine Ly-Tio-Fane, 'Pierre Poivre et l'expansion française dans l'Indo-Pacifique', *Bulletin de l'Ecole Française d'Extrême-Orient* 53, no. 2 (1967): 455–58; See also Toussaint, *Histoire des Îles Mascareignes*, 80–88.
[82] On encounters with the Pacific during the long eighteenth century, see Gascoigne, *Encountering the Pacific in the Age of Enlightenment*, particularly for the legacy of the Seven Years' War: part II, chapter 5.
[83] Bourde de la Rogerie, *Les bretons aux îles de France et de Bourbon (Maurice et la Réunion) aux XVIIe et XVIIIe siècles*, 6.

crown, *par édit*, in August 1764. The Mascarene Islands were placed under the direct control of the Minister of the Navy and the Colonies after the islands were bought for the sum of 7,625,348 *livres*.[84]

At the beginning of the *époque royale*, the most important metropolitan actors for Isle de France were Étienne-François de Choiseul (1719-1785), who managed French politics via his role as Minister of the Navy and the Colonies (1761-1766) and Minister of Foreign Affairs (1766-70), and his cousin César Gabriel de Choiseul-Praslin (1712-85), the Duc de Praslin for short, foreign minister (1761-66), Minister of the Navy and the Colonies (1766-70) and a future honorary member of the *Académie des Sciences*.[85] Choiseul had ambitious plans that were not shared among other governmental officials, perhaps because Isle de France was too distant from the French possessions in India.[86]

The *Ministère de la marine et des colonies* (Ministry of the Navy and the Colonies) formed one of the main elements of the royal government, the political and bureaucratic organisation centred on the king. Located in Versailles, the Minister of the Navy and the Colonies sought to co-ordinate, instruct, and correspond with the royally appointed governors and intendants in the colonies. With the serious development of colonial affairs, the *Bureau des colonies* (colonial office) was founded as a formal department in 1710. Sixty years after its foundation, the colonial office split into two when the royal government took over the CIO. The loss of many colonies during the war led to ambitious and stronger control over the colonies and its inhabitants, which is also reflected in the colonial archives: they became an instrument of imagined control and a repository of imperial consciousness.[87] Although the main archives were principally in Versailles and Paris (*Dépôt des archives* and *bureau des colonies, Dépôt des cartes et plans*), the CIO had its own archives in Lorient between 1731 and 1748, while

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[84] Toussaint, *Histoire des Îles Mascareignes*, 64.

[85] All information and dates are taken from Marcel Marion, *Dictionnaire des institutions de la France aux XVIIe et XVIIIe siècles. Réimpression de l'édition originale de 1923* (Paris: A. et J. Picard et Cie, 1968), 503–4. I refer to Choiseul-Praslin as 'Praslin' in order to avoid confusion with his cousin Choiseul. The two cousins exchanged their ministry between 1761 and 1770: the situation is sometimes very confusing, particularly in letters since 'Choiseul' could refer to both men. Even the secondary literature on the metropolitan administration of the Mascarene Islands is often misleading. Most letters from Poivre to Versailles between 1767 and 1770 are addressed to the 'Duc de Praslin'.

[86] Reussner argues towards the long distance between Isle de France and India, A. Reussner, 'L'Ile de France au moment de la rétrocession au Roi (1767) [D'après la correspondance du Gouverneur Dumas et de l'Intendant Poivre]', *Revue D'histoire Des Colonies* 20, no. 87 (1932): 218.

[87] Marie Houllemare, 'La fabrique des archives coloniales et la naissance d'une conscience impériale (France, XVIIIe siècle)', *Revue d'histoire moderne et contemporaine* 61–2, no. 2 (2014): 8. On the centralisation of the archives and Paris as a 'colonial capital', see also François Regourd, 'Capitale savante, capitale coloniale: sciences et savoirs coloniaux à Paris aux XVIIe et XVIIIe siècles', *Revue d'histoire moderne et contemporaine* 55, no. 2 (2008): 121–51.

those of the *Bureau du détail des colonies* (1765-71) were in Rochefort.[88] But what did this imagined control mean in terms of its actual power on the ground?

The Ministry of the Navy and the Colonies itself did not consist of scientific experts, but it financially lobbied scientists as well as the navy. From 1739 to 1782, Duhamel du Monceau (1700-1782) was the navy's inspector general. Duhamel was also a naturalist collaborating with the *Jardin du Roi*'s director Georges-Louis Leclerc de Buffon (1707-1788): according to Richard Grove, he stimulated Poivre's views about agriculture and environmental awareness.[89] The scientific ties became closer when Duhamel engaged actively with the *Académie des Sciences* and the *Société Royale d'Agriculture*.[90] More importantly, Duhamel instructed botanists to collect plants and received, in return, specimens which he passed to the *Jardin du Roi*.[91] The King's Garden was part of *La maison du roi* and the offices of the *Bâtiments du roi*, which can be described as the ministry of culture and art.[92]

Although the CIO cultivated Isle de France from 1721 to 1764, this attachment remained a formal one. Between 1669 and 1763, the *Secrétaires d'état à la marine* directed the colonies. 'Royal power' on Isle de France was shared between three 'classical' institutions: 1) the governor, who was responsible for military affaires, 2) the intendant, who was responsible for the civil administration, and 3) the *conseil supérieur*, in theory the equivalent of the parliament and sovereign courts.[93] In a contemporary report, the astronomer Alexandre Guy Pingré (1711-96) explains that the *conseil supérieur* consisted of five or six *conseilleurs* (advice-givers) under a prosecutor of the king as well as the governor as president, but that laws were commonly violated.[94] Even during the presence of the CIO, power remained 'royal'.[95]

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[88] Houllemare, 'La fabrique des archives coloniales et la naissance d'une conscience impériale (France, XVIIIe siècle)', 12–13.
[89] Grove, *Green imperialism*, 168.
[90] Technically, the *Société* fell under the *Minstière des Affaires Etrangères et du Contrôle Général*. Louis Passy, *Histoire de la Société nationale d'agriculture de France, Tome premier: 1761-1793* (Paris: typogr. P. Renouard, 1912).
[91] See for instance 'Journal des Envois des Plantes (…)', BCMNHN Ms 1327.
[92] On the institutional-administrative structure of scientific networks, see: François Regourd, 'Les lieux de savoir et d'expertise colonial à Paris au XVIIIe siècle: Institutions et enjeux savants', in *Les mondes coloniaux à Paris au XVIIIe Siècle: Circulation et enchevêtrement des savoirs*, eds. Anja Bandau and Marcel Dorigny (Paris: Karthala, 2010), 31–48.
[93] Marion, *Dictionnaire des institutions de la France aux XVIIe et XVIIIe siècles. Réimpression de l'édition originale de 1923*, 155.
[94] Pingré, *Voyage à Rodrigue*, 223–24.
[95] Ibid., 223.

The battle between the different and conflicting agendas of state officials continued during the *époque royale*, not only between Versailles and the local administration with regard to the economic use and political role of Isle de France, but also between the governor and the intendant of the island. The conflicting views between all the interest groups present on Isle de France did not remain hidden from the public. The Abbé Raynal observed that 'Isle de France was for a long time much more occupied by the imagination of its possessors than their industry. They are married to the speculations on the use that could be made of it. There are those who want it to be a depot where all the goods from Asia can be stored. These must be transported on boats from these countries and then be loaded on French vessels.'[96] Raynal continued: 'But the island lacked vessels and money, it has no objects of export, no means of import. For all these reasons, the enterprise was unlucky and the island remained nothing more than a purely agricultural establishment.'[97]

Choiseul looked for new possibilities for expansion in order to compensate for the great losses in the Atlantic. He unsuccessfully tried to regain control over the posts France had lost in Western Africa, Senegal, and Gambia.[98] He also tried to make further attempts in the West Indies and unsuccessfully colonised Guiana on the northern coast of South America.[99] The minister proposed to the botanist and Jussieu-disciple Michel Adanson (1727-1806), who explored Senegal between 1749 and 1753 and later became an important figure at the *Académie des Sciences*, to explore Guiana's natural resources: this task was later fulfilled by the pharmacist Jean Baptiste Christophore Fusée-Aublet (1720-78).[100] Hence, in 1763, Choiseul planned to make the remaining French colonies compensate for the loss of Canada.

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[96] 'Occupa long-tems l'imagination de ses possesseurs beaucoup plus que leur industrie. Ils s'épousièrent en conjectures sur l'usage qu'on en pourrait faire. Les uns vouloient que ce fût un entrepôt où viendroient aboutir toutes les marchandises qu'on tireoit de l'Asie. Elles devoient y être portées sur des bâtiments du pays, & versées ensuite dans des vaisseaux François.' These conflicting views were also closely observed by the Abbé Raynal, see book IV, chapter 31-32. I am making a reference to the critical re-release of the 1783 version. Raynal, *Histoire philosophique et politique des établissements et du commerce des Européens dans les deux Indes, Tome 1*, 44. See also Alfred Lacroix, *Notice historique sur les membres et correspondants de l'Académie des sciences ayant travaillé dans les colonies françaises des Mascareignes et de Madagascar au XVIIIe siècle et au début du XIXe: lecture faite en la séance annuelle du 17 décembre 1934* (Paris: Gauthier-Villars, 1934), 6.

[97] 'Mais l'isle manquoit alors de vaisseaux & de numéraire ; elle n'avoit ni objets d'exportatios, ni moyens de consommation. Par toutes ces raisons, l'expérience fut malheureuse ; & la colonie fut fixé à l'état d'un établissement purement agricole', Raynal, *Histoire philosophique et politique des établissements et du commerce des Européens dans les deux Indes, Tome 1*, 44.

[98] Dull, *The French Navy and the Seven' War*, 245.

[99] Ibid., 246. On the colonisation of Guiana and the struggle for a French America, see Marion F. Godfroy, *Kourou, 1763: Le Dernier Rêve de l'Amérique Française* (Paris: Vendémiaire, 2011).

[100] Alfred Lacroix, *Michel Adanson au Sénégal (1749-1753)* (Paris: Larose, 1938), 15; Michel Adanson, *Histoire Natuerelle du Sénégal* (Paris: Claude-Jean-Baptiste Buache, 1757). After his return from Africa, Adanson was invited by Bernard de Jussieu to live in his house, where he remained for ten years. This also explains the

After the Treaty of Paris, Choiseul refused to dismiss imperial plans for the French state. Far from it! The defeat by the British triggered an outburst of colonial ambitions and schemes aimed at shoring up what remained of the colonies, particularly the French Antilles and Guiana.[101] The minister worked out a programme for the establishment of a colony in the Americas. For this programme, Choiseul proposed to the botanist Adanson to explore Cayenne's natural history. Guiana was to serve as a base for the army and the French Antilles, an idea which Étienne-François Turgot, who was named governor of Guiana, strongly supported when he wrote to Choiseul: 'You will be the first French minister who will have established a colony on solid and reasonable principles. Guiana will be the only possession which could partly compensate for the losses that France had made.'[102]

The Guiana project, however, was poorly planned and ended in disaster; Choiseul had to make up for his mistakes.[103] New projects had to be considered and new imperial venues for resources that could bring new wealth to the debt-burdened kingdom explored. France needed a geopolitical and financial boost. After the failure of Guiana, Choiseul's new object of interest thus became Isle de France, and the project was undertaken by Poivre. The minister counted on Poivre: if we believe Poivre's biographer Dupont, he assured Poivre of his trust in his abilities when he wrote to him in 1770, just as French ships were about to stop-over on Isle de France: 'I know you are lacking of everything, but it is you who is there and we count on you.'[104]

The importance of Choiseul and Praslin for the Isle de France project was well known amongst contemporary observers. In 1772, a certain Mr Colpoys (who probably was Admiral John Colpoys (1742-1821), an officer of the British Royal Navy), explained that the new governor of Isle de France, Charles-Henri-Louis d'Arsac de Ternay (1771-75), who replaced François-Julien du Dresnay, chevalier Desroches, in 1771, planned to fortify and strengthen

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intimate use of Bernard's taxonomic procedure, which Adanson justified. Alan G. Morton, *History of Botanical Science: An Account of the Development of Botany from Ancient Times to the Present Day* (London, New York, Toronto: Academic press, 1981), 302.

[101] Hodson, *The Acadian Diaspora*, 8.

[102] Quoted in Pierre Pluchon, 'Choiseul et Vergennes: un gâchis colonial', in *Négoce, ports et océans, XVIe-XXe siècles: mélanges offerts à Paul Butel*, eds. Silvia Marzagalli and Hubert Bonin (Bordeaux: Presses universitaires de Bordeaux, 2000), 228.

[103] François Regourd, 'Kourou 1763. Succès d'une enquête, échec d'un projet colonial', in *Connaissances et pouvoirs: les espaces impériaux, XVIe-XVIIIe siècles, France, Espagne, Portugal*, ed. Charlotte de Castelnau-l'Estoile and François Regourd (Pessac: Presses universitaires de Bordeaux, 2005), 233–54; See also Eugène Théodore Daubigny, *Choiseul et la France d'outre-mer après le traité de Paris avec un appendice sur les origines de la question de Terre-Neuve: étude sur la politique coloniale au XVIIIe siècle* (Paris: Hachette, 1892).

[104] Dupont de Nemours, *Notice sur la vie de M. Poivre, chevalier de l'ordre du roi, ancien intendant des isles de France et de Bourbon*, 39.

the island. However, this idea was not supported by Versailles after the two Choiseuls had left their posts:

> Since the removal of the Duke de Choiseul who it seems had the Welfare of this island much at heart, [the governor] has been obliged to give over all his projects, which every body allows promised fair to be of service to his country, tho perhaps not to the inhabitants of the island, who must have had additional taxes laid on them for the execution of these schemes. The last accounts from Europe seemed to say that the French East India Company would be again re-established; but that the King intended keeping possession of this island and Bourbon.[105]

The *Mémoire du Roi* (1766), instructions for Isle de France's new local administration by Choiseul in 1764, provide further insights into the imagined and visionary importance of the Mascarene Islands for the minister.[106] Three major points become clear. First and foremost, the islands were to serve as a place of commerce and exchange, especially for the spice trade. Trade along the coasts of Africa was said to be varied, abundant, and highly profitable. As a base for the spice trade, Isle de France was not only important for the trade with Europe, but, and to a much greater extent, for the trade with Asia. There, as the *mémoire* underlines, spice consumption was much higher. Secondly, the Mascarene Islands were important *rélaches* for ships to rest and refresh on their way to the eastern parts of the Indian Ocean. According to the *mémoire*, if France had not possessed the islands, ships would have had to stop in either Brazil or the Cape, which would have meant relying on foreign territory. This foreign territory would have been much harder to access, making it difficult to renew food and other resources. Thirdly, and most advantageously, the *mémoire* explains the geopolitical position of Isle de France in light of the French possessions in India. Choiseul was convinced that through possessing the island, the French could dominate the whole region, as the island was located in the centre of events and could most certainly serve as a spot for defending the French territories as well as for attacking foreign colonial possessions.[107] According to the said *mémoire*, the island's ports, its population, its salubrity, and its geographical position enabled

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[105] 'Mr. Colpoy's Remarks on the Isle de France,' 25 September 1772, BL IOR/H/111, fol. 142v.
[106] 'Mémoire du Roi pour server d'instructions aux Sieurs Dumas, Commandant general, et Poivre, Commissaire general de la Marine, faisant function d'Intendant aux Isles de France et de Bourbon', 28 novembre 1766, ANOM Col C/4/17, part. fols. 3r–4v.
[107] See also on the instructions and Choiseul's plans Ly-Tio-Fane, 'Pierre Poivre et l'expansion française dans l'Indo-Pacifique', 460.

the French in the Indian Ocean to equip, feed, and mobilise the troops if the establishment was used optimally.[108]

Choiseul's 'wishful thinking' remained, however, a vision. Amongst government officials in Versailles, there was no homogenous idea of how to use Isle de France. Richard Grove suggests that Choiseul's cousin, the Duc de Praslin in his role as Minister of the Navy and the Colonies, was rather more interested in the establishment of an agricultural island according to physiocratic ideas than in establishing a focal point and repair station in the middle of the Indian Ocean.[109]

Whereas Praslin certainly followed ideas on the re-establishment of forests, Grove dismisses the political dimension by arguing in this direction without considering the legacy of the Seven Years' War and the meaning of Isle de France as a geopolitical colony for the French state. While Choiseul and Praslin pushed for the establishment of Isle de France, they could not act independently and send money or troops. The Choiseul cousins must have been well aware of the bad situation on Isle de France. For instance, Praslin – relying on a *mémoire* by 'the inhabitants of the island' to the king – did indeed report a state of 'total anarchy' on the island and that it was necessary to take drastic action if the island was to prosper one day.[110] Consequently, he designed an *Ordonnance du Roi* from 25 September 1766 in which he proclaimed 'His Majesty wishes to regulate everything which concerns the general and particular administration of the Isles de France and Bourbon, not only by report of the government of these islands but also by report of the distribution of justice.'[111]

In official documents, such as the aforementioned *mémoire* from 1764, which was enacted in 1766, Choiseul sugarcoated the situation on the island and only underlined the imagined geopolitical importance of Isle de France and its overall advantages. He created an imagined reality in order not to lose royal financial support. Metropolitan circles remained suspicious though.[112] When I speak of 'vision', I must note that there was, in fact, 1) an overall vision (as in 'plan') of the island's use as a stepping stone, 2) Choiseul's wishful thinking, and 3)

[108] 'Mémoire du Roi pour server d'instructions aux Sieurs Dumas, Commandant general, et Poivre, Commissaire general de la Marine, faisant function d'Intendant aux Isles de France et de Bourbon, 28 novembre 1766', ANOM Col C/4/17.
[109] Grove, 'Conserving Eden', 332–34.
[110] Louis-José Paul, *Deux siècles d'histoire de la police à l'Île Maurice, 1768-1968* (Paris: l'Harmattan, 1997), 22.
[111] 'Ordonnance du Roi concernant le gouvernement civil des iles de France et de Bourbon, 25 septembre 1766' (MA Vol Z3B7, No. 29), printed in Doojendraduth Napal, ed., *Les Constitutions de l'Ile Maurice* (Port-Louis: Mauritius printing coy, 1962), 30.
[112] Above all, Choiseul was also replaced by De Boynes in 1770 as *secrétaire d'État à la Marine*, who remained until 1774.

Choiseul's created reality in official papers. The game of balancing visions, a created reality, and the support of money-givers can thus be observed both in the colony and in France itself. In other words, politics remained symbolically present in the colonies. The tension between Choiseul and the government, and the nomination of Poivre as intendant of the Mascarene Islands by Choiseul, created multiple identities.

Although Isle de France seemingly had such great importance to the minister, it remained badly fortified after the Seven Years' War. Choiseul's successor as Minister of the Navy and the Colonies, his cousin Praslin, received warnings about the situation of Isle de France from various correspondents in the Indian Ocean. Thus Bourbon's new commander Bellecombe, elaborated on the misery which governed this colony. He pointed to the lack of hospitals, navy, or fortifications, despite some bad and abandoned batteries; all magazines had to be rebuilt or repaired and the government was ruined; in short, it was a 'totally abandoned colony'.[113] While Bellecombe certainly sought to promote 'his' island Bourbon in the face of Isle de France's bad state, he did admit that the latter's soil was of good quality and that it could produce good products for the island's inhabitants and royal vessels if the crown was willing to invest in it.

Looking into reports from the 1770s, Isle de France's situation did not improve a lot. For instance, a report about Isle de France from September 1772 by the British officer Colpoys highlights the great potential of the island, which was not yet used to its full extent.[114] Colpoys explained:

> [Port Louis] in general seems very irregularly laid out; the Government house is old and in a ruinous condition, there are very few tolerable houses in the whole place, those mostly of wood, there are many gullies in the town occasioned by the freshest which come down from the mountains, and in the streets there yet remains many large stones or properly speaking pieces of rock, in short everything here wears the appearance of an infant colony.[115]

An account from the mid-50s explains why the town was irregular: Dalrymple suggests that there had been no orders in the beginning and that everyone could just build according to their preferences.[116] Yet, in light of the French presence on Isle de France since 1715, Colpoys' remark about the 'infant colony' seems surprising. His observations of the irregular infrastructure might also be questionable when looking at maps and plans from the time.

[113] Letter from Bellecome to the Duc de Praslin, St. Denis, 14 December 1767, ANOM Col C/3/13.
[114] 'Mr. Colpoy's Remarks on the Isle de France', 25 September 1772, BL IOR/H/111: East Indies Series 19, fols. 127r-147v.
[115] Ibid., 129v.
[116] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fol. 7r.

Drawn from a bird's eye view, they cannot confirm the irregular layout of Port Louis. A detailed map from 1765, and another one handed to the *Depôt des Fortifications* whose original date I could not trace but which is presumably from the same period, shows a quite structured layout, portraying accurate fields and properties and who they belonged to or who lived in which house.[117] It remains unclear though if this map was a draft for future plans.

Although Colpoys acknowledged that 'Port Royal or the Grand Fort which lies on the Starboard side as you go into Port Louis, seems well calculated for defending the entrance of it, it appeared to me to be either new or very lately repaired (...)', he also pointed to the fact that the island lacked military forces because many of the troops had been sent to Pondicherry.[118]

That French troops had gathered on Isle de France and were then sent to India is also confirmed in a letter from Secretary Dupré at Fort Saint George (Madras) to Sir Robert Harland, admiral and commander in chief of His Majesty's ships in India, dated 23 September 1772:

> I am warned to be on my guard, for that there never were sufficient guards to be justly alarmed, not only at the great number of forces the French had collected at their islands, but also at the encased force which there were good reasons to apprehend they had embarked, and were then sending to the East Indies, which might probably be intended to disturb the tranquillity of and endanger the Company's possessions in these parts.[119]

During his stay on Isle de France, Colpoys observed several indications of the lack of troops. He visited military houses: although it was dinnertime when he arrived and the soldiers should have been in the canteen to take their supper, there were far fewer men present than would have fit into the building.[120] Additionally, while riding across the island, Colpoys observed that there was much rubble and many rocks in the streets. These rocks were so big, he elaborates, that they could not be removed easily. He explained: 'The governor hinted as we were riding out, that he kept them in that state for the purpose, but I know the real reason is, that he has not people to work at them since the troops have been sent away, who used to work at the roads and public works in consequence of some small addition per day to their pay.'[121]

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[117] ANOM 22 DFC 4 A (map of Port Louis, 1765) and 22 DFC 7 (detailed map of Isle de France).
[118] 'Mr. Colpoy's Remarks on the Isle de France', 25 September 1772, BL IOR/H/111, fol. 127v.
[119] Dupré to Sir Robert Harland, admiral and commander in chief of His Majesty's ships in India, 23 September 1772, BL IOR/H/111, fol. 163r. See also Harland's response from 25 September 1771, fols. 167v–168r.
[120] 'Mr. Colpoy's Remarks', BL IOR/H/111, fol. 137r.
[121] Ibid., 130v.

Although Isle de France was the last remaining harbour in the French East Indies, the Ministry of the Navy and the Colonies did not (or could not) fortify the island sufficiently. In 1785, the British general Sir William Medows observed that 'the Court of Versailles hath still neglected fortifying what may hereafter become the curt of the rising power of Britain in the East, no one, who hath had an opportunity to examine it, will doubt.' He concludes: 'This therefore is the time to stop the projects of France whilst they are yet in infancy.'[122] After the Revolution, a plan for the reduction of the French islands was proposed in 1793 by Admiral Diron, which unveils once again the geopolitical importance of Isle de France, now the seat of the French government in India.[123] Just as was considered in a reduction plan from the 1760s, Diron explains that the Mascarene Islands were so dependent on one another and Bourbon so much more inferior to Isle de France that the first would automatically surrender with the fall of the latter.[124]

In short, the reduction of the islands were of chief importance to the British Empire since

> the island of Isle de France is the Imperium of the French Commerce in India, it is the (…) port where they can career their ship of war; is the rendezvous of their forces from Europe, and the only place where they can materially annoy our trade, extend supplies of troops (...) in India. Situated mid-way between our settlements in India & St. Helena, it would on many occasions be a desirable port for our ships, and its capture wants not only annihilate the French Souer in that [part] of the globe but a do eventually to the security of the British possessions and commerce.[125]

Jean Meyer provides a very simple explanation as to why the French ministry did not send enough troops to the island, arguing that the soldiers had to be financed and transported to a place very far away from the metropolis.[126] The argument in relation to geographical distance is not particularly convincing given that Pondicherry, for instance, was even further away. Rather, it was the geographical isolation of the island and the fact that it could never reach the status of a self-sufficient island colony. Instead, both Isle de France and Bourbon remained expensive enterprises.

In comparison to the Caribbean colonies, the Mascarene Islands were far from being profitable: the Ministry of the Navy and the Colonies had to make financial sacrifices for

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[122] 'The present state of defence of Port Louis in the Isle de France; and the advantages which might be derived by Great Britain, should she reduce that island and destroy the harbour', April 1785, BL MSS EUR D 707/1, fol. 17r.
[123] 'Plan of the Reduction of the French settlement in the East Indies', London, 9 March 1793, BL MSS EUR D 707/4.
[124] Ibid. Diron explained: 'The island of Bourbon is a dependency on the other, of less strength and consequence and would fall of course.'
[125] Ibid.
[126] Meyer et al., *Histoire de la France coloniale. Des origines à 1914*, 143.

them. According to a calculation of February 1766, the annual expenses came to 768,750 *livres* for Isle de France and 450,000 *livres* for Bourbon, which adds up to 1,218,750, an enormous amount of money for islands which were far from being self-sustaining.[127] A document of the Ministry of the Navy and the Colonies' debts for 1774 unveils that, in comparison to the American and Indian colonies, Isle de France and Bourbon were almost as expensive as the general navy, the Atlantic colonies, and Pondicherry put together.[128] In 1783, Raynal estimated the annual expenses of Isle de France as being up to 8,000,000 *livres*.[129] The French government – possibly stimulated by pride and the persuasion of interested individuals – supported its establishments in India at enormous expense. However, this was not sufficient to turn Isle de France into a prospering island colony, and thus it was almost abandoned.

THE LOCAL ADMINISTRATION DURING THE *ÉPOQUE ROYALE* (1767-1790)

The official 'royalisation' of the island effectively took place on 14 July 1767 when the two administrators, Dumas as governor and Poivre as intendant, disembarked in Port Louis (the main harbour).[130] The civil administration of Isle de France was divided between the governor general, charged with military authority, and the intendant, concerned with economic and financial questions. Although the ministry had aimed to take significant steps towards the establishment of a police force, Poivre observed in a letter to Praslin from 30 October 1767 that, in fact, Isle de France lacked police and that free access to alcohol produced a multitude of abuses against the law.[131] In other words the detailed regulations of the French administration and their visions of order in the colonies were far from being consistent with colonial life. The tasks of the governor and the intendant, regulated by the *Ordonnance du Roi* from 6 August 1766, were to 1) prevent larger gatherings which were likely to disturb public order and peace, 2) assure the security of everyone in the colony, and 3) to apprehend every villain and bring him (or her) to justice.[132] These norms and orders looked fine on paper, but were hard to implement in reality. Besides general compensation for the CIO's short-sighted

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[127] 'Etat de la depense des Isle de France et de Bourbon pendant un an suivant les pieces déposés au Bureau des Indes', AN MAR/3JJ/353 .
[128] Dettes du Département de la Marine', 25 Novembre 1774, AN MAR/1JJ/111, doss. 17.
[129] Raynal, *Histoire philosophique et politique des établissements et du commerce des Européens dans les deux Indes, Tome 1*, book IV, ch. 32, 449.
[130] Auguste Toussaint, ed., *L'Administration française de l'Ile Maurice et ses archives, 1721-1810* (Port Louis: imp. commerciale, 1965); Reussner, 'L'Ile de France Au Moment de La Rétrocession Au Roi (1767)'.
[131] Paul, *Deux siècles d'histoire de la police à l'Île Maurice, 1768-1968*, 22.
[132] Ibid., 19.

usage of the island, the new royal administration had to stabilise the colony's social infrastructure and bring it under productive control.

During the years of Poivre's directorship (1767-1772), the governor general changed three times. Between 1766 and 1768, the position was held by Jean Daniel Dumas, who arrived together with Poivre in 1767: he was succeeded by the chevalier Desroches (1768-1771) and Ternay (after 1771). Dumas and Poivre had a complicated relationship rooted in conflicting views and contrary personalities. The governor focused on military projects and did not share Poivre's ambitious plans for the establishment of a settler life on the island.[133] The fact that Poivre's initial acclimatisation of clove and nutmeg failed added fuel to the fire, and the quarrel between governor and intendant ended in Dumas' departure in 1768 after the fight had been brought to the minister's attention.[134] Poivre's vision concerning agricultural engagement clashed with the governor's ideas about the island's usage. Dumas and his successor Desroches were both marines and thus were concerned with military issues rather than with plants, let alone Poivre's obsession with the spice project. Desroches, however, was interested in timber for naval construction and agreed to regulations on the conservation of the forests (printed in 1769) and the encouragement of agriculture in service of arriving troops.[135] Both Desroches and Poivre, even with different aims, were ambitious to improve the situation and to compensate for the CIO's policy, which did not allow the island to prosper. However, the administration of the sister island Bourbon was struggling with similar problems, which the correspondence between the islands lively illustrates.[136] In late 1767, Poivre ended a letter to Bourbon's director Crémont about the misery of Isle de France and the lack of food as follows: 'Adieu, my dear Ordonnateur, I do not wish to keep going on about the poverty of this island, of which you have enough in your own.'[137] Both sister islands were struggling to feed their people in face of the Seven Years' War.

The development of the island colony took a long time; although the geopolitical importance of the island was growing, its progress and maintenance as such remained limited. If we are to believe Dupont, Poivre's contemporary biographer (and future second husband of

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[133] See for instance AD Loire FGB 15 J 16 and 15 J 17.
[134] Toussaint, *Histoire des Îles Mascareignes*, 70; See also for the conflict between Poivre and Desroches: Malleret, *Pierre Poivre*, ch. 8.
[135] 'Reglement economique sur le défrichement des terres et la conservation des bois de l'isle de france', 15 November 1769, signed by Poivre and Desroches, cf. Louis Bouton, *Sur le décroissement des forêts à Maurice* (Mauritius: Impr. d'Aimé Mamarot KT C°, 1838), 13.
[136] ANOM COL C3/12 - 15. See als BSG 1085.
[137] 'Adieu, Mon cher Ordonnateur, je ne veux pas vous entretenir d'avantage des misères de cette île, vous en avez assez dans la vôtre.', Poivre to Crémont, 16 November 1767, AD Réunion, 12 C.

his wife Françoise!), when Poivre arrived as intendant in 1767, he found the Mascarenes in almost total devastation; the culture, the commerce, the fortifications, everything had been equally neglected.[138] Although Dupont also asserts that Poivre managed to rebuild the entire island (as does Poivre himself in his writings), sources which do not relate to either Poivre's person or official reports from the royal government cannot confirm this picture. If the island had really been destroyed under the CIO's administration to the extent portrayed – as I auggested earlier, the CIO by no means followed an environmentally sustainable policy – Poivre would never have been able to reconstruct the island within an intendancy lasting only about five years. He might have laid the foundations for a future recovery of the island, but he certainly was not able to reconstruct 'Eden' while on the island officially, as environmental historian Richard Grove suggests.[139]

Despite problems such as insects and soil, Poivre was convinced about the potential of Isle de France. His writings give the impression that he sugarcoated the truth. He stressed the high quality of the nature there, which was, according to him, generally more fertile than in Europe.[140] In terms of the soil, he even remarked that it was one of the best to be found in all the world.[141] Yet, in addition to plagues of insects, hurricanes limited the spread of the island's crops, meaning that it had to rely heavily on supplies from its Western Indian Ocean network, which the last sub-chapter discusses. In March and April 1772, hurricanes hit the island so hard that not only were the crops destroyed, but also the reparation costs for the island's buildings and vessels harbouring in Port Louis surmounted any previously inflicted.[142] The storm hit Isle de France and Bourbon, and Jean-Baptiste-François de Lanux, the administrator of Bourbon's garden, reported 40 dead and much of the plantation destroyed.[143]

In order to secure the flow of information on the island, the first *Imprimérie Royale* of Isle de France was founded in 1768 in the rue de l'Hôpital in Port-Louis. It consisted of four

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[138] Dupont de Nemours, *Notice sur la vie de M. Poivre, chevalier de l'ordre du roi, ancien intendant des isles de France et de Bourbon*, 37.
[139] Grove, *Green Imperialism*.
[140] 'Forges de l'Isle, ANOM Col C/4/18, fol. 398r.
[141] 'Mémoire sur l'Isle de France', ANOM, Col C/4/27, fol. 252r.
[142] 'Mémoire concernant le précis de l'examen qui a été fait par arrêt du Conseil, de l'administration du S. Poivre, intendant de la Marine aux isles de France et de Bourbon, 15 Mars 1774', by Poivre, printed in Yves Laissus, 'Note sur les manuscrits de Pierre Poivre (1719-1786) conservés à la Bibliothèque du Museum d'histoire naturelle', *Proceedings of the Royal Society of Arts and Sciences of Mauritius* IV, Part II (1973): 54–56.
[143] Lanux to Pingré, 30 July 1772. Lanux even refers to three storms (29 February, 2 March and 14 April 1772), BSG 2551, fol. 86r.

persons – the assistant Gaudon, the typesetter Calvez, the printer Jacob Vincent, and the engraver Rivière.[144] A printing house in Bourbon followed in 1777. The earliest known reference made to the *Imprimérie Royale* is from Philibert Commerson in a letter to his friend, the astronomer Lalande, dated 1769.[145] The idea behind a printing house was to inform the island's inhabitants about national news, agricultural know-how, and important topics for the colonies such as slavery and foreigners. In 1770, the Parisian printer Pierre Nicolas Lambert became director of Isle de France's *Imprimérie*, where he founded the periodical *Annonces, affiches, et avis divers pour les colonies des Îles de France et de Bourbon*, which was printed for the first time on 13 January 1773.[146] Nine editions followed over the next nine years, consisting of six sections each: 'Biens à vendre', 'Avis Divers', 'Extaits et objets des édits et déclarations du Roi', 'Extraits du Registre de la Gêole (noirs punis)', 'Arrivées et départs des vaisseaux de Port-Louis', and 'Extraits des nouvelles de France'. The weekly newspaper became a governmental and administrative organ, which had a monopoly over – at least in written format – news and information.[147] Between 1767 and 1810, besides a great number of official documents, several scientific and literary documents were printed, which also attracted the *Académie des Sciences*.

In 1777, Jean-Baptiste-Étienne Delaleu (1738-1817), who was advisor to the *Conseil Supérieur* of Isle de France and prosecutor of the local *Tribunal Terrier*, printed the *Code des Isles de France et de Bourbon* in 1777.[148] The first book was printed shortly after the publication of the first *gazette* in 1773, and the *Vocabulaire françois-malgâche* was redirected

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[144] Union régionale Animation et développement and Association Région sud terres créoles, *Annonces, affiches, et avis divers pour les colonies des Îles de France et de Bourbon, n° 1 du 13 janvier 1773: premier journal en français de l'océan Indien* (Saint-Denis: Union régionale Animation et développement, 1990), 3; On the Printing on Isle de France see in particular Auguste (1911-1987) Toussaint, *Early Printing in the Mascarene Islands, 1767-1810* (London: Univesity of London Press, 1951).

[145] 'Il y a ici une imprimerie très-bien montée, mais oisive ; on sauroit à peine qu'il y auroit une académie dans cette partie du monde, qu'on en verroit sortir un volume dont je fournirois les trois quarts moi seul, s'il le falloit.'Commerson to Lalande, 1769. Commerson to Lalande, 1769, letter printed in Paul-Antoine Cap, *Philibert Commerson naturaliste voyageur: étude biographique* (Paris: Victor Masson et Fils, 1861), 113; Cf. Toussaint, *Early Printing in the Mascarene Islands, 1767-1810*, 29.

[146] *Annonces, affiches, et avis divers pour les colonies des Îles de France et de Bourbon, n° 1 du 13 janvier 1773*, 3. The complete years 1773 until 1775 (n° 1-53 each year) can be found at the BL. At the AN Paris, tome II, n° 28 (1783) is available, but it is in a fragile condition and only to be consulted via a special request. I thank Pierre-Étienne Stockland for providing the full reference.

[147] See also Gilles Feyel, *L'annonce et la nouvelle: La presse d'information en France sous l'Ancien Régime (1630-1788)* (Oxford: Voltaire Foundation, 2000); Claude Labrosse and Pierre Rétat, *L'Instrument périodique: La fonction de la presse au XVIIIe siècle* (Lyon: Presses universitaires de Lyon, 1985).

[148] All mentioned documents are available at the BnF.

by a certain missionary named Challan and published for the missionaries in Madagascar.[149] In the precise context of botany on Isle de France, the printing house became of importance when, for instance, instructions on the plantation of certain plants and spices were distributed to the inhabitants, such as the *Instructions sur la maniere de planter et cultiver avec success les plants et graines de gerofliers et muscadiers. A l'usage de M. M. Les Habitants des Isles de France & de Bourbon,* printed in 1772.[150] The need for exact instructions probably has a prehistory. When seeds and grains were imported in 1770 and handed to the inhabitants for distribution, they could not fulfil Poivre's expectations. He complained in 1771: 'Our colonists are not quite farmers [enough] to have given the plants the precise care which they require, and I would have done much more to the advantage of the colony if I had charged myself with the cultivation of all plants and seeds.'[151] I discuss the cultivation of spices and all the obstacles that came with it in chapter six.

THE MALAGASY TRIANGLE: LIFE, PRODUCTIVITY, SLAVE TRADE, AND FOOD NETWORKS

Alexander Dalrymple remarks in 1756 that because 'the islands of Isle de France and Bourbon [were] so much connected by their constant intercourse with [Madagascar] that it may not be a miss to add the foregoing memorandum.'[152] Whereas Dalrymple introduces the reader to his description of Madagascar with these lines, in my 'forgoing memorandum' I seek to understand the intimate connections between the French islands and the dependence on both Madagascar and the African mainland.

Although the CIO was convinced that Bourbon could supply food to its sister island Isle de France, this idea was a misjudgement with a huge impact on the maintenance of both islands.[153] Throughout the eighteenth century, settlers had to face enormous problems because of this lack of supplies. Though the island's potential was well recognised by the CIO and

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[149] Auguste Toussaint, 'Les débuts de l'imprimerie aux Iles Mascareignes', *Revue D'histoire Des Colonies* 35, no. 122 (1948): 7.
[150] 'Instructions sur la maniere de planter et cultiver avec success les plants et graines de gerofliers et muscadiers. A l'usage de M. M. Les Habitants des Isles de France & de Bourbon', 1772, AN MAR G/101, doss. 4. For an extract of Provot's journal see AN MAR 3JJ/377.
[151] 'Nos colons ne sont pas assez agriculteurs pour avoir donné à des plants aussi précieux les soins qu'ils exigeaient, et j'aurais beaucoup mieux fait pour l'avantage de la colonie de me charger moi-même de la culture de tous les plants et de toutes les graines, mais il eût fallu pour cela que je n'eusse pas été attaché au Port par la nécessité absolue du service.', Poivre to the minister, 2 April 1771, ANOM Col C/4/29, fol. 13r.
[152] 'Geographical collections of Alexander Dalrymple', 1756, BL Add MS 33765, 18r.
[153] Bourde de la Rogerie, *Les bretons aux îles de France et de Bourbon*, 126.

later by the royal government, Isle de France remained marginal for 60 years, particularly in comparison with the French Antilles and their huge profits from the sugar industry.[154] Looking at sources beyond French royal-administrative instructions and reports, Isle de France was much more marginal than the Minister of the Navy and the Colonies wanted. Poivre explained in a letter to the minister, dated 3 April 1769: 'In order to fulfil your expectations of the colony, I especially encouraged its cultivation (...). You have seen by my previous accounts that your island nowadays can feed itself.'[155] This was – as this chapter sought to highlight – nonsense. This misjudgement seems particularly striking since Poivre continued to explain that the island's potential was by no means maximised and the majority of the land was left unused. In sum, Isle de France had many different 'images' and 'identities' depending on the time, author, and recipient.

Rare surviving private letters written in the Mascarene Islands during the 1770s provide further insights into what it meant to live in an island colony. In a letter to his mother in France, a young Frenchmen, presumably a mason, complained in 1778 about Bourbon's administration and that he was not paid in cash but that he always had to wait for his salary instead. He begins his letter with the words: 'The Island of Bourbon is not such a beautiful country as it was once upon a time. The facilities are no longer the same because the island has become ill at ease.'[156]

Life must certainly have been difficult: famines occurred with the increasing number of inhabitants, of which most were imported slaves. Indeed, only recently has it been revealed that the Mascarene Islands played an important role in the slave trade in both the Indian Ocean and the Atlantic world. Between 1768 and 1789, 236 slave voyages were undertaken involving the Mascarene Islands.[157] These voyages started mostly from Madagascar and Mozambique but also from the Swahili coast, including Kilwa, Lindi, Mafia, Mombasa,

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[154] See also Raynal's observations about the state of the island. Raynal, *Histoire philosophique et politique des établissements et du commerce des Européens dans les deux Indes, Tome 1* Book IV, ch. 32, quote refers to 1770 edition, see page 719 of the 2010 edition. This passage was absent in the edition from 1780, which is the basis of the 2010 critical reprint.

[155] 'Pour remplier vos vues sur cette colonie je me suis spécialement appliqué a encourager sa culture et a argumenter le produit de son sol. Vous avés vû par les comptes que j'ai déjà eu l'honneur de vous rendre succèssivement que votre isle de France est aujourd'hui en état de se nourire elle même', Poivre to the Praslin, 3 April 1769, ANOM, COL C4/25, fols. 40r–42v.

[156] Le Villard Mabime (?) to his mother in Josselin, Bretagne, dated Saint-Denis, Isle de Bourbon, 16 April 1778, KEW HCA 30/290.

[157] I am relying here on the work by Richard Allen. For the exact numbers, see Allen, 'The Constant Demand of the French', 50.

Mongale, Mouttage, Zanzibar, and India. Isle de France was a creole island.[158] The estimated embarkations of involuntary Malagasy migrants to the Mascarene Islands come to 136,000 between 1670 and 1831, of which about 40 per cent were slaves originating from Madagascar's east coast.[159] These numbers are meaningful and provide insight into the contribution of Isle de France to the slave trade. Notwithstanding, the connection between the slave trade and the Mascarene Islands has not been of much interest to historians over the previous decade; it has been a less important issue or, indeed, entirely absent.[160]

Yet, slaving voyages reflect very clearly the explicit link between French mercantile interests and the slave trade. While it remains uncertain how profitable individual slaving voyages were, the selling of slaves to the Mascarene Islands was certainly so. Richard Allen suggests that in the late 1760s and 1770s – in comparison to slave prices along the Malagasy and East African coasts – 'slaves could sell in the Mascarenes for twice their original purchase price, if not more.'[161] Why was that the case? At first glance, the answer is straightforward: because of the increasing number of island activities, local demand for labour was growing rapidly. Metropolitan merchants made a fortune trading slaves brought to Isle de France, and the island served as a staging point for slaving expeditions from the 1770s onwards.

The earliest known such enterprise took place in 1772 when *La Digue* set sail from Isle de France to Mozambique in order to gather human resources for Saint-Domingue.[162] Ever since the French settlement, and as I have already explained at full length, Isle de France served as a refreshment station for merchants, including slave traders, particularly between the 1770s and the early 1790s, when the number of Atlantic-bound slave vessels increased. There is a lack of detailed information about the exact numbers of vessels, but it is known that, between

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[158] Above all Vaughan, *Creating the Creole Island*.

[159] Pier Larson makes these estimations. See Pier M. Larson, 'Enslaved Malagasy and 'Le Travail De La Parole' in the Pre-Revolutionary Mascarenes', *The Journal of African History* 48, no. 03 (2007): 459–61.

[160] In his standard work on the history of the French trading company, the *Compagnie des Indes,* Philippe Haudrère does not include the slave trade at all. Nor does Auguste Toussaint draw much attention to slaving in the Indian Ocean world, although he was one of the leading scholars working on the Mascarene Islands.

[161] Cf. Richard B. Allen, 'The Constant Demand of the French: The Mascarene Slave Trade and the Worlds of the Indian Ocean and the Atlantic during the Eighteenth and Nineteenth Centuries', *The Journal of African History* 49, no. 01 (2008): 60; Allen, *European slave trading in the Indian Ocean, 1500-1850*; See also Jean Michel Filliot, *La Traite des esclaves vers les Mascareignes au XVIIIe siècle*, 2 vols (Tananarive: Office de la recherche scientifique, et technique d'Outre-mer, 1970).

[162] Allen refers to this early explicit reference in Mettas, La traite négrière, II, 615, cf. Allen, 'The Constant Demand of the French'. For statistics see Richard B. Allen, *Slaves, freedmen, and indentured laborers in colonial Mauritius* (Cambridge: Cambridge University Press, 1999) and Frédéric Régent, *La France et ses esclaves: de la colonisation aux abolitions, 1620-1848* (Paris: Grasset, 2012).

1776 and 1790, eight voyages were to some extent attached to Isle de France, transporting more than 3,800 slaves from Angola and Cabinda to the French Americas.[163]

Importing large numbers of slaves has remained an understudied and underestimated factor in the island's struggle for food supply. More and more slaves were imported from other parts of the world, and they likely sympathised with escaped slaves. The number of run-away slaves increased with every new slave vessel landing on Isle de France. In order to bring slaves under control, more soldiers had to migrate to Isle de France. More soldiers meant an increased demand for food, and this meant the need for an additional supply from Madagascar, Bourbon, and the Cape. Just as the Indian slave trade cannot be regarded in isolation from that in the Atlantic, the French Indian Ocean colonies cannot be seen in isolation from the wider French Empire and inter-imperial relations with other Europeans overseas. [164]

Under Poivre's office, three new storage depots for stock were established, one in Port Louis, one on the Great River, and a third in the quarter of Flacq.[165] Besides in Flacq, manioc and a little cotton were additionally planted in the quarter Pamplemousses: a sugar refinery and a forge made the quarter particularly attractive, even though it lacked useful timber.[166] For the agricultural development of the quarter Pamplemousses, Poivre required 2,000 additional slaves. As the quarter of Flacq was said to be the most fertile part of the island because several rivers ran through it (it produced a lot of rice, coffee, and timber), Poivre sought to increase the slave population by 4,000.[167]

In the other quarters, he also sought to increase the population immensely in the service of 'provision plantations' and fields. His plan and agricultural reforms were closely connected to slavery. In order to turn the island into an island of provision, as Minister Praslin envisioned, Poivre sought to distribute 5,000 to 6,000 slaves to the poorest colonists engaged in agricultural activities in the hope that agricultural production would increase.[168] Not only from Madagascar but also from Mozambique, he sought to gather 'those arms which agriculture lack[ed] on this island.'[169]

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[163] Allen, 'The Constant Demand of the French', 62. He relies on Mettas, La traite négrière, I and II.
[164] This point is made by Allen, *European slave trading in the Indian Ocean, 1500-1850*, 22.
[165] Madeleine Ly-Tio-Fane, 'Problèmes d'approvisionnement de l'Ile de France au temps de l'intendant Poivre', *Proceedings of the Royal Society of Arts and Sciences Mauritius* 3, part 1 (1968): 106.
[166] Poivre to Praslin, 30 November 1767, ANOM Col C/4/18, fol. 381r.
[167] Ibid.
[168] Poivre to Praslin, 30 November 1767, 'Agriculture', Brest DM, Ms 89, no. 41.
[169] 'les bras qui manquent à l'agriculture de cette île.', ibid.

That Poivre sought to solve the problem by introducing more and more slaves was not only a paradox in face of his anti-slavery sentiments, which is the basis for chapter four. In this context, it is more important to point out that he created a new problem. The food supply for the slaves was not secure. His long-term plans could not work out in only five years, especially not when trying to fight a problem by creating a new one. The high number of slaves and the lack of agriculture can be compared with Poivre's strategy to fight locusts by introducing an insect-eating bird, which then turned into a pest itself because it multiplied too much. [170] This being said, I obviously do not intend to compare slaves to birds, but simply point to the pattern in Poivre's strategic thinking in which he followed a clear path while ignoring possible consequences.

The vicious circle between the high number of slaves and a lack of food can be illustrated through the following example, namely Commerson's expedition to Bourbon's volcano. The group consisted of five masters and 32 assisting slaves who also carried the food. Commerson explicitly explained that 'it is their [the slaves'] number which made us hungry'.[171] The numbers illustrate my observations: the number of slaves who carried the food was six times higher than that of the French explorers. Quite obviously, the slaves also had to eat and so the food they were carrying was not enough. To put it differently, like on Isle de France in general, by trying to solve the problem of supply through introducing an enormously high number of slaves, the French created a new problem and did not manage to break the circle.[172]

Although primary necessities were cultivated, the crop yield could not feed every mouth on the island, which can be traced in accounts from the early settlement up to the end of the Old Regime. For instance, Alexander Dalrymple observed in the 1750s:

> The island does not produce half provisions enough for the maintenance of its inhabitants which obliges them to have recourse to Bourbon & Madagascar, but principally to the last for rice, beef etc. When they have been in great want, they have been supplied with rice from Bengal & even Pondicherry but the East Coast of Madagascar is generally able to supply all their wants, where the

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[170] See Stockland, 'Policing the Oeconomy of Nature'.

[171] 'Si j'eusse été seul dans cette expédition, on pourrait croire que j'exagère les particularités, mais outre un détachement de créoles de Bourbon, nous étions cinq maîtres, et avions à notre suite 32 Noirs porteurs de vivres. Mais c'est leur nombre qui nous a affamés.' Commerson to Curé Beau, 16 February 1772, printed in Fernand-Bernard de Montessus de Ballore, *Martyrologe et biographie de Commerson, médecin botaniste et naturaliste du roi, médecin de Toulon-sur-Arroux (Saône-et-Loire) au XVIIIe siècle* (Chalon-sur-Saône: impr. de L. Marceau, 1889), 155.

[172] See also Mandelblatt's work on the relationship between food provision and slavery in the French Atlantic: Bertie Mandelblatt, 'How Feeding Saves Shaped the French Atlantic: Mercantilism and the Crisis of Food Provisioning in the Franco-Caribbean during the Seventeenth and Eighteenth Centuries', in *The Political Economy of Empire in the Early Modern World*, eds. Reinert and Røge, 192–220.

> Pelly King and Princes for the sake of powder, ball, armies, strong liquors and some coarse clothing, which the French give them in exchange. [173]

In earlier years on the island, primary necessities were transported from one quarter to another which was in need of food. On 9 July 1722, the Sieur De Hauville in Port-Louis reported to the Sieur Nyon in Port-Bourbon (a port in the southeast of Isle de France and not a port on Bourbon) that the city was in need of bread. Three days later, on 12 July, Nyon sent four sacks of biscuits from the southeast of the island to the northwest.[174] Even on the island, one had to plan ahead when asking 'the neighbours' for food.

In general, when ships were sent for food, they would not arrive immediately since voyages from the Cape to Isle de France took about three weeks, from Bombay five, and from Madras and Bengal more than seven.[175] For instance, in January 1771, express vessels were sent to the African mainland in order to load up with edible goods.[176] From a local point of view, the growing of corn, wheat, rice, manioc, and other aliments should have had priority but this was easier said than done, as I will highlight in chapters two and particularly three. In the context of this chapter, however, it is important to understand that the island was nevertheless and above all bound to its suppliers in the southwest Indian Ocean. While the local government tried to increase agriculture, it was a difficult and long process, which in turn made the island draw foodstuff from Madagascar, Bourbon, and the African mainland.

In order to illustrate Isle de France's dependency and generally poor condition in terms of supply, I quote again the British officer Colpoys (1772):

> This island constantly produced two crops of corn a year; but that the hurricanes which happened in March had destroyed an entire crop as well as other considerable damages it had done all over the island, he had particularly [hit] a quarter called Flac, by chance we overtook one of its principal inhabitants (...). The general immediately began to praise it, and to my no small astonishment, he assured his excellency that in five years it has not produced a sufficiency for the subsistence of his negroes, this I have been assured in the case almost all over the island, and from what I saw myself I can very easily believe it, besides the heavy complaints which every body (except those about the generals person) made of it, are very sufficient proofs of its poorness.[177]

With regard to animals, Colpoys remarked that sheep and cows had to be imported, milk was a *livre* a bottle, and there was no butter 'to be had for love or money'. Fruit and vegetables

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[173] 'Geographical collections of Alexander Dalrymple', BL Add MS 33765, fol. 12r. On the connection between Madagascar and Isle de France, see also: 'Extrait d'un mémoire intitulé, Iles de France et de Bourbon' (1770-1771), Poivre and Desroches to Praslin, NAF 9347, fols. 193r-205v.
[174] Sr. De Hauville to Sr. de Nyon, du Port Louis Isle de France, 9 juillet 1722, NAF 9344, 75r; and letter by Nyon, 12 juillet 1722, fol. 75v.
[175] 'Memorandum respecting the reduction of the Isle de France or Isle of France in the East Indies, London', 14 April, 1793. Signed by Adm. Diron, BL Add MS 34450, fol. 241r.
[176] According to a report from 25 September 1772, 'Mr. Colpoy's Remarks on the Isle de France, 25 September 1772', BL IOR/H/111, East Indies Series 19, fol. 135v.
[177] 'Mr. Colpoy's Remarks', BL IOR/H/111, fols. 131v–132r.

were extremely scare, beef a *livre* per pound, and fowl or duck five livres. Colpoys assures us that these were the prices he himself paid and that he knew from 'very good authority that the captains of their men of war (who pay an established price) have them but very little cheaper.'[178]

Isle de France was by no means a paradise. Locusts and rats destroyed the crops, famines were frequent, and the inhabitants were hit by hurricanes.[179] While Minister Praslin remained convinced about the geopolitical potential of the island and that a new approach towards Australia was only possible with the help of Isle de France, the efforts made by the Ministry of the Navy and the Colonies to establish a self-sustaining colony remained limited.[180] Even when Isle de France became seat of the French government in the East Indies after the revolution, the island remained too dependent on supply from the neighbouring mainland and Madagascar.[181] Nonetheless, the British government continued to see a potential danger in the French islands, as a British memoir and plan for reducing Isle de France from 1793 demonstrate. Food supply, however, remained a core problem, which is also addressed in the said English memoir from 1793:

> Cultivated by slaves and affording no revenue or advantage but that arising from commerce, [Isle de France and Bourbon] resemble both in their state, produce some of the least important of the West India Islands, Their produce consists chiefly of cotton, coffee & indigo; and the isle of France, altho' the largest, is not so fertile as the isle of Bourbon, whence & from Madagascar it is partly supplied with grain and cattle.[182]

In times of hurricanes and plagues of insects, food shortages became even worse. Instead of focusing on the supply of the island's inhabitants, more and more slaves were imported and were in need of food, just like every individual on the island. Consequently, the island was in need of more natural resources. The administration was running in circles: in order to increase the cultivation of wheat and rice, more slaves were introduced but since these newcomers were also in need of food and the island was not self-sustaining, the island had to rely heavily on its agro-food networks in the region. More slaves meant more food, but more crop growing

[178] Ibid., fol. 132r.
[179] Even in German-speaking periodicals, the raging hurricanes became a matter of interest. For instance, see Rochon, A.M. (transl. J.G. Forster): 'Nachricht von einem ausserordentlich heftigen Orkan an der Küste von Isle de France', in: *Magazin für das Neueste aus der Physik und Naturgeschichte*, Vol. 8 (1792), 94-98, access via: http://www.ub.uni-bielefeld.de/diglib/aufklaerung (last accessed 23 April 2015). The original report by Rochon dates 1771.
[180] NAF 9408, fols. 49r–50v.
[181] BL MSS EUR/ORME OV 325, fol. 9r.
[182] Memoir of the French settlements in the East Indies & Plans for reducing them under the British Government, 9 July 1793, unpaginated. BL MS EUR 707/7c. See also Admiral Diron, 'Plan of the Reduction of the French settlement in the East Indies', London, 9 March 1793, BL MSS EUR D 707/4.

for food meant more slaves - the administration was not able to break this mechanism. In 1772, a British observer summarised this particular situation as follows: '(...) Were it not for the assistance which [Isle de France] gets from the Cape of Good Hope and Madagascar, I am sure the number of souls that's now in it would be sufficient to bred a famine, [the island] even draws a yearly supply from Bourbon, of corn and stock of different kinds.'[183]

Another British observer reported in 1763: 'The French send yearly from Bourbon and Isle de France to Madagascar to purchase slaves, rice, live cattle and to make salt provisions. (…) They purchase their slaves with Spanish dollars, musquets powder and ball bench (…) and they cost about 24 Spanish dollars each.'[184] On the Cape, the miserable situation of the French on Isle de France was well known, as the Swedish botanist Carl Peter Thunberg observed in 1773:

> The French were at this time in very little estimation, on the one hand, because they generally came without ready money, and were obliged to trade on credit, or else with bills of exchange; and on the other, because the African colonists, that if a war broke out, these strangers would assist in taking the place; in which respect they thought themselves more secure with respect to the English, with whom they were in alliance.[185]

Thunberg continued: 'Yet it was the French who most enriched the Cape merchants, as, on account of the credit they took, they were obliged to pay more than others, and at the same time had occasion for a greater quantity of merchandise, not only for their ships, but also for their garrison in the *Isle of France*.'[186] The majority of the sources unveil the fact that without the supply from the surrounding islands and the African mainland, Isle de France would long have been drowned. How important the relationship with the neighbouring islands was can also be seen through the lens of warfare. A British account from 1785 about the reduction of Isle de France stresses the need to interrupt the island's supply in order to conquer it: 'The island of Bourbon and the French settlements on the N.W. side of Madagascar, are the places to which the Isle of France owed its subsistence: and the former being reduced before Port Louis, would cut off their weekly supply of corn.'[187]

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[183] 'Mr. Colpoy's Remarks', IOR/H/111, fols., 131v–132r.
[184] Richard Smith, 'An account of the Island of Bourbon in 1763', BL MSS EUR/ORME OV 4, fols. 78v–79r.
[185] Lars Hansen, *The Linnaeus Apostles: Global Science & Adventure. Vol. 6* (London: Ik Foundation, 2007), 101.
[186] Ibid., 101–2.
[187] 'The present state of defence of Port Louis', April 1785, BL MSS EUR D 707/1, fol.13r. In 1785, Pondicherry was evacuated and troops sent to Isle de France, which made it of particular interest for British authorities to passively attack the island. I thank Julie Marquet for drawing my attention to this.

Nonetheless, some sources provide a different perspective on life in the colony. Buying into Alexander Dalrymple's perception, which contradicts his observation on the island's food import from the African mainland, the 'French way of living' was continued on Isle de France and every French men on the island was better off than those at sea: the captain, together with his officers, had huge meals.[188] Dalrymple also suggested that in the years of the early settlement, the inhabitants had planted wheat, rice, and coffee with great success, imported cattle from Madagascar, and that only in cases of emergency did Isle de France resort to supplies from the bigger island. As the correspondence of Bourbon with Isle de France clearly unveils, the latter was supplied on a regular basis with maize, coffee, honey, and wax.[189]

In times of war, the island had to rely even more heavily on its wider supply networks from the African mainland and new maritime exchange networks were intensified. In addition to the slave and food supply from Madagascar, imports from other parts of the world such as the Cape of Good Hope, Batavia, and even Guiana were indispensable. This connection underlines both the dependency of the island on contacts with the French maritime empire and its marginal status.

The networks of the island went far beyond the Indian Ocean world. After the suspension of the CIO, free trade with the islands was permitted to French nationals in 1769 and stronger exchange networks between Europe and the Mascarene Islands were established.[190] Isle de France was heavily connected to its wider maritime exchange networks. In the initial years of La Bourdonnais' governance, the links between with the Dutch Cape colony were tightened when he proposed to offer wine and wheat in exchange for coffee and ebony. This proposition was only materialised during the Seven Years' War with the permanent installation of a French agent on the Cape named Jean Joseph Amat.[191]

During Poivre's directorship, the Anglo-French rivalry in the Indian Ocean seemed to escalate to open war again in 1770 and Isle de France had to be ready to accommodate French troops. Minister Praslin could neither send money nor primary necessities, and so Poivre

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[188] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fols. 9r-10r, 2r. On food in the Enlightenment, see also Emma C. Spary, *Eating the Enlightenment: Food and the Sciences in Paris* (Chicago: The University of Chicago Press, 2012).

[189] For instance, see ADR C° 1573 and 1575 for the years 1748 and 1753, C° 1577 and 1579 for the year 1767.

[190] 'Brouillon d'une ordonnance annulant celle du 29 novembre 1766 qui accordait aux trois Isles la liberté du commerce avec l'Inde 1775', ANOM Col F/5A/62/5.

[191] I thank Rafaël Thiébaut for pointing me to Amat. On the correspondence between the French agents stationed at the Cape and Isle de France (1772-1789), see MA OA 34A, OA 34 B, OA36A.

approached the Dutch VOC on the Cape.[192] The need for *vivres* and other goods increased immensely during times of war, which required new networks with the Dutch possessions on the Cape, Ceylon, and Batavia and the French Atlantic: the supplies from Bourbon, Madagascar, and the African east coast were not sufficient. The agent Jean-Joseph Amat was also instructed by Poivre to buy wine and strong liquor and ship them to Port-Louis: these products, according to Poivre's instructions to which Amat refers in his letter, were indispensable for the hospitals and the arriving troops.[193]

Several years later, in 1778, after the island's expenses during Poivre's directorship were re-examined, Poivre had to justify the instruction to buy liquor. In this letter of justification, which consisted of post-event instructions set up by Poivre, the former intendant explains in paragraph four that drink was one of the principal objects for the Mascarene Islands and that Amat should buy or exchange wine and *eaux de vie* of the best quality for the hospitals and the king's troops passing by Isle de France.[194] Presumably – and I draw this conclusion from Poivre, who pointed a finger at Amat in his letter to the minister – Amat had bought some bottles for himself and was now required to pay his bills eight years later, but this should not be of concern here. More importantly, Poivre ordered wine and liquor for the soldiers apparently to cheer them up. In addition, wine was used for medical treatment, although it was known in early modern Europe to heat up a man's mood.[195] While Amat was fulfilling his tasks at the Cape in early 1769, he addressed a letter to the minister in which he confirmed the good quality of the wine and the bad quality of the biscuits. Besides Amat providing some insights into the prices of salted meat, flour, and fresh butter, he also explains that if it was not for the delivery of the drink from the Cape, the existing supply of alcohol would never have been sufficient for the islands' inhabitants.[196]

The links of the island's network stretched out over at least four continents (Africa, Asia, Europe, and the Americas), namely for trade, communication, and administration in the Indian Ocean. One aspect, which has to be stressed in this context, comes down to the island's

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[192] A. Boullée, 'Voyages de Poivre (2° article)', *Journal d'agriculture, sciences, lettres et arts* 25 (1835): 60.
[193] Amat to the Duc de Praslin, Bourbon, 4 November 1768, ANOM Col C/4/23, fol. 71r. See also Amat's letter to Praslin during his stay at the Cape: Amat to the Duc de Praslin, Cape of Good Hope, 16 January 1769, ANOM Col C/5B/1. See also on food and wine for soldiers AMAE 8MD/15 (MF: P/11383), fol. 129r.
[194] 'Instructions au Sr Amat pour sa mission au cap de Bonne-Espérance', 6 october 1768, ANOM Col E/4 (Amat's file). See also on the same subject, Poivre to the minister, 30 March 1778, ibid.
[195] On beliefs about the effects of wine in early mondern thought, see, for instance, Beverly Ann Tlusty, *Bacchus and Civic Order: The Culture of Drink in Early Modern Germany*, Studies in Early Modern German History (Charlottesville: University Press of Virginia, 2001).
[196] Amat to the Duc de Praslin, Cape of Good Hope, 16 January 1769, ANOM Col C/5B/1.

destiny being a matter of the negotiations and personal patronage of the high officials who supported the maintenance of the colonial islands. Yet, when Poivre and Isle de France needed Choiseul's and Praslin's support the most, the cousins were deselected as ministers in 1770. This was at a time when Madagascar increasingly became an object of interest and the naturalist Philibert Commerson was assigned to explore the bigger island's natural resources.[197] While Poivre hoped to make greater use of Madagascar for Isle de France, despite its role in food and slave supply, government officials in both the Indian Ocean and Versailles expressed concerns that Madagascar's resources might be increasingly exhausted.[198] At the same time, the officer Louis Laurent Fayd'herbe de Maudave (1725-77) and Maurice Benyowsky (1746-86), the self-proclaimed king of Madagascar who enjoyed governmental support for their colonising efforts, undertook new attempts to create a permanent Malagasy colony. As Lissa Roberts correctly observes, these were more than unfortunate circumstances for the prosperity of Isle de France.[199]

Some sources, such as the account by Dalrymple, stated that rather than Isle de France, which could though offer two well-positioned ports, it was Bourbon which provided natural resources of higher quality, such as pure air and superior soil: 'This island of Bourbon (…) was preferred to [Isle de France] which had nothing but its port to recommend it, on account of the purity of its air, and fertility of its soil, in which it far exceeded the other' and 'Mauritius being of a barren soil, much inferior to that of Bourbon, it was difficult to improve it sufficiently to furnish provisions necessary for the inhabitants and the ships that touched there.'[200]

Other sources, such as an account by the Briton Richard Smith from 1763, give away that Bourbon's soil was 'in general fertile tho the mould is not above 2 or 2 ½ feet deep under which is a [layer] of rock, and produces plentifully with very little wheat, oats and more other Europe[ean] grains, roots and pulse and yields two crops a year.'[201] In addition to difficulties with the soil, Bourbon was 'much infested by Caterpillars, Locusts and other insects and by rats and (…) birds' which damaged the crops, sometimes excessively.[202] Similar problems

[197] See BCMNHN Ms 887; Ms 888; Ms 279; Ms 280; Ms 281.
[198] Pernille Røge, "'La Clef de Comerce' – The Changing Role of Africa in France's Atlantic Empire Ca. 1760-1797," *History of European Ideas* 34 (2008): 431–43.
[199] Roberts, "'Le Centre de Toutes Choses,'" 329; For the latest critical edition of Benyowsky's memoir, see Móric Ágost Benyovszky, *Mémoires et voyages*, ed. Edward Kajdański (Paris: Phébus, 2010).
[200] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fols. 2r–3r.
[201] Richard Smith, 'An account of the Island of Bourbon in 1763', BL Mss Eur/Orme OV 4, fol. 69v.
[202] BL MSS EUR/ORME OV 4, fol. 72v.

occurred on Isle de France: plagues of locusts destroyed the crops. According to Poivre's ecological plan, these were to be fought with the help of the *oiseau martin*, a bird which was used as an instrument to regulate the locust population.[203] These problems with insects, rats, and monkeys already affected the island in the 1750s.[204]

The seizure of Madagascar threatened Isle de France, which is clearly reflected in the *mémoire* written by Maudave, who proposed taking possession of the big island in 1767. He argued that Isle de France had nothing to offer either the Asian or the European markets, and could not provide for the sailors and troops landing in Port Louis. Only with a proper settlement in Madagascar could one secure the new colony.[205] Rather than financing the colonisation of Madagascar, Poivre sent a letter to the minister, driven by the possibility that the project in Madagascar could lead to the abandonment of the projects on Isle de France: he begged more effort be put into the small island.[206] Finally in February 1770, the expenses of Maudave's projects in Fort Dauphin created such problems for Isle de France that Governor Desroches pleaded that they be allowed to abandon them because they were ruining the island colony.[207] The French colonies were competing with each other, and not only within the 'Malagasy triangle' (Madagascar, Isle de France, Bourbon) but also with the colonies in the Atlantic (particularly Cayenne). The competition with the Atlantic colonies was pushed by individual actors (and old rivals) who tried to make use of the weak position of both the island and its intendant. The botanist Fusée-Aublet, who was a bitter rival of Poivre, added in his *Histoire des plantes de la Guiane françoise* (1775) that the best conditions for the acclimatisation of nutmeg could be found in Guiana, not Isle de France.[208]

METROPOLITAN NATURALISTS AND THE MASCARENES

One of the main families related to the field of botany in the French context was the Jussieu family, who occupied major seats in the *Académie des Sciences*, the *Jardin du Roi*, and later

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[203] See on this particular matter Stockland, 'Policing the Oeconomy of Nature'.
[204] See Geographical collections of Alexander Dalrymple, BL Add MS 33765, fol. 11r.
[205] Maudave's memoir, printed in Alexis-Marie Rochon, *Voyage a Madagascar et Aux Indes Orientales* (Paris: Prault, 1791), vol. 1, 91–98; On the settlement in Madagascar, see B Foury, *Maudave et la colonisation de Madagascar* (Paris: Société de l'histoire des colonies françaises et Librairie Larose, 1956).
[206] Poivre to Praslin, 29 July 1768, ANOM C/5A/2, n°54.
[207] Desroches to the minister, 1 Feburary 1770, Archives Quimper, Cote 12, Desroches' letters, fols. 251v–259r.
[208] Jean Baptiste Christophore Fusée-Aublet, *Histoire des plantes de la Guiane françoise, rangées suivant la méthode sexuelle, avec plusieurs mémoires sur différens objets intéressans, relatifs à la culture & au commerce de la Guiane françoise* (Paris: Pierre-François Didot jeune, 1775), II: 87.

the *Muséum d'histoire naturelle* for one and a half centuries (1712-1853). Although most of the members of the Jussieu family did not travel abroad themselves, they were interested in botanical activities overseas, particularly in the last third of the eighteenth century. The first of this 'botanical dynasty' were the two brothers Antoine and Bernard, followed by their nephew Antoine Laurent and his son Adrien. Antoine de Jussieu (1686-1758) was a member of the Academy and professor of botany from 1711 to 1758, and Poivre was named correspondent to him while he was travelling as CIO agent in the East Indies. Like his brother Antoine, Bernard de Jussieu (1699-1777) was also a member of the Academy and *sous-démonstrateur de l'extérieur des plantes* at the King's Garden in Paris.

In the *Jardin du Roi*, Bernard de Jussieu's role was to organise and cultivate the plants outside and inside the greenhouses while instructing the gardeners. After the death of his brother Antoine, he did not succeed him as professor of botany but continued working as *sous-démonstrateur* and maintained a lively correspondence with the Swedish naturalist Carl Linnaeus.[209] Bernard de Jussieu also corresponded with botanists overseas, such as Michel Adanson, who explored Senegal's natural history.[210] Yet, the surviving correspondence in the botanical archives is sketchy and by no means as systematic as it became in the last two decades of the eighteenth century under head gardener André Thouin.[211]

This is likewise the case for the correspondence with Poivre, which might have various reasons. The most straightforward one is simple and not necessarily true: being a 'correspondent' was no more than a formality. But there is more to it. According to a report about Poivre's activities in the Indo-Pacific region, Poivre instructed CIO officials to send specimens of nutmeg to Jussieu and director Buffon in order to prove the originality of the plants during his first expedition to the Moluccas in 1753.[212] As Poivre explains in a report, he was asked to send a *mémoire* about the manner of their cultivation together with twelve long and ten round nutmegs, all still in their shells, to Versailles: these findings were to be examined by the *contrôleur général des finances* Jean Baptiste Machault d'Arnouville and the metropolitan naturalists Buffon and Antoine de Jussieu, which will be, so Poivre explains, of use for them and their experiments.[213]

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[209] Alfred Lacroix, *Notice historique sur les cinq de Jussieu,* 27.
[210] Ibid. See also Alfred Lacroix, *L'Académie des sciences et l'étude de la France d'Outre-Mer de la fin du XVIIè siècle au début du XXè* (Paris: Gauthier-Villars, 1938).
[211] Spary, *Utopia's Garden*.
[212] 'Rapport de la mission du sieur Poivre', NAF 9377.
[213] Ibid., fol. 59r.

It remains unclear if the CIO really sent these specimens from Isle de France to Europe or, if they did, whether the plants actually arrived in Paris. If they arrived at all, one might also question whether these plants arrived in France as 'nutmeg'. On another occasion in the colonies in 1753, Poivre was advised by Governor Bouzet to introduce his nutmeg plants as mangosteen in order to keep his mission secret.[214]

The difficulties of distant communication can be observed in a letter by the astronomer Pingré to the Spanish Academy of Science in Mexico. In his letter, Pingré complained that he had not received any news in five years and concluded: 'The lands, the immense waters which separate us, the difficulty of communication; these are without a doubt the reasons which keep us from the advantage of receiving more news from you.'[215] Leaving the problems of distance aside, it was only after the CIO's suspension that networks were intensified and Parisian naturalists made increasing use of the Ministry of the Navy and the Colonies as a channel and instrument for the transmission of tropical plants.[216] It was at this time when the *Jardin du Roi*'s professor of botany, Louis Guillaume Le Monnier (1717-99), successor of Antoine de Jussieu from 1758, started to establish a network of correspondence on natural curiosities.[217] Indeed, and as Poivre's own writings show, Poivre attempted to correspond with Le Monnier and Bernard de Jussieu during his travels in Cochinchina in the 1740s and 1750s.[218] During this time, Poivre also spent four months in Madagascar, where he discovered several plants. Their description was examined by botanist Lamarck and Antoine-Laurent de Jussieu, who was Bernard de Jussieu's nephew and Le Monnier's substitute as professor of botany from 1770.[219]

In the late 1760s, Le Monnier became interested in the useful plants accumulated on the Mascarene Islands, and the detailed information he received show that he must have had a correspondent in this part of the world. I was able to prove this hypothesis when looking more deeply into the correspondence between the astronomer Pingré, who explored stars and

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[214] Ibid., 60v.
[215] 'Les terres, les mers immenses qui nous séparent, la difficulté des communications ; telles sont sans doute les raisons qui nous privent de l'avantage de recevoir plus souvent de vos nouvelles.' Pingré to the secretary of the Académie des Sciences in Mexico (?), Paris, 30 June 1776, BSG Ms 2551.
[216] Spary, *Utopia's Garden,* 123; Schiebinger and Swan, 'Introduction', 5; For the English case, see Lucile Brockway, *Science and Colonial Expansion: The Role of the British Royal Botanic Gardens* (New York: Academic Press, 1979).
[217] See BCMHN Ms 357.
[218] 'Voyages de Pierre Poivre de 1748 Jusqu'à 1757', 49, 65, 66, 72, 76, 82. Poivre's manuscript was printed by Henri Cordier almost 200 years later: Cordier. See also Laissus, 'Note sur les manuscrits de Pierre Poivre', 42.
[219] BCMNHN Ms 1269. On Antoine-Laurent's examination, see Laissus, 'Note sur les manuscrits de Pierre Poivre', 42.

planets in the region, and Lanux, gardener in Bourbon. The latter mentions a certain De Reine who presented the *Catalogues de graines d'arbres et d'abustes* of the Mascarene Islands to Le Monnier in 1768.[220] The said *Catalogues* not only contain a report on plants and trees growing on Isle de France, but also specific instructions for the Abbé René Galloys.[221] The Abbé Galloys was a *protégé* of Le Monnier, obtaining the title '*naturaliste du roi et du Jardin royal*' and sent to assist Poivre with the introduction of spices and birds to Isle de France.[222]

The correspondence between Le Monnier and Poivre, which dates between 1771 and 1772, is sketchy, with only three letters from Poivre to Le Monnier. In a letter dated 25 August 1771, besides the attempts in the Moluccas under Jean Mathieu Simon Provost (1728-76), *commissaire de la Marine*, another aspect catches the eye: Poivre mentions to the seeds which he had sent to the *Jardin du Roi* and that he was happy to hear they were sprouting.[223] Although he does not specify the type of seeds, this proves that Le Monnier must have received specimens from Poivre earlier. In the following year, Poivre sent more '*caisses*' to Paris on the *Duc de la Vrillière* – unfortunately without specifying which types of plant.[224] It also remains unknown whether he sent seeds or live plants, since a transportation box is either referred to as '*caisse*', '*boîte*' or '*barigue*' [barrique], none of which are necessarily used for one or the other exclusively, as chapter six discusses in detail.[225]

The overall knowledge and specimen exchange between the Mascarenes and the *Jardin du Roi* remained limited, and it was not until the late 1770s, or even the 1780s, that the metropolitan garden had an established correspondence network with botanists in the colonies. While the acclimatisation of tropical plants became more and more prominent and of great economic interest, the *Jardin du Roi* with its laboratories and experiments served as the nursery for plants and objects that produced millions of *livres* for the French kingdom in

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[220] Lanux refers to him as a 'officier chez le Roy a Versailles', Lanux to Pingré, 15 august 1763, BSG Ms 2551, fol. 59v. For the *Catalogues* see BCMNHN Ms 357, doss. XV.

[221] 'De Reine, Catalogues de graines d'arbres et d'abustes', 1768, BCMNHN Ms 357, doss. XV. See also the list of plants from China, Augiust 1766. I cannot confirm that these plants really arrived in Paris. 'Catalogue de graines de plantes de la Chine. Liste des graines envoyées de Pekin 1778', BCMNHN Ms 357, doss. XIX. Lanux, who was also a correspondent of Le Monnier, refers to De Reine in his letter to Pingré, 3 November 1765, BSG 1085. In the same letter, it also becomes clear that Lanux was a correspondent of Buffon.

[222] Cf. on this mission Louis Malleret, 'Pierre Poivre, L'abbé Galloys et L'introduction D'espèces Botaniques et D'oiseaux de Chine À l'Ile Maurice', *Proceedings of the Royal Society of Arts and Sciences Mauritius* 3, part 1 (1968): 117–30; Some letters from Galloys to Le Monnier are also printed in Laissus, 'Note sur les manuscrits de Pierre Poivre', 45–56.

[223] Ibid to ibid, 25 August 1771, printed in: Laissus, 'Note sur les manuscrits de Pierre Poivre', 47.

[224] Poivre to Le Monnier, 1 April 1772, printed in: Ibid., 48–9.

[225] For instance, see on the methods of packing: 'Mission de Joseph Martin à l'Isle de France', BCMNHN Ms 47.

the second half of the eighteenth century. It was, however, not until the early 1770s that the *Jardin du Roi*, that is to say under Buffon, intendant from 1739-1788, and André Thouin, head gardener from 1764-1793, established correspondence networks recognised by the state that were justified on the basis of bringing economic wealth.[226]

Poivre was a correspondent of Buffon from his first mission to China. I learned this not from surviving correspondence but because Buffon refers to Poivre several times in the *Histoire naturelle*, although in relation to birds, namely the 'Salangane', not plants.[227] There is also evidence that Commerson reported to Buffon about the '*petite hirondelle noir*', a bird he observed on Isle de France; likewise, his cousin Pierre Sonnerat reported to the garden's director.[228] Only long after his return to France in 1773 did Poivre start corresponding with Thouin. In a letter dated 20 August 1785 (shortly before Poivre's death in early 1786), Thouin informs Poivre about several botanical activities and asks him for his expertise: he sought information about the Royal Garden on the Îles d'Hyères (off the south coast of France), namely a small map and its botanical inventory and productivity. Since this was a secret mission, he asks about Poivre's circles in Lyons and whether he could think of anyone who could fulfil this task and bring information to Paris.[229]

It was at about the same time – after the failure of Cayenne in 1782 – when the colony of Saint-Domingue became an object of interest for increasing the cultivation of spices.[230] This botanical connection between the colonies in the Atlantic and the Indian Ocean can be traced in the last decade of the eighteenth century, when the *commissaires* of Cayenne and Port Louis asked explicitly for a stronger relationship between both the colonial gardens and the *Jardin du Roi* in 1792.[231] Several years earlier, in 1788, the Minister of the Navy and the Colonies, César Henri comte de La Luzerne (1737-99), established a project for agricultural-

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[226] Spary, *Utopia's Garden*, 2000, 123.
[227] Georges Louis Leclerc de Buffon, *Oeuvres complètes de Buffon*, vol. 19 (Paris: Pourrat, 1835), 160–66.
[228] Ibid., vol. 19: 167–168; See also on the classification of animals in the Histoire Naturelle: Lydia Meisen, *Die Charakterisierung Der Tiere in Buffons 'Histoire Naturelle'* (Würzburg: Königshausen & Neumann, 2008), 29; On Commerson's manuscripts at the BCMNHN, see Yves Laissus, 'Catalogue Des Manuscrits de Philibert Commerson 1727-1773) Conservés à La Bibliothèque Centrale Du Muséum National d'Histoire Naturelle (Paris).', *Revue D'histoire Des Sciences* 31, no. 2 (1978): 131–62. One must also add here that Buffon was primarily concerned with animals rather than plants.
[229] Yvonne Letouzey, *Le Jardin des plantes à la croisée des chemins: avec André Thouin, 1747-1824* (Paris: Ed. du Muséum, 1989), 196.
[230] See for example ANOM Col C/14/54, 168. On science on Saint Domingue in the last third of the eighteenth century, see McClellan, *Colonialism and Science Saint Domingue in the Old Regime*.
[231] ANOM Col C/14/68, 21r. On the interplay between island colonies across the Atlantic and the East Indies, see also the Spanish cases of Cuba, Puerto Rico, and the Philippines in Josep Maria Fradera, *Colonias para después de un imperio* (Barcelona: Ed. Bellaterra, 2005).

botanic correspondence between the French colonies and the *Jardin du Roi*.[232] The bonds between the *Jardin du Roi* and Isle de France, together with the Royal Botanical Garden in Cayenne, were tightened in the revolutionary years. In 1792, Thouin and the *commissaires* of Isle de France and Cayenne proposed strengthening the relationship between establishments in France and overseas, particularly with Cayenne as it was said to be the *entrepôt* of all the spices and useful plants of India that could be naturalised in the Americas. Finally, they asked for authorisation to import diverse seeds of spices, trees, and vegetables (they did not specify which) as well as plants of the *Murier blanc*, which flourished on Isle de France and could one day be cultivated in Cayenne, bringing fortune and further advantages.[233]

The *Jardin du Roi* played a less obvious role in the case of Isle de France: it was scarcely the initiator in the search for new species and profitable plants in the Indian Ocean. For instance, in Bernardin de Jussieu's memoirs and notes, there is a *Catalogue des Plantes que l'on souhaitteraoit avoir de la Guadaloupes* and a *Catalogue des Plantes de la Cote de Malabar et de Coromandel*.[234] While the first list only consists of French names, the latter, with Latin names, also provides some information on the usage of the plants. Interestingly, Jussieu refers several times to plants as '[plant name] des portugais', rather than making a reference to French possessions in the East Indies: this might indicate that he had a French correspondent who looked for useful plants in the Portuguese possessions or that he even had a Portuguese correspondent. It remains unknown from whom or where Jussieu received this information. Scanning his scientific correspondence, there is no evidence of a correspondent from the Mascarene Islands.[235]

Earlier, in the Mascarene context, Antoine de Jussieu refers to a certain Monsieur Courier, *médecin botaniste royal aux Indes orientales*, who had stayed in Bourbon in order to research diseases and who was instructed to correspond with Jussieu about medicinal plants. Apparently, Monsieur Courier had also sent certain trees from Bourbon (the exact names are not given in the document), together with an interpretation and coloured drawings from

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[232] Pièces relatives au projet d'une correspondence agriculto-botanique entre les différentes colonies françaises et le Jardin du Roi, ébauchée en janvier 1788, d'après le projet de M le comte de La Luzerne, BCMHN Ms 308. For the printed correspondence between the Jardin du Roy and the colonies, see Letouzey, *Le Jardin des plantes à la croisée des chemins*, 174–97; See also Spary's work on Thouin's 'acting at a distance': Spary, *Utopia's Garden*.

[233] ANOM Col C/14/68, fols. 21r-21v, demand dated 22 January (?) 1792. A very unclear side note states that at least the diffusion of grains was approved.

[234] BCMNHN Jus 7 (n.d.).

[235] BCMNHN Jus 6. But see for Saint Domingue the letters on natural history by the physician Duhamel to Jussieu, dated between 1733 and 1738, dossier II, 5-14.

Courier, which were planted and multiplied in Paris. The interest of Jussieu in Bourbon can be tracked down to the early 1720s, such as a letter written to an unknown recipient dated 23 August 1722. In this letter, Jussieu elaborated on the coffee specimens he had received from a CIO agent on Bourbon, about which he also reported to the *Académie des Sciences*.[236]

Antoine de Jussieu wrote a *mémoire* on Bourbon (n.d.) in which he stressed once again his interest in *vivres*, plants for nourishment and pharmacy, spices such as curcuma, cinnamon, and clove, coffee, and several kinds of timber.[237] Jussieu proposed one could do 'with Bourbon as with Madagascar' and asked for reports and general *memoirs* about cultivational know-how. More precisely, he explained in the following document for 'Mahé' the need for experiments with, for instance, cardamom or ginger, and required not only seeds but also entire live plants together with their blossom.[238] From the context of the document, Jussieu must have been referring to the Mahé Islands (present-day Seychelles) and not the small French trading post, also named Mahé, on the Malabar (southwest) coast of India.

Antoine de Jussieu was already flirting with the idea of intensifying the correspondence network in the 1720s. As an unpublished memoir from probably 1729 suggests, he saw a great need to correspond with men of confidence in the colonies and that these, in return, should rely on information about cultivation from those who knew it best: locals.[239] His memoir underlines that he was particularly interested in the plants and seeds of food crops. Jussieu argues that since useful plants would also be of interest to the crown, such a project, and the ties with these '*amateurs de l'histoire naturelle*' ('amateurs of natural history'), was likely to receive funding.[240]

Jussieu saw that it was necessary to learn from others in Greece, Turkey, or the East Indies with regards as to how plants were cultivated and used in these countries. Plants from India and Turkey, such as raisins, beans, and red truffles, Jussieu concludes, were by then common

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[236] Letter written by Jussieu to unknown, 23 August 1722, BCMNHN Jus 2, piece 7.
[237] 'Pour l'isle de Bourbon', BCMNHN Jus 3, fol. 93v. See also 'Lettres concernant des drogues envoyées de L'isle Bourbon', BCMNHN 1140/9bis, fol. 3r.
[238] 'Pour Mahé', BCMNHN Jus 3, fol. 94r. On the Mahé islands see 'Description des Isles Mahé, NAF 9345, fols. 193r–199r; 'Mémoire sur l'établissement des Iles Seychelles', NAF 9341, fols. 249v–254r; 'Mémoire sur la Campagne que j'ai faite par ordre du Roi dans l'archipel d'Iles situées au Nord Est de Madagascar en 1770 et 1771', signed by a certain Duroslan, ibid., fols. 313r–321v.
[239] 'Des Avantages que nous pouvons tirer d'un commerce littéraire avec les botanistes étrangers', BCMNHN Jus 3, fols. 95r–105v. See also the scientific correspondence and notes of his brother Bernard, BCMNHN Jus 6 and Jus 7.
[240] 'Des Avantages que nous pouvons tirer d'un commerce littéraire avec les botanistes étrangers', BCMNHN Jus 3, fol. 97r.

on French tables and were the literal the fruits of correspondence.[241] Naturalists like Jussieu and Linnaeus were very aware of their sources of knowledge, which they encouraged others to consult when collecting live plants and seeds. So even when the sources of knowledge were erased in printed accounts and knowledge became 'scientific', people were very much aware of who their knowledge providers were. I elaborate on the need for local knowledge in the subchapter after the next, which is primarily concerned with an alternative approach to 'botanical networks'.

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The Parisian scientific institutions were rather indifferent about Isle de France. The *Académie des sciences*, *Naturæ investigandæ et perficiendis artibus* was created in 1666 and first installed in the royal library before being transferred to the Louvre in 1699.[242] Because the Academy was created and patronised by the state, it had less freedom for manoeuvre.[243] I will not elaborate in detail on the structure of the *Académie des Sciences*, but it is important to point out that the Academy was a state-supported institution which possessed a restricted yet heterogeneous membership and a strict hierarchy. [244] At the top of every core were the regular members: these were eighteen individuals, three in each section (maths, astronomy, mechanics, anatomy, chemistry, and botany), whose knowledge was enriched by correspondents all over the world. The correspondents were attached to one particular member of the Academy and letters were sent to this specific person. Although one might expect a large number of letters, it seems that only few concerning the Mascarenes have survived (if any others were sent at all) from the first half of the eighteenth century. It was only in 1731, that is to say ten years after the formal seizure of the island, that the Academy became interested in Isle de France and appointed a scientific correspondent to the island.

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[241] Ibid., fols. 97v–98r.
[242] Marion, *Dictionnaire des institutions de la France aux XVIIe et XVIIIe siècles. Réimpression de l'édition originale de 1923*, 3, entry 'Académie'.
[243] Kapil Raj, '18th-Century Pacific Voyages of Discovery, "Big Science", and the Shaping of an European Scientific and Technological Culture', *History and Technology* 17, no. 2 (2000): 85–6.
[244] For statistics see James McClellan, 'The Académie Royale Des Sciences, 1699-1793: A Statistical Portrait', *Isis* 72, no. 4 (1981): 541–67; See also James McClellan, *Specialist Control : The Publications Committee of the Académie Royale Des Sciences (Paris), 1700-1793* (Philadelphia: American Philosophical Society, 2003); Maurice P. Crosland, *Science under Control: The French Academy of Sciences, 1795-1914* (Cambridge: Cambridge University Press, 1992); and Académie des sciences, *Histoire et mémoire de l'Académie des sciences: guide de recherches* (Paris: Tec et doc-Lavoisier, 1996).

It is known, however, that the Academy had been interested in Isle de France ever since the engineer Jean-François de Cossigny undertook experiments on weather conditions in the 1730s.[245] Cossigny, who was said to have a violent character, did not stay on Isle de France in direct service of the Academy but of the CIO. The engineer had personal relations with specific officials of the French Company: he was acquainted with the *contrôleur générale des finances*, Orry, and the *commissaire du Roi*, Fulvy, who was his brother-in-law.[246] Because of this connection, Cossigny did not simply correspond with the CIO: he was in direct contact with the *contrôleur générale*, from whom he received specific orders for the exploitation of the Mascarene Islands. Whereas Cossigny shared friendly relations with CIO officials, the engineer did not come to terms with the governor general of the island, La Bourdonnais, as reflected in the rather aggressive tone in his letters. However, as Alfred Lacroix suggests, in his letters to René-Antoine Ferchault de Réaumur (1683-1757), one of the most important figures of the Academy in the first half of the eighteenth century, Cossigny focused calmly on purely scientific matters (amongst others, insects and corn parasites, a topic in which Réaumur was particularly interested).[247]

Poivre was also named correspondent of Réaumur in 1754.[248] Apparently, it was the astronomer La Caille who pushed for this attachment to the Academy. In a letter from Poivre to Réaumur dated 18 March 1754, Poivre explains that La Caille had promised to propose him as a correspondent, but nothing had been done.[249] In Poivre's first biography from 1786, Dupont explains that 'the Academy had done justice to his abilities and named him correspondent (…). They had given him this award on 4 September 1754; the learned Jussieu saw his letters as an enrichment for the Academy.'[250] Why did Dupont mention Jussieu? After Réaumur's death in 1757, Poivre was named correspondent of Antoine de Jussieu on 10 December 1757, but Jussieu died a year later. Any further direct attachment of Poivre to the

[245] See HARS and MARS from the early 1730s.
[246] Lacroix, *Notice historique sur les membres et correspondants de l'Académie*, 7; See also the letter written by Cossigny to Réaumur in Jean-François Charpentier de Cossigny, 'Treize Letteres de Cossigny À Réaumur', *Recueil Trimestriel de Documents et Travaux Inédits pour servir à l'Histoire des Mascareignes Françaises* 4 (1939): 168–96, 205–302, 305–16.
[247] Lacroix, *Notice historique sur les membres et correspondants de l'Académie des sciences*, 7.
[248] See report by Jussieu and La Caille, PV, 1754, 447. See also MARS 1733, 417–37; 1734, 553–63; 1735, 545–76; 1738, 387–403.
[249] Poivre to Réaumur, 18 March 1754, ADS 69J 67/26.
[250] Dupont de Nemours, *Notice sur la vie de M. Poivre*, 33.

Academy is unknown, and Poivre only made use of the Academy when he needed scientific proof of the 'true' nutmeg in 1772.[251]

During his lifetime, Antoine de Jussieu was an active correspondent: 56 of his letters between 1724 and 1729 involve the French colonies in the Atlantic and the Indian Ocean. However, there is no evidence of a botanical correspondence between him and Poivre.[252] It is known though that Antoine de Jussieu was involved in the first scientific description of coffee. In the early eighteenth century, after the Treaty of Utrecht (1713), coffee specimens were sent to the *Jardin du Roi*, where Antoine de Jussieu examined the plants and gave an official report to the Academy. Later, in 1721, specimens were sent directly from Bourbon to Jussieu, and he reported to the CIO about the coffee's (poor) quality.[253] Jussieu's motives were economic ones; yet, Bourbon coffee was not a popular product in France and the CIO made the administration stop sending coffee to Europe in December 1725.[254] Minutes of a letter to the CIO, dated 14 August 1722, also reveal that Antoine de Jussieu received information about plants and drugs in Bourbon, in particular the juice of aloe vera, curcuma, and *féhénate*, which was probably a *citronnelle*.[255]

It seems that it was not Isle de France's flora that attracted the Academy's interest, but rather mineralogy, astronomy, and meteorology. Astronomy was a matter in which the Academy remained greatly interested throughout the second half of the eighteenth century. While the Academy worked closely with astronomers sent by the observatory – such as Mannevillette, Pingré, Thuillier, and La Caille, to the Cape, Madagascar, and Isle de France throughout the 1750s for the exploration of the transit of the Venus, and later Rochon, Le Gentil, and others in the 1760s to look for new routes in the Indian Ocean – the ties between the Mascarenes and the Academy or the Parisian Garden were not very strong.[256] Neither Poivre nor Fusée-Aublet was sent as a *savant* by an academic institution but instead by the

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[251] See PV 76 (1757), 643.
[252] Lacroix, *Notice historique sur les cinq de Jussieu,* 12; On the role of the Academy in relation to botany in the seventeenth century, see Alice Stroup, *A Company of Scientists: Botany, Patronage, and Community at the Seventeenth-Century Parisian Royal Academy of Sciences* (Berkeley: University of California Press, 1990), 65–168.
[253] See *HARS* (1713), 43–44. See also 'Papiers provenant de Louis-Guillaume Lemonnier (1717-1799) et en partie de sa main', BCMNHN Ms 357, piece III: 'Observations sur la culture du Café recueilles par M. Deforges-Bouché, l'intendant du roi en 1720'.
[254] Lougnon, *Correspondance du Conseil supérieur de Bourbon et de la Compagnie des Indes (1724-1750)*, Vol. 1, 10 December 1725; See also on coffee introduction in France Spary, *Eating the Enlightenment*.
[255] Lacroix, *Notice historique sur les cinq de Jussieu*, 17, 19.
[256] Rochon, *Voyage a Madagascar et Aux Indes Orientales*; 'Nouvelles routes de Isles de France et Bourbon aux Indes dans l'une et l'autre Monsoon, NAF 9345, fols. 287r–294r.

CIO and later by the Ministry of the Marine. Nonetheless, in the last three decades of the eighteenth century, the Academy received many curiosities from the Indian Ocean colonies, as the Academy's *procès-verbaux* reveal: a coconut from the Indian Ocean, a report on dwarfs and minerals from Madagascar, and observations from Isle de France and new islands off Madagascar's coast.[257]

While the lack of correspondence between the members of the Academy is frustrating (but also potentially enlightening since state-driven scientific instructions were apparently absent), I was able to get my hands on an interesting piece: the '*Extraits de quelques conservations avec M. Poivre*'. The director of the Academy's library, Chrétien Guillaume de Lamoignon de Maslesherbes, was curious about Poivre's findings in the East Indies. Malesherbes was appointed *directeur de la librarie* as early as 1750 and served until 1763.[258] The '*Extraits de quelques conservations*' give the impression that Malesherbes asked questions, which Poivre answered in detail, on Asian spices, the political, economic, and social situation in India, curiosities in Cochinchina, Malaysia, the Portuguese on Timor, and the Spanish Philippine colonies.[259]

The role of the *Académie des Sciences* became more concrete after Poivre's final spice endeavours in 1772. The botanists Michel Adanson and Bernard de Jussieu approved in an official report (17 February 1773) the authenticity, value, and commercial quality of the nutmeg plants and clove trees Poivre's collaborators had gathered.[260] While the Academy did not play an active role in sending Poivre's collaborators to the East Indies by financially supporting these voyages, they remained an important reference point for the official 'scientific' and public creation of plant knowledge.[261] After Poivre's last missions to the Philippines, undertaken by the naval officer Provost, he sent a report on the spices he had imported to Isle de France since his early attempts in Manila to the Academy. This report was then printed in the *Histoire de l'Académie royale des Sciences* in 1775.[262] To put it differently, Poivre used the expert judgement of the Academy's members in order to turn their

[257] See PV 89 (1770). See also PV of 1769, 1772 and 1773 on nutmeg and clove.
[258] Edward P. Shaw, *Problems and Policies of Malesherbes as Directeur de La Librarie in France (1750-1763): The Schools of the Imperial Age* (Albany: State University of New York Press, 1966), 3.
[259] 'Extraits de quelques conservations avec M. Poivre', BCMNHN Ms 1765. This document is also printed in: Ly-Tio-Fane, 'Pierre Poivre et L'expansion française dans l'Indo-Pacifique'.
[260] ADS PV 17 February 1773, fol. 32v–37r.
[261] Cf. ADS PV, MARS and HARS.
[262] HARS 1772, part 1, 56–61. The report was also printed in Poivre collected works by Dupont Pierre-Samuel Dupont de Nemours, *Oeuvres complettes de P. Poivre, précédées de sa vie* (Paris: Fuchs, 1797), 293–304. The annual periodicals of the Academy only make other references to Poivre's name in relation to Isle de France, HARS (1769), 19.

findings into official knowledge and policy.[263] Poivre needed the public and printed proof from the Academy to make his findings 'scientific'.[264] The volumes of the *Histoire et Mémoires de l'Académie royale des sciences* were regularly published between 1699 and 1790 and contain, amongst other things, curiosities about botanical activity on the Mascarene Islands like the *Mémoires des savants étrangers*.[265]

CONCLUSIONS

The question 'why Isle de France?' cannot be answered easily, and the sources remain very ambiguous. All the factors discussed in this chapter (the environmental challenges, the poor fortifications, the dependency on cross-oceanic networks for food, and the massive import of slaves and its consequence for the island's environment and infrastructure) went hand in hand with the rivalries between the French colonies and individual actors. The case of Isle de France was a highly complex situation of entanglements between metropolitan and colonial actors, which led to the island becoming a test site for experiments in colonial autonomy in the 1760s-80s. On Isle de France, as elsewhere, there was an ongoing tussle between different merchant groups and rival crown administrators for supremacy in their relations to one another and to the ministers in France. Natural history was, and is, 'a science of motion between interdependent sites' and could not be mastered by a single person.[266] The interplay of people and sites must therefore be unveiled in order to argue against the notion of a state 'machine' regulating colonial life from a distance. As Lissa Roberts points out, 'local management strategies and practices would have to mesh with a different governance process as colonial policy, appointments and administration, officially made in Paris, became a matter of negotiation with officials claiming to represent state interests or with metropolitan patrons whose influence had to be acquired and maintained.'[267]

Isle de France was a very fragile, primarily geopolitical, project. Though Bourbon was (and still is today) much more fertile than Isle de France, it lacked good ports which could

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[263] On this point see also Fredrik Albritton Jonsson, *Enlightenment's Frontier*, 125.
[264] On the relation between voyage and scientific discourse, see also Sophie Linon-Chipon and Daniela Vaj, eds., *Relations savantes: Voyages et discours scientifiques* (Paris: Presses de l'Université Paris-Sorbonne, 2006).
[265] 'Sur la vegétation du Blé dans differentes matières', HARS 1772, Vol. 1, 43–53, 'Observations botaniques', HARS 1772, Vol. 1, 54–61, 'Expériences et Observations sur la végétation du blé', MARS 1772, I: 99–156. Sonnerat: 'Description du cocos', SE 1773, Vol.7, 263–66.
[266] Spary, 'Botanical Networks Revisited', 52.
[267] Roberts, '"Le Centre de Toutes Choses"': 327.

accommodate royal vessels. Because the Dutch had established two ports on Isle de France before abandoning it, the sister island was of especial interest for the geopolitical and imperial projects of the crown. The idea was that vessels could anchor at Isle de France while being supplied from Bourbon, a plan that worked well in theory but not in practice. Bourbon could not produce enough for two islands, especially not when troops stopped over. The breakthrough of the Mascarense Islands remained a dream of both the ministry and the local administration because of various factors and lack of engagement, as this thesis as a whole seeks to underline. The imperial project 'Isle de France' started slowly and continued slowly, with little progress being made – too little for those who sought to turn the island into a profitable one. Likewise, Bourbon failed to support Isle de France sufficiently due to inadequate agricultural production. The ways in which the ministry envisioned Isle de France after the Seven Years' War were quickly brought back down to earth; although the island survived two wars under French administration, the British captured it in 1810. The imperial-geopolitical project of Isle de France failed in the long run: desperate cultivational activities could not break the vicious circle created by a lack of provisions. In the nineteenth century, and after the failure of the Mascarenes, all efforts were put into Madagascar. In addition, although metropolitan botanists showed an interest in certain species in the Indian Ocean, they were not significantly interested in the Mascarenes until the 1770s, and a correspondence network in the East Indies was only established in the 1780s.

The Isle de France project in the eighteenth century is particularly interesting if we compare it to colonial possessions in the Atlantic. In order to do this (and to end this chapter), I give a voice to Governor Magon, governor general of the CIO before being made governor of the Mascarene Islands (1754-59). He explained the misfortunes prior to 1767 as follows: 'The reasons for our misfortunes are the same as the ones in Saint-Domingue and Martinique in the first years of their establishment. The Company, which oppressed us, is a dismemberment of those to whom Louis XIV gave exclusive privileges for their commerce. The principal managers and their protectees made immense fortunes at the expense of the inhabitants. (...) The scream of the miserable colonists eventually reached the throne.'[268] As

[268] 'Les causes de nos infortunes sont (...) les mêmes que celles de Saint-Domingue & de la Martinique dans les premiers tems de leur établissement. La Compagnie qui nous opprime est un démembrement de celle à qui Louis XIV avoit accordé le privilige exclusif de leur commerce. Les gérans principaux & leurs protégés firent des fortunes immenses au détriment des habitants. Les actionnaires succomberent sous le poids des dépenses & des déprédations de leurs administrateurs. Le cri de malheureux Colons parvint enfin jusqu'au Trône.', 'Mémoire de

this thesis explores in further detail, these ‘misfortunes’ endured far beyond 1767, despite all the efforts made.

Magon’ for Poivre and Dumas, previous governor of the Mascarenes, 14 Nov. 1767, ANOM Col C/4/19, fol. 199r.

2

Blue empire:
The collection of plants and knowledge-practice in Indo-Pacific worlds (1750s-1770s)[1]

'The gift of a useful plant seems to me more precious than the discovery of a gold mine and a monument which lasts longer than a pyramid.'[2]

– Jacques-Henri Bernardin de Saint-Pierre, *Voyages à l'Isle de France.*

This chapter examines the exploration, collection, and understanding of plants in the East Indies, many of which were introduced into eighteenth-century Isle de France. In the first place, this chapter examines the collection of plants that were to be introduced for the subsistence of the island's inhabitants and not necessarily because of their potential economic value. The common and very simplistic narrative about Isle de France is mostly centred on the search for nutmeg and clove, yet this chapter suggests that it was much more important for the local administration to introduce and cultivate food crops and other plants for subsistence to turn the island into a self-sustaining colony over the course of the eighteenth century.[3] Such an aim has never been achieved, which might also explain why the envisioned role of agriculture has been largely overlooked in the historiography. As chapter one showed, under the former governor La Bourdonnais, several species of staple crops had already been introduced to the island from the 1730s onwards. It was only during the *époque royale*, however, that cultivational activities were to play a key role in strengthening the island from the inside. As I have already pointed out, the island itself had barely anything to offer in terms

[1] I am indebted to Šebestián Kroupa for providing indispensable feedback on a draft of this chapter.
[2] 'Le don d'une plante utile me paraît plus précisieux que la découverte d'une mine d'or, et un monument plus durable qu'un pyramide.' Voyages à l'Isle, in Bernardin *OC* (1833), I: 62.
[3] Ly-Tio-Fane, *Mauritius and the Spice Trade,* 2 vols.; De Fels, *Pierre Poivre Ou L'amour Des épices*; Le Gouic, "Pierre Poivre et les épices: une transplantation réussie,"; Denis Piat, *L'île Maurice.* This chapter follows suggestions made by Roberts, Stockland, and Lacour, cf. Roberts; '"Le Centre de Toutes Choses''; Stockland, 'Policing the Oeconomy of Nature'; Lacour, *La République naturaliste*, 91–96.

of food crops, since virtually no staple grains were native to the island. Because of that, potential food crops had to be collected outside the island.

Yet because of Poivre's double role as intendant and agronomist, he sought to push for the spice project and which clashed with agricultural project for the islanders' subsistence and everyday use of plants as chapter three further elaborates. Above all, Poivre's physiocratic ideas relating to the usage of nature as a food source could only be put into action once food crops were collected in the Indo-Pacific and acclimatised on Isle de France.[4] Therefore, although closely connected to chapter three (which explores how plants were employed and knowledge applied once they had arrived on the island), this chapter is primarily concerned with what happened outside the island: it examines botanical explorations in the Indo-Pacific region in the second half of the eighteenth century. This chapter presses the importance of local and native actors in relation to both mediation and the transmission of plant material and knowledge. I suggest that these two aspects are closely linked to the question of language and negotiation practices.[5] Encounters and language are often blackboxed in global top-down approaches. I argue that looking closely at these encounters will help us to understand how people communicated about plants and named them. In that sense, they must be considered as the trading and contact zones which constructed Isle de France over the course of the eighteenth century.[6]

Botanical networks operated in both directions across the Indian Ocean, namely Madagascar, Southeast Asia, and China, in the search for and the collection of useful plants. This chapter thus highlights the different geographical regions in the Indo-Pacific and beyond involved in this process, where plants and practice-knowledge were explored and collected outside the island. For this purpose, French botanists, commercial agents, engineers, and navy officers were either sent to several parts of the world in order to gather staple crops and knowledge about tropical plants and agriculture or employed by the local administration to collect plants during journeys designed for different purposes.

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[4] On physiocratic discourse and improvement, see also Lacour, *La République naturaliste*, 91–96; On the different agendas of physiocracy and cameralism as well as politcal economy and agronomy, see Peter Jones, *Agricultural Enlightenment: Knowledge, Technology, and Nature, 1750-1840* (Oxford: Oxford University Press, 2016), 14–31; and Stockland, 'Policing the Oeconomy of Nature'.
[5] See also across different contexts and eras Couto and Péquignot, *Les langues de la négociation.*
[6] Musselman, 'Indigenous Knowledge and Contact Zones'; Galison, *Image and Logic.*

The search for plant-based practice-knowledge was fundamentally shaped by the assistance of local populations and mediators.[7] Here, my argument is two-fold: first, only the assistance of local populations enabled plant collection and, second, it was not merely plants that were collected, but also specialised knowledge about their cultivation and use. When encountering tropical plants in a certain region, knowledge about them was based on the Europeans' contact with local populations willing to provide specimens as well as information about their characteristics and virtues. Given that not many indigenous plants on Isle de France were 'useful' and suitable for either making a profit or feeding the inhabitants, such crops and trees had to be introduced to the island.

Hence, this chapter recovers the networks of actors involved in plant acquisition. French actors were not sent by the Parisian Garden but mostly by local authorities in the service of Isle de France. Here, I underline that these networks consisted of non-elite and elite agents, religious men, marine officers, and local mediators rather than naturalists trained in plant knowledge.[8] Besides a general discussion about the need for local knowledge, this chapter also looks at plants for mainly nourishment in their native environment. I consider why they were considered useful and what sorts of knowledge about them was collected. In this context, I stress the importance of language as well as naming practices and practice-based knowledge about the collected plants. I argue that communications about a plant were the key to documenting, identifying, and using it.

The starting point for this chapter is a reinterpretation of Poivre's *Voyages d'un Philosophe* (1768), in which he wrote down observations made in the 1740s and 1750s. At this time, he was sent to East Asia as CIO agent in order to make inquiries about commercial relations with Cochinchina. Reading his account in a cross-cultural perspective, I explore contacts and knowledge transmission during Poivre's travels and how practices related to plant knowledge were explored in other parts of the world. In this chapter, Poivre's works will be read with respect to the collection of knowledge-practice outside the island, which will be tied to the role of agriculture on the island in the following chapter. Equally, this chapter sets out the role of agriculture and the question of improvement within the context of Enlightenment thought. In order to briefly introduce the quest for the 'useful' in this context, the next section engages

[7] See Boumediene, *La colonisation du savoir;* Menon, 'Making Useful Knowledge'; Parsons, 'Plants and Peoples'; Grove, 'Indigenous Knowledge'; Zupanov and Barreto Xavier, 'Quest for Performance in the Tropics'.
[8] Looking at Dutch Indonesia, Peter Boomgard also stressed that naturalists relied on the networks of the East India company, Boomgaard, 'A Hub of Plant Exchange', unpublished manuscript, by permission of the author.

with agrarian thinkers and how nature was regarded and manipulated to serve the improvement of society.

OF 'USEFUL' PLANTS AND ENLIGHTENMENT THOUGHT

In this chapter, I consider 'useful' plant knowledge as the substance of agriculture and cultivational activities, that is to say for the subsistence of the island and not necessarily for its envisioned economic boost. The involvement of the French state in the making of plant knowledge, botanical gardens, and a standardised systematic botanical knowledge system had a clear impact on the emergence of eighteenth-century environmental awareness; in the 1760s, this involvement was strengthened by the rise of physiocracy and the scientific development of agriculture.[9]

In France, the emergence of botanical gardens was extensive. The Parisian *Jardin du Roi* was founded as early as 1635 and numerous gardens were established throughout the provinces. The intention of the *Jardin du Roi* was, however, was to consolidate power within France and not necessarily in its overseas territories.[10] In her study on the Parisian garden, Emma Spary confirmed that natural history at the garden can be seen as 'a local project, specific to one city in one part of Europe, practiced by and of interest to a small fraction of the French population in the eighteenth century'.[11] Yet, as Spary points out, the garden was turned into the *Muséum d'Histoire naturelle* just over a year after Georges-Louis Leclerc de Buffon's nearly fifty years of tenure.[12]

Lewis Pyenson assumes that 'the cultivators of botanical gardens aimed to increase their knowledge of the natural world and express humanity's power over nature. By bringing all known plants to one place, they could be named, catalogued, and properly classified; their nutritive and medicinal properties could also be assessed and described.'[13] The Swedish

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[9] Richard Grove, 'The Island and the History of Environmentalism: The Case of St Vincent', in *Nature and Society in Historical Context*, ed. Mikuláš Teich, Roy Porter, and Bo Gustafsson (Cambridge: Cambridge University Press, 1997), 153; On French agricultural change in the Old Regime to 1815, see Gérard Béaur, *Histoire agraire de la France au XVIIIe siècle: Inerties et changements dans les campagnes françaises entre 1715 et 1815* (Paris: Sedes, 2000).

[10] Chandra Mukerji, 'Dominion, Demonstration, and Domination: Religious Doctrine, Territorial Politics, and French Plant Collection', in *Colonial Botany,* ed. Schiebinger and Swan, 19–33.

[11] Spary, *Utopia's Garden*, 2.

[12] On the development of the *Muséum* see also Lacour, *La République naturaliste.*

[13] Lewis Pyenson and Susan Sheets-Pyenson, *Servants of Nature: A History of Scientific Institutions, Enterprises and Sensibilities* (London: Harper Collins, 1999), 155.

botanist Carl Linnaeus gave botany two principal economic responsibilities: first, the survey of new resources and, second, the acclimatisation and cultivation of these new resources.[14] Richard Drayton suggests that early modern European agrarian thinkers never separated agriculture from commerce before the eighteenth century. Yet, the idea of making academic gardens assist in the work of economic renovation was born in the German lands, while it was the Swedes who turned botany into an economic science.[15] *Histoire naturelle* in France certainly must not be understood solely as theoretical debates, since contemporaries portrayed 'the pursuit of natural history as inseparable from its social implications and practical uses', that is to say 'the practices of classifying, collecting, writing, experimenting, cultivating, and preserving'.[16] In relation to exotic fruits in particular, Spary points out that 'the question of the extent and nature of human effects on natural productions—and *vice versa*—would grow in importance over the course of the eighteenth century, particularly in debates over the value of projects to transplant fruits between the metropolis and the colonies, or from other exotic locations to colonial plantations.'[17]

James McClellan puts forward that a wide system of stations in the colonies was established, particularly after the 1750s.[18] Botanical gardens in the overseas territories were essential for experiments with plant transfers, particularly in terms of the spices moving to and from the West Indiesand, in the French case, the East Indies.[19] Nevertheless, I suggest, that Isle de France did not have a breakthrough, or at least not until the late 1780s. In the first place, the island's gardens were supposed to serve the local territory and not metropolitan gardens. French naturalists came to worlds largely unknown to them, Madagascar in particular. Here, they encountered new types of plants, new knowledge-practices, and unfamiliar knowledge traditions.

The search for subsistence crops was driven by the attempt to turn Isle de France into an agriculturally self-sustaining island state. In the spirit of the eighteenth century, 'cultivators and improvers claimed to be bringing nature to perfection by using human ingenuity to

[14] Drayton, *Nature's Government*, 72–73.
[15] Ibid., 56, 72.
[16] Spary, *Utopia's Garden*, 5.
[17] Emma Spary, 'Fruits of Paradise? Exotics, Environments and Enlightenments in Eighteenth-century France', unpublished manuscript, by permission of the author.
[18] James E. McClellan, 'André Michaux and French Botanical Networks at the End of the Old Regime', *Cast Castanea* 69, no. sp2 (2004): 67.
[19] Grove, 'The Island and the History of Environmentalism', 153.

accomplish the project of making the world more habitable and pleasant for humans'.[20] Poivre did much the same. His double function as an intendant and agriculturalist in touch with physiocratic circles in France before being sent as intendant to the Mascarenes certainly played a key role in this enterprise. After Poivre's first retirement, he went back to Lyon, where he was attached to the Academy of Lyon: this allowed him to further develop his ideas regarding his engagement with nature.[21] Yet, Poivre was not a proper physiocrat: he did not have a proper attachment to these circles, nor did he consider himself one as such, as his contemporary biographer Dupont underlines. Nonetheless, he did share physiocratic ideas, and his *Voyages d'un Philosophe* became known within these intellectual circles.

Physiocracy literally means rule of nature. But for French physiocrats, nature was an order 'within [which] man was reinstated to his superiority according to a pre-established hierarchy.'[22] Very schematic, the physiocrats saw the earth as the only real 'producer' and thought that the economy had to be based on agriculture and not vice versa.[23] Physiocratic ideas, however, never formed a proper programme of practical reforms in the service of production; rather, the movement was occupied with moral philosophy based on an ideal society shaped according to the image of mother earth.[24] As Daniel Roche put it, for the physiocrats, as is particularly visible in the French economist Quesnay's *Tableau économique* (1758), 'true morality and tranquil happiness have always been on the side of the earth and of nature; passions and instability on the side of cities, commerce and culture. Conflict is at the centre of the Old Regime. It brings to light the very fabric of the functioning of society.'[25]
Peter Jones underlined in his recent book *Agricultural Enlightenment* that the idea of agricultural progress and growth certainly belonged to the eighteenth century on a pan-

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[20] Spary, 'Fruits for Paradise?'.
[21] See on the Poivre reception *Éphémérides du citoyen,* vol .VI, 1768; *Lettre de M. Le Trosne*, in: *Journal de l'Agriculture, du commerce, finances*, vol. VI (July 1766), 72.
[22] Lars Herlitz, 'Art and Nature in Pre-Classical Economics of the Seventeenth and the Eighteenth Centuries', in *Nature and Society in Historical Context*, eds. by Mikuláš Teich, Roy Porter, and Bo Gustafsson (Cambridge: Cambridge University Press, 1997), 163; See also Eugène Daire, ed., *Physiocrates: Quesnay, Dupont de Nemours, Mercier de la Riviére, l'Abbé Baudeau, Le Trosne* (Osnabrück: O. Zeller, 1966); François Quesnay, *François Quesnay et la physiocratie*, ed. by Alfred Sauvy, 2 vols. (Paris: Institut national d'études démographiques, 1958).
[23] Lucile Allorge-Boiteau and Olivier Ikor, *La fabuleuse odyssée des plantes: les botanistes voyageurs, les jardins des plantes, les herbiers* (Paris: J.-C. Lattès, 2003), 382.
[24] Thibault Gabriel-Robert, 'Bernardin de Saint-Pierre et La Physiocratie', in *Bernardin de Saint-Pierre Au Tournant Des Lumières*, ed. Katherine Astbury (Leuven: Peeters Publishers, 2012), 36.
[25] 'la vraie morale et le bonheur tranquille sont depuis toujours du côté de la terre et de la nature ; les passions et l'instabilité, du côté des villes, du commerce et de la culture. Le conflit est au centre de l'Ancien Régime. Il fait éclater au grand jour la trame même du fonctionnement de la société.', Daniel Roche, *La France des Lumières* (Paris: Fayard, 1993), 112.

European level. Here, 'agriculture (...) was concentrated on the issue of the food supply and the risk of social disorder should grain stocks run low.'[26] Such a task was certainly not only given to agriculture in the Enlightenment era. Ancient Latin texts like that by Marcus Terentirus Varro already gave agriculture such significance.[27] Furthermore, Jones underlined that 'diffusion, whether of information (useful knowledge), "know-how" (skill), or tools and technology' were central in the Enlightenment era.[28] One must remember that people everywhere have farmed like this for centuries.

Isle de France must be situated at the crossroads of cultivational knowledge-practice and on a global level when looking at how agriculture was centrally organised and applied to improve the island. As mentioned, for the French agricultural enterprise in the Indian Ocean, useful knowledge and plants first had to be researched and collected outside the island. The following subchapters analyse the networks for such a project by paying close attention to mediation, knowledge transmission, and the plants as such.

OF NON-NATURALISTS AND THEIR NETWORKS

Emma Spary has stressed the complex interaction between naturalists and institutions, arguing that 'botanical networks had a more literal connection with European economies than other sorts of collecting networks.'[29] Many voyagers were funded by French institutions, some with an explicit mission designed for a specific purpose. Yet, a European institution-centred perspective reinforced the geography of metropolitan centres, subordinating the colonies to a collateral role. Indeed, until the 1780s (if at all), naturalists working on Isle de France were not hired by the metropolitan garden but by the CIO and later by the Ministry of the Navy and the Colonies. The crucial point I raise here is that although they were funded to actually *go* to the Indian Ocean, the important thing was the local implementation of their missions – local circumstances and local encounters. Metropolitan visions could not predict local interactions.

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[26] Jones, *Agricultural Enlightenment*, 14.
[27] Marcus Terentinus Varro, *Varro on farming = M. Terenti Varronis Rerum rusticarum libri tres*, translated, with introduction, commentary and excursus by Lloyd Storr-Best, London: Bell,1912. I thank Šebestián Kroupa for pointing me to Varro.
[28] Jones, *Agricultural Enlightenment*, 11; On the different usage of plants in European discourse, see also Sophie Ruppel, 'Das grünende Reich der Gewächse: Vom Vielfältigen Nutzen der Pflanzen im bürgerlichen Diskurs (1700-1830)', in *'Die Natur ist überall bey uns': Mensch und Natur in der Frühen Neuzeit*, ed. Sophie Ruppel and Aline Steinbrecher (Zurich: Chronos, 2009), 109–24.
[29] Spary, 'Botanical Networks Revisited', 56.

Actors in the Indo-Pacific were on their own when they had to adapt to uncertain circumstances, including interactions with local populations. Furthermore, the acclimatisation projects on Isle de France were first and foremost to serve the island, and not the French metropolitan market.

In the case of Isle de France and elsewhere, plant transfer was clearly more than a restricted intellectual exchange as Europeans attempted to make economic use of the transferred plants. The key elements of plant-related endeavours in service of Isle de France were located in different parts of the world. As Pierre Sonnerat, Poivre's relative and naturalist, observed, the vegetables and fruits growing on Isle de France were not native to the island but came, together with numerous travellers, from China, the Indies, the Cape of Good Hope, and Europe.[30] Poivre, in his role as intendant and agronomist, employed actors of every kind wherever and whenever he could. As explained by the astronomer Alexis-Marie de Rochon (1741-1817), who imported food crops and plants of economic value from Madagascar to Isle de France in 1768, Poivre never missed an opportunity to charge captains and officers to bring live plants 'as souvenirs' from their voyages, which was also why Poivre's garden became as diverse as it did.[31] Poivre initiated the collection of useful plants by asking for personal favours and by engaging naturalist voyagers and captains for his purposes. The horticultural project of Isle de France was built on these informal relations thanks to both local cultures and other Europeans in the region. Poivre adroitly used the channels which the government was unwilling or unable to provide, both in terms of financial means and ships. Isle de France was left with the struggle of self-organisation without metropolitan assistance.

The type of naturalists varied significantly. Some were missionaries; many were academically trained as physicians or apothecaries, and the trading companies, the crown, or the scientific academies sent most of them.[32] Hence, most were not even trained naturalists. Only after 1770 – that is to say, after the period on which I focus – a new type of a state naturalist began to appear, specialists funded by the crown to gather botanical knowledge and specimens from overseas who sometimes remained in the stations of the overseas colonies.[33] Notably, in the case of Isle de France, one needs to rethink the very nature of being a trained

[30] Pierre Sonnerat, *Voyages aux Indes Orientales et a La Chine*, 2 vols (Paris: chez l'auteur, 1782), II: 85.
[31] Alexis Rochon, *Voyages À Madagascar, À Maroc et Aux Indes Orientales*, 3 vols (Paris: Prault and Levrault, 1801), I.
[32] Schiebinger and Swan, 'Introduction', 10.
[33] McClellan and Regourd, *The Colonial Machine*, 307.

botanist. In the wake of Poivre's attempts after 1767, there was not a single 'true' botanist. Not even Poivre was a trained: he was only a self-proclaimed botanist who relied on a network consisting of engineers (such as Jacques-Henri Bernardin de Saint-Pierre, 1737-1814), some actors trained in medicine (such as Philibert Commerson), navy officials (such as Provost), missionaries (such as the Abbé René Galloys), and astronomers (such as the Abbé Alexis Rochon) active in the region. They in return relied on the help of anonymous knowledge- and material-providers.

It is important to understand the role of Poivre and his self-fashioning within the context of complex colonial politics, his patronage by high officials, and his previous problems with the CIO and rival botanists. The fact that Poivre promoted himself to the CIO and later to the court – which explains his clash with rival botanists – indicates that the crown's support remained a powerful yet theoretical authority whose support Poivre only gained after a long time. He published his *Voyages d'un Philosophe* in 1768, when he needed justification for his further attempts and plan(t)s for Isle de France. The crucial point to be raised is that although Poivre presented himself as a loner, he employed colonials who of course interacted with local populations. In different countries, naturalists looked for different types of plants, depending on their status and use in their native countries. In China, for instance, Poivre was quite familiar with local products because of his travels in East Asia in the 1740s and 1750s. Hence, he was able to give detailed instructions to the Abbé Galloys, who was sent to this part of the world in 1766. Therefore, Galloy's missions were not voyages of botanical exploration *per se*: rather, they were designed to collect already known natural products and live plants. In China, he relied on indigenous suppliers, as this chapter highlights.

At about the same time in Madagascar, Commerson researched local flora unknown to him and most travellers in the region. The fact that Commerson explored the region can serve as an example of powerful and complex state relations built on local negotiations. Commerson's biographer Antoine Cap suggests that the minister charged Poivre with the mission of convincing Commerson, who was actually in the region because he was the botanist in Bougainville's circumnavigation. His task was to explore Isle de France and Madagascar more seriously, particularly in the face of the increasing exploitation of Madagascar's resources. In a letter to his friend and astronomer Lalande, Commerson explained that he was persuaded by Poivre to explore Madagascar because he mobilised Commerson's enthusiasm

to explore the natural world.[34] Commerson's mission in Madagascar (and his stay in the Mascarenes more widely) was a botanical coup designed by Poivre and Minister Praslin. When Praslin was replaced, the mission was about to end. Commerson was supposed to work together with a young physician who stabbed him in back by writing against him to the ministry. The game ended in an immediate cancelation of Commerson's contract: however, Poivre was able to prevent this due to his amicable relation with high officials.[35]

Very likely, Poivre saw his chance to promote his chosen policies and use Commerson as a tool against those back in France who did not share his ideas of building an agricultural island state.[36] Both Bougainville and Poissonier supported this idea and ensured that Commerson's stay was justified.[37] Although Commerson stayed officially on Isle de France to gather knowledge about plants for nourishment and medicine, he was more involved in the natural resource survey of the Mascarene Islands and Madagascar, where he discovered more than 3,000 species and sixty new plants.[38] Rather than the minister, it was Poivre who designed Commerson's mission to explore northern Madagascar before the evacuation of Fort Dauphin at the end of 1770.[39] By disguising Commerson's real purpose on the islands – designed by Poivre – the two were playing a delicate game, the difficulties of which Commerson was well aware.[40] In return, Commerson also tried to make use of Poivre's channels by asking, for instance, the naval officer Provost to collect some live plants for him while Provost, in return, was charged by Poivre to collect luxury spice plants.[41] The networks were tied together by personal favours and informal requests.

Commerson was not the only one whom Poivre sought to employ in order to find useful plants both on the island and in the Pacific world. Poivre's nephew Pierre Sonnerat was particularly attached to Commerson. He joined him on several expeditions to be trained in botany and drawing. In terms of the latter, Sonnerat learned his skills from the engineer

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[34] Commerson to Lalande, 18 April 1771, printed in Cap, *Philibert Commerson naturaliste voyageur*, 173, 16.
[35] Ibid., 17; See also on Commerson, Samuel Pasfield Oliver, and G. F. Scott Elliot, *The Life of Philibert Commerson, D.M., naturaliste du roi, an old-world story of French travel and science in the days of Linnaeus.* (London: Murry, 1909).
[36] Grove, *Green imperialism*, 217.
[37] See the letter to Praslin, 7 April 1770, ANOM Col E/89 (Commerson's file), fol. 8.
[38] Société de l'histoire de l'Ile Maurice, *Dictionnaire de biographie mauricienne* (Port-Louis: Société de l'histoire de l'Ile Maurice, 1941), I: 116, entry on Commerson.
[39] Undated letter, printed in Cap, *Philibert Commerson naturaliste voyageur*, 106. Letter by Commerson to Lemonnier,1 May 1772, printed in ibid., 163.
[40] Letter by Commerson to Lemonnier,1 May 1772, printed in ibid., 163 .
[41] Cf. letter from Commerson to Cossigny, 19 April 1770, printed in Cap, *Philibert Commerson naturaliste voyageur*, letter 3.

Jossigny, who accompanied Commerson during his voyages as his draughtsman.[42] Born in a middle-class Lyon family and son of Poivre's first cousin Benoîte Poivre, Sonnerat was quickly introduced to the adventurous world of his uncle on Isle de France. Commerson's arrival on Isle de France in 1768 marked a turning point in the career of Sonnerat, but the nature of their relationship remains unclear.[43]

Sources unveil that Commerson and Sonnerat worked together for a period of three years in the Mascarenes and Madagascar. Yet other contemporary evidence does not make an intensive collaboration between the two seem very plausible, such as letters by Marie-François Eloy de Beauvais (1743-1815), veterinarian on Isle de France.[44] Although Sonnerat claimed that he accompanied Commerson during his expeditions to the Mascarenes and Madagascar, chronological and contemporary evidence seem to disprove this assertion.[45] In the documents related to Commerson's exploration of Bourbon, it is not Sonnerat but Jossigny who is mentioned as his companion.[46] However, other documents related to Commerson include observations about Bourbon's flora apparently made by Sonnerat.[47]

Jacques-Henri Bernardin de Saint-Pierre (Bernardin for short), who explored Isle de France's natural resources between 1768 and 1770, cannot necessarily be seen as a skilled naturalist either, since he was trained as a military engineer. Malcolm Cook suggests that Bernardin started to see geographical locations with the eyes of a skilled observer.[48] However, it seems inappropriate to consider him a naturalist as he had never been trained as one.[49] In fact, in his famous *Voyage à l'Isle de France* he clearly states that he did not consider himself a naturalist, adding that he did not know anything about botany and that he only described

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[42] ANOM Col E 231 (Jossigny's file), fols. 102, 116.
[43] Ly-Tio-Fane, *Pierre Sonnerat*, 7. According to Commerson's unpublished *mémoires*, the exact date of his arrival was 25 August 1768. See BCMNHN Ms 888, 1.
[44] See on Beauvais DMB, 132 and Erwan Dalbine, *Un vétérinaire sous les tropiques: François-Éloy de Beauvais, 1744-1815* (Wimereux: Sagittaire, 2008).
[45] DSB, Vol. 11, 536.
[46] Ly-Tio-Fane, *Pierre Sonnerat,* 10; Laissus, 'Catalogue Des Manuscrits de Philibert Commerson'. There is a reference to Jean-Baptiste Lislet-Geoffroy as Commerson's companion.
[47] BCMNHN, Ms 1904, XIII. 'Description des plantes observées dans le voyage au volcan de Bourbon; Manuscrits de Commerson n° 3: *Fleur de l'Isle de France* (1772) which also contains *Nottes de quelques plantes observées dans l'isle de Luçon pas Mr. Sonnerat* (7 folios). The exact date is not given.
[48] Malcolm Cook, *Bernardin de Saint-Pierre: A Life of Culture*, Legenda (Oxford: the Modern Humanities Research Association, Maney, 2006), 36.
[49] This is stressed by Nicole Crestey, 'Bernardin de Saint-Pierre, naturaliste voyageur aux Mascareignes?', in *Bernardin de Saint-Pierre et l'océan Indien*, ed. Jean-Michel Racault, Chantale Meure, and Angélique Gigan (Paris: Classiques Garnier, 2011), 354.

things the way in which he perceived them.[50] In a nutshell, very few actors in Poivre's network were actually trained in plant knowledge.

Regardless of whether they were trained naturalists or not, when Europeans came to a world of unknown flora, they had to rely on their local informants. Often, language remained a great barrier, meaning that interpreters or mediators were indispensable. The Frenchmen themselves not only relied on local/indigenous informants and merchants, but also on local Europeans who lived overseas. The importance of local mediators can also be traced in Poivre's reports relating to his earlier missions in China. For instance, when Poivre researched useful plants in Cochinchina between 1748 and 1750, he also relied on the help of a certain M. d'Azemat, a French missionary who accumulated various Chinese fruit and wax trees as well as pepper, cinnamon, and other plants that could be useful for Isle de France.[51] In addition, Poivre acquired silk worm cocoons, which were taken to Isle de France along with mulberry trees, the sole nourishment for these worms. Upon Poivre's arrival in Cochinchina, probably anchoring in Faifo (present-day Hội An), on 30 August 1749, he was sent directly to Father Azemat, who actually advised Poivre against the idea of opening up commercial relations with the Cochin-Chinese because, or so he claimed, they only followed their own interests while making vain promises.[52]

During Poivre's travels in East Asia in the 1740s, another important actor was 'the little Mandarin' who Poivre identified as a man called 'On doï'.[53] Prior to Poivre's return to Isle de France, he went to visit On doï to offer him a present. He sought to hand it over in the name of the CIO for his excellent service since the first day of his arrival, adding that he had been the only one who assisted with true interest and politeness.[54] A report about Poivre's activities in Cochinchina provides more insights into the identity of the 'little Mandarin' and his role: he was the uncle of the second wife of Cai An-Tin, a man who held an important mediating position when the CIO official Friell came to Cochinchina in 1743.[55]

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[50] 'Voyage à l'Isle de France', in Bernardin, *OC*, I: 63.
[51] Poivre's journal, entry from 23 January 1750, Journal d'un voyage à la Cochinchine depuis le 29 aoust 1749, jour de notre arri-vés, jusqu'au 11 février 1750, ANOM Col C/ 1/2, fols. 161- 215. Cf. Cordier, 'Voyage de Pierre Poivre en Cochinchine', 81–121.
[52] Adrien Launay, ed., 'Rélation de La Persécution de Cochinchine En 1750 Par Mgr Lefebvre', in *Histoire de la Mission de Cochinchine. Documents historiques*, vol. 2 (1728-1771) (Paris: Librarie orientale et américaine, 1924).
[53] Poivre's journal, entry from 30 January 1750, 'Journal d'un voyage à la Cochinchine', ANOM Col C/ 1/2, fols. 161v- 215r. Cf. Cordier, 'Voyage de Pierre Poivre en Cochinchine', fol. 81–121.
[54] Ibid.
[55] Launay, 'Rélation de La Persécution de Cochinchine En 1750 Par Mgr Lefebvre'.

From his early travels in East Asia onwards, Poivre relied on mediators such as his interpreter Miguel.[56] This man, 'Michel' to the French, was a young Cochin-Chinese who had served as an interpreter for the Portuguese in previous years (which explains his Portuguese name). Miguel, however, had a bad reputation, and a captain of the Portuguese vessel *Saint-Louis* named Manuel Matthaus discouraged Poivre from engaging him. The interpreter was known for his multiple identities: he had asked for a great sum for his efforts and tried to play the Portuguese in Macao and the French in Pondicherry before seeking his fortune with the English (as the captain underlined).[57] Miguel was a chameleon and a go-between on many levels and for many actors. Above all, he tried to take advantage of the shifting presence of the Europeans in the region, seeking new alliances to achieve his goals.

Despite the captain's warnings, Poivre was well aware of the important role Miguel could play. Through Miguel, Poivre befriended servants and people in the Royal Palace, which allowed him to interact with people at court and to be received by the king himself. In his report, Poivre gave Miguel some lessons in sketching, who in return used his new skills to introduce himself to the king: a black servant, a 'great favourite of the prince' ('*grand favori du prince*') interested in advancing his art skills, took Miguel as his *protégé*. This personal relationship facilitated entrance to the palace.[58] After making promises to Miguel prior to his departure, Poivre sent a letter to the young man in Chinese using the Latin alphabet, or so Poivre claimed, before his second attempt in Cochinchina, where he, thanks to Miguel's mediation, was received with open arms.

As this sub-chapter stresses, cultural and scientific diplomacy played a significant role in the natural sciences: this has also been shown by Simon Schaffer in the context of scientific instruments and the British in China and Sarah Easterby-Smith in the context of diplomacy and plants as gift exchange.[59] Further, the interaction between indigenous and local populations and Europeans was not a one-way street; it was determined by the willingness of these populations to mediate and share their knowledge about plants and plant-based practice, as the next sub-chapter examines.

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[56] 'Journal d'un voyage à la Cochinchine', fols. 161v–215r. Cf. Cordier, 'Voyage de Pierre Poivre en Cochinchine', 81–121.
[57] Launay, 'Rélation de la Persécution de Cochinchine en 1750 par Mgr Lefebvre'.
[58] Ibid. See also the correspondence between Lefebvre and Poivre printed in the same volume, 323–32.
[59] Simon Schaffer, 'Instruments and Cargo in the China Trade', *History of Science* 44 (2006): 217–45; Easterby-Smith, 'On Diplomacy and Botanical Gifts: France, Mysore and Mauritius in 1788'.

THE NEED FOR LOCAL KNOWLEDGE

In the *Sommaire d'observations d'histoire naturelle*, Philibert Commerson wrote

> Vegetables make up the largest part of natural history, and the most multiplied in individuals on the surface of the earth. Nevertheless, we will see each of them as yield to dietary, economic, mechanical, and medicinal uses, and consequently become as many objects of consumption and commerce. (...) It would be necessary to go through all the kinds, all the species of trees (...) and plants already known to exhaust the utilities which are relative to us.[60]

Though the debate on transnational and global history has been going on for quite some time now and new imperial histories are no longer 'new' because they have been told for more than a decade, the discussion has only slowly entered the history of science.[61] Whereas in the Indian, Chinese, and Arab-Islamic world, studies in this vein are now emerging, particularly in the African context, empirically it remains unclear *that* Europeans relied on local knowledge and *how* they did so.[62] Yet, it has been suggested that in the African region, Europeans relied much more on local knowledge because the region had not been heavily colonised prior to the mid-eighteenth century.[63] In Madagascar for instance, most of the plants there were unknown to Europeans and therefore they had to rely on knowledge provided by people who were familiar with them.[64] Travelers had to be open to the 'unknown' while making use of their own experience. As Commerson observed: 'In a completely unknown

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[60] 'Les végétaux composent la partie d'Histoire naturelle la plus nombreuse d'espèces et la plus multipliée en individus sur la surface de la terre. On verra néanmoins partout à l'envie [sic] chacune de leurs parties céder à des usages diététiques, économiques, mécaniques et médicinaux, devenir par conséquent autant d'objets de consommation et de commerce. (…) Il faudrait parcourir tous les genres, toutes les espèces d'arbres, d'abrisseaux et de plantes déjà connues pour en épuiser les utilités qui nous sont relatives', Philibert Commerson: Sommaire d'observations d'histoire naturelle présenté au ministre qui, à l'occasion du voyage proposé de faire autour du monde par M. de Bougainville, demandait une notice des observations qu'y pourrait faire un naturaliste, printed in: Collini and Vannoni, *Les instructions scientifiques pour les voyageurs*, 129–34, 132.

[61] For a monograph, see Raj, *Relocating Modern Science*; and besides *The Brokered World*, the edited volume Josep Simon and Néstor Herrán, *Beyond Borders: Fresh Perspectives in History of Science* (Newcastle: Cambridge Scholars, 2008).

[62] Elizabeth Green Musselman, 'Plant Knowledge at the Cape: A Study in African and European Collaboration', *The International Journal of African Historical Studies* 36, no. 2 (2003): 367–68 Musselman also shows examples of Africans implementing European agricultural knowledge in their own lands. For the African context, see also the recent work on the Niger region David Lambert, *Mastering the Niger: James MacQueen's African Geography and the Struggle over Atlantic Slavery* (Chicago: University of Chicago Press, 2013); For cross-cultural science in East Asia, see Fa-ti Fan, *British Naturalists in Qing China: Science, Empire, and Cultural Encounter* (Cambridge, Mass.: Harvard University Press, 2004).

[63] Musselman, 'Indigenous Knowledge and Contact Zones': 32.

[64] Savage puts forward a similar argument with regard to cartography and plant knowledge, Victor R. Savage, 'Southeast Asia's Indigenous Knowledge: The Conquest of the Mental Terra Incognitae', in *Asia, Europe, and the Emergence of Modern Science Knowledge Crossing Boundaries*, ed. Arun Bala (New York: Palgrave Macmillan, 2012), 257.

country, it suffices an experienced glance to pronounce: here, we have an edible fruit; there, a vegetable good for cooking; there again starchy foods out of which we could make bread. Here, it will be a remedy similar to another already well-known; there, finally, a poison of which we should keep our hands off.'[65] Contemporaries such as Carl Linnaeus urged travellers to gather useful plants according to the information given by the people whose lands they were exploring.[66] Similarly, the French botanist Antoine de Jussieu underlined that for naturalists it was necessary for reports to include the local use of remedies.[67]

A counter question might be asked about when and why local knowledge vanished in printed accounts: this is a question which this dissertation partly addresses. In many travel accounts printed upon the travellers' return to Europe, the original source of the knowledge was erased in order to glorify the naturalist hero. Throwing a twist into this practice, Poivre published his travel account *Voyages d'un philosophe* and *Suite des Observations sur l'État de l'Agriculture Chez différentes nations de l'Afrique et de l'Asie* at a time when he needed proof and authentication for his wide-ranging agricultural knowledge and larger plan to turn Isle de France into an agricultural mini-state. In that sense, one could claim that he used local and indigenous knowledge as a political instrument to justify his efforts, allowing him to not only trace but also to praise local agricultural practices and plant knowledge.

Naturalists observed local practices rather than ignoring them; they observed and documented them in order to imitate them. As the Spanish naturalist Francisco Noroña (who contributed to the plant catalogue of Isle de France's *Jardin des Pamplemousses* in 1787) remarked, Europeans were 'always perfect imitators', good at adopting the ways of preparing and using certain plants and crops. Here, Noroña makes references to the usage of tea from the Chinese and Japanese, coffee from the Arabs and Turks, cacao or chocolate from the Americans, and opium from the Malays and Persians.[68] This train of thought, that Europeans

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[65] 'Un coup-d'oeil expérimenté suffit pour prononcer dans un pays tout à fait inconnu. C'est ici un fruit mangeable ; là, un légume bon à cuire ; là une semence farineuse propre à faire du pain. Ici, ce sera un remède congénère à tel autre déjà connu ; là, enfin, un poison funeste dont il faut retirer la main.', Philibert Commerson: Sommaire d'observations d'histoire naturelle présenté au ministre qui, à l'occasion du voyage proposé de faire autour du monde par M. de Bougainville, demandait une notice des observations qu'y pourrait faire un naturaliste, printed in: Collini and Vannoni, *Les instructions scientifiques pour les voyageurs*, 129–34, 132.

[66] Drayton, *Nature's Government*, 73.

[67] 'il faut sur ces rapports fonder une conformité d'usage de celles de meme genre avec les vertus des etrangers, et avec la manière de les employer dans la medicine et dans les arts, maniere que nous puissons meme perfectioner', 'Des Avantages que nous pouvons tirer d'un commerce littéraire avec les botanistes étrangers' (no date), BCMNHN Jus 3, fols. 95v–105r.

[68] 'Los Europeos siempre perfectos imitadores de todo quanto ven hacer a las otras Naciones excentricas, han adopto tan fuertemente el uso del Thè de los Chinos y Japòneses el del Cafè de los Arabes y turcos, y el del Cacao, ò chocolate de los Americanos [...] Admirome, como hasta aora no se haya establecido el uso de fumar, o

imitated local customs and means of preparation, is crucial for my argument. To put it differently, Europeans relied on local expertise as well as the practices that they observed and learned. Later they sought to adopt, apply and practise methods once they encountered and documented them. Yet, in printed accounts they too often disappear, and one must turn to unpublished material to trace local knowledge and provision and how they were encountered, interpreted, and written out.

Poivre certainly closely observed local practices first-hand. While the majority of Poivre's private journals are either lost or are kept in the private archives of the Pusy-La Fayette family (Poivre's descendants by marriage who keep the documents away from the public), there is evidence that these archives contain more sources explicitly referring to several local plant practices and related processes. The encomium honouring Poivre from 1819, written by Charles Louis Honoré Torombert (Madame Poivre's nephew by marriage who probably had access to Poivre's manuscripts), refers to further documentation about local practices in relation to cultivation and production, which Poivre must have encountered during his travels in Asia, Africa, and the Americas. These include observations about Indian ways of using dyes, the preparing of cotton and silk 'with a quality like in Nanjing', the cultivation and preparation of cinnamon in Ceylon (present-day Sri Lanka), useful natural products in China and Java, and a memoir on Cochin-Chinese plants introduced by Poivre, including their cultivational requirements.[69]

While I have not been able to view these documents, other writings do allow insights into the local practices that Poivre observed and later sought to employ. The *Voyages d'un Philosophe,* in which Poivre documented his observations on local agriculture and skills in the West and East Indies, serves as one such source. He focused on agronomy, which he compared in several parts of the world (the Cape of Good Hope, Madagascar, South Asia, Southeast Asia, and to a great extent in China).[70] In so doing, he overcame language obstacles, since, so he argued, 'agriculture, in every climate, is the universal art of all

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tomar interiormente el Anfiòn, u Opio de los Malayos y Persianos, la bebida de pimienta de los Otaiti.' BCMNHN Ms 43, doc VIII. Cf. Susana Pinar García, *El Sueño de las Especias: Viaje de Exploración de Francisco Noroña por las Islas de Filipinas, Java, Mauricio y Madagascar* (Madrid: Consejo Superior de Investigaciones Científicas, Departamento de Historia de la Ciencia, 2000), 249.

[69] Charles Louis Honoré Torombert, 'Éloge Historique de M. Poivre. 23 Juin 1819', *Mémoires de l'Académie Des Sciences, Belles-Lettres et Arts de Lyon* 8 (2009).

[70] On his travels in Asia and political economy, see also Lewis A. Maverick, 'Pierre Poivre: Eighteenth Century Explorer of Southeast Asia', *Pacific Historical Review* 10, no. 2 (1941): 165–77. See also Lewis A. Maverick, 'Chinese Influences upon the Physiocrats', *Economic History* 3 (1938): 54–67.

mankind'.[71] In that sense, Poivre used practices as a common language, which made it possible for him to access knowledge. He observed the various types of rice and their cultivation in Cochinchina and made explicit references to Cochin-Chinese knowledge regarding the usage of certain plants.[72] Similarly, he documented the cultivation of nutmeg. In *Observations sur le muscadier* ('Observations on nutmeg'), he explicitly referred to the methods and practices of Banda's inhabitants for the cultivation of nutmeg, arguing that the spice's success was the fruit of their experience.[73]

Poivre's accounts seemingly draw on his observations of the customs, manners, and tools of tropical agriculture and commerce. In his speech at the *Académie des Sciences, Belles-Lettres et Arts* in Lyon on 1 May 1759, which he gave upon his return to France after his long travels in the East, he declared: 'I consider myself happy if among the number of observations I made in India and China, there is one which can contribute to the perfection of our arts. The memory of my travel become dearer to me even if the imperfect knowledge I reported can help educated citizens to extend the light of our nation's trade.'[74]

In terms of Chinese agricultural knowledge, Poivre even considered proposing to the CIO Secret Committee in 1750 (that is to say, on his first mission to open commercial relations with Cochinchina) that they gather Chinese workers who would voluntarily come to Isle de France in order to use their skills. He recruited a dozen volunteers; among them were bamboo and rattan craftsmen, silk cultivators, carpenters, one potter, and a cotton worker.[75] While he was arranging things and salaries for these Chinese men (and women?), Poivre learned,

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[71] Pierre Poivre, *Travels of a Philosopher: Or Observations on the Manners and Arts of Various Nations in Africa and Asia. From the Fench of M. Le Poivre, Late Envoy of the King of Cochin-China, and Now Intendant of the Isles of Bourbon and Mauritius* (Glasgow: Robert Urie, 1770), 9. In order to avoid my own translations, I quote from the original 1770 English translation.

[72] For a global history of rice, see Francesca Bray et al., *Rice: Global Networks and New Histories.*

[73] 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manilla, 12 February 1752, ANOM Col C/2/285, fol. 158r ff. For the printed instructions on the cultivation of both nutmeg and clove, see AN MAR G/101, doss. 4: 'Instructions sur la maniere de planter et cultiver avec succes les plants et graines de gerofliers et muscadiers. A l'usage de M. M. Les Habitants des Isles de France & de Bourbon', 1772.

[74] 'Je m'estimerai heureux si dans le nombre d'observations que j'ai faites aux Indes et à la Chine, il s'en trouve quelqu'une qui puisse contribuer à la perfection de nos arts. Le souvenir de mes voyages me deviendra plus cher si les connaissances même imparfaites que j'ai rapportées peuvent aider des citoyens éclairés à étendre la lumière de notre nation sur le commerce', my translation. 'Discours de Pierre Poivre à l'Académie de Lyon', 1 May 1759, in Michel Dürr: Quatre inédits de Pierre Poivre, *Mémoires de l'Académie de Lyon* 2007, 4 série, tome 7. The manuscript is kept in the archives of the *Académie* in Lyons, Ms 187.

[75] 'J'en ai trouvé une douzaine de bonne volonté, les uns ouvriers en bambous et en rotins, les autres sachant cultiver les vers à soie, quelques menuisiers, un potier, et un autre pour le travail du coton.', ANOM Col C/1/3, unpaginated: Poivre to the Secret Commitee, Canton, 31 December 1750.

however, that the CIO prohibited carrying Chinese men on the Company's ships.[76] Therefore, he was hindered by legal restrictions.

Long after his return from his first voyage to the East Indies, Poivre became a member of the Academy in Lyon and presented his *Observations sur le décreusement de la soie sans savon* in 1762.[77] The *Observations* contain detailed descriptions of Chinese and Indian methods for conserving silk and how Europeans could adopt them. His knowledge about Chinese plants became the basis for the detailed instructions given to Father René Galloys, who became one of the most important figures in Poivre's network in China.[78] In 1766, Father Galloys was sent to China, shortly before Poivre became director of the Mascarenes. Furthermore, Poivre also planned to send collaborators to Madagascar, Mozambique, and islands 'beyond the Ganges' – Malaysia and Indochina – in order to collect all the useful plants and trees in this region.[79]

Poivre sought to gather 'an assortment of all [kinds of] cereals and vegetables', guava plants, citrus fruits like the orange, the mandarine, the grapefruit, the kaffir lime, and the lemon, all sorts of litchi plants (of different seasons), the fig (because the fruit was excellent when dried), the jujube (the Chinese red date), the longan, the peach, the pear, the raspberry-strawberry (which resembled the European strawberry in taste), the Chinese walnut and chestnut, and the seeds of fodder plants, such as the vetch (suitable for cattle, goats, and sheep).[80] Although in the Parisian garden Antoine-Laurent de Jussieu listed these as 'Graines potageres venus de Chine des Jardins de l'empereur par Galois' in 1770', it is questionable whether these seeds really came from the Emperor's garden or rather from Beijing and the surrounding provinces.[81] More important in this context, and as chapter three explores in further detail, Isle de France lacked not only useful plants but also useful animals for meat consumption and clothes. Therefore, as mentioned above, there was a relation between animals and plants: note the introduction of certain grasses to feed cattle.

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[76] Ibid.
[77] This paper and other unpublished documents were transcribed recently: Michel Dürr, 'Quatre Inédits de Pierre Poivre', *Mémoires de l'Académie Des Sciences, Belles-Lettres et Arts de Lyon*, 210-232, 7, no. 4 (2007). Poivre read it at the Academy in August 1762.
[78] Laissus, 'Note sur les manuscrits de Pierre Poivre', 43; On Galloy's mission, see in particular Malleret, 'Pierre Poivre, l'abbé Galloys et l'introduction d'espèces botaniques et d'oiseaux de Chine à l'Ile Maurice'.
[79] Poivre to Praslin, 1768?, ANOM Col C/4/22. Cf. Provost's list of collected plants, MA OA 116.
[80] L'orangerie de Chine' in October 1769, BCMNHN Ms 277, dossier 2, piece 9. 'un assortiment de toutes les graines légumineuses et des herbes potagères', 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fol. 17r.
[81] BCMNHN Ms 1385. These grains were probably sent between 1768 and 1769.

Poivre was well aware of the fact that Father Galloys needed one thing in particular for his mission: local Chinese people with whom he could collaborate.[82] While Poivre was still preparing for his departure to Isle de France in Lorient in December 1766, Galloys was sent to China and India to collect different economic plants and bring them to Isle de France.[83] In a letter to Minister Praslin, Poivre explained that Galloys would have to go to Beijing and the northern provinces, which would require time but would result in him finding good tea, mulberry trees, the Chinese wax tree, and many other species of excellent quality.[84] Galloys received detailed instructions in which he was told to make investigations into 'all useful trees, all nutritive grains, and the seeds of fruit trees and vegetables whose cultivation could be attempted with some experience of success in our islands of France and Bourbon.'[85]

Two important points must be highlighted in this context. Firstly, Galloy's search was exclusively related to useful plants for subsistence that Poivre already knew (to a great extent because of his own travels in East Asia in the 1740s and 1750s). His mission was not designed for the discovery of local flora, such as the explorations conducted by Commerson in Madagascar. Commerson was sent to bring an overload of information into a natural order, but this aim was never achieved due to his early death.[86] He attempted to facilitate the work of European botanists by defining 'a fixed and determined name, a single name easier to memorise either at the genus or the species level. Thanks to these invariant names and numbers for each plant as unique references, his copies would facilitate further botanical studies and modifications.'[87] Secondly, Poivre was much more careful about whether plants could be successfully naturalised in the Mascarenes. In contrast to the transfer of nutmeg and clove and his arguments for the success of fine spices, Poivre uses words which were much vaguer.[88]

It is important to stress that the search for economic plants in East Asia had a very distinct feature. In contrast to Poivre's own initiatives for spices in the early 1750s, the late 1760s,

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[82] 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fols. 16r–21r, 16v.
[83] Remis à M. Poivre, 28 novembre 1766, ANOM Col E 197 (Galloys's file), fol. 2. On 'useful' Chinese plants and their acclimatisation in France, see in particular Marie-Pierre Dumoulin-Genest, 'L'introduction et l'acclimatation des plantes chinoises en France au XVIIIe siècle' (PhD Thesis, EHESS, Paris, 1994). I thank Huiyi Wu for providing a copy of the thesis.
[84] Poivre to Praslin, 6 March 1767, ANOM Col E/197 (Galloy's file), fol. 3r.
[85] 'Tous les plants d'arbres utiles, tous les grains nourriciers, Graines d'arbres de fruits, de légumes dont la culture peut etre tentée, avec quelques expériences de succès a nos isles de France et de Bourbon.', 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fols. 16r–21r, 16r.
[86] 'P.Sc.', BCMNHN Ms 277, I/ 3, undated.
[87] De Cambiaire, 'Enlightened Alliance', 177.
[88] Cf. chapters five and six on the spice quests.

and the early 1770s, Galloys' mission was approved by Praslin. The ministry remained important as a financial source, but not for the interaction with Chinese collaborators. These contacts were a matter of personal relations between the naturalists and the local people. Here, knowledge of the local environment was most significant, and networks were at least as important. Poivre, who had interacted with these people himself, asked Galloys to write a detailed report about all plants he gathered, including the Chinese names for every object, the price, agricultural methods, and domestic animals that might be employed for agriculture.[89] During his earlier travels in Cochinchina, Poivre testified that he had also engaged with local knowledge, such as for the seeds of the so-called '*diou*', or the red flower: 'I informed myself about the manner of sowing this seed and how to cultivate the plant. This is what the expert I consulted told me'. This statement was followed by a detailed description of the seasonal, soil, and water requirements of the seeds.[90]

PLANTS AND PRACTICAL KNOWLEDGE

The previous subchapters underline the importance of communication and local knowledge during the collection of plants. This subchapter adds a further layer to the previous study of plants vis-à-vis the practical knowledge related to them. Not only plants were collected but also the practices of cultivation. In (top-down) approaches to the global transfer of plants, practical knowledge remains a less important issue and historians tend to forget that it was not only plants but also related knowledge which travelled: this also had to be collected and documented in the first place. Therefore this chapter argues that in the Indian Ocean, the interest in plants was an economic one: local authorities were concerned with utilitarian botany rather than with classification. Materials and practice-knowledge were collected and documented in the service of Isle de France outside the island. In several parts of the Indo-Pacific region and beyond, the French collected practical knowledge about the plants, cultivation, and agriculture practised in the plants' native countries.

The main geographical regions for the collection of plants and knowledge were Madagascar, India, and Southeast Asia. In China in 1766, for instance, Father Galloys was to collect all different kinds of fresh wheat (ready to sow), a quintal of each to test, and different

[89] 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fols. 16r–21r.
[90] 'Je me suis informé de la manière de semer cette graine et d'en cultiver la plante. Voici ce que m'a dit l'expert que j'ai consulté.', Poivre's journal, entry from 22 January 1750, 'Journal d'un voyage à la Cochinchine', ANOM Col C/1/2, fols. 161v– 215r. Cf. Cordier, 'Voyage de Pierre Poivre en Cochinchine', 81–121.

kinds of fresh rice (fifty pounds of each kind ready to sow), in particular a rice suitable for dry soil.[91] Wheat and rice are listed first and second in his instructions, which underlines that these food crops were much needed in the Mascarenes. Wheat, rice, and maize remained the most important staple crops in the Mascarenes, and Father Galloys without a doubt contributed to the introduction of several different kinds.

Galloys' expedition in 1767 was designed to collect useful plants based on observations Poivre had made during his earlier travels, which had been published in *Voyages d'un Philosophe*. Poivre's account was very much in the fashion of eighteenth-century French agrarian thinkers, for whom global systems of agriculture were sources of comparisons of sometimes more and sometimes less successful systems. In that sense, agronomical observations were rooted in 'useful' philosophical, political, and economic notions. Physiocratic ideas, therefore, must be understood in debates about 'techniques', which were always connected to a philosophical demonstration.[92] On the basis of this understanding, during his travels in China, Poivre claimed that he was driven by a most interesting question, as he explained in *Voyages d'un Philosophe*: how did China obtain and feed its huge population? Did the Chinese possess any secrets for multiplying their cereals and foodstuffs? To investigate these questions, Poivre began to interact with Chinese labourers, and soon he thought he had found the answer: 'Their secret consists simply of manuring their fields judiciously, ploughing them to a considerable depth, sowing them in the proper season, turning to advantage every inch of ground which can produce [even] the most inconsiderable crop, and preferring grain to every other species of culture as by far the most important.'[93]

In eighteenth-century France, Chinese agriculture, with its 'exotic' technologies and cultivation methods, fascinated agronomic thinkers long before Minister Bertin began to encourage scientific enquiries about Chinese methods for making porcelain. Voyageurs of the time, and missionaries in particular, began to document the perfection and methods of agricultural activities in China.[94] Poivre's agricultural and economic observations in China emerged at a point when French agronomy was rapidly rising. Chinese agricultural methods served as a model for Poivre's visions of an agricultural island state. According to him, the reasons for China's fertile soils were intensive work, profound labour, and a large variety of

[91] 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fols. 16r–21r, 16v–17r.
[92] André Bourde, *Agronomie et agronomes en France* 20; On peasantry and peasants in Enlightenment France, see also Roche, *La France Des Lumières*, 99–126.
[93] Poivre, *Travels of a Philosopher*, 143.
[94] For a discussion on Chinese agriculture and its place in France, see Bourde, *Agronomie et agronomes*, 440–44.

fertilisers. At the same time, Poivre observed the social framework of this sort of agriculture, which was constituted by simple and regular habits, the equality of individuals, the paternal government of the emperor, and the protection and honouring of agriculture.[95]

Poivre documented the practices of rice cultivation in Madagascar, Siam, India, Cochinchina, and China. He compared several methods in order to find the most suitable for enriching European cultivation. He observed that Malagasies cultivated rice only during the rainy season. They only used pickaxes to work the fields, starting with weeding: then five to six men made a line and dug little holes in the soil. Women and children followed, inserting rice grains in the holes and covering them with a little bit of earth with their feet.[96] Because the soils were so fertile, wheat multiplied annually, growing pell-mell together with other native herbs.

In comparison, in Siam, Poivre observed a different cultivational method: seeds were sown by putting them deep inside a little hole in well-watered soil without covering them with too much earth.[97] Once the plants reached a height of five to six inches, the Siamese tore them out by the roots and transplanted them to small parcels of land of three to four sprigs about four inches apart. Then, these plants were placed deep into clay soil, which had to be worked thoroughly with a plough. Poivre explained that transplanting young rice plants from their original soil to clay soil led to much better results than only using the former. He further suggested that these methods came to Siam together with the Chinese and Cochin-Chinese migrants who worked the fields in Siam's capital and its surroundings. Because they contributed most to the improvement of rice cultivation and commerce in general, they enjoyed the government's protection against oppression.[98] Hence, there was a relationship between legal protection and the productivity of social groups.

In Cochinchina, Poivre observed the cultivation of six different kinds of rice. The first three, namely the 'little rice' (the most delicate, whose grain was small, oblong, and transparent), the 'great long rice' (with a round form), and the 'red rice' (whose name derives from its reddish husk), were produced in great abundance and required floooded grounds.[99] The more curious types of rice Poivre observed were two varieties of dry rice which grew in

[95] Ibid., 443.
[96] Pierre Poivre, *Mémoires d'un botaniste et explorateur*, eds. Denis Piat and Jean-Claude Rey (La Rochelle: la Découvrance éd, 2006), 53–54. Poivre adds that the Malagasies have an expression for 150 pounds of white rice grain, which was '*gamelle*'.
[97] Ibid., 67.
[98] Ibid., 68.
[99] Ibid., 86.

dry soil and required only rainwater: these formed a considerable part of Chinese trade. Dry rice was only cultivated in the mountains and high grounds, which were worked with spades. Seeds were sown 'as [Europeans] do wheat' at the end of December or the beginning of January, when the rainy season ended (cold and dry weather).[100] After only three months, they offered a plentiful crop.

Cultivating common rice, Cochin-Chinese agricultural practices were similar to those on the Coromandel Coast. Here, Poivre described an instrument which was developed to facilitate the watering of rice fields.[101] For working the ground, Poivre remarked upon 'Malabar' instruments that resembled 'the araire and the "*souchée*" used in the south of France' (in other words, the plough) and which required the power of oxen (but more commonly buffaloes).[102] In Cochinchina, one also ploughed the ground twice before sowing the rice in a small and well-laboured field that was then covered with shallow water.[103] Once the rice plants were about five to six inches high, the fields were harrowed and flooded with water before the plants were pulled up with the seed-plots: they were then transplanted to prepared parcels of four or five stalks six inches apart. Women and children generally did this work. Unlike in India, Poivre observed, one did not need machines to flood the ground because springs and small rivers coming from the chain of high mountains naturally flooded the land once their courses were redirected.[104]

Besides rice, the most important cultivational activity in Cochinchina was that of sugar cane. Two kinds of sugar cane were cultivated: one that contained little water and lots of salt and another green one (more preferable) that was very large and high and contained lots of sap and little salt (hence it was mainly used as fodder). Most importantly, both humans and animals should eat this plant while it was still green because this was when it contained the most nutritious substances.[105] The cultivation of sugar cane required that the soil be worked before the cuttings of sugar cane were planted three by three in a line (similar to the way in which wine was cultivated in some provinces in France) and set about eighteen inches into the ground about six feet apart from one another (looking something like a chessboard).[106] This had to take place during the rainy season because the cuttings needed water prior to producing

[100] Ibid., 87.
[101] Ibid., 61.
[102] Ibid.
[103] Ibid., 88.
[104] Ibid., 88–89.
[105] Ibid., 89.
[106] Ibid.

sprouts. If one took good care of the cane during the first six months, one could reap twelve to fourteen months after the actual plantation. Given that it was possible to grow sugar cane from cuttings and one could experiment with cultivation and sap production quite easily, this plant was quite attractive for colonies (as was already recognised in the Atlantic).[107]

During his travels in Cochinchina in the 1750s, Poivre also observed closely the cultivation of the mulberry tree, which was the only source for feeding silk worms. One chose sandy soil close to the sea and rivers for their cultivation. On the eleventh moon at the end of the monsoon season, one cut the branches of trees from previous years, dividing them into small plants of five to six inches and placing them diagonally in lightly mixed soil. These were transplanted in the same way as lettuce was transplanted: only two months, later all the plants would be covered with leaves, looking similar to a vineyard.[108] On the 'second moon' (presumably after two months), one took the greenery to feed the silk worms. Every year, one started the whole process again. Poivre's observations on the cultivation of crops are extremely detailed: unfortunately, not many other sources give such rich information about local practices of cultivation. They do allow, however, glimpses into the plants' use as remedies or foodstuffs and, more generally, how Europeans tried to understand them, as the following section will discuss.

China, Southeast Asia, and Madagascar served as sources of knowledge and materials for agricultural activities on Isle de France. When exploring the natural world of Madagascar in the late 1760s and early 1770s, Commerson encountered native knowledge and names, listing thirty useful plants and about the same number of birds and other animals. Some of the plants were those which Poivre had already researched in the late 1750s. This was the case for the 'Voua - Raven âla' (ravenala), which Commerson described as a tree similar to the *cocotier* (coconut palm tree), with leaves resembling those of the *bananier* (banana palm), the raffia, or the ravensara.[109] Poivre himself, during a stay of four months in Madagascar in 1756 on his trip back to France, researched these palm trees and took detailed notes about their appearance and usage by Malagasies.[110] In the description of the plant, which consists of a brief general discussion followed by a separate description and examination of its utility,

[107] Poivre's journal, entry from 21 January 1750, 'Journal d'un voyage à la Cochinchine', fols. 161r–215v. Cf. Cordier, 'Voyage de Pierre Poivre en Cochinchine', 81–121.
[108] Ibid.
[109] The ravensara is indicated as '*muscade sauvage*' ('wild nutmeg'), collected on Isle de France. http://coldb.mnhn.fr/catalognumber/mnhn/p/p00672753;http://coldb.mnhn.fr/catalognumber/mnhn/p/p00681696, last retrieved 27 February 2017.
[110] 'Le Rafiâ', BCMNHN Ms 1265.

Poivre documented the practices of Malagasy women and how they produced fibre from the leaves (which is still done today). Poivre also took specimens with him back to France, many of which have survived. The herbarium of the *Muséum national d'Histoire Naturelle* has only recently digitised an entire collection of vascular plants (about 6,000,000 specimens), including the *Herbier d'Antoine Laurent de Jussieu* (Poivre's herbarium).[111]

Poivre also made observations on the ravenala ('Raven-Ale'), the ravensara ('Raven-Tsarap'), and plants which he indicated as 'Pafoumouna', 'Assim' (whose fruit resembled the French plum or *reine claude*), 'Cafamaran', 'Hin-Tchi' (which was the most common tree around Foulpointe in the east of Madagascar), 'Labeau', 'Harougan', 'Ramontchi', and 'Fouraa', which was 'after teak the best timber in the Indies for the construction of vessels (...), the Malagasies prefer it (...) to all other kinds of timber'.[112]

Malagasy ravensara, the oil of which is used today for medical purposes, was then used as a spice; Malagasies only used its leaves. This practice was the origin of the term 'ravensara', meaning 'good leaf'.[113] While Sonnerat refers to only one species of ravensara in his published work, Poivre observed that the Malagasies distinguished several kinds.[114] Poivre noted that the fruit of the ravensara had the same scent as cloves; the inhabitants of the Mascarenes used it in their curries.[115] Given that Poivre referred to the inhabitants of Isle de France and Bourbon using ravensara, the tree had probably been introduced there much earlier. It thus remains an open question why Poivre seemingly observed the ravensara only in Madagascar and not in the Mascarenes and why Commerson continued to examine this species in Madagascar if it was already on the French colonial island.

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[111] https://science.mnhn.fr/institution/mnhn/collection/p/item/search, last retrieved 27 February 2017. I thank Déborah Dubald for pointing me to the collection.

[112] Ravensara aromatica Sonn, http://coldb.mnhn.fr/catalognumber/mnhn/p/p00681697, last accessed 27 February 2017. 'après le thèc le meilleur bois qu'il y ait aux indes pour la construction des vaissaux (...), les malagaches le préfèrent (...) a tout autre bois pour la construction de leurs pirogues'. ibid. See also Laissus, 'Note sur les manuscrits de Pierre Poivre', 42; On the Raffia palm and its fruit, see Marc Nwosu Ogbuagu, 'Vitamins, Phytochemicals and Toxic Elements in the Pulp and Seed of Raphia Palm Fruit (Raphia Hookeri)', *Fruits* 63, no. 05 (2008): 297–302. For the plants' descriptions, see BCMNHN Ms 1265. Unfortunately, they are not illustrated, but Commerson later examined the Raffia fruit, cf. BCMNHN 279, plate 29.

[113] 'Raven-tsara', BCMNHN Ms 1265. There were different spellings of the plant, including, Ravent-sara, Raven-sara, Ravend-sara, etc. On the Ravensara, see also H. Humbert and Jean-Fṛançois Leroy, *Flore de Madagascar et des Comores : Plantes vasculaires. Publiée sous les auspices du gouvernement général de Madagascar et sous la direction de H. Humbert.*, vol. fam 1: Marattiacées (Paris: Muséum national d'histoire naturelle, 1951), 59.

[114] Sonnerat, *Voyages Aux Indes Orientales et a La Chine.* Sonnerat possibly used the information provided by Commerson, with whom he explored the region. See also BCMHN Ms 279-281; Alexandre Henri Tessier et al., *Encyclopédie méthodique: Agriculture* (Paris: H. Agasse, 1796), IV: 224.

[115] 'Raven-tsara', BCMNHN Ms 1265.

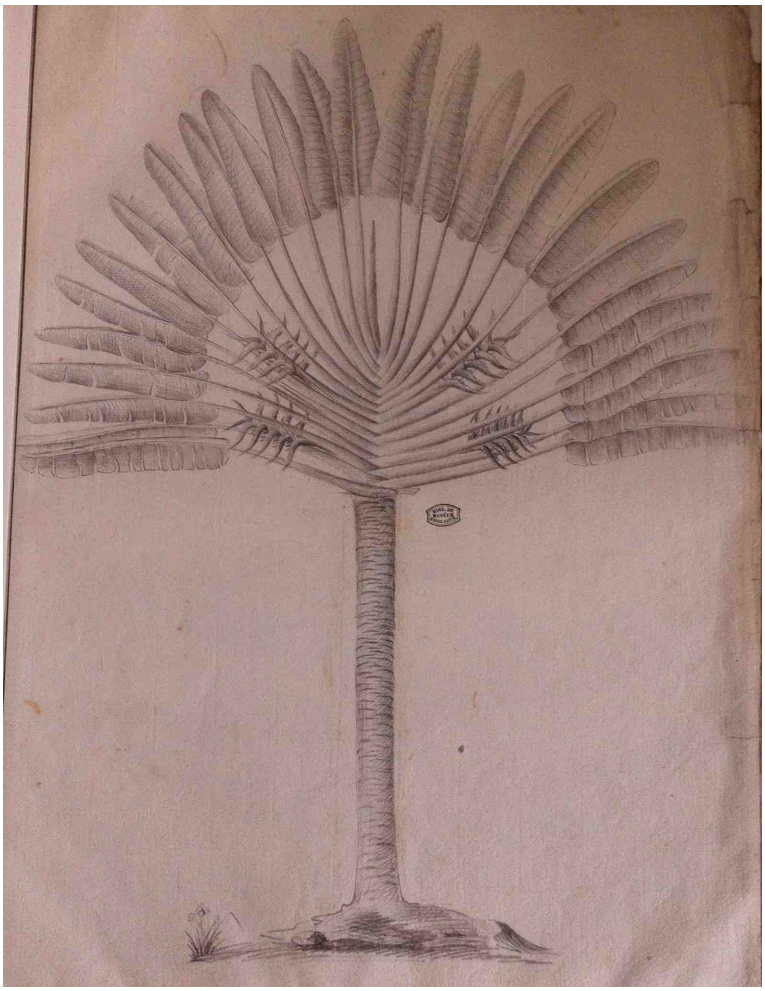

Figure 2. 'Dalembertia Vranoscopa. vulgo Ravenal', Commerson collection, BCMNHN 279. The ravenala or traveller's palm.

On a different note, according to legend, it was not the French who imported the ravenala but the Malagasy princess Bétia when she emigrated to Isle de France in the 1750s.[116] Specimens of certain Malagasy palm trees attracted the attention of metropolitan botanists. The ravensara was seemingly so curious to the people on Isle de France that they were unwilling to send it to Turgot to Paris in 1768 because the seeds could only be planted when fresh: they were very rare and precious because only they contained the true taste and scent.[117] The ravenala

[116] Guy Rouillard and Joseph Guého, *Les plantes et leur histoire à l'Ile Maurice* (Mauritius: MSM Limited, 1999), 504.
[117] 'Envoie de Graines de l'Isle de France en 1768 avec des observations y relativent', to Turgot, BCMNHN Ms 277, III. The actual specimens sent included the Morongeues, Agatys, Le Savonnier, Lilas, Benjoin, Takamaka, Bois de Natte, Moutarde blanche, acajou, l'indigo de Madagascar, l'indigo de l'Inde, and many more.

remained an object of interest throughout the eighteenth century, and seedlings and specimens were even sent to the Parisian garden. In August 1778, gardener Jean-Nicolas Céré sent specimens of the creole 'species of the Malagasy palm tree', the ravenala or the 'traveller's palm', to botanist Le Monnier, together with a brief description in which he explained the Malagasy ways of using the leaves. They were used to make plates and roofs because they were waterproof.[118] Poivre had made similar observations in 1756. Being easy to reproduce, the ravenala was one of the most useful trees of the island. Because the leaves were very resistant, one did not need to repair one's roof for six or seven years. The big leaves, supported by some bamboo branches, were even used as walls and to make boxes. The trunk was used to build floors, while the flowers were used to add flavour to meals.[119]

Other kinds of palm trees fascinated the Europeans as well; palm trees were said to be the most useful trees for all sorts of things, which could be made out its fruits, leaves, and timber. Bernardin observed that the coconut tree was 'one of the most useful trees for commerce in the Indies, even though it hardly served except for its bad oil and bad ropes'.[120] Despite Bernardin's pessimistic remarks, the coconut palm tree was generally praised for its fruit by contemporary observers.[121] Poivre even exclaimed that in India 'the most useful of trees in their orchards is indisputably the coconut palm', especially because of its nuts.[122]

As useful and exotic curiosities, palm trees in particular gained attention in France, and Commerson sought to turn his findings about the water coconut ('*cocos de mer'*) native to the Seychelles into a printed account with the *Académie des Sciences*.[123] Indeed, he was in touch with the botanist Bernard de Jussieu. He wrote to him in 1770: 'Regarding the water coconut, I promised you a complete history of the palm tree that carries it. I have made all the drawings

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[118] 'espèce de palmier de Madagascar', 'Envoi a M. Le Monnier', 30 August 1778, printed in *La Revue rétrospective de l'Ile Maurice* 4 (1953): 299–300.
[119] 'Le Raven-ala', BCMNHN Ms 1265.
[120] 'On y [à l'Isle de France] a planté le cocotier, sorte de palmier qui se plaît dans le sable. C'est un des arbres les plus utiles du commerce des Indes ; cependant il ne sert guère qu'a donner de mauvaise huile et de mauvaise câbles.', 'Voyage à l'ile de France', in Bernardin, *OC*: I, 66–67.
[121] Bernardin, *OC*, II: 98; I: 172, 178, 180–183. Though Bernardin was still convinced that its fiber, liquor, and nut could not compete with French linen, wine, and hazelnut.
[122] 'le plus utile de tous les arbres de leurs vergers, est sans contredit le cocotier', Poivre, *Mémoires d'un botaniste et explorateur*, 63. NB that 'le cocotier' is translated as 'cocoa-tree' in the English translation of the *Travels of a Philosopher*, 54. The translator probably confused it with the 'cacaotier' or 'cacaoyer'. Cf. *Linnaeus' Species Plantarum (1753) listing theobroma cacao.*
[123] See also Spary, '"Peaches Which the Patriarchs Lacked"'.

and all the natural cuts (...) and one cannot see any better execution. I reserved all this to be offered to the Academy.'[124]

Commerson's fine manuscript including descriptions and engravings of Madagascar's palm trees remains hidden in the archives of the *Muséum nationale d'histoire naturelle* in Paris. Commerson passed away in 1773 and the manuscript, entitled 'Monographica de Cocô Maritima dictâ & aliis nonnullis Palmarum Generibus', apparently part of 'Palmarium Volumen In quo isquedum desiderata Palmarum arborum (su bulborum arboreorum)', has never been published.[125]

Jossigny accompanied Commerson as his draughtsman during his missions.[126] His fascinating works on palm trees consists of forty-eight plates, thirteen of which are dedicated to the *Lodoicea Callipyge*, '*Le Cocos Royal ou Cocos de mer Des isles Sechelles'*: visual and textual details about the tree and its leaves, bark, and fruit (nut) are discussed. This palm tree is native to the Seychelles and was discovered by a certain Barré, who also joined Marion-Dufresne during an expedition to the Seychelles in 1768. Commerson was probably able to examine the tree because Abbé Rochon, who was sent to the Seychelles in 1769, was instructed to report about the botanical discovery: he probably loaded a live plant onto a ship before his return back to Isle de France. It was Pierre Sonnerat, however, who published descriptions and drawings of the '*cocos de mer*' in his *Voyage à la Nouvelle Guinée*. The engravings resemble those made by Jossigny, but Sonnerat does not make a reference to him or Commerson. The 'Description Du Cocos de l'Île de Praslin, Vulgairement Appelé Cocos de Mer' appeared in the *SE* series of the Parisian Academy of Science in 1776.[127]

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[124] 'Quant au cocos de mer, je vous promets l'histoire complète du palmier qui le porte. J'en ai fait faire tous les dessins et toutes les coupes comme nature, en grand (carthâ athlanlicâ) et l'on ne peut rien voir de mieux exécuté. Je réserve le tout pour être offert à l'Académie. Ne permettez pas, je vous prie, qu'aucun curieux indiscret porte des mains violentes sur celui que je vous envoie et ne me ravisse celle de mes découvertes que j'ai le plus à cœur.' Commerson to Bernard de Jussieu, 6 February 1770, ADS, Commerson's file. 'Cocos', BCMNHN, Ms 887, doss. III, piece 11.

[125] BCMNHN Ms 279, file 3. Ms 279, 280 and 281, all in all, contain about 585 engravings, most of them by Jossigny, some by Sonnerat, and some by Morlaix, Pecquet. The Cocos series contains 48 engravings. On Madagascar's palm trees, see also Allorge-Boiteau and Allorge, *Faune et flore de Madagascar*, 124–25. See also José Beltrán's research on French natural history and the illustrations of Father Plumier in the second half of the seventeenth century, in which Beltrán traces their history from the field to their later print, José Beltrán, 'Nature in draft: images and overseas natural history in the work of Charles Plumier (1646-1704)' (PhD Thesis, European University Institute, 2017).

[126] BCMNHN, Ms 887, doss. II, 44. On Jossigny, see also Roger Bour, 'Paul Philippe Sanguin de Jossigny (1750–1827), Artiste de Philibert Commerson. Les dessins de reptiles de Madagascar, de Rodrigues et des Seychelles', *Zoosystema* 37, no. 3 (2015): 415–48. And his file in the colonial personal series ANOM E 231.

[127] Pierre Sonnerat, *Voyage à la Nouvelle Guinée: dans lequel on trouve la description des lieux, des observations physiques et morales, et des détails relatifs à l'histoire naturelle dans le règne animal et le règne*

Figure 3. ‘Le cocotier’, Commerson’s collection, draughtsman: Jossigny, BCMNHN Ms 279, plate 16. In a letter to Cossigny, dated 26 September 1770, Commerson also speaks of the depicted beetle, ‘qui attaque les troncs et pieds de cocotiers.’, printed in Cap, Philibert Commerson, letter 7.

In contrast to the argument brought forward earlier – that naturalists were more concerned with utility than classification – Commerson seemingly attempted to classify the flora of both Madagascar and the Mascarenes. His manuscripts contain hundreds of descriptions and sketches of plants from this part of the world, including palm trees, fruit trees, and local ‘average’ flora. Yet, he never completed this project because of his early death in 1773, prior to any further investigation (let alone publication). He was concerned with the botanical

végétal (Paris: Ruault, 1776), Plate 3–6; Pierre Sonnerat, ‘Description Du Cocos de l’Île de Praslin, Vulgairement Appelé Cocos de Mer’, *SE* 7 (1776): 263–66.

identity of plants rather than practical knowledge about them, which is clearly reflected in his archives, making him exclaim: '*Que regio in terris nostri non plena laboris*!'[128] During his travels in the 1750s, Poivre, on the other hand, was much more interested in knowledge-practice and the cultivation of plants. For instance, he examined the 'Malabar' agricultural methods for growing the coconut palm, explaining that trees were sown twenty-five to thirty feet from each other and flourished best in mixed soil or sand. These trees were worth the labour: although they took about ten to twelve years to bear fruit, they lasted for more than fifty years.[129]

Poivre's *Voyages d'un philosophe* does not give away much information about his encounters with local practitioners. Yet, the account is full of his close observations about knowledge-practices and how materials of everyday value were processed. For instance, he elaborated on how coconuts were especially used for the production of cooking oil, 'despite the unpleasant taste', and the liquor named 'soury'.[130] For the latter, he observed that during the season of young nuts, no bigger than 'ordinary French nuts' which appeared right after the fall of the flower, Indians made a small cut in the stalk of the duster about seven or eight inches from the trunk of the tree, placing an earthy vessel underneath into which the juice flowed. They stabilised and covered the mouth with some cloth in order to prevent the admission of air, which would make the juice bitter. Poivre not only described the use of materials but also tried to make them more accessible to a European understanding by drawing comparisons to uses and processes with which he, and possibly his readership, was familiar.

[128] 'Labor botanicus in gallicana insula denno susceptus anno 1772', BCMNHN Ms 1904, file IX. He uses the same phrase in a letter to his friend Lalande, 1771, printed in Cap, *Philibert Commerson*, 116.
[129] Poivre, *Mémoires d'un botaniste et explorateur*, 64.
[130] 'malgré le goût désagréable', Ibid.

Figure 4. ‘Le cocotier de mer’, Commerson’s collection, draughtsman: Jossigny, BCMNHN 279, plate 1.

As described above, he not only observed native agricultural skills in India but also the ways in which native populations used plants and prepared them for consumption, as further examples can highlight: travelling in Malaysia, and possibly also on the islands of Sumatra and Borneo in the 1740s and 1750s, Poivre observed the sago palm, which was known as the breadfruit tree. This palm tree was ‘a gift of nature’ which in part made up for the lack of grain: it grew naturally in the woods, did not require labour, and multiplied itself.[131] Once ripe, he documented, the Malays cut the trees into parts, quartered them, and scooped out the mass of mealy substance; the fibre was extracted and the paste was dried. When ready to eat, it was very nourishing and could be conserved for years. In comparison, he explained, Indians

[131] Ibid., 74–77.

not only used the paste as food but also as a remedy against stomach ache.[132] Besides the sago palm, Poivre was also interested in the '*rotang de Malaisie*' or rattan, which must have already been cultivated in *Le Réduit* in the late 1740s, and finally the '*choux des Moluques (arbre)*', which I was unable to identify.[133]

He also mentioned oily seeds cultivated on the Malabar Coast, including sesame, 'gergelin', and ricin or the 'palma christi'. In this part of India, Poivre explained, the oil of 'palma christi' was used as a remedy against children's diseases and thus had a different effect than the ricin used in France.[134] In order to access and document knowledge-practice as a common language, he thus followed a two-fold strategy by first describing a local practice and then comparing it to a European one. Furthermore, by comparing material practices and rice cultivation in Africa and East and South Asia in particular, he overcame the problem of spoken language by using practices as a language. In sum, in the 1740s and 1750s, Poivre was primarily concerned with utilitarian botany, that is to say knowledge-practice about plants useful for foodstuffs, construction, and remedies. In that sense, Asian and Malagasy practices were sources of knowledge. The French made 'useful knowledge' of mainly everyday value, which they drew from local, even indigenous, informants and experience. When plant knowledge was turned – to use Harold Cook's term – into a 'matter of fact', the source of the knowledge faded away, as did the knowledge providers.[135]

NEGOTIATION, LANGUAGE, NAMING, AND MISUNDERSTANDINGS

The previous subchapter explored the plants and knowledge which the French collected. But what happened 'in the field' and during the process of documentation?[136] How did people communicate and negotiate with each other, and were native names used and documented? If so, how and why? This chapter seeks to answer these questions, which adds another layer to the story. The difficulties attending the use of native names have been discussed in works

[132] Ibid., 75; See also Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 569.
[133] During his earlier travels in Cochinchina, Poivre was introduced to rattan of five or six different sorts, but the Chinese preferred 'celui de Malac' to their own kinds: see Poivre's journal, entry from 27 January 1750, Journal d'un voyage à la Cochinchine'; Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fols. 16r–21r, 16v.
[134] Ibid.
[135] Harold J. Cook, 'Global Economies and Local Knowledge in the East Indies', in *Colonial Botany*, ed. Schiebinger and Swan, 100–118.
[136] See also Marie-Noëlle Bourguet, *Le monde dans un carnet: Alexander von Humboldt en Italie (1805)* (Paris: Le Félin, 2017), in which Bourguet analyses the notes, practices, and materiality of the naturalist Humboldt during his voyage of exploration in Italy.

which touch on that issue at least in passing: for instance, in *The Names of Plants*, David Gledhill provides a sustained discussion and historical account of the significant changes and problems of plant nomenclature in terms of botany and agriculture.[137]

Anthropologists in particular have been concerned with the differences between European and non-European modes of classification, including Scott Atran's *The Cognitive Foundations of Natural History*, in which the author explores the emergence and development of natural history from common conceptions of folk biology, or Clifford Geertz's essay on 'Common Sense as a Cultural System'.[138] As far as historians go, in the context of the British botanist Joseph Hooker, Jim Endersby's study on the practices of Victorian science touches on naming difficulties as well, although primarily with respect to the gap between European and colonial situations.[139] The difficulties of using native names have not been the subject of any profound study. Therefore, Geoff Bil's PhD dissertation *Indexing the Indigenous: Plants, Peoples and Empire in the Long Nineteenth Century*, which explores Māori and Polynesian plant names for Pacific botany and is currently being finished, will make a significant contribution.[140]

Furthermore, Šebestián Kroupa explored several strategies in naming and describing a plant in the case of the Jesuit pharmacist Georg Joseph Kamel, stationed in Manila at the turn of the eighteenth century. He highlighted that these strategies either drew on a comparison with a commonly known plant, hence making a reference to a certain author, or adopted a well-established reference. If these strategies failed, Kroupa argued, Kamel recorded the native name followed by a simple description instead.[141]

Here, Kroupa suggests that Kamel used local names as synonomata:

> Firstly, their inclusion suggested direct experience with the plant and the author's ability to tap into local knowledge, thus increasing the authority and credibility of his account. Secondly, due to the instability and inadequacy of the pre-Linnaean Latin terminology, synonomata presented a

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[137] David Gledhill, *The Names of Plants* (Cambridge: Cambridge University Press, 2008).
[138] Scott Atran, *Cognitive Foundations of Natural History: Towards an Anthropology of Science* (Cambridge: Cambridge University Press, 1999); Clifford Geertz, 'Common Sense as a Cultural System', *Antioch Review* 33, no. 1 (1975): 5–26.
[139] Jim Endersby, *Imperial Nature: Joseph Hooker and the Practices of Victorian Science* (University of Chicago Press, 2008).
[140] Geoff Bil, *Plants, Peoples and Empire in the Long Nineteenth Century,* PhD dissertation in the making at the University of British Columbia. I thank Geoff for pointing me to important references on naming, including those cited above.
[141] Šebestián Kroupa, 'Georg Joseph Kamel (1661–1706): A Jesuit pharmacist in Manila at the borderlines of erudition and empiricism', 11-12, unpublished manuscript, by permission of the author. I thank Šebestián for providing a copy of his unpublished work.

> useful comparative tool, which scholars could employ as a common reference in communication or to trace identical plants across different works.[142]

Lastly, however, Kamel also included names in different languages so that they could be of more general utility. While it was important to know, trade, and use local names during encounters with local populations – an argument which this chapter picks up – Kamel's primary aim was to establish a classification system to 'appropriate local plants into a European body of knowledge and thus convey a representation which would enable his correspondents to better imagine and understand the unfamiliar Philippine flora.'[143]

One must add, as Kroupa also indicates, that the Linnaean system must be understood from a development point of view as well, as a tool to bring information overload under control.[144] Staffan Müller-Wille argued that 'it is only the name of a species, that rigid, designatory relation established in exchange, that can remain unchanged throughout all possible transactions'. Species were not essentialist, but descriptive and polytypic, and as such Linnaeus' 'natural method' was fragmented and provisional.[145] In his early years, as Lisbet Koerner concluded, Linnaeus 'grounded his "proper method" [of naming] in small, local floras and in Aristotelian and biblical epistemes.'[146] However, as Koerner further suggests, Linnaeus' *Philisophia botanica* was designed for the reader to investigate the 'economic use' of plants, resulting 'from his attempts to practice science as an auxiliary branch of economics, and from his efforts to create a simple language for it'.[147] Linnaeus' names referred to diagnostic phrases, which would enable everyone, or so Linnaeus envisioned it, to 'distinguish any plant whatsoever at the first glance, even if it came from farest India, in that the plant itself informs him about its name its taste, its smell, its properties, powers, and use'.[148] Koerner adds that in the eighteenth century a proper name was called a 'trivial name'; a 'specific name' meant 'a diagnostic phrase of eight to ten words'.[149]

Similar naming and identification strategies applied in the case of French naturalists, as this chapter suggests. To take a different example, as Huiyi Wu underlined in the context of

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[142] Ibid., 12.
[143] Ibid.
[144] Müller-Wille and Charmantier, 'Natural History and Information Overload'.
[145] Staffan Müller-Wille, 'Nature as a Marketplace: The Political Economy of Linnaean Botany', *History of Political Economy* 35, no. Suppl 1 (2003): 163; Staffan Müller-Wille, 'Collection and Collation: Theory and Practice of Linnaean Botany', *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 38, no. 3 (2007): 541–62.
[146] Lisbet Koerner, *Linnaeus: Nature and Nation* (Cambridge, Mass.: Harvard University Press, 1999), 37.
[147] Ibid., 43.
[148] Ibid., 45.
[149] Ibid, ch. 2, footnote 82 (45, 223).

the Jesuit translation of texts related to Chinese plants, botanists of the eighteenth century found it more useful to transliterate plants' names than translate them. This practice was exemplified by the *Jardin du Roi*'s head gardener André Thouin, who instructed missionaries in China to do precisely this. The transliteration, as Wu observes, thus referencing Joseph Needham, was 'taxonomical in quality' because a plant's name quite often related to a linguistic component referring to a more general category, that is to say a particular type of a species.[150]

As Pierre-Yves Lacour once defined French natural history in the eighteenth century, it was a project to put the infinitive diversity of being into boxes, labelled and hierarchised, which implied nomenclature and classification.[151] Here, Dániel Margócsy raised the question of how naturalists established a common system of communication to ensure the private identification of plants as well as the correspondent's understanding. Using Johann Amman at the St Petersburg Academy of Sciences in the 1730s as a case study while focusing on zoological specimens and encyclopaedias, Margócsy argued that a new genre of zoological encyclopaedias appeared for the purposes of identification.[152]

Furthermore, Lorraine Daston suggested that the specimen names were closely linked to the cultural capital of the explorer and the type of specimen, which in turn was somewhere between individual (type) and collective (species).[153] For instance, as Jean-Marc Drouin lists, Linnaeus provides in his *Philosophica Botanica* plant names rooted in their explorers' names, such as Fuchsia, Magnolia, or Camellia, which relate to Leonart Fuchs, Pierre Magnol, and the missionary Georg Joseph Kamel.[154] One must also add the Buffonian system of nomenclature, which adopts local names while naturalising numerous local names, as Thierry Hoquet stressed.[155] According to Hoquet, Buffon insisted on the difficulty of pronunciation and transcription of local names. He thus sought to respect the names in use in distinct local contexts, which means several names for the same species.[156] In this respect, Hoquet

[150] Huiyi Wu, 'Entre curiosité et utilité: Les traductions d'« herbiers chinois » dans les Lettres édifiantes et curieuses et dans la description de l'empire de la Chine et de la tartarie chinoise', in *Les Savoirs-Mondes. Mobilités et Circulation des Savoirs depuis le Moyen Âge*, ed. Pilar González Bernaldo and Liliane Hilaire-Pérez (Rennes: Presses universitaires de Rennes, 2015), 187–88.
[151] Pierre-Yves Lacour, 'Histoire Naturelle', in *1740, Un Abrégé Du Monde: Savoirs et Collections autour de Dezallier d'Argenville*, ed. Anne Lafont (Paris: Fage éditions, 2012), 118.
[152] Dániel Margócsy, '"Refer to Folio and Number": Encyclopedias, the Exchange of Curiosities, and Practices of Identification before Linnaeus', *Journal of the History of Ideas* 71, no. 1 (2010): 63–89.
[153] Lorraine Daston, 'Type Specimens and Scientific Memory', *Critical Inquiry* 31, no. 1 (2004): 153–82.
[154] Jean-Marc Drouin, *L'Herbier des Philosophes* (Paris: Seuil, 2008), 74.
[155] Thierry Hoquet, *Buffon-Linné: éternels rivaux de la biologie?* (Paris: Dunod, 2007), 63.
[156] Ibid., 64.

concluded that for Buffon, 'a donkey is a donkey and not a horse, just as we know the difference between the oak, the strawberry, and the primrose.'[157]

This chapter, however, does not follow studies by historians interested in naming strategies on the European 'scientific' market. Instead, it is interested in what happened in the field when naturalists encountered an unknown world. Instead of classification systems and debates about them in Europe, this chapter inquires into communications about plants in a colonial context. How did explorers get to know and note native names? What did local mediation mean in practice and how did people communicate? The French approached local populations and vice versa, as Commerson's exploration in Madagascar can illustrate. Commerson had received orders from Desroches and Poivre to explore Madagascar's natural history, accompanied by Paul Philippe Sauguin de Jossigny, an engineer stationed on Isle de France, as his draughtsman.[158]

Commerson added in his memoir that Poivre had assured him that he would receive the best possible equipment for his journey.[159] But this equipment was not enough without the natives' help. When he anchored in Madagascar in September 1768, Commerson was welcomed by a Malagasy chief called Dian Mananzar, who presented fruits and three bullocks with the proposition of assisting with the exploration of the big island.[160] While presenting the newcomers with refreshments and water commonly initiated a trade relationship in the maritime world, this particular deal was set up in the 'French-Malagasy' way.[161] Rather than shaking hands, glasses were clinked, or rather '*une grande tasse pleine d'Eau de vie*' ('a big cup filled with eau-de-vie'), from which everyone drank.[162] Dian Mananzar was a businessman who sought to arrange a decent deal: his slaves were to be 'rented' by the

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[157] 'un âne est un âne et pas un cheval, de même que l'on connaît bien la différence du chêne, de la fraise et de la primprenelle', ibid, 64. See further the introduction to Buffon's edited *Histoire Naturelle* and the question of nomenclature in particular, Georges-Louis Leclerc de Buffon, *Histoire naturelle, générale et particulière, avec la description du Cabinet du Roy. Tome I (1749)*, ed. by Stéphane Schmitt (Paris: Honoré Champion, 2007), 28-42.

[158] BCMNHN Ms 887, doss. II, 44. On the eighteenth-century practice of preparing and engraving objects, see Anne Mariss, *'A World of New Things' Praktiken der Naturgeschichte bei Johann Reinhold Forster.* (Frankfurt a. M.: Campus Frankfurt, 2015), 230–270.

[159] BCMNHN Ms 887, doss. II, fol. 44r.

[160] 'Mémoire pour servir a l'histoire naturelle & politique de la grande isle de Madagascar anciennenent appelée isle de St Laurent par les Portugais qui la decouvirrent les premiers l'an', BCMNHN Ms 888, fol. 3.

[161] Romain Bertrand, 'Spirited Transactions. The Morals and Materialities of Trade Contacts between the Dutch, the British and the Malays (1596-1619)', in *Goods from the East, 1600-1800: Trading Eurasia*, ed. Maxine Berg (Basingstoke: Palgrave Macmillan, 2015), 45.

[162] 'Mémoire pour servir a l'histoire naturelle & politique de la grande isle de Madagascar anciennenent appelée isle de St Laurent par les Portugais qui la decouvirrent les premiers l'an', BCMNHN Ms 888, fols. 3r–4r.

French. Since they considered the deal too expensive, Dian Mananzar had a new idea: to order the inhabitants' slaves to assist the French explorers.

Apparently, this idea was not warmly received, since only three out of the 200 promised slaves turned up the next day. This episode requires some important clarifications. First, according to Maudave's memoir on the project of colonising Madagascar, the inhabitants' workers were 'free' and not enslaved like on Isle de France, where 'all the work in this colony is conducted by slaves'.[163] Madagascar's elite owned 'free people of colour' or at least 'labourers'. Secondly, Dian Mananzar hoped to make a fortune and asked for a high price for his (unfree?) labourers. Thirdly, his people did not obey his orders, refusing to provide their labourers for nothing. Later, in a different place on the island, some Malagasies sought to set up their own arrangements, not in terms of slaves but animals, selling ten bullocks to Commerson.[164] During the further exploration of the big island, Commerson encountered more chiefs, and Dian Mananzar remained present. One night, on 7 October 1768, the two had dinner and the chief's mood became better and better thanks to 'the help of a little wine and eau de vie'.[165] Not for the first time, the chief offered Commerson his wife, an offer Commerson refused, concluding that these people had a seemingly 'bizarre custom' of offering strangers their women and girls (which he had also experienced in the Pacific during Bougainville's circumnavigation).[166]

In a small village in a different part of the island, Commerson encountered a different chief called Ramainon, who spoke French quite well and who was 'more civilised, more honest' than the others Commerson had seen.[167] Commerson also received information about useful plants, namely about the cultivation and value of the timber which grew on the northern parts of the island.[168] In *Notte de quelques plantes et fruits de Madagascar et de leurs proprietés*, Commerson also provided the native names of the plants to which the chief Ramainon referred: he informed the Frenchman about a certain herb which was not good for

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[163] 'tout le travail de cette colonie est dévoué aux esclaves', Maudave's memoir, printed in Alexis-Marie Rochon, *Nouveau Voyage à la Mer du Sud, commencé sous les Ordres de M. Marion* (Paris: Barrois l'aîné, 1783), I: 91–98.
[164] 'Mémoire pour servir a l'histoire naturelle', BCMNHN Ms 888, fol. 4r.
[165] '[Il] s'est mis de bonne humeur à l'aide d'un peu de vin & D'Eau de Vie', entry from 7 Octobre 1768, 'Mémoire pour servir a l'histoire naturelle', ibid., fol. 15r.
[166] Entry from 7 Octobre 1768, ibid., fol. 15r. On Commerson's lover during the circumnavigation, see Glynis Ridley, *The Discovery of Jeanne Baret: A Story of Science, the High Seas, and the First Woman to Circumnavigate the Globe* (New York: Crown Publishers, 2010).
[167] Ibid, fol. 11v. Entry from 30 September 1768.
[168] Ibid, fol. 47r. Entry from 10 November 1768.

cattle.[169] These examples show that the exploration of Madagascar's natural world was highly dependent on socio-cultural interaction, local expertise, and the willingness of natives to give away such information. The search for useful plants was not a one-way street; it was a matter of local negotiation practices, friendly encounters, diplomacy, and, above all, language. Some Malagasies even spoke a little French, which enabled Commerson to communicate with them because he could not speak Malagasy. In a reversed perspective, it was the Malagasies' knowledge of French that enabled them to communicate with Commerson. Furthermore, these encounters were made possible because of language mediators, such as Commerson's interpreter Antoine Renard, whom he called by his nickname 'René'.[170]

One must not underappreciate the importance of language and means of communication during these encounters, as the following examples illustrate. When Rochon was in Madagascar in 1768, upon Poivre's request he collected numerous useful plants and provided a list of them, all with their Malagasy names and most with a brief description of their appearance and usage. These were attached to his travel accounts, published in 1791 as *Description de plusieurs Arbres, Arbustes et Plantes qui croissent dans la partie du Nord de Madagascar, et que j'ai apporté à l'île de France, à la fin de l'année 1768*.[171] In light of a short stay of only about three months on the island, the fact that Rochon listed eighty species means that he surely must have received information about those plants from a larger network (perhaps even from Commerson, who was in Madagascar at the same time). In any case, he was in touch with a certain La Bigorne, who had already assisted Poivre during his stay in Madagascar in 1756: he spoke Malagasy, mediated between the French and the local population, and surely helped Poivre accumulate information about plants.[172]

Similarly, La Bigorne must have assisted Rochon with collecting the given plants and taking notes on their Malagasy names and knowledge related to them. Rochon's list ranges from useful plants, trees, spices, food crops, and timber (such as the 'Fouraha') to beauty treatments (such as the 'Harame' that Malagasy women used to produce a sort of paste for

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[169] 'Notte de quelques plantes et fruits de Madagascar et de leurs proprietés', 1769, BCMNHN Ms 888, fol. 11v.
[170] 'Mémoire pour servir a l'histoire naturelle', BCMNHN Ms 888, fols. 11r, 38v, 44v.
[171] Rochon, *Voyages à Madagascar, à Maroc et aux Indes Orientales*, I: 272–288.
[172] Ibid., I:172. On La Bigorne, see also Dumas' letter to the minister, in which he describes him as 'un homme de qui on dit du bien et du mal, et capable sans doute de l'un et de l'autre, mais qui par sa situation, et dans les circonstances présentes, doit nécessairement être déterminé à faire le bien du service du Roi.', Dumas to Praslin, 7 juin 1768, ANOM Col C/5A/2, n° 50; and opinion, which Poivre confirms later: 'Je connaissais trop ce nommé La Bigorne pour lui donner la moindre confiance. J'insistai auprès de M. Dumas pour que cet homme fût retenu à l'Isle de France, et qu'il lui fut défendu de retourner jamais à Madagascar.' Poivre to minister de Boynes, 12 February 1772, ANOM Col E 184, fol. 198.

moisturising their faces), poisons (such as a huge quantity of the fruit of the 'Tangeum'), colour-making (like the roots of the 'Hounits', from which the Malagasies made a nice red dye), and 'pleasant flowers' of all different kinds.[173] As such, it was not just plants of everyday value that were to be introduced but also plants for pleasure.

The list not only orders the plants by their native names, but also contains, as one can see from the above, numerous ways they could be used. Similarly, Commerson encountered and researched plant sources of food and rubber, along with several palm trees. The eighteenth century was a 'period when the consumption of exotic goods was generally rising throughout Europe', and it is self-evident that such a development also took place in its colonies.[174] Here, the broader economic debate over the value of certain plants – particularly on Isle de France, where barely any plants were of economic or everyday value for improving island life – was crucial in the search for local resources. The useful plants of both everyday (and economic) value encountered by the French naturalists would help break the dependence on metropolitan financial assistance, since they could be cultivated and replicated. At least, such aim was envisioned.

Commerson's observations not only contain native names but also a description and their uses. So, for instance, the 'Voua Faha' could replace rice in times of famine, the 'Voua Sourindi' had a similar scent to nutmeg; the 'Voua-n-ïou' (the coconut palm tree) and the 'Diti-Voua-Zin' could be used to make gum or rubber.[175] The Malagasy expression 'Vohaniho' means 'fruit of Nio', which derives from the Malay and Polynesian word *Niu* or *Nihu*: the palm tree probably arrived on the island through Hindus and Arabs long before European colonisers came.[176]

When documenting and identifying unfamiliar plants, it was necessary to know the plants' names and make comparisons with the familiar. The latter was important for identifying and understanding the plant within an epistemological system with which one was already familiar (like the palm or banana tree, to which the travellers compared the newly encountered species of ravenala) in order to envision or imaginarily illustrate a plant.[177] If it

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[173] Rochon, *Voyages à Madagascar, à Maroc et aux Indes Orientales*, I: 274–277.
[174] Spary, '"Peaches Which the Patriarchs Lacked"', 15.
[175] 'Notte de quelques plantes et fruits de Madagascar et de leurs propriétés, 1769. J'y joins une notice de quelques oiseaux, quadrupèdes et reptiles de la mesme isle par M. de V[algny]', BCMNHN Ms 888.
[176] H. Perrier de la Bathie, 'Les Plantes introduites à Madagascar (Suite)', *Revue de botanique appliquée et d'agriculture coloniale* 11, no. 122 (1931): 833.
[177] Commerson makes the same comparisons of the Ravenala to the banana tree in 'Voyage de Madagascar, en 1770, concernant les dattes et les observations d'histoire naturelle faittes dans le sud de cette isle &

was impossible to make a comparison to exotic plants, Commerson made use of plants familiar to a European understanding, like when he compared the so-called 'Voua-Sohî' to 'the size of an olive'.[178] A different case in this context is the betel, which the Malagasy called 'Tambouroun angats': Commerson described them as greener and bigger than those of India and noted that the Malagasies 'do not use [them] (...) like the Indians.'[179]

Relating to his earlier travels, Commerson presented a 'Summary of natural history observations' of Tahiti's rich natural resources, including the Hévi or 'Tree of Cythera', whose fruits were probably offered by the Tahitians to Bougainville during his circumnavigation, which Commerson had joined.[180] Commerson sought to collect useful trees and fruits from India: these were provided by Cossigny, who included some non-French names (which he indicated in 'Malabar' – so probably Tamil) and other plants whose names are written in French, including sandalwood, orange, ginger, lemon, jasmine, durian, white betel, and the palm tree.[181] When Cossigny sent specimens from Pondicherry to Isle de France, his list contained the Tamil names, while the heading reads: 'The names written in Malabar characters are the names of the country, they are transliterated in our European characters.'[182] To the catalogue, Commerson added 'Explanations of some Malabar words frequently used to name plants'.[183] These examples can underline the importance of language

principalement aux environs du Fort Dauphin par Sr. Philibert de Commeron', Ms 887, III. These notes refer to Commerson's second voyage to Madagascar. Ravenala is, in a side note, nowadays known as the traveller's palm of Madagascar. On the traveller's palm, see Allorge-Boiteau and Allorge, *Faune et flore de Madagascar*, 94.

[178] 'Notte de quelques plantes et fruits de Madagascar et de leurs propriétés, 1769. J'y joins une notice de quelques oiseaux, quadrupèdes et reptiles de la mesme isle par M. de V[algny]', BCMNHN Ms 888.

[179] 'n'en font pas d'usagec comme les indiens.', 'Notte de quelques plantes et fruits de Madagascar', BCMNHN Ms 888.

[180] Emma Spary makes this observation in *Eating Beyond Reason*, unpublished manuscript, by permission of the author. I thank Emma for providing her unpublished work.

[181] 'Notte des plantes, arbres & arbustes qu'on peut tirer de l'Inde pour l'Isle de France', possibly these were communicated to Commerson by Cossigny, no date, BCMNHN Ms 277, file II, piece 4. Piece 5 consits of a similar list of plants from India: 'Notte des Plantes et Graines à faire venir de la coste Coromandel et du Bengale'. More species are listed, but the observations are missing.

[182] 'Les noms écrits en charactères malabares sont les noms du pays, lesquels sont pourtant traduits littéralement en nos charactères européens', 'Catalogue des plantes des environs de Pondichéry, que m'a envoyé M. de Cossigny, officier au régiment d'Aunis, en 1769', BCMNHN Ms 1319. See also'Observations sur la qualité des bois des Isles de France et de Bourbon communiqués par Mr Cossigny et le nommé Bichet ancien charpentier. Nottes pour M. de Commerson', BCMNHN Ms 277, VI. These observations were required by Commerson, cf. his letter to Cossigny, dated 22 September 1770, printed in Cap, *Philibert Commerson naturaliste voyageur*, 134–36.

[183] 'Explication de quelques mots malabares fréquemment usités dans leurs dénominations des plantes', 'Catalogue des plantes des environs de Pondichéry, que m'a envoyé M. de Cossigny, officier au régiment d'Aunis, en 1769', BCMNHN Ms 1319.

and translations, which sometimes led to misunderstandings and misinterpretations, as the following example can illustrate.

On his way to China in 1768, Father Galloys was to call at Malacca and other ports in Malaysia in order to collect offshoots and young live plants of several fruits and timber, namely the mango, from which Poivre hoped to receive 'the best fruit which there is on earth', durian, which had a funny smell but tasted delicious (and indeed durian has the same features today!), and two sorts of guava, one of which was the 'Malay rose apple', which Poivre called the 'jambon malaca'.[184] Poivre was also interested in the 'champaca' (the magnolia tree) and a plant called 'lani-lani', which I was unable to identify. 'La ni' in contemporary Bahasa Malay means 'right now'. It might be possible that Poivre misinterpreted the expression when asking for a plant's name, taking 'la ni' to be the name when someone answered his question.

It also seems that despite the instructions Galloys had received from Poivre in 1768, he did not jot down the Chinese phonetic transcriptions for the vegetables but rather provided brief translations and some notes on colour and appearance. During his earlier travels in China in the 1740s and 1750s, there is evidence that Poivre followed the former practice and also envisioned a similar method for his collaborators. Although he did not do this for every plant, he must have paid particular attention to the various teas and their names, writing them down with phonetic transcriptions, such as Tchao-Tchong, Haissuen, Bouy, Pékao, and all teas of the Fo-kien province.[185] In the Fo-kien province in 1768, Galloys relied on local merchants from Canton, the '*marchands hanistes*' as they were called, who could help him get around and transport teas from the province to French vessels, where the plants would be bought directly from an envoy.[186] From this angle, exploring and collecting plants necessarily required the eyes of a trained botanist, the knowledge transmission of local agronomists, and the assistance of merchants.

When the naval officer Provost was charged with a mission to acquire spices in 1768, he also gathered seeds and live plants suitable for nutrition, timber in Kedah (Malaysia), such as the oil tree (the 'arbre Bray sec'), and fruits called 'yangomme', 'quiampeda', mangosteen, bergamotte, and others. He probably did this with the help of his local mediator, the dervish

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[184] 'le meilleur fruit qu'il y ait sur la terre', 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fols. 16r–21r, 16v.
[185] 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fol. 17r.
[186] Ibid. On the 'hanistes' (or Hong or Hâng) merchants, see Henri Cordier, 'Les Marchands Hanistes de Canton', *T'oung Pao* 3, no. 5 (1902): 281–315.

Hadé Hachem, who also assisted during the acquisition of spices.[187] In Achem (today's Aceh), which was also used as a transit hub by the French during the spice quests in 1768-1770, they loaded onto ships the plants of the mangosteen, as well as those indicated as 'Lansa, Mamplan Manquian, Moulin, Ramboutan, Fatoul, Sanasse.'[188]

Encountering plants unknown to them, the French relied significantly on local mediators to understand and document native knowledge. Knowing a particular native name was important for re-encountering the plants in their native countries: if the plants were to be re-accessed after the trip, their names had to be communicated to locals who could help collect them. This second argument is crucial because it can underline that native knowledge was important not only during the first encounter but also for the future. To communicate about a plant, it was important to know the native name in order to gather more information. Local populations provided both names and knowledge-practices during encounters, sometimes with the help of mediation and sometimes through several phases of negotiation.

Even upon Poivre's return to France, where he resided in La Fréta in Lyon, he continued his botanical activities and interest in tropical economic plants, which he tried to acclimatise in his personal garden. One of his correspondents was the Secrétaire d'État and former Contrôleur général des finances Henri-Léonard Bertin (1720-92), who enjoyed retirement on his estate close to Chatou after 1780. Bertin was fascinated by Chinese art and culture, and tropical agriculture in general.[189] He received specimens from the Indian Ocean colonies and forwarded some to Poivre in Lyon. For instance, he sent two different kinds of seeds to Poivre in 1777, namely cardamom, which Poivre had introduced to Isle de France from the Malabar Coast, and a seed which Poivre identified as 'la Zédoaire' from Madagascar, which Malagasies named 'Volengo'.[190] Poivre explained that the roots of this plant, in its aromas similar to ginger, were for cooking, particularly to add flavour to rice, and medical purposes.

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[187] 'Etat des Plants d'arbres et des oiseaux achetés à Quéda et chargé sur la Corvette du Roy Le Vigilant par Mr. Provost.' 12 October 1768, MA OA 116.
[188] Ibid.
[189] Henri Bernard-Maitre, 'Le « Petit Ministre » Henri Bertin et La Correspondance Littéraire de La Chine À La Fin Du XVIIIe Siècle', *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 92, no. 4 (1948): 449–51.
[190] Poivre to Bertin, 26 June 1777, printed in Henri Cordier, 'Les Correspondants de Bertin, Secrétaire d'État au XVIIIe Siècle, IV. Pierre Poivre', *T'oung Pao* 15, no. 3 (1914): 323–24.

CONCLUSIONS

The search for and collection of useful plants in the service of Isle de France was very much conducted in the fashion of the eighteenth-century efforts to use natural history as a wealth-creating enterprise and form of natural resource management. In the first place, this chapter looked at the exploration of plants outside the island that were to be employed for everyday subsistence. Yet the search of plants for everyday value was also connected to the search of economic plants, such as imitation spices. The crucial and underlying argument of this chapter has drawn attention to local engagements and negotiation practices in very different cultural contexts, including several languages, knowledge-practices, and customs. Local mediators facilitated the collection of plants and practice-based knowledge, involving several languages and naming systems as a means to identify natural goods. The French were curious to learn about local practices because these practices proved a plant to be of 'useful' value for nourishment and everday life, including hygiene, body care and even for pleasure. For Isle de France, Madagascar and China in particular served as sources of knowledge and material for agriculture and utilitarian botany. Other distinct geographical places, like Indonesia and South Asia, were of importance when naturalists made inquiries into crops together with related cultivational methods and preparation techniques.

Contemporary economic theories most certainly had an impact on the classification of plants and botanists searching for wealth and blossoming. Commerson, for instance, attempted to classify the flora of the Southwest Indian Ocean, but his unfinished manuscripts, notes, and sketches have only been of marginal concern in this chapter. More importantly, this chapter argued for the significance of utilitarian botany; the category for the plants collected in the service of Isle de France was 'useful' – useful for food production and to a lesser extent for economic purposes – and it was their usefulness which proved their status. While the search for staple crops, fruits, and vegetables were to be employed in the service of the island's subsistence as chapter three explores, chapter five and six focus on the spice project that was to be of economic value. Poivre pushed for the agricultural and spice project on the island, which clashed with each another, as the next chapter further examines.

In the middle decades of the eighteenth century, names, cultivation, habits, and uses of plants entered European systems of knowledge quite 'raw', and this rawness must be understood in its essence. Looking into the lists and notes by Poivre and Commerson, these underline that they correspond to systems of appearance, cultivation, and usage. In turn,

Commerson's manuscripts and observations must be seen as occupying a place between curiosity and utility.

Rather than categorising plants according to a system, the collection and examination of new plants and materials was intended to study their climate, cultivational behaviour, and nutritional needs. Only then could their transfer, cultivation, and employment in a different environment be promising, as the next chapter explores. Closely connected to this was the question of successful acclimatisation, which in turn was determined by an appropriate application of agricultural methods. This argument will guide chapter three. Practice-knowledge was accumulated together with the plants by interacting with and learning from local populations who had employed these plants for hundreds, if not thousands, of years. In other words, practice-based knowledge was crucial to the French agronomists unfamiliar with methods in tropical climates. The pursuit of natural enquiry was a matter of local engagements with the natural world and the people who made use of it.

Adding another layer in relation to the enquiry into natural resources, the next chapter seeks to understand how plants were employed in the wake of agricultural improvement on Isle de France during Poivre's tenure, how and to what extent local practice-based knowledge was employed in the service of the island, and how social and environmental circumstances shaped the local enterprise.

3

Green empire:
Botany in the service of agriculture on the island (1750s-1773)

'Who taught [man] agriculture, this art so simple, of which the most stupid man is capable, and so sublime so that the most intelligent animals cannot conduct it?'

– Jacques-Henri Bernardin de Saint-Pierre, Etude VIII, 254.[1]

In this chapter, I engage with the very essence of agriculture and how people on the island sought to employ plants and knowledge for the purpose of subsistence. The remote and isolated island became a crucible for overpopulation and famine, particularly in light of the immense slave population. Against the backdrop of Enlightenment improvement, the island was a laboratory to transform soil, plants, climate, and peoples. While the previous chapter was primarily concerned with negotiations, naming, and collecting outside Isle de France, this chapter sets a focus on those plants which arrived on Isle de France and the ways in which they were employed. It is primarily concerned with the augmentation of agronomy, which Simon Schaffer once characterised as a mix of scientific and political work.[2]

Similarly, in his significant study on French agronomists in the eighteenth century, André Bourde pointed out that in a scientific sense 'agronomy is not a systematic or exclusive doctrine'; likewise it is not 'an art' but 'the vivid process of a 'science'', which cannot be defined as 'rigorous, exact, demonstrative, abstract'. Instead, Bourde suggests that it can be defined as an authentic 'new science' attached to the optimal condition of 'good cultivation', with improved and new agricultural techniques to achieve the optimal result.[3] In the context of Isle de France it was highly unsettled since experience with (tropical) agricutulture and an

[1] 'Qui lui a appris l'agriculture, cet art si simple que l'home le plus stupide en est capable, et si sublime que les animaux les plus intelligents ne peuvent l'exercer ?'
[2] Simon Schaffer, 'Enlightenment Brought down to Earth', *History of Science* 41 (2003): 257–68.
[3] 'l'agronomie n'est pas une doctrine systématique ou exclusive. Elle se veut, certes, non plus la codification d'un "art" mais la démarche vivante d'une 'science'. Mais non point science rigoureuse, exacte, démonstrative, abstraite.', André Bourde, *Agronomie et agronomes en France*, 12, 19.

understanding of the plants' needs was lacking. As the previous chapter explored, agronomy also drew comparisons between global systems of agriculture. Were global methods, namely Malagasy, Indian, Chinese, French, or other European ones, transferred to Isle de France? What role did agronomy play on the island and what were its aims? How were plants cultivated and employed for the island's subsistence? How was collected agricultural knowledge transmitted on the island and how were cultivational methods transformed according to the island's climate and soil? Why did certain species grow successfully and others did not?

In addressing these questions, this chapter endeavours to understand the acclimatisation and cultivation of introduced plants while arguing that agricultural methods were adopted and modified according to both environmental conditions and human possibilities and limits on Isle de France. The acclimatisation of useful plants and the global transfer of nature more generally supplied 'important evidence how human and natural powers interacted'.[4] Lending weight to arguments brought forward by STS environmetnal historians, I argue that the interaction between the natural world and human agency were determined by the island's climate, environment, and the socio-cultural impact of the very people who cultivated the plants (slaves, gardeners, planters as well as European colonists).[5] As mentioned in chapter two, Poivre sought to engage increasingly with the cultivation of staple crops, both for the provision of the colonists and the slaves, but his visions clashed with colonial reality: frustrated colonists, starved slaves, and a tropical climate. The climate of Isle de France in particular had to be considered: given that specific crops required specific seasons and cultivational know-how, climate shaped the acclimatisation of plants and cultivational activities more generally.

This chapter seeks to understand the multiplicity and entanglement of numerous factors. For this purpose, it proceeds as follows. First, it situates Isle de France's gardens in the context of cultivational activities. Second, it elaborates on natural economy and the pressing question of how to feed the island's population. Its purpose is to apprehend the meaning of natural economy in the context of eighteenth-century Isle de France, with a particular focus on the dynamics between the high number of slaves and the introduction of certain crops. This is followed by an analysis of cultivational activities and environmental concerns on the island

[4] Spary put forward this argument in relation to tropical fruits. Spary, 'Fruits for paradise?'.
[5] Stockland, 'Policing the Oeconomy of Nature'; Reuss and Cutliffe, *The Illusory Boundary*; Carse, 'Nature as Infrastructure'.

after 1767, imbedded in the relation between feeding mouthes, balancing interest groups, and the cultivation of staple crops. Thereby, it examines examples of the goals and miscalculations of cultivational activities on the island.

THE ROLE OF THE GARDENS

As Sabine Cartuyvels put it for the role of the garden in the French naturalist Antoine-Joseph Dezallier d'Argenville's *La Théorie et la Pratique du Jardinage* (1709 with numerous editions), in theory, the '*jardin de propreté*' ('garden of cleanliness') is a beautiful garden for pleasure. According to Dezallier d'Argenville, 'man imposes his law on nature through simple geometric principles, founded on ordinance, proportion, unity, symmetry, regularity, axiality, etc.'[6] Yet, this theory – no matter where or which type of garden – was in fact much more complex.

Isle de France's gardens did not serve for pleasure but rather as nurseries for conducting economic and medicinal experiments with newly introduced plants. In 1727, le Sieur Couzier was appointed as royal physician-botanist for the East Indies and sent to Bourbon Island in order to establish a botanical garden. La Bourdonnais founded *Monplaisir* as Isle de France's first garden in 1735, which was followed by the CIO's garden *Le Réduit* in 1748.[7] While the cultivation of spices remained rather unsuccessful throughout the 1750s and 1760s, the CIO flirted with the idea of establishing an apothecary garden and a laboratory for medical plants which might be useful to the colony. They charged Fusée-Aublet with the task of cultivating the CIO's garden. Upon his arrival, the young botanist was to work in *Monplaisir*, the garden where Pierre Poivre was trying to acclimatise nutmeg. Contemporary observers describe Fusée-Aublet with having

> the character of a learned & curious botanist & corresponds with some of the French virtues of the greatest quality but he appears the be impound in his judgement very often and half mad, dwelling days and nights in the woods & fields in search of curious herbs and plants, & in making experiments on their virtues & effects, which had lately [nearly]

[6] Sabine Cartuyvels, 'Jardin', in *1740, Un Abrégé du Monde: Savoirs et Collections Autour de Dezallier d'Argenville*, ed. Anne Lafont (Paris: Fage éditions, 2012), 130.
[7] On Réduit, its history, and flora, see Guy Rouillard and Gabriel D'Argent, *Le Jardin du Réduit. Histoire et Botanique*.

> cost him his life, smelling and tasting every thing of the vegetable kind that comes in his way (…).[8]

Although Fusée-Aublet was primarily a pharmacist, he surveyed the entire island in terms of its topography, soil, minerals, animals, and plants.[9]

Before the collapse of the CIO on Isle de France, the gardens were under its direct rule. Soon after the establishment of the first garden of Pamplemousses, the Parisian *Jardin du Roi* expressed a direct interest in the botanical activities on the island and asked the CIO to send specimens to Paris.[10] But the shipment of specimens was expensive, particularly if the specimens were big and took up a lot of space on the ships. In order to assure the acclimatisation of plants, the establishment of further colonial gardens was thus the most obvious solution. There was also an acclimatisation garden in Bourbon established by the CIO in 1761, which became a royal garden with the shift of power after the Seven Years' War. The garden's administrator was Lanux.[11] Rather than botany, Lanux was greatly interested in astronomy and exchanged unofficial letters with his friend, the astronomer Pingré. In these letters, it becomes more than obvious that Lanux was passionate about his friend's work about the Mascarene Islands: he felt lonely after Pingré left and tried to follow his friend's work.[12]

The gardens in the Mascarenes were to serve the islands' establishment through the acclimatisation of food crops and medicinal plants. Only during Poivre's office did the spice project take proper shape – yet with very limited outcome as chapter six explores. Particularly after the Treaty of Paris, the question of acclimatisation went hand in hand with the question of how to feed the islands' inhabitants. Pierre-Yves Lacour suggests that at this moment, when the rest of the French Empire was about to break apart, the task of feeding the people in the colonies was more important than the cultivation of spices, which this chapter can confirm.[13] Although the question of how to feed Isle de France was more important than the acclimatisation of spices, the latter remained an important issue for Poivre throughout his tenure. Therefore, this dissertation reflects this distinction by treating the introduction of food crops and spices as separate matters.

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[8] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fol. 12r. Dalrymple refers to Fusée-Aublet as 'Monsieur Oblette'.
[9] Fusée-Aublet, *Histoire des plantes de la Guiane françoise,* see particularly II: 129-59.
[10] Letter to M[r]. Conseil Supérieur de Bourbon, 5 May 1735, see Lougnon, *Correspondance du Conseil supérieur*, 256.
[11] ADS DB Lanux, 12 letters to Réaumur in the 1750s, see also Lougnon, *Correspondance du Conseil supérieur* and Allain, *Une histoire des jardins botaniques*, 61.
[12] BSG Ms 2551 and Ms 1085.
[13] Lacour, *La République naturaliste*, 506.

In the Pamplemousses quarter, Governor La Bourdonnais settled and began to cultivate *Monplaisir*, but due to unfortunate circumstances (the loss of his son François Gilles and his wife in 1738), he had to abandon it. His home in Pamplemousses was transformed into a hospital with twelve rooms for officers and soldiers. The beauty of La Bourdonnais' garden was soon forgotten, and the Chevalier de Godeheu remarked in 1754 that one could only see the rest of La Bourdonnais' residence which was just a hill of bricks and rotten wood. Godeheu explained that *Monplaisir* was used for the cultivation of fruits and vegetables rather than for decoration and relaxation.[14] Godeheu also denounced 'the craze of mankind for building something', referring to the fact that Governor David did not continue to work on *Monplaisir*, where he must have found 'the beauty of the garden, flowing waters, pure and soft air, fertile lands' and La Bourdonnais' *maison de campagne*.[15] Instead, as Godheu critically observed, Governor David built a villa in the quarter of Le Réduit in 1746. The accompanying garden provided medical plants in particular when Fusée-Aublet worked on the island between 1752 and 1759 before he was sent to Guiana in 1762.[16]

In the first place, Fusée-Aublet was to cultivate medicinal plants, which were useful for the islands' hospital and the landing crews of French vessels. He also planted flowers, fruit, and other consumable products from 'all four parts of the world'. When the astronomer Pingré arrived in *Le Réduit* in summer 1761, he was welcome by an avenue of rose bushes and an ally of blossoming orange trees, and he also observed that recently planted cherry, plum, apricot, chestnut, walnut, and even oak trees were blossoming and promised a decent harvest. He exclaimed: 'I thought I was in a magnificent garden somewhere around Paris'.[17] Pingré observed other European fruits and vegetables on the island such as strawberries, peaches, and raisins. He continued that 'our peas, our broad beans and our artichokes were also quite good.'[18] According to Pingré, the principal types of fruits known on Isle de France were pineapples, bananas, papayas, and guava but also potatoes and other roots.

Le Réduit was certainly competing with *Monplaisir*, particularly between 1752 and 1761 when Poivre's enemy Fusée-Aublet staffed the former. Although the garden was to supply the military hospital with pharmaceutics, Fusée-Aublet also tried to grow nutmeg. This caused a

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[14] 'Extraits Du Journal de Godeheu', *La Revue Rétrospective de l'Ile Maurice* IV, no. 31 (1953): 152, entry from 2 June 1754.
[15] Ibid.
[16] Fusée-Aublet, *Histoire des plantes de la Guiane françoise.* For Fusée-Aublet's accounts during his stay on Isle de France, see particularly BCMHN Ms 452, 453 and 579.
[17] Pingré, *Voyage à Rodrigues*, 217.
[18] Ibid.

deep rivalry between the two men.[19] After a long dispute over nutmeg's botanical identity, Fusée-Aublet was replaced by a certain Desportes-Milon. *Le Réduit* soon could no longer compete with Poivre's garden: finally, in 1767, Poivre sent a triumphant report about its miserable state.[20] This hatred can be traced to the 1750s when Poivre cultivated nutmeg, clove, and cinnamon, which were an initial failure. Moreover, while Poivre fulfilled his official task of naturalising spices, he was also interested in experimenting with wheat and rice, important experiments for his idea to develop a self-sustaining island when he was appointed intendant of the Mascarenes.[21] The fact that Poivre held a double position as intendant and agronomist (and self-proclaimed botanist) is the historian's blessing and curse since it makes the story difficult to reconstruct. The reason why Poivre could act independently in the garden of *Monplaisir* was the fact that he had bought it upon arrival as intendant.[22] During his tenure as intendant, it was thus a private institution.

In the late 1780s, not only exotic fruits were acclimatised on Isle de France but also food crops from Europe, particularly the vegetables that the island lacked.[23] Under Poivre's office, *Monplaisir* provided the primary necessities for the planters and slaves working in it.[24] However, while his garden was primarily to be used as a nursery for spices, Poivre also conducted experiments with different types of grains. At the same time and as the next sub-chapter on natural economy highlights, he encouraged the inhabitants to domesticate comestible goods rather than cash crops such as coffee, cinnamon, and cotton.[25] The role of *Monplaisir* must thus be seen between two rival ecologies of economic crops and local agriculture along environmental lines.[26]

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[19] Spary, 'Of Nutmegs and Botanists'.
[20] See report from 4 August 1767, BCMNHN Ms 452.
[21] 'Relation abrégée des voyages faits par le Sieur Poivre pour le service de la Compagnie des Indes de 1748', BCMNHN Ms 319, fols. 17r–21r; 'Suite des Observations sur l'État de l'Agriculture', in Dupont de Nemours, *Oeuvres complettes de P.* Poivre, 148.
[22] Poivre to Praslin, 30 November 1767, ANOM Col C/4/18, fol. 103r.
[23] 'Mission de Joseph Martin à l'Isle de France, État des végétaux utiles qui se trouvent en France et qui manquent à nos colonies des Isle de France et de Bourbon, 1788', BCMNHN Ms 47.
[24] See 'Instruction du roi pour le sieur régisseur de l'habitation du roi à Monplaisir', AD Loire, FGB, 15 J 3, art 1; and the official document that testifies the selling of Poivre's *Monplaisir* to the crown, 12 October 1772, MA OA 127.
[25] Poivre to the Duc de Praslin, 13 January 1769, ANOM Col C/4/25, fols. 9r–10v.
[26] On the quarrel between two rival ecologies of commerce see Jonsson, *Enlightenment's Frontier*, 122–26.

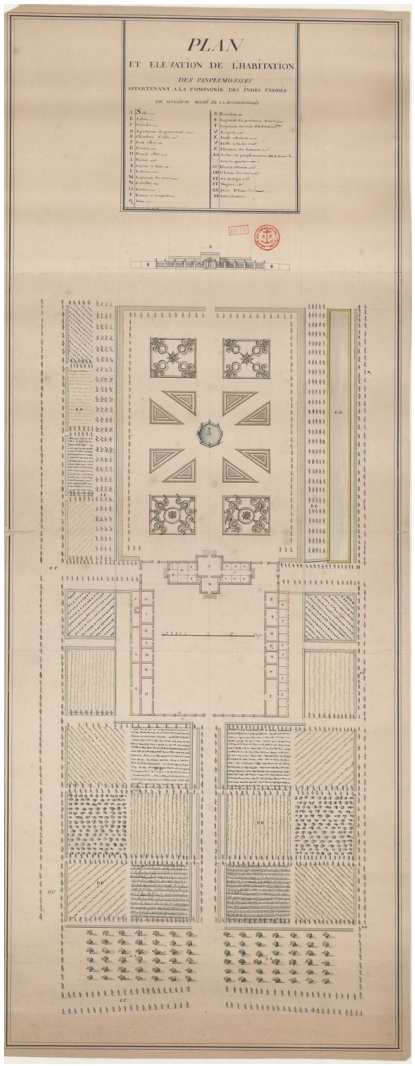

Figure 5. Plan et élévation de l'habitation des panplemousses [sic] appartenant à la Compagnie des Indes ceddée par Monsieur Mahé de la Bourdonnais, BnF Cartes et Plans, 220 Div1 P2, available at www.gallica.bnf.fr.

When Poivre left Isle de France after 1772, he sold his garden to Louis XV, arguing that it was the richest garden in the universe because of its immense collection of plants, which he – or rather his collaborators – had gathered from the four corners of the world.[27] Poivre sought to keep the monopoly of these plants in his garden. After his departure, the administrative structure changed and his double position was divided between the intendant Maillart-Dumesle and the garden's director.[28] Now, the fields of the garden were split into the residence and the actual garden, which then became a colonial *Jardin du Roi*. Its *commissaire*

[27] Poivre to the minister, 2 April 1771, ANOM Col C/4/29, fols. 13v–14r.
[28] 'Journal de culture du Jardin du Roi, 1785', BCMNHN Ms 3378.

Provost, who had gathered spices for Poivre in the Indo-Pacific, worked as the garden's inspector and reported to France about its state.[29] The tasks of the garden's administrator were regulated in a written format, which was probably set up by Poivre himself in order to assure the continuation of his work prior to the appointment of the young gardener Jean-Nicolas Céré as director of the garden.[30] The instructions underline the needs and tasks of the garden's slaves, who took care of the plants, trees and vegetables which grew in the garden. Moreover, the administrator's attention should focus on the conservation of fine spices and other curious trees.[31] These points were clearly designed to keep Poivre's spice project running after his departure.

It was only in 1775 when Céré was appointed as director. Ten years after Céré's appointment, he wrote to the royal inspector, M. le Brasseur, that since its formation by Poivre, the Pamplemousses garden had become the 'tributary by its rich peonies' of Pondicherry, Goa, the Seychelles, Bourbon, Madagascar, and the Cape of Good Hope and that it sent specimens and plants to other colonies in both the Indian Ocean and the Atlantic.[32] Isle de France's garden gained international fame and Céré became part of the scientific circles of the Parisian *Académie des Sciences*, the *Jardin du Roi*, and the Royal Botanical Garden in Kew, whose director Joseph Banks cited the *Jardin des Pamplemousses* as a model for West Indian planters. The garden even exchanged knowledge with the Austrian *Akademie der Wissenschaften* (Academy of Science) and the *Schloss Schönbrunn* gardens.[33] At the same time, the colonial garden of Bourbon began to blossom under the creole botanist Joseph Hubert. What La Bourdonnais began in the 1730s was reinforced by Poivre during his directorship and finally progressed under Céré, who sought Poivre's expertise and advice

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[29] Guy Rouillard, *Le Jardin des Pamplemousses: 1729-1979 histoire et botanique* (Les Pailles: Henry, 1983), 26.
[30] See 'Instruction du roi pour le sieur régisseur de l'habitation du roi à Monplaisir', no date, probably between 1772 and 1775, AD Loire, FGB 15 J 3. See also BCMNHN Ms 47, doss. 5, 'Notice sur la vie de Mr. de Céré'.
[31] See also on how the plants were categorised: 'Inventaire des épices cultivées dans le jardin du roi de Monplaisir, effectué par le commissaire de la Marine, 30 septembre 1774', AD Loire, FGB, 15 J 15.
[32] 'tributaire par ses riches péoinières', 'Recensement de tout ce que renferme le Jadin du Roi, le Monplaisir, Isle de France, remis par M. de Céré, major d'infanterie, commandant du quartier des Pamplemousses, directeur du dit jardin, à M. le Brasseur, Commissaire du Roi et Inspecteur, June 1785', BCMNHN Ms 303. For a brief survey on the emergence of gardens in Europe and the links with and across the Indo-Pacific and the Atlantic, see Madeleine Ly-Tio-Fane, 'Botanic Gardens: Connecting Link in Plant Transfer Between the Indo-Pacific and Caribbean Regions', *Harvard Papers in Botany* 8 (1994): 7–14.
[33] Madeleine Ly-Tio-Fane, 'Contacts between Schönbrunn and the Jardin du Roi at Isle de France (Mauritius) in the 18th Century: An Episode in the Career of Nicolas Thomas Baudin', *Mitteilungen des Österreichischen Staatsarchivs*, 35 (1982): 86. On Céré, see also J.P.F. Deleuze, 'Notice sur M. De Céré', in *Annales Museum d'Histoire Naturelle Paris* 16 (1810), 329–37; See also the role of the Calcutta garden in British India, Adrian P. Thomas, 'The Establishment of Calcutta Botanic Garden: Plant Transfer, Science and the East India Company, 1786-1806', *Journal of the Royal Asiatic Society*, Third Series, 16, no. 2 (2006): 165–77.

after his retirement.[34] As chapter six explorers, however, the nutmeg project was a very long road and less successful than contemporaries sought to claim.

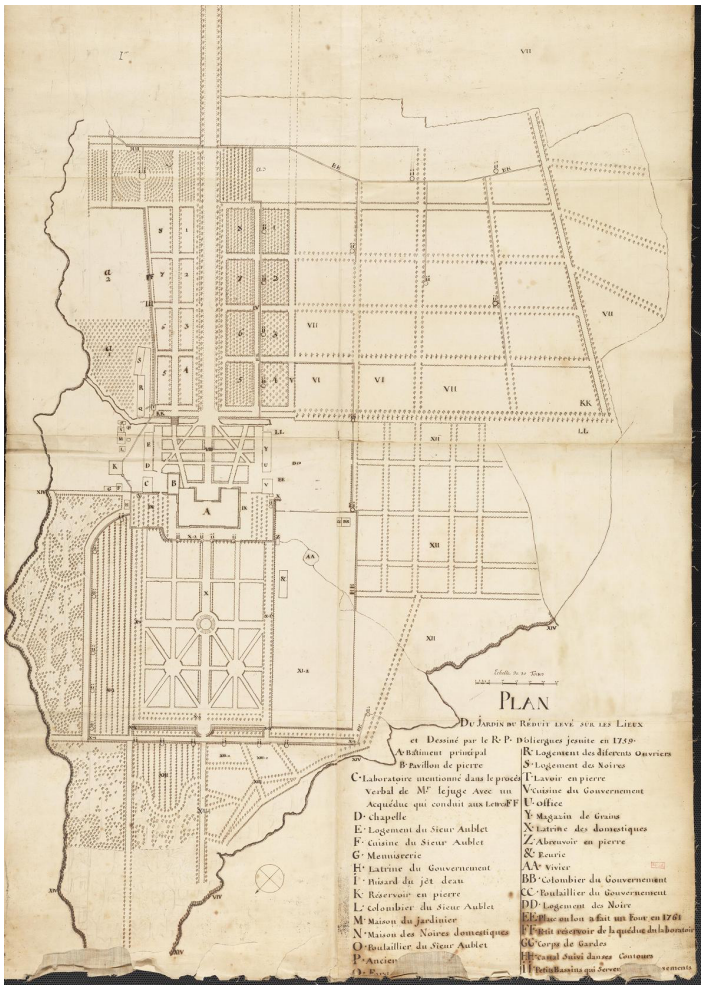

Figure 6. Plan du jardin du Réduit levé sur les lieux et dessiné par le R.P. D'Olergues jeseuite en 1759, BnF Cartes et Plans, 220 Div5 P2, available at www.gallica.bnf.fr.

[34] The success of the gardens in the 1780s, the exchange between Céré's and Hubert's garden as well as the gardens in the Atlantic can be traced vividly in BCMNHN Ms 3378: 'Journal de culture du Jardin du Roi, 1785'. This manuscript remained hidden in the archives of the BCMNHN and is not catalogued. I thank Antoine Monaque and Alice Lemaire for their kind help in finding this manuscript and for allowing me to consult it. This manuscript consists of selected letters from around 1785.

NATURAL ECONOMY AND THE QUESTION OF HOW TO FEED THE ISLAND

'A taste for the plantation of all kinds of trees took hold in the colony'[35]

The increase of agriculture on Isle de France must be understood in context. Chapter two has elaborated in greater detail on the context of the rural Enlightenment, which I will now briefly recap. After the Treaty of Paris, which ended the Seven Years' War, Minister Choiseul sought to establish a naval base for troops on their way to India. Whereas the crown, through the voice of Choiseul and his successor and cousin Praslin, aimed at establishing an *entrepôt* for merchants and troops in the Indian Ocean, Isle de France's local government, and particularly Poivre, instead followed their vision of a self-sustaining island colony while further encouraging the spice project. Poivre's ideas and plans in turn were often challenged by French troops, who 'invaded' the island and had to be fed and looked after. As chapter one highlights, the Anglo-French rivalry must not be underestimated, since the supply of troops had an impact on the island's provisions. Isle de France struggled even more with the arrival of vessels, especially in the face of a lack of metropolitan financial aid.[36]

Poivre's struggle with the constant imbalances of the island are strikingly present in his correspondence with Praslin, as are his criticisms of Isle de France's merchants, who only sought to make profit as quickly as possible. These were ideas that the celebrated physiocrat Quesnay addressed in *Philosophie rurale* (1763) when he criticised the isolation of the colonial system. He studied several aims in the European colonies from their early beginnings, underlining that a main concern had always been the necessity of constructing ports to offer shelter to ships; generally the colonies were to serve and feed the metropolis. Queseny agreed that the colonies should serve the mother country, but he also claimed that they should be considered as provinces and integrated into the whole system.[37] The role of the colonies in physiocratic thought remained ambivalent. On the one hand, it was claimed that the cultivation of the colonies was nothing other than the result of the kingdom's efforts; on the other, it was pretended that it was the manufactories of the kingdom which established and

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[35] 'Le goût des plantations de toute espèce d'arbres a pris dans la colonie', 'Plantations', Statistics for 1770, ANOM Col C/4/27, fol. 279r. On utility and nature in the Ancien Régime, see also Emma C. Spary, '"Peaches Which the Patriarchs Lacked"', 15–16

[36] Ibid.

[37] Labrouquère, *Les idées coloniales des physiocrates*, 27. On the physiocratic movement in France in general, see Georges Weulersse, *Le mouvement physiocratique en France*, 2 vols (Paris: Félix Alcan, 1910).

maintained the colonies.[38] Also, the CIO's monopoly over trade was seen as unjust because it ignored the needs and interests of merchants and consumers.[39]

Poivre and Desroches explained in a *mémoire* sent to Praslin that although the CIO indeed sought to increase agriculture, the project did not succeed because of bad management, particularly in the face of the rising number of inhabitants and vessels stopping over without securing the stable production of primary necessities.[40] Under the CIO's aegis, as chapter one highlighted, Isle de France had only been used as an *entrepôt* for the merchants who travelled between Europe and Asia. Poivre sought to mobilise these circumstances for his own colonial visions when criticising the CIO's ignorance regarding the deforestation and destruction of the island. He argued that the Company left a mess of abandoned land without any trees to offer protection against the winds and the sun.[41] Similarly, one needed the shade of banana trees, for instance, to cultivate Ceylonese cinnamon, which required not only shade but also lots of watering.[42] Echoing her husband's claims, Françoise Poivre explained in a letter to Bernardin in 1769 that 'the project to make the uncultivated lands profitable is very good. But the government did not do anything except establish colonies. If agriculture was dear, honoured, and protected, all these lands would have been weeded bit by bit.' [43]

In short, to create a more pleasant life, the island was in need of a 'natural' boost. Agriculture was to become the key aspect for the inner establishment of the island, with its multiple productions and active commerce.[44] In a *mémoire* which Poivre must have written shortly before his departure in 1773, he observed that one could not establish the island through the cultivation of sugar cane or indigo, which, in comparison with the Atlantic colonies, was completely unsuitable for the small island. He argued that if one focused on the

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[38] See also on this Turgot's criticism : *Lettre aux auteurs du Journal de l'Agriculture, du Commerce et des Finances, au sujet des Colonies,* Par Mr. T., Journal de l'agriculture, vol. 5/II, May 1766, 32–40.
[39] Quesnay, *Philosophie rurale*, 384.
[40] 'Extrait d'un mémoire intitulé, Iles de France et de Bourbon' (1770-1771), Poivre and Desroches to Praslin, NAF 9347, fol. 196r.
[41] 'Discours prononcé à son arrivée à l'Isle de France aux habitants de la colonie, in Poivre, *Mémoire d'un botaniste et explorateur*, 119–38.
[42] Poivre to Praslin on 16 June 1768, secret letter, ANOM Col C/4/22, no. 66. See also Extract of Poivre's journal, entry on the current state of *Le Réduit*, August 1767, BCMNHN Ms 452, in which he also elaborates on the state of cinnamon.
[43] 'le projet de mettre en valeur les terres incultes de la france est trés bon. mais le Gouvernement n'a que faire d'y etablir des Colonies. si l'agriculture etoit cherie, honoree et protegée toutes ces terres se deffricheroient peu a peu.' Françoise Poivre to Bernardin, no date but surely in 1769, EE BSP_0143.
[44] On agricultural reform in early modern France, see Etienne Stockland, '"La Guerre Aux Insectes": Pest Control and Agricultural Reform in the French Enlightenment', *Annals of Science* 70, no. 4 (2013): 435–60; For the example of agricultural reforms and eighteenth-century Brazil, see J. H. Galloway, 'Agricultural Reform and the Enlightenment in Late Colonial Brazil', *Agricultural History* 53, no. 4 (1979): 763–79.

fabrication of sugar, indigo, or coffee (as had indeed been done during the CIO's tenure), one denuded the lands and fields of trees, which were indispensable for the cultivation of food crops in the hot climate.[45]

In addition, as a consequence of focusing on agricultural activities which required lots of land (such as cultivating coffee, indigo, or sugar cane), the colony would always be tightly bound to the metropolis and its expenses would be immense. In times of war, the island could not feed the landing troops and it would always be vulnerable if the enemy caused a famine by cutting off the channels of food supply. The fear of being hungry, particularly in times of defence, remained a significant uncertainty. The cultivation of cereals was to be encouraged because, as an article on Isle de France's weekly paper dated 17 February 1773 underlines, '(...) the necessity of attaching ourselves to those cereals, which, while assuring the life of the defenders of our homes, can alone protect us from the enterprises of a watchful enemy'.[46]

The article argues that the French island was too remote and vulnerable, particularly in comparison to the Atlantic colonies. In times of peace, the island could not build up stores and would thus remain an expensive enterprise because one had to buy primary necessities from outside. Poivre's argument in relation to deforestation in particular went hand in hand with his plea for the cultivation of fine spices, which would not require a lot of space and was consequently the only possible solution for the island. The demand for spices was high in Asia, so he argued, whereas the European demand for coffee, indigo, and sugar was causing prices to rise in the Asian market, which could never be beaten by the production on Isle de France.[47] Instead, staple grains were to be the principal object of the colony rather than coffee or other cash crops. Yet, in a letter to the minister from 23 February 1769, Poivre and Steinhauer (Dumas' short-term successor before the arrival of Desroches as governor) described the bad condition of the islands' storage depots and asked for financial support for improvement works.[48] They argued that the island could only develop its full potential with

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[45] 'Observations de monsieur Poivre sur l'introduction de la culture des épiceries aux îles de France, de Bourbon et de Seychelles', 12 septembre 1773, ADL FGB Ms 15 J 17.

[46] '(...) la nécessité de s'attacher à l'article des grains comme à celui qui en assurant la vie des défenseurs des nos foyers, peut seul nous mettre à l'abris des entreprises d'un ennemi surveillant.' 'Mémoire concernant des observations sur différents points essentiels de la culture de l'Isle de France, avec un précis de la méthode générale du haut du Quartier de la Montagne Longue', in *Annonces, affiches et avis divers pour le colonies des Isles de France et de Bourbon*, 17 February 1773, 4.

[47] 'Observations de monsieur Poivre sur l'introduction de la culture des épiceries aux îles de France, de Bourbon et de Seychelles', 12 septembre 1773, ADL FGB Ms 15 J 17.

[48] Demandes à la Compagnie pour les besoins de la Colonie, Poivre and Steinhauer to the minister, 23 February 1769, ANOM Col C/4/25, 30.

metropolitan financial aid. In order to convince the metropolitan ministries, the spice project was to bring a fortune to the island.

The argument was constantly used in the correspondence with Versailles, arguing that only with financial aid could agriculture become the key for a flourishing island and its population. Desroches envisioned that 'Isle de France will be the centre of our commerce in Asia'. He continued: 'This view seems to have been shared by those who wished Isle de France to be the depot of the nation's trade in the Indies, but they did not know about the correct application required by the knowledge of details of the trade with the Indies and the current state of the colony (...)'. This meant 'that Isle de France will not produce by food exchange, that its population, which will be numerous, and consequently sailors will be insufficient and helping hands will be expensive, that food products will be rare (...) and that (...) its port will not be secure against storms.'[49] In short, in 1771, Isle de France only produced enough to survive for three months: without the resources in Madagascar, India, and continental Africa, famine would have been unbearable on the island.[50] The struggle of feeding the people remained present throughout the eighteenth century: for instance, in 1778, Cossigny de Palma wrote to Céré that primary necessities were much more interesting than indigo.[51]

The metropolitan financial support was insufficient and the establishment of the island was a matter of local management. Even after almost four years of increasing agriculture, Poivre struggled with supplying Isle de France's inhabitants at the end of 1771. Writing angrily to Bourbon's *ordonnateur* Crémont, who was about to visit Bourbon's active volcano, Piton de la Fornaise, instead of fulfilling his tasks in the service of the island, Poivre exclaimed: 'This is not the time, my dear Ordonnateur, to leave your post and to make a voyage to the volcano while having ten thousand men to feed, we are lacking bread here and you are wasting the only two months of the year in which you can make us part of your abundance by stocking us up.'[52]

Turning Isle de France into a self-sustaining island was a difficult task, and was actually never achieved. Poivre complained in a letter to Praslin when he had to ask for provisions

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[49] 'Extrait d'un mémoire intitulé, Iles de France et de Bourbon' (1770-1771), Poivre and Desroches to Praslin, NAF 9347, 196r. This memoir might have been a draft by Desroches, although it was to be signed by both the governor and the intendant.

[50] Poivre to the minister, 7 February 1772, ANOM C/4/30, fol. 260.

[51] Cossigny to Céré, 19 August 1778, printed in *La Revue rétrospective de l'Ile Maurice* 1954 (4): 104.

[52] 'Ce n'est pas le temps, Mon cher Ordonnateur, de quitter votre poste et d'aller faire le voyage du volcan, lorsqu'ayant dix mille hommes à nourrir, nous manquons ici de pain, et que vous laissez passer les deux seuls mois de l'année où vous pouvez nous faire part de votre abondance pour nous approvisionner.' Poivre to Crémont, 12 November 1771, ADR PR 12C.

from Europe in 1769: 'I arrived on an island which had been in continuous debt for ten years and which had experienced the horror of famine. I had found its cultivation abandoned and almost down to zero.'[53] But even while encouraging agriculture on the island, harvests were uncertain and Poivre tried his best to convince the colonists that the fruits of their labour were for themselves and not for the king's stores (for troop supply). Poivre argued that he could not order the inhabitants of an almost starved colony to seed and harvest for the king: they had to do so for their personal needs, which could be appropriated once the cultivators were more at ease with the situation.[54] Agriculture was to be increased to provide the troops, the navy, and the slaves of the island while the cultivation of cotton, coffee, and cinnamon was to be lessened.[55]

Already upon his arrival in 1767, Poivre instructed the colonists to focus on the cultivation of the staple grains, though neglected and badly maintained, which grew best on the island. Every year, between June and October, the harvest consisted of wheat, barley, oat, or beans and, between November and May, rice and maize, despite the fact that the fields were never left to recover or worked thoroughly.[56] Poivre argued that these circumstances spoke in favour of the island's fertile soil, which was however heavily threatened by insects and other 'flails'. Despite all the problems Poivre had to face in terms of agriculture, he was convinced that the land could produce annually a considerable amount of wheat, white rice, maize, and different kinds of beans: in its current agricultural state, however, the island could not utilise half of its productive potential except in terms of manioc, with an annual production of millions of roots.[57] Manioc could be planted from late August to late January because it was robust – quite an advantage in terms of the island's difficult climates and one which I discuss in the subchapter on food crops and slavery.[58]

The governor and the intendant instructed the settlers to focus on the cultivation of food crops. Yet, not all inhabitants followed these instructions, instead following their own interest in cultivating coffee as a cash crop to make a little money on the side. Nonetheless, Poivre reported at the end of 1769 that they had a breakthrough, with an extremely rich harvest of a

[53] 'J'arrivais dans une île qui avait essuyé des disettes continuelles pendant plus de dix années, et qui dans cet espace, avait éprouvé l'horreur de la famine. J'avais trouvé sa culture abandonnée et presque nulle.' Poivre to Praslin, 12 August 1769, ANOM Col C/4/25, fol. 55r.
[54] Ibid.
[55] Poivre to Praslin, 13 January 1769, ANOM Col C/4/25, fols. 9r–10v.
[56] Ibid. to ibid., 30 November 1767, 'Agriculture', Brest DM, Ms 89, no. 41.
[57] Ibid.
[58] 'Suite du Mémoire contenant des Observations sur la Culture de l'Isle de France (…)', in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 9 June 1773, 2.

kind which had never been seen before on the island.[59] In July 1771, Governor Desroches documented that agricultural activities had increased considerably by asking the population to plant for their personal advantage rather than forcing them to plant for the king.[60] With this latitude, Desroches envisioned, the island would become less and less dependent on external supplies. This plan did not work out. Particularly when troops stopped over, it was impossible to feed everyone adequately, let alone build up stock.

Poivre's visions clashed somewhat with those of Governor Dumas and his successor Desroches, which led to very contradictory regulations being distributed to the cultivators. In a letter to the minister in February 1772, Poivre exclaimed that Desroches discouraged the cultivators by reducing the price of goods, which Poivre had previously fixed, by a quarter in 1769.[61] As a response, the colonists cultivated crops that would be more profitable for them. Due to new internal administrative reforms, the quarters' wardens, who did not have as much of a head for agriculture as Poivre claimed, were under the governor's supervision. Poivre, as intendant, had much less influence on them. Those 'harlequins', as Poivre depicts them in a private letter to an unknown recipient, were introduced to the island's administration, which gave them duties and power over the quarters, including the police, the roads, the construction of churches, and parts of the justice system. Poivre commented ironically that 'soon they will say Mass'.[62]

To cut a long story short, Poivre aimed at getting rid of these 'harlequins' by following a particular strategy, that of satisfying the colonists' needs by allowing them to keep their harvests and only then extending cultivation to fill up the storage facilities. Building up domestically produced stock was a necessity for the island's community but not for the metropolis, which was more interested in the supply of French vessels. Being on the verge of famine, the local French government increasingly engaged with the search for primary necessities while desperately trying to grow food crops. The problems of supply and environmental challenges on Isle de France created the context for domestically produced stock.

As chapter two indicates, Poivre had already started making inquiries into plants for foodstuffs during his voyages in 1750s. For instance, he sent mango live plants from Java and

[59] Poivre's report to Praslin, together with Steinhauer, for the year 1769, ANOM Col C/4/24, fol. 281r ff.
[60] Desroches, 21 July 1771, ANOM Col C/4/27, fol. 159r.
[61] Poivre to the minister, 7 February 1772, ANOM Col C/4/30, fol. 260r.
[62] 'bientôt ils dirons la messe', Poivre to unknown, 4 November 1770, ANOM Col C/4/27, fol. 53v.

the litchi and tea from the Fou-Hieu province, exclaiming that he had no doubt that these plants could acclimatise perfectly on Isle de France, where they would be 'a sweet treat' for the colonists and the sailors.[63] However, when the trees and plants were acclimatised and multiplied on Isle de France, Poivre was in need of tropical agricultural knowledge and skills. French gardeners in the tropics were indeed in great need of such knowledge because, or so Poivre had argued in the 1750s, though the most habile settlers on Isle de France were those with knowledge about European agriculture, this knowledge was not suitable for the tropical island. He claimed that there was not one capable man with knowledge about the treatment of spices. Further, he affirmed that settlers lacked patience, diligence, and dedication for cultivating foreign plants which could be of interest to the French kingdom but did not promise immediate profit.[64] And this was the only thing sought on Isle de France, so Poivre complained in 1754. He remarked, and in doing so advertised himself, that Isle de France was in need of a man who had travelled in the Indies or in tropical climates similar to that of the island, someone who was familiar with the agriculture practised by the people who lived in such climates.[65]

Certainly, so he argued, the island did not need a person who only knew about European agriculture and who aimed to cultivate nutmeg on Isle de France 'like horse chestnuts in France'.[66] His frustration regarding 'poor cultivators' with a lack of tropical agricultural skills remained one of his biggest problems.[67] Poivre reported to Praslin in November 1767 that the colonists had started to increase the cultivation of cinnamon and pepper, but not in the proper manner. He concluded that he had not seen a single pepper plant cultivated in the right way.[68] The inhabitants' indifference with regard to spices is echoed in letters written by Poivre's successor, Céré.[69]

One can certainly sympathise with the island's settlers, who were not enthusiastic about spice plants that could not feed them and were demanding and difficult to acclimatise. At the same time, one must consider the difficulties which the local administration had to face and

[63] Poivre to the secret committee, 31 December 1750, ANOM Col C/1/3.
[64] Poivre to Jacques-Marie-Jérôme Michau de Montaran (1701-1782), *commissaire du Roi* and co-president of the secret committee, 10 January 1754, ANOM Col C/4/8, letter 20°.
[65] Ibid.
[66] Ibid. This also applied to European plants, which were transmitted to tropical climates and which required a different treatment in the East Indies than in a European climate. According to Poivre, his rival botanist Fusée-Aublet did not take the special needs of European plants in tropical climates into account.
[67] For instance Poivre to Galloys, 16 February 1769, printed in Laissus, 'Note sur les manuscrits de Pierre Poivre', 45.
[68] Poivre to the minister, 30 November 1767, 'Agriculture', Brest DM, Ms 89, no. 41.
[69] Céré to Mrs Les Chefs, 5 June 1786, transcribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 134.

which they desperately tried to overcome. While mouthes were to be fed, the spice project was to give the island a financial boost. As this took place, they had to balance the interests of different groups and increase agriculture in the fertile parts of the island. Each of the eight quarters of the island (Pamplemousses, Montagne longue, Rivière du rempart, Flacq, Port Bourbon, Moka, Plaine Wilhelm, and Port Louis) produced a certain amount of agricultural products, such as maize and wheat. The astronomer Le Gentil observed during his stay on Isle de France that Pamplemousses and Flac were the most fertile quarters of the island: the latter provided good rice and a certain quantity of wheat while the former offered the best wheat, maize, and manioc of the island.[70] The quarters around Port Louis, however, did not produce enough (only a little wheat, rice, and maize), and one had to import primary necessities from elsewhere, as Governor Desroches reported to the minister in July 1770.[71] In a side note, maize, native to the Americas, was introduced to Isle de France under the Dutch governor Wreeden in 1670, but locusts destroyed the crops.[72]

To inform the colonists and inhabitants about the state of agriculture, cultivational methods, recipes, and general news concerning island life and Europe, the weekly newspaper *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon* was printed and distributed to the colonists every Wednesday between 1773 and 1790.[73] The *gazette* was the instrument which Poivre needed for his earlier attempts. A particular case of a private residence with fields in the Pamplemousses district illustrates the production of such a home/farm: the colonists not only had livestock but also baked bread, which was sold on the market, owned timber, and planted different kinds of fruit trees. These included the mango, the *annona squamosa* ('attier') with its sugar-apple (in French called 'pomme-canelle'), the French fig, the *annona reticulata* with its custard apple, also called the bullock's heart ('*cœur de bœuf*'), and the jamrosa (a sort of guava).[74]

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[70] Guillaume-Hyacinthe-Joseph-Jean-Baptiste Le Gentil de La Galaisière, *Voyage dans les mers de l'Inde, fait par ordre du Roi à l'occasion du passage de Vénus sur le disque du soleil, le 6 juin 1761 et le 3 du même mois 1769*, Vol. 2, (Paris: Impr. royale, 1779), 630.
[71] Desroches to Praslin, 20 July 1770, ANOM Col C/4/27, fol. 149r.
[72] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 622.
[73] Cf. http://dictionnaire-journaux.gazettes18e.fr/journal/0030-affiches-des-iles-de-france-et-de-bourbon, last accessed 15 April 2016. Feyel, *L'annonce et la nouvelle*; Labrosse and Rétat, *L'Instrument périodique.*
[74] *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 15 January 1773.

FOOD CROPS AND FEEDING SLAVES

This sub-chapter is concerned with the question of how the slave trade and slavery shaped the travel of plants and the cultivation of certain food crops on Isle de France. Under Poivre's tenure, agricultural activities were closely connected to his idea that the extent of the country's freedom shaped the state of agriculture.[75] Poivre assumed that agriculture in Africa was lost because its people were enslaved: otherwise it could have been the 'storehouse of the universe'.[76] Chapter four focuses in detail on how slaves assisted in cultivational activities. At this point, it is more relevant to understand the relationship between the immense slave population, food provision, and the cultivation of certain crops.

Although the island could not feed its inhabitants, its population was growing. In a report from 1764, the number of white inhabitant came to 1,883; there were 589 Indians and free blacks and 15,022 slaves, a total of 17,494.[77] In a different document on the population of Isle de France in 1766, the total number of the population lists 20,000 people, of which 5,000 were white and 15,000 black, stating that 'the cultivation of one black feeds five persons. 4,000 black cultivators thus feed the colony'.[78] Relying on the estimate made by the Mauritian archivist Harold Adolphe, the population of slaves expanded dramatically and was nine (!) times higher than that of white colonists: in 1766, there were 1,998 whites and 18,100 slaves and in 1788, 4,457 whites and 37,915 blacks.[79] The number of slaves rose enormously: their number doubled between 1766 and 1788. Possibly, slaves were terribly cheap by larger comparisons and foodstuffs terribly expensive. These numbers are significant, raising the question: why were there so many slaves and how was it possible to supply them with food given that there was barely any food on the island? Poivre wrote in his journal upon his arrival on Isle de France in August 1767:

> In the 10 years of my absence, into this colony they imported a great number of slaves during the war and since the peace, either for a particular commerce, the fraudulent

[75] Poivre, *Mémoires d'un botaniste et explorateur*, 112.
[76] Ibid., 113.
[77] 'Récapitulation du nombre des habitants de l'isle de france au 30 7.bre 1764', AN MAR/3JJ/353.
[78] 'Population de Isle de France', 1766, AN MAR/3JJ/353.
[79] Harold Adolphe, *Les Archives démographiques de l'Ile Maurice, registres paroissiaux et d'état civil, 1721-1810* (Port-Louis: Impr. commerciale, 1966), 6; See also Toussaint, *Histoire des îles Mascareignes*, 75.

> commerce of the Company's officers, or Portuguese ships from Mozambique; however, the population has increased amongst these miserable people since this time.[80]

For instance, in 1756, Alexander Dalrymple confirmed that under Governor La Bourdonnais, 'the inhabitants increased daily and tho' they feared a want of provisions, yet it was not without the force that Monsr. de la B[ourdonnais] could get them till the ground, and plant manioc or cassava root, to prevent that disaster. The great number of slaves they had bought from Madagascar and Bourbon were almost starved.'[81] Dalrymple continued that although manioc was also used in the West Indies to feed slaves and although La Bourdonnais instructed every inhabitant to plant 500 square feet of manioc for every slave in his possession, the instructions were not followed or, even worse, the inhabitants secretly poured boiling water over the seeds at night to destroy them.[82] Commerson's manuscripts allow us to understand more about this incident: the colonists were so suspicious of the manioc La Bourdonnais introduced from Rio de Janeiro in 1739 or 1740 that they poured boiling water over the young plants in order to show that they could not acclimatise on Isle de France.[83] The introduction of certain staple crops – in relation to the increasing slave population in particular – clearly began under La Bourdonnais' office where he and his successor pursued to create infrastructure on the island that went hand in hand with the formation of the island's identity.[84] Yet manioc only slowly proved itself as a foodstuff in the Mascarenes because the roots were toxic when raw, but it became self-sustaining in West Africa once the preparation was mastered.[85] The cultivation of manioc was encouraged from 1767 onwards because it was to become the main food source for both slaves and cattle. It was particularly suitable to Isle de France because it grew in very dry soil.[86]

The *Mémoire contenant des Observations sur différens points essentiels de la Culture de l'Isle de France* printed in the island's *gazette* (weekly paper) *Annonces, Affiches et Avis divers* underlines that manioc was not only a food source for slaves, but was also used to

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[80] 'Journal de l'intendant Poivre du 5 au 13 août 1767', entry from 6 August 1767', AD du Finistère, Brest, Fonds des Roches du Dresnay, Cote 1E 3 39, transcribed by Jean-Paul Morel, available at: http://www.pierre-poivre.fr/doc-67-8-mois-b, last accessed 7 Avril 2015.
[81] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fol. 2v. On the slaves' supply in Bourbon under the administration of the CIO, see ADR C° 1476; 1477; 1478; 1479; 1480; 1481; 1482.
[82] Commerson's journal, BCMNHN Ms 302, fol. 11r.
[83] Commerson's observation on the manioc on Isle de France, ibid., fol. 11r.
[84] Roberts, '"Le centre de toutes choses"': 321, 322–7.
[85] Judith A. Carney and Richard N. Rosomoff, *In the Shadow of Slavery: Africa's Botanical Legacy in the Atlantic World* (Berkeley: University of California Press, 2009), 54.
[86] Poivre to the minister, 30 November 1767, 'Agriculture', Brest DM, Ms 89, no. 41.

make bread.[87] To supply the slaves, it was recommended to charge 'the smartest and best black of the habitation' with checking the state of the manioc on a daily by testing the plant's roots and with picking the ripe ones to provide the others slaves with their daily rations.[88] Later, manioc was used instead of wheat, and the inhabitants were encouraged to cultivate and make flour from it because it could easily grow in great quantities on the French island. 'Amongst the objects of substance which attract the care of our colonists, manioc is unquestionably of the first rank by the importance of its function to feed the blacks, the resource of which it has been in times of scarcity.'[89]

An anonymous letter to the *gazette* underlined the advantages of this, which made the authors additionally print a recipe on how to make flour out of the cassava root.[90] The recipe not only refers to dough for bread but also suggests that one could also use manioc flour for biscuits if eggs and butter were added. In the previously cited *mémoire*, however, the author refers to two different main ways of using manioc to feed slaves: either by baking the entire root in an oven or preparing as a *galette*, a thin 'pancake' less rich than baked chunks. The latter was used for at least a third of all the slaves on the island, which was, according to the authors, an absolute waste in light of the other method, which required less time to prepare and was more substantial.[91] In contrast, making bread from potato flour did not work well, so it was replaced by the root 'songe', yam, and other starchy crops mixed with wheat or corn flour.[92] In addition, as an article in the island's *gazette* argued, bread made of the latter ingredients would be much better for the slaves because it would surely contribute to their health and strength.[93]

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[87] See *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 15 January 1773. See also the edition of 17 as well as 24 March, in which a different and anonymous reader's recipe for bread-making, sweet *crêpes*, and pastry was printed.

[88] 'le plus intelligent & le meilleur des noirs de l'habitation', 'Manière œnonomique d'exploiter une piece de manioc', in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 10 August 1774, 2.

[89] 'Entre les objets de substance qui s'attirent les soins de nos Colons, le Manioc tient sans contredit le premier rang, par l'importance de sa destination à la nourriture des Noirs, par la ressource dont il a été dans des tems de disette.' 'Suite du Mémoire contenant des Observations sur différens points essentiels de la Culture de l'Isle de France (...), in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 10 Mars 1773, 3.

[90] *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 3 Mars 1773, 2–3.

[91] 'Suite du Mémoire contenant des Observations sur différens points essentiels de la Culture de l'Isle de France (…)', *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 3 Mars 1773, 3.

[92] 'Moyen économique d'améliorer le pain de pommes de terre' in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 8 September 1773, 2.

[93] Ibid.

There is a clear relation between the slave population and the movement and cultivation of natural goods, particularly that of maize and manioc. The latter became one of the main food sources for the slaves by the late eighteenth century.[94] In times of famine, slaves were the first to be affected by the reduced maize harvests, and not only on Isle de France but also in Bourbon. Although Poivre had promised Bourbon's director Crémont to send a large amount of maize to Bourbon, he could not keep his promise due to harvest shortcomings in 1771.[95] Poivre explained to Crémont that the maize provision for slaves was not secure and that he had to send the king's slaves to the island's inhabitants to receive their food (rather than giving them their rice and maize directly on their work sites).[96] Many inhabitants, however, had been replacing their cultivation of grain (cereal, wheat, beans) with coffee, so the grain magazines were empty. The plan in 1767 had been to discourage the colonists from coffee cultivation and to focus on grains instead. These regulations were not respected, as the previous subchapter demonstrated, because the settlers were struggling with subsistence and sought to make a little money at the side by selling cash crops.[97]

The problem of supplying the slaves was not a new one. As early as 1754, the CIO even made the slaves live on the roots of 'songe', a type of taro still used in modern Mascarenes for its corms, leaf-stems, and leaves (so-called 'brèdes' or greens).[98] This grew naturally along the river banks in Madagascar and had been introduced to Isle de France. In the 1750s, in light of the struggle with rebelling slaves hiding in the forests, one person proposed destroying all the songe plants on the island because the mutineers used them.[99] At the time, Fusée-Aublet remarked that songe could be a very useful food source in times of famine, and it proved its value over the course of the eighteenth century.

Reports from 1769 reveal the dangerous side effects of this root vegetable (which reach epidemic levels among the slaves), but these descriptions may not have been true. Songe has a slight numbing effect, which made the Europeans fear it and offered slaves a potential opportunity to trick their masters by faking the side effects. In this sense, the case of songe

[94] On the travel of African food crops, see Carney and Rosomoff, *In the Shadow of Slavery*, part. ch. 3 and 4.
[95] Poivre to Crémont, 3 August 1771, printed in Ly-Tio-Fane, 'Problèmes d'approvisionnement de l'Ile de France au temps de l'intendant Poivre', 112.
[96] Ibid.
[97] Poivre to the minister, 30 November 1767, 'Agriculture', Brest DM, Ms 89, no. 41.
[98] 'N°38. Grains et approvisionnement du cru de l'île', in: 'Statistiques pour l'année 1770', ANOM Col. C/4/27.
[99] Fusée-Aublet, *Histoire des plantes de la Guiane françoise,* I.

suggests the power that slaves possessed against their masters.[100] The value of songe therefore must be seen between that of foodstuff and a powerful weapon against oppression.

The Creole Joseph-François Charpentier de Cossigny de Palma, son of the engineer Cossigny, underlined that the root of songe was not poisonous at all and that he himself ate it when a famine broke out on the island in the 1770s. In his writings, Cossigny de Palma furthermore engaged with the Malagasy pronunciation of the word ('sonzes') and described that the slaves sometimes ate the roots of two different kinds, a white and a red one, which were similar in taste.[101] Today it is believed that songe derived from the Malagasy word 'songo'.[102] Indeed, songe became an everyday foodstuff in the French colony as the previously quoted recipe for bread underlines.[103] Songe is similar to the so-called chou-caraïbe, a root vegetable native to the Antilles.[104] The chou-caraïbe came to Bourbon via Isle de France in 1778 at the latest, when Céré and Cossigny sent seeds to the gardener Joseph Hubert.[105] Belonging to the arum family, the flower was said to have a warming effect: Hubert conducted experiments by employing a blind woman (possibly his mother) to confirm the source of heat, which encouraged Hubert to use Réaumur's thermometer.[106]

ACCLIMATISATION AND AGRICULTURAL ACTIVITIES

This part is concerned with the cultivation of several species and practices in relation to selected plants. Which plants could be cultivated on the island? How were plants cultivated in an environment similar to their environmental origin but not in the same geographical setting? How did the transplantation process take place and what were the factors which determined

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[100] On the power of plant knowledge as a tool of resistence and social recognition that black healers possessed see Gómez, *The Experiential Caribbean*.

[101] Charpentier de Cossigny, *Lettre à M. Sonnerat*, 33; On the role of the Malagay dialects in the Mascarenes serving as a contact language, see also Larson, 'Enslaved Malagasy and "Le Travail De La Parole" in the Pre-Revolutionary Mascarenes'.

[102] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 588. For an excellent overview of introduced and native tropical fruits and plants in today's Mascarenes, see Jean-Jacques Segalen, *Plantes et Fruits Tropicaux des îles de La Réunion et de Maurice* (Sainte-Marie: Jade Editions, 2013).

[103] 'Moyen économique d'améliorer le pain de pommes de terre' in *Annonces, Affiches et Avis divers*, 8 September 1773, 2.

[104] Charpentier de Cossigny, *Lettre à M. Sonnerat*, 33.

[105] 'Nottes des Graines que j'ay eu de l'Isle de France tant du Jardin du Roy que de Palma', August 1778, ADR 4 J 61, entry 78.

[106] 'Mémoire du Citoyan Joseph HUBERT, habitant de l'île de la Réunion (...) sur la chaleur naturelle des fleurs d'une espèce d'Arum indigène, à l'île de la Réunion', ADR 4 J 72, copy (1 page only, namely 336) of a *mémoire* printed in *Mémoires des Sociétés Savantes*, September 1799. In a handwritten side note, Hubert explains that he did not say 'indigène' but that it came from Madagascar.

the successful naturalisation of a plant? It was not only plants but also practical knowledge that came to Isle de France. Therefore, I argue that cultivation on Isle de France was a complex *métissage* of expertise deriving from the local populations of the plants' native countries, which meshed with horticultural knowledge from European colonists and African and Asian slaves. This section explores what happened to selected crops once they arrived and how they underwent transitions in the new environment.

An anonymous *mémoire* printed in the Mascarenes' *gazette* illustrates these considerations with particular regard to climate:

> Despite what some cultivators say about it [the time favourable for the planting of each species], the differences of seasons, from one quarter of the Isle to the other, are not very marked, and it may be said that the vegetation in the colony is subject to the influences of the same climate. The rains, more or less frequent in one part than in the other, arise from foreign causes, which must not to prevent observing the same time for planting of the same type throughout the island.[107]

To name some examples, the season for planting maize, several species of peas ('pois du Cap', 'pois d'Achery'), cucumbers, and rice started at the end of November and lasted to late January, then the season of the first rainfalls.[108] One could run the risk of losing the crops because of sudden heavy rains in October. It was recommended not to try and kill two birds with one stone by preparing the same fields too early for the cultivation of wheat (the season for which started in late May and lasted to mid-July). Doing so could result in young and fragile plants being easily washed away by floods.[109] The season for nuts and pips was December until January, for oats and most vegetables, particularly for potatoes, March; when transplanting fruit trees and young trees used for timber, one could do so between mid-June and mid-August.[110] These examples serve to illustrate the complexity of finding the right season for the cultivation and transplantation of seeds and plants. Yet, finding the right season was only one factor amongst others determining successful plantation.

In his writings, Poivre underlines that La Bourdonnais must be considered as the founding father of the colony because he was the first governor to engage in cultivational activities.

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[107] 'Quoi qu'en [le tems favorable à chaque espèce de plantation] disent quelques cultivateurs, les différences de saisons, d'un Quartier de l'Isle à l'autre, sont très peu sensibles, & l'on peut affirmer que la végégation dans la Colonie, est soumise aux influences d'un même Climat. Les pluies plus ou moins fréquentes, dans une partie que dans l'autre, proviennent de causes étrangeres, qui ne doivent point empêcher d'observer, dans toute l'Isle, les mêmes temps pour les plantations de même genre.' 'Suite du Mémoire contenant des Observations sur la Culture de l'Isle de France (…)', in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 9 June 1773, 2.
[108] Ibid.
[109] Ibid.
[110] Ibid.

Poivre claimed that food crops and other useful plants, such as coffee, cotton, indigo, sugar cane, pepper, cinnamon, and the mulberry tree, had not been handled properly, however.[111] He argued that experiments were only conducted in a superficial manner and therefore had not been successful. If a simple plan had been followed, Poivre argued, to 'secure bread' on the island, Isle de France would have been flourishing before his arrival in 1767.

According to a report to the metropolis about the 'État général des arbres cultivés de divers parties des indes, Reunis a l'isle de France' ('General state of cultivated trees native to several parts of the Indies, reunited on Isle de France'), dated 24 May 1768 and written up by one De Reine, Isle de France was already quite well 'equipped' in terms of its natural variety.[112] Its useful flora ranged from 400 mango trees of different species, cinnamon from Ceylon and Manila, sixty-four coconut palm trees, 190 orange trees from China, Manila, Madagascar, Bourbon, and others, date palms, banana trees from different parts of the East Indies covering 1101 square feet of field, different species from China, including the litchi, mulberry, and '2 trees whose name is unknown', fruits and trees from Senegal, species from the Americas such as avocados, and some additional species from Madagascar.[113]

As such, Poivre, ardent self-promoter that he was, was not speaking entirely truthfully when he underlined in the memoir for his successor that he had looked for 'all useful products, may it be for commerce, ordinary usage of everyday life, or even only pleasure, in all four parts of the world, and particularly Asia' during his five years of office.[114] As the previous sections highlighted, some plants had already been introduced to Isle de France long before Poivre came back to the island in 1767.

While waiting for Galloy's shipments and return from East Asia, Poivre bought the former CIO garden of *Monplaisir*, where he sought to acclimatise new arrivals.[115] Finally in February 1769, Poivre received six containers of tree plants from China: almost every plant was a 'in good condition'. They were to be conserved and naturalised before their distribution amongst

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[111] Poivre, *Travels of a Philosopher*, 39–40. See also 'Graines et approvisionnement du cru de l'Isle', Statistics from 1770, ANOM Col C/4/27, fol. 257r.
[112] 'État général de arbres cultivés de divers parties des indes, Reunis a l'isle de france, et qui sont aux ordres de sa Majesté, pour l'ornement de [ces] terres chaude[s|, et pour enricher ses colonies qui sont en deça de la ligne offert a Sa Majesté', BCMNHN Ms 357.
[113] Ibid.
[114] '(...) toutes les productions utiles, soit au commerce, soit aux usages ordinaires de la vie, ou même simplement agréables, des quatre parties du monde, et surtout de l'Asie', 'Etat dans lequel j'ai remis la colonie de l'Isle de France à mon successeur', 23 August 1772, FGB 15 J 8.
[115] Poivre to Praslin, 30 November 1767, ANOM Col C/4/18, fol. 105r.

the different quarters of the island, in the right season of course.[116] In the same letter to the minister, Poivre complained about Isle de France's inhabitants and their lack of knowledge about tropical plants. He declared that he took care of the plants himself in his garden. He also invited Galloys to observe his methods to ensure the acclimatisation of Chinese plants 'as in their natural soil'.[117] He imported, so Poivre explained in a letter to the Minister of the Navy and the Colonies, teas, the star anise, the oil tree, the camphor tree (or cinnamomum camphora), almost every Chinese fruit tree, a great number of trees native to different parts of Asia and Africa, and grains and fruits from the Americas, Tahiti, and Cythera, which Bougainville handed to Poivre when calling at Isle de France.[118]

Poivre made efforts to introduce more useful plants, including the banana, the mango, and the hévi, but he is not widely known for these food crops nor did they ever become the objects of flourishing trade.[119] The cultivation of fruits and vegetables was to be increased around the port by encouraging 'skilled cultivators in the gardening parts' and stocking the depots with wheat and rice from all garden owners.[120] Furthermore, Poivre sought to distribute acclimatised specimens from his garden to all skilled cultivators, hoping that their multiplication would one day be the richness of the colony.[121] In 1770, cultivators began to plant fruit trees: even the inhabitants of the port, who used to ignore the need for horticultural activities, were made to plant trees along the roads and in their houses by law.[122] Even Governor Desroches, who was not much of an agronomist, started to cultivate a small garden at the foot of one of the mountains in order to encourage the colonists to follow his example.[123]

Relying on Poivre's description of the useful plants he introduced during his office, he enriched the island with fruit trees, especially ones which produced substantives, like the breadfruit tree, and those with oily seeds.[124] The rima, or wild breadfruit tree, had already been introduced to Isle de France in 1755, when Poivre sent it from the îles Mariannes: the

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[116] Poivre to Galloys, 16 February 1769, letter printed in Laissus, 'Note sur les manuscrits de Pierre Poivre', 45.
[117] Ibid.
[118] Poivre to Praslin, 10 August 1769, ANOM Col C/4/25, fol. 49r.
[119] Spary, 'Of Nutmegs and Botanists'.
[120] 'des cultivateurs intelligents dans la partie du jardinage', 'Fruits & légumes', Statistics for 1770, ANOM Col C/4/27, fol. 257r.
[121] 'Plantations', Statistics for 1770, ANOM Col C/4/27, fol. 279r.
[122] Ibid.
[123] Ibid.
[124] 'Etat dans lequel j'ai remis la colonie de l'Isle de France à mon successeur', 23 August 1772, FGB 15 J 8.

species became a common plant after the Revolution.[125] Discovered by James Cook in Tahiti in 1768-70, the 'true' breadfruit tree came to Isle de France only in 1797. The jackfruit, which produces fruits up to 70cm long covered with rough coarse hair, was introduced under Governor David in about 1750. Céré called it the '*châtaigne de Malabar*'.[126] The pineapple, native to the Americas, was introduced to Isle de France in 1753: the Abbé de la Caille observed it during his stay on the island, and it was later cultivated in the Pamplemousses Garden (former *Monplaisir*) under Céré.[127]

Tomatoes, also known as '*pomme d'amour*' ('apple of love'), arrived from the Americas much later than other vegetables, namely in 1785.[128] On the other hand, vegetables native to the Indian Ocean world were already growing in the 1750s, as the sources illuminate. These included the aubergine (or 'bringelle'): by the late 1760s, there were at least two species of this plant, a yellow round one native to Madagascar and a violet fig-shaped one. Bernardin observed that the latter was 'not bad' when 'well seasoned and grilled'.[129] Later, Céré cultivated the '*béringelle gigantesque*' in the garden of Pamplemousses.[130]

In the 1750s, prior to Poivre's arrival, Fusée-Aublet had already domesticated a number of other vegetables in *Le Réduit*, such as the 'margose' or 'bitter melon' (*momordica charantia*), a vegetable with a slightly bitter taste which the Indians on Isle de France ate in their curry ('cari'): its exact origin has not been explored. Fusée-Aublet also cultivated two types of the luffa (the '*pipangaye*' in French), a vegetable of the cucumber family (*cucurbitaceae*) native to India. Fusée-Aublet identified it as '*Petola bengalensis*, *Cucumis actuangulus*, papongajo' (*luffa acutangula*), which required little cultivation and grew in almost every residence of the island. It did so alongside the 'pipangaye unie' (*luffa cylindrica*), which was identified as 'Petola, Momordica luffa'.[131] Fusée-Aublet also referred to the 'poivron', the *campsicum*

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[125] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 476; On breadfruit, see also Vanessa Smith, 'Give Us Our Daily Breadfruit: Bread Substitution in the Pacific in the Eighteenth Century', *Studies in Eighteenth Century Culture* 35 (2006): 53–75.
[126] Fusée-Aublet, *Histoire des plantes de la Guiane françoise*, II: 139, 160. Cf. Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 476.
[127] La Caille, *Journal historique du voyage fait au cap de Bonne-Espérance*, 237.
[128] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 375, cf. Céré's correspondence.
[129] Bernardin, *Voyage à l'Isle de France*, 212.
[130] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 379.
[131] Ibid., 275. Fusée-Aublet used Rumphius' work as a reference point to identify these domesticable plants. Georgius Everhardus Rumphius, *The Ambonese Herbal: Being a Description of the Most Noteworthy Trees, Shrubs, Herbs, Land- and Water-Plants Which Are Found in Amboina and the Surrounding Islands according to Their Shape, Various Names, Cultivation, and Use; Together with Several Insects and Animals; [for the Most Part with the Figures Pertaining to Them; All Gathered with Much Trouble and Diligence over Many Years and*

annum or pepper, ranging from bell pepper to chilli pepper, which had been growing on Isle de France since the mid-eighteenth century.[132] In the late 1760s, Bernardin observed two sorts of 'petit piment', one which was known in Europe and the other native to the island whose fruits were very small and shiny like 'a grain of coral' on a nice green leaf.[133] He also observed that the Creoles used the latter for their stews and that it was so hot (spicy) that it burned the lips like 'a caustic', which is why it was called 'piment enragé' ('enraged pepper').

By the mid-eighteenth century, several species of '*brèdes*' ('greens') existed on the island, namely the '*brède martin*' (*solanum nigrum*), which Fusée-Aublet indicated and Bernardin identified as '*l'espèce de morelle*' and was eaten like spinach. 'This is the only unlimited dish given to the blacks' because it grew everywhere on the island. The name of the '*brède malgache*', which was called the '*brette de Madagascar*', derived from an 'Indian language' (probably Tamil), signifying 'a leaf which is good to eat'.[134] Fusée-Aublet identified other types of greens, including the '*brède malabar à piquants*' (*amaranthus spinosus*), which he named 'blitum spinosum', and Céré cultivated the similar '*brède malabar*' and the '*brède tricolor*' (*amaranthus tricolor*) in the garden of Pamplemousses in the mid-1780s.[135]

In addition, the betel, a plant native to Malaysia which probably found its way to Isle de France via Madagascar, was introduced not later than when Fusée-Aublet worked on the island.[136] In addition, they had introduced Chinese food crops to the island, such as the so-called 'blittum', a vegetable widely consumed in China, eaten like spinach.[137] A different vegetable introduced to Isle de France was the so-called 'pè-tsai', or bok choy, which Poivre compared to European leek, explaining that in Chinese, 'pè' meant 'white' and 'tsai' meant 'vegetable' and that it was of a better quality than ordinary leek.[138]

Described in Twelve Books], ed. Eric Beekman (New Haven: Yale University Press, 2011); On Rumphius, see, for instance, Cook, *Matters of Exchange*, 329–38.

[132] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 371.

[133] Ibid., 372.

[134] 'C'est le seul mets à la discrétion des Noirs', ibid., 380.

[135] Ibid., 431.

[136] Ibid., 440 Cf. Fusée-Aublet, *Histoire des plantes de la Guiane françoise*, II: 156.

[137] This is what Poivre explains in a letter to Bertin. Poivre to Bertin, 23 October 1778, printed in Cordier, 'Les Correspondants de Bertin, Secrétaire d'État au XVIIIe Siècle, IV. Pierre Poivre', 327.

[138] 'Observations sur le mémoire envoyé de Chine, au sujet du PÈ-TSAI', no date, in Cordier, 'Les Correspondants de Bertin, Secrétaire d'État au XVIIIe Siècle, IV. Pierre Poivre'.

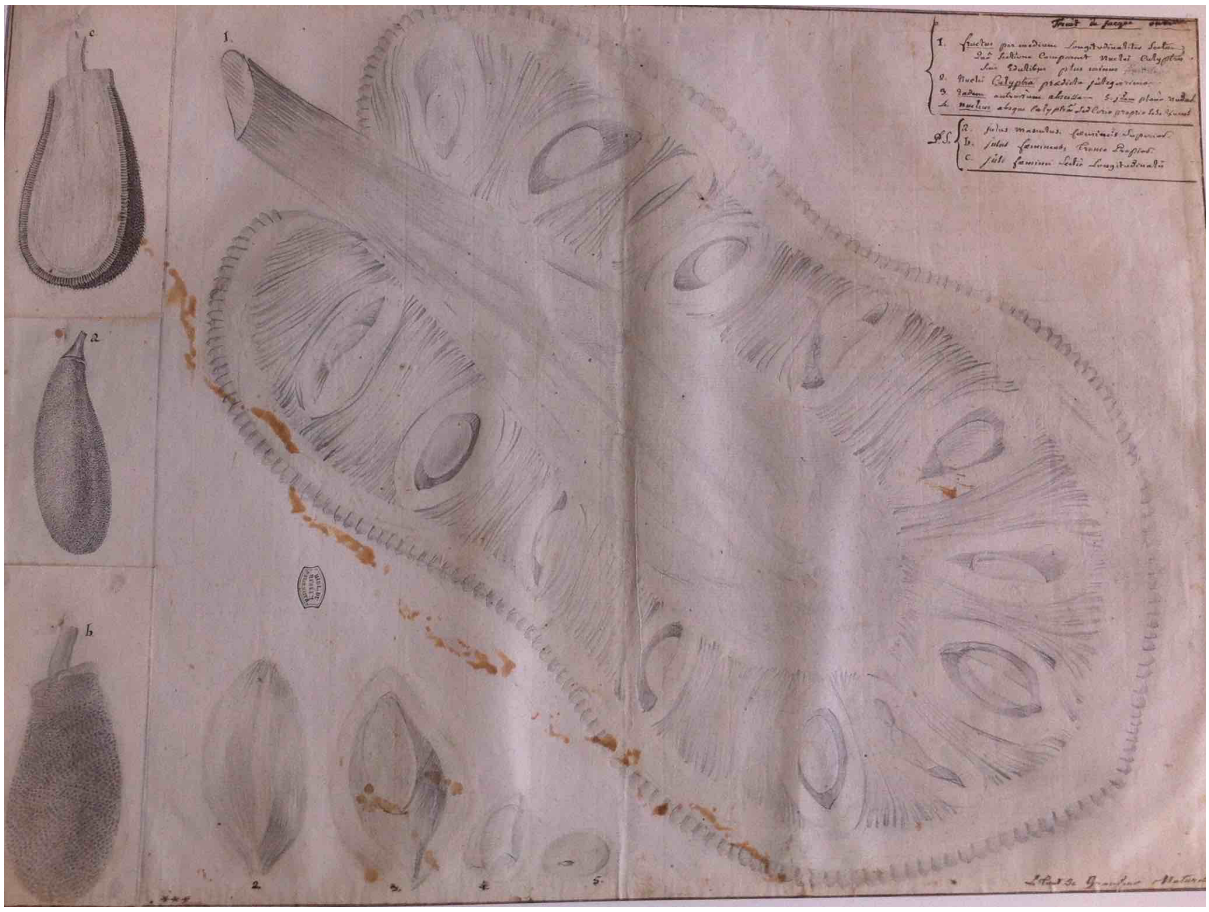

Figure 7. The jackfruit, Commerson collection, BCMNHN Ms 280.

It is difficult to understand when precisely the potato, and which exact species, was introduced to Isle de France. Bernardin refers to the 'pomme de terre, *S. americanum*', which was no bigger than a walnut and had been introduced the mid-1780s.[139] In general, potatoes were easily confused with sweet potatoes, that is to say yam or camber. Fusée-Aublet observed the yam on Isle de France in the 1750s, naming it 'ubium vulga' or 'ubium digitatum', and Céré continued cultivating the 'cambare ordinaire' in the Pamplemousses garden.[140] Belonging to the same botanical family, the air potato, native to India, was also imported to the island and continued to be grown as 'cambare indigène' under Céré in the late eighteenth century.[141] A different kind, the 'Cambare Bety' (*Dioscorea esculenta*), was apparently introduced by the Malagasy princess Bétia, who, after her initial arrived on Isle de

[139] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 381.
[140] Fusée-Aublet, *Histoire des plantes de la Guiane françoise*, II: 146, cf. Ibid., 540.
[141] Ibid, 904 and Céré correspondence, cf Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 541.

France in 1751, returned to after a voyage to Madagascar in 1757. It became known as 'Igname de Mozambique' under Fusée-Aublet and Céré, the latter describing it as 'better than all the cambers already known.'[142]

Governor La Bourdonnais had already introduced several species of rice and maize on Isle de France, cultivating fields in the southeast of the island.[143] When Poivre travelled in East Asia shortly after La Bourdonnais' tenure, he also encountered dry rice. Back on the island, he sought to employ the cultivational skills he had documented during his travels. Malagasy agricultural skills were implemented on Isle de France. As Poivre observed in *Voyages d'un Philosophe*, the cultivation of grains, namely wheat, rice, and maize, was conducted in the same way as in Madagascar, and these methods were effective; although cereal cultivation was sort of neglected and not properly understood, or so Poivre claimed, Isle de France produced a certain quantity of the said cereals.[144] Upon Poivre's return from Cochinchina to Isle de France in the late 1740s, he unloaded pepper, cinnamon, and dry rice, a type of rice that required little water, warmth, or humidity to grow. This type of rice was cultivated on Isle de France, but not in the appropriate manner: the slaves were not instructed how to handle this sort of rice according to its needs. They watered it too much and the harvest was soon entirely lost.[145]

What happened? Poivre had had great hope in dry rice when he shipped it to Isle de France because, so he argued, it was finer in taste, produced a greater crop than any other species, and was easier to cultivate because one did not have to flood the fields.[146] For the cultivation of rice, one sowed grains in several districts at the beginning of the rainy season. Although some perished, natural rain was sufficient for dry rice to germinate, grow, and bare fruit.[147] The crops, however, suffered when there was a lack of rain and humidity lacked. Dry rice ripened fifteen to twenty days earlier than the other kinds and could hence be reaped before the hurricane season, but the colonists did not appreciate 'nature's gift', as Poivre called it.

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[142] Ibid.
[143] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 611.
[144] Maize is indicated as 'le blé de Turquie'. Commerson elaborates on the name and points to the fact that 'maize' was not known in France but rather 'gros bled', cf. his letter to Cossigny, 1770, printed in Cap, *Philibert Commerson naturaliste voyageur*, letter 10. Poivre, *Mémoires d'un botaniste et explorateur*, 57–58.
[145] Anon., 'Auszug aus der Lebensbeschreibung des Herrn Poivre, Ritters vom Heiligen Geistorden, und Ehemaligen Interdanten der Inseln Isle de France und Bourbon', *Hannoverisches Magazin* 27 (1789): 1107–8. The author of the article concludes: 'Unter den unzähligen Uebel, die Sklaverei und die daraus folgende Dumheit dem menschlichen Geschlechte veranlaßt haben, muß man auch noch jenes zählen.'
[146] Poivre, *Mémoires d'un botaniste et explorateur*, 87.
[147] Dupont de Nemours, *Notice sur la vie de M. Poivre*, 62. On the instruments employed in *Monplaisir*, see 'Etat des outiles et essentiels d'agriculture dependant de l'habitation de Monplaisir', MA OA 127.

Instead of closely observing the ripening season and separating the different kinds of rice, badly instructed slaves had mixed them together in the fields and let the dry rice grains wait until the other kinds could be harvested as well. Slowly but steadily, the harvest was entirely lost.[148] When crops that were seemingly unknown to the population arrived, preparation techniques (such as for manioc) and agricultural techniques (such as for rice) were experiential and traditions or own ways of cultivation could not be applied because dry rice had to be handled differently. Instead, Malagasy ways of rice cultivation were the dominant form on Isle de France – and which came of course with the large number of Malagasy slaves.

Plants for nourishment from Europe were also introduced. During Poivre's tenure, he conducted experiments with French strawberries, whose seeds were sent from France by the naturalist and gardener Duchesne in Versailles.[149] In the CIO's garden *Le Réduit*, botanist Fusée-Aublet had also domesticated plants native to Europe in the late 1750s and early 1760s.[150] François-Etienne Le Juge (who had been commander in Gorée, came to Isle de France as *conseilleur supérieur*, and died in 1766) looked after the garden of Mongoust, where he also tried to acclimatise European fruit trees alongside Asian ones.[151] In an anonymous memoir, probably dated 1769, the author testifies that out of all European fruit trees, only peach trees bore fruit in the Mascarenes, while trees from Africa and Asia fared much better.[152] Bernardin, however, underlined that European fruits and vegetables introduced to Isle de France, failed not in terms of their ability to prosper but because of their taste. He explained that by tasting all fruits on Isle de France, he ran the risk of poisoning himself because of their bad quality. For instance, he claimed that the guava tasted of bugs, the atta or sweet-sop was boring, the rose-apple had a slightly sugary, insipid taste, and the papaya's seeds had the taste of cress. Only the mango never did any harm and could compete with European fruits despite the 'odour of turpentine'.[153]

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[148] Poivre, *Mémoires d'un botaniste et explorateur*, 87.
[149] In his letter, Poivre thanks Duchesnse for grains, 21 August 1769, BM Nantes, Ms 2212, fol. 2059, a transcitption is available at http://www.pierre-poivre.fr/doc-69-8-27.pdf (last retrieved 29 April 2016).
[150] Extract of Poivre're journal, entry on the current state of *Le Réduit*, August 1767, BCMNHN Ms 452. As Fusée-Aublet's enemy, Poivre, underlined, these were not planted properly, had no shade, and were not protected against the sun.
[151] Malleret, 'Pierre Poivre, L'abbé Galloys et l'introduction d'espèces botaniques et d'oiseaux de Chine à l'Ile Maurice', 124.
[152] Malleret refers to this anonymous memoir but does not provide a source, ibid., 128.
[153] Spary, *Eating Beyond Reason*, unpublished manuscript, by permission of the author. Cf. Bernardin, *OC*, I: 172, 178, 180–183.

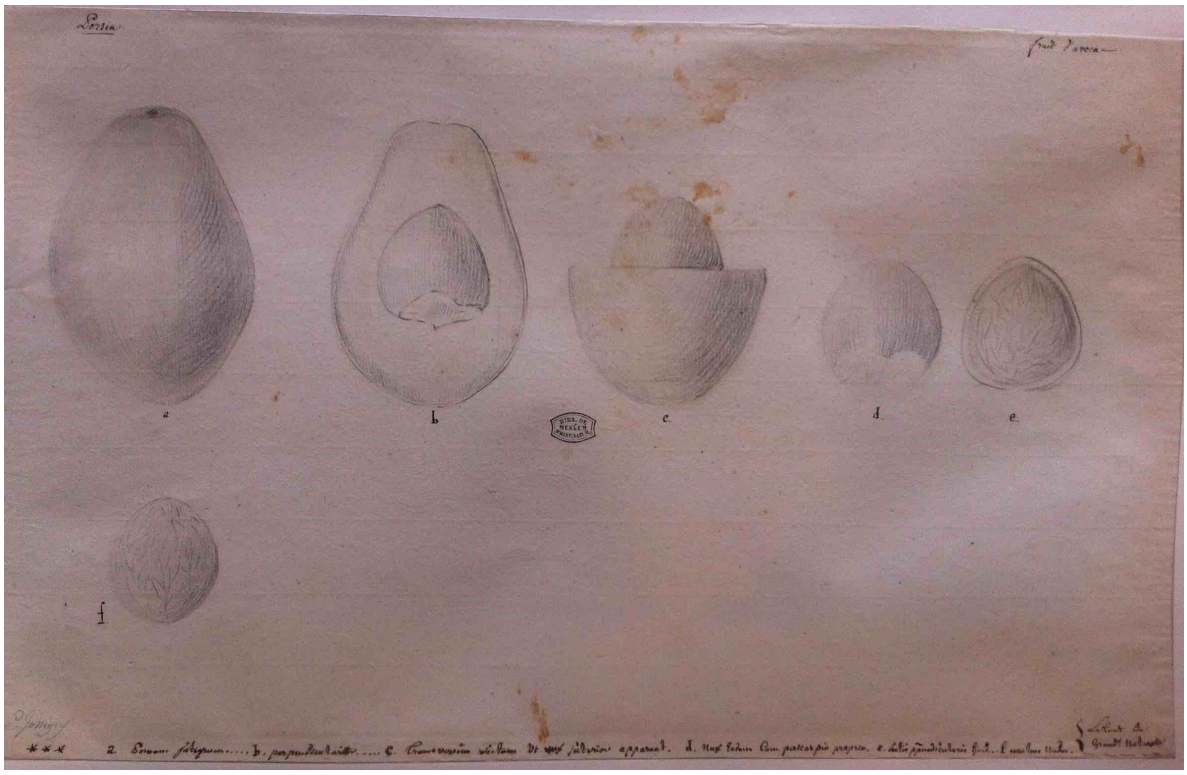

Figure 8. The avocado, Commerson collection BCMNHN BCMNHN Ms 280.

Other tropical fruits introduced to Isle de France were the avocado, the gingko, the jujube (the Chinese red date), the date, the mangosteen, and the litchi. They were growing long before Poivre's office in *Le Réduit* in the 1750s and 60s.[154] On the other hand, documents related to the late 1780s underline that only few trees acclimatised well and continued to grow in the Pamplemousses Garden (namely only four guava, four mango, four jackfruit, four avocado, four sweet orange, four litchi, four date, two breadfruit, two Malay roseapple, four mulberry trees, one coffee bush, and some seeds of Chinese plums).[155] Different documents from the same year suggest that other plants and tress had been acclimatised successfully, since live plants were made ready to be sent to Saint-Domingue (several species of nutmeg, little clove, cardamom, cinnamon, raspberry, betel, the sago palm, coconut palm, ravensara, ravenala, jackfruit, vonampy, voukoa, bilimbi, litchi, biboa, mabolo, raffia, kaffir lime, sweet orange, and mango).[156] With the help of Cossigny, Poivre introduced the mabolo (*diospyros*

[154] Extract of Poivre're journal, entry on the current state of Le Réduit, August 1767, BCMNHN Ms 452.
[155] 'Copie de la notte des plantes', 10 May 1788, MA OA 127.
[156] 'Envoi des plantes à St. Domingue sur le navire particulier l'Alexandre', 10 March 1788, MA OA 116.

philippensis) from the Philippines, a tree which carries reddish-brown fruits with soft and sweet flesh, which is why it is also called the 'velvet apple' nowadays.[157]

Isle de France was not only in need of plants in the service of agriculture and foods, but also for naval construction, housing (timber, fat, wax, and gum), baskets, and so on. During his earlier travels in Cochinchina, Poivre identified the 'chao chagne', a type of teak or hardwood, as the most proper timber for construction: it was said to be 'more solid than that in India'.[158] The teak tree ('le tecq'), for instance, was introduced to Isle de France from India, which Commerson indicated as an excellent tree for naval construction when he examined it, probably shortly after 1770.[159] Fusée-Aublet also referred to the teak tree in his notes related to the late 1750s and early 1760s. Hence, a certain species must have been introduced before or during his activities on the island at the time. The teak tree, however, was very vulnerable to heavy storms and thus did not grow successfully on the island.[160]

Galloys also was instructed to gather plants for making rubber, resin, and oil, namely the Chinese lacquer tree and the 'tree whose fruit make the nice Chinese wood oil', which Poivre's biographer Louis Malleret identified as *aleurites fordii* or the tung oil tree, which is still commonly used today.[161] In addition, he was told to bring the Chinese tallow tree (*triadica sebifera*) (whole trees and lots of seeds) and other oil and wax trees, such as the benzoin tree ('benjoin') native to Sumatra.[162] Cossigny de Palma claimed in 1767 that he introduced the benzoin on Isle de France from Bengal; in 1779, however, only one little tree was left in the garden of Pamplemousses.[163]

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[157] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 341.
[158] Poivre's journal, entry from 28 January 1750, Journal d'un voyage à la Cochinchine', ANOM Col C/ 1/2, fols. 161rv 215r. Cf. Cordier, 'Voyage de Pierre Poivre en Cochinchine', 81–121.
[159] 'Le Tecq', in 'Manuscrits de Commerson n° 5', BCMNHN Ms 1904, file X. See also 'Voyage de Madagascar, en 1770, concernant les dattes et les observations d'histoire naturelle faittes dans le sud de cette isle & principalement aux environs du Fort Dauphin par Sr. Philibert de Commeron', Ms 887, III, in which he refers to the teak and his examinations in Ms 1904.
[160] Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 414.
[161] '(...) des arbres dont le fruit fournit la belle huile de bois de la Chine', Malleret, 'Pierre Poivre, L'abbé Galloys et L'introduction D'espèces Botaniques et D'oiseaux de Chine À l'Ile Maurice', 121.
[162] Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fol. 16r-21r, 18r; See also BCMNHN Ms 280 Vol 1, Faux Benjoin, 'Dissertatation sur le bejoin par François Beauvais (...)', ADR 4 J 65 and Rouillard and Guého, *Les Plantes et Leur Histoire À l'Ile Maurice*, 341. I am indebted to Pamela Dookhy, publications and liasons officer at the SSR Botanic Garden in Pamplemousses and Kersley Pynee, botanist at the Herbarium in Réduit, for providing a copy of *Les Plantes et leur Histoire à l'Ile Maurice* and for assisting me in creating a network of reference points during my stay in Mauritius, including the Natural History Museum in Port-Louis.
[163] Ibid., 340–141.

In order to provide shade and water on the island, Poivre sought to protect the forests and to plant trees along the streets in Port Louis and all rivers on the island.[164] Possibly the most useful tree native to Isle de France was ebony: this had been one of the main reasons for the Dutch to take possession of the island, and Commerson examined it in 1769.[165] Likewise, he made botanical observations about the flora of Isle de France in 1772, including cacao, citrus, and ebony.[166] After his explorations in Madagascar, Commerson was to engage with the flora of Isle de France and build up a herbarium. The hospitals were in great need of remedies, especially after the failure of Fusée-Aublet on the island in the late 1750s and 1760s. Commerson's notes survive, but they are messy, randomly ordered, and relate not only to useful plants but also those used for pleasure, such as the *hortensia* or 'Japanese rose', the Malagasy *nymphaea*, and teas from China.[167] He had been asked to conduct such a mission after his return from Madagascar, where he went in 1768 and 1770.[168] His official mission was, however, to explore Isle de France, but his archives give the impression that he was in fact less enthusiastic about this task and that he preferred to spend time in Madagascar, which fascinated him, as he underlines in letters to his friend and astronomer Lalande.

Already under La Bourdonnais, the Chinese mulberry tree was introduced for the production of silk on the island, but a memoir by the gardener Jean-Nicolas Céré dated 1796 demonstrates that they were unsuccessfully cultivated due to physical causes that one could not overcome.[169] Because the plantation of mulberry trees was considered too difficult, it was replaced by the cultivation of 'bois-noir', from India, which was useful for naval construction.

Besides new vegetable and fruit species or timber, domestic animals also were bred, which in turn was connected to finding suitable fodder for them. The search for useful plants aimed at finding species proper for the subsistence of animals. So it was with the so-called 'fatak': 'In many cantons there are large tracts of tilled ground, covered with grass of an extraordinary size, which grows to the height of five or six feet; the natives [the Malagasies] call it *Fatak*; it

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[164] Poivre to the minister, 30 November 1767, Brest, Ms 89, no. 57.
[165] 'Ebenus (vera) declarata', BCMNHN Ms 277, dossier 2, piece 1; BCMNHN Ms 453.
[166] 'Flore de Isle de France, 1772', BCMNHN Ms 1904, doss. IX.
[167] 'Labor botanicus in gallicana insula denno susceptus anno 1772', BCMNHN Ms 1904, file IX. See for an illustration of the Nankin tea (sketch and a small description), dated 20 March 1769, BCMNHN Ms 281, vol. 1, plate 16.
[168] Cf. mission approvals and letter exchange in Commerson's personal file, ANOM Col E 89, fols. 559r and 561r.
[169] Céré, Nicolas (1796). Mémoire sur le Jardin Nationales de l'Ile de France, adressé au Général Decarn le 1rt. Nivose an IV, MA OA 127.

is excellent for nourishing and fattening their horned cattle.'[170] The problem though was that fatak started growing at the beginning of the rainy season, during which the colonisers fed their cattle. Soon, the grasses' vegetation was over, leaving only dry ground: this was likely to cause fires during the dry seasons.[171]

Instead of introducing more and more domestic animals from Madagascar, Poivre's plan was to multiply those on the island by instructing the inhabitants on how to do so. Soon after, he wrote to Praslin that the colonists understood that keeping herds was a most solid thing to do on the island.[172] In addition, the local administration was convinced that trading slaves with Madagascar instead of cattle was much more profitable because animals could be multiplied domestically. Therefore, they also sought to introduce other animal species from way beyond Madagascar. When the Abbé Galloys was sent to China in 1767, he was not only instructed to collect specimens of economic plants but also animals which could secure the meat supply on the island.[173] These included two Chinese rams and four ewes, several breeds of pheasant, hens, roosters, and ducks of Tibetan, Indian, and Chinese breeds, and birds which eat harmful insects, particularly the Chinese hwamei ('hoa-mi').[174] Furthermore, a new species of fish was introduced to Isle de France. Native to the Moluccas and coming to Isle de France via Batavia in 1760 or 1761, a species called 'Gourami' was imported to the French colony. This type of fish, so Poivre explained to Bertin in a letter dated 26 June 1777, was much superior to all kinds of fish, requiring little space and water while multiplying and fattening easily.[175]

In 1767, his first year in office, Poivre calculated that 12,000 domestic animals should be sufficient to multiply this number *ad infinitum* and to have sufficient supply for the future.[176] The pasturelands of Isle de France were excellent, Poivre underlined, calculating that one could feed easily more than 30,000 horned cattle without reducing the cultivation of staple grain. These were absolute miscalculations in light of the climate and the times to come. The plan for multiplying cattle did not work out and Isle de France was obliged to continue the cattle trade with Madagascar. Meat production was insufficient on the island; Isle de France

[170] Poivre, *Travels of a Philosopher*, 29. The *Voyages d'un Philisophe* were published in 1768 and translated into English in 1770 as *Travels of a Philosopher.* Here, I quote directly from the translated *Travels.*
[171] Poivre, *Mémoires d'un botaniste et explorateur*, 58.
[172] Poivre to the minister, 30 November 1767, 'Agriculture', Brest DM, Ms 89, no. 41.
[173] 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fols. 16r–21r.
[174] Ibid. fol. 20v.
[175] Poivre to Bertin, 26 June 1777, printed in Cordier, 'Les Correspondants de Bertin, Secrétaire d'État Au XVIIIe Siècle, IV. Pierre Poivre'.
[176] Poivre to the minister, 30 November 1767, 'Agriculture', Brest DM, Ms 89, no. 41.

remained dependent on its trading networks in the southwest Indian Ocean. For instance, in 1770, Poivre had to import meat from Bourbon, writing to Bourbon's administrator Crémont that '(...) we are lacking of many things, but above all of meat.'[177] In addition, administrators in Madagascar had not been able to send the required amount of '*viandes salées*' ('salt meat'), which forced Poivre to acquire meat from France directly. Conserving meat in a tropical climate was more difficult than in Europe, and only possible in the fresh season like May: otherwise, conservation failed and the meat did not survive transportation from Madagascar to Isle de France.[178]

Meat consumption was too high, Poivre claimed, and the 'miserable butcher' had to produce meat in high quantities since he was instructed not to refuse meat to anyone, meaning that 160 to 180 bullocks were slaughtered between late summer 1769 and December 1770.[179] Trying to secure the stock of beef, two important *ordonnances* were declared. On 5 May 1771, meat was reserved only for the king's troops, royal vessels' crew, and the sick in the hospital.[180] In an earlier order dating to 24 October 1767, the local government sought to protect deer in the woods, brown goats, and game birds ('le gibier à plume'), particularly during the egg-laying season.[181] In the same *ordonnance*, fish were also to be protected because they were an important food resource besides beef. Further regulations dated 3 July 1769 fixed the price for poultry, other birds, milk, wheat, beans, peas, eggs, manioc, barley, and oats.[182] These regulations bring us back to the beginning of the chapter: the question of how to feed every hungry mouth on the island was tackled but never solved because the island was too heavily populated. Troops added more to the island's plate, which is possibly not the right phrase to use in this context because the inhabitants' plates were empty. When planning the acclimatisation and multiplication of both plants and animals, environmental factors hampered the administration's attempts.

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[177] 'nous manquons de beaucoup de choses, mais surtout de viandes.', Poivre to Crémont, 6 December 1770, letter printed in Ly-Tio-Fane, 'Problèmes d'approvisionnement de l'Ile de France Au Temps de L'intendant Poivre', 108–9.
[178] This is what Poivre explains to Praslin, 12 August 1769, ANOM Col C/4/25, fol. 55r. On meat conservation methods, see, for instance, 'Manieres usitées en Allemagne de conserver, pendant l'été, les viandes & autres subsistances sujettes à corruption', in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 14 December 1774, 2.
[179] Ibid.
[180] Ordonnance signed by Desroches and Poivre, 5 May 1771, in J.-B.-E. Delaleu, *Code des Isles de France et de Bourbon* (Port-Louis: Imprimerie Royale, 1777), 226–27.
[181] Ordonnance signed by Dumas and Poivre, 24 October 1767, in ibid., 214–16.
[182] Règlement, signed by Desroches and Poivre, 3 July 1769, in ibid., 220–21.

CONCLUSIONS

Isle de France's flora and fauna were to a great extent artificially created. This chapter has explored the immense variety of plants for the population's nourishment, subsistence and everyday life that were introduced to the island over the course of the eighteenth century. I suggested that the cultivation of consumable plants was more important than the cultivation of spices. While the latter remained a dear project to the intendant Poivre, his ideal plan was to turn Isle de France into a self-sufficient colony by cultivating food crops. At the same time, he planned to grow cash crops, in particular luxury spices because they would not require lots of lands or forced labour. These two reasons, according to him, were the two key advantages of such a project.[183] Instructions and their implementation were very contradictory while the island's administration tried to bring the uncertain situation under control.

This chapter argued for the complex interplay of human-caused factors, environmental conditions, and the plants' needs when acclimatising them on the island. The debate about the need to feed the island was embedded in the natural economy and physiocratic thought. Furthermore, this chapter situated agricultural augmentation and cultivational activities within the island's difficult situation as a remote island in the middle of the Indian Ocean. Closely connected to this, it highlighted the obstacles, which the local administration had to overcome and how the governor and intendant sought to manage and balance interest groups. Therefore, this chapter also briefly touched upon the spice project and how it must be understood from the perspective of both the local administration and the colonists.

Closely related to the question of how to feed the island was the immense number of slaves forced to migrate to Isle de France over the course of the eighteenth century. In an overall comparison to foostuffs, slaves were cheap and one sought to employ them for the cultivation of domesticially produced stock. I elaborated not only on the relationship between the high number of slaves and the need for agriculture, but also highlighted examples of the introduction of certain food crops in this context. Plants like manioc, maize, and songe were cultivated with the specific purpose of feeding the island's forced labourers. Not only in relation to these crops but also with regard to other plants acclimatised on Isle de France, the last two sub-chapters examined the cultivation of vegetables, fruits, and staple crops such as

[183] Grove, *Green Imperialism*, 208–10; De Cambiaire, 'Enlightened Alliance', 157–58.

dry rice. In the context of the latter, I elaborated on the diverse factors influencing the crop's cultivation, which failed due to the intetplay of peoples and nature.

In the last three decades of the eighteenth century, Isle de France was by no means as rich in useful plants as Madagascar, for instance, which is clearly reflected in the archives. The acclimatisation projects prior to Commerson's arrival in 1768, or even during it, did not go too well, given that his notes about plants for nourishment and primary necessities are rather sketchy. The acclimatisation debate in the colonies was by no means over during Poivre's office although, as this chapter illustrates, the search for useful plants for both subsistence and commerce outside the island was more than essential for keeping the island running.

Plant knowledge in the service of agriculture differed from the study of plants for natural history, as this chapter, together with chapter two, suggests. Eighteenth-century economic societies in Europe took up a goal already established in the newly created academies of the seventeenth century to 'render science useful to the common weal'.[184] In an island context, however, and surely also in Europe at the time, systematic inquiries and methods of increasing supplies faced immense problems and challenges. Here, together with chapter two, I argue that these challenges were two-fold: firstly, the search and collection of 'useful' plants in the Indo-Pacific worlds and beyond and, secondly, the acclimatisation and domestication of these plant and animals. Isle de France as a creole island had an experiential economy. To put it differently, the local administration's attempts at agricultural and economic improvement were based on many uncertain factors. This is an argument which can also be applied to the spice project, which chapters five and six pick up by extending it to both human and non-human factors, in particular the plant material itself. The local sources of knowledge far exceeded European knowledge and knowledge practitioners, as well as European plants. A principal legacy of the French attempts in the eighteenth century certainly is the island's variety of creole flora, fauna, and population, which was later extended under British rule after 1810.

[184] Marcus Poppolow, 'Economizing Agricultural Resources in the German Economic Enlightenment', in *Materials and Expertise in Early Modern Europe: Between Market and Laboratory*, eds. Ursula Klein and Emma C. Spary (Chicago: University of Chicago Press, 2010), 263.

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Black empire:
Creolisation, slaves, and cultivation (1760s-1780s) [1]

In 1769, Françoise Poivre, wife of Isle de France's intendant Pierre Poivre, wrote a letter to Jacques-Henri Bernardin de Saint-Pierre, who stayed on Isle de France between 1768 and 1770. The letter concerned Bernardin's manuscript about the slaves' situation on the French colonial island, which was later published as part of *Voyage à L'Isle de France* (1773). In her letter, Françoise commented on her acquaintance's manuscript: 'If free people cultivated this country, it would be a happier place. A climate which does not fulfil the needs of evergreen lands, lands which produce two crops per year without ever resting, very beautiful woods, many rivers, little pleasant to be sure, but which always fertilises. You need more than a long stay in the port to depict this island, the port is not at all like the rest of this country.'[2]

Françoise Poivre's ideas echoed her husband's speech upon his arrival as intendant of the Mascarene Islands in 1767. In it, Pierre Poivre announced that an agricultural island colony, which was precious to the French colonial attempts in the East Indies, must be cultivated by 'free hands.'[3] These were ambitious visions, which this chapter tests in Poivre's garden *Monplaisir* and Isle de France more widely in the second half of the eighteenth century. What did these 'free hands' mean in practice on an island which was populated by thousands of

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[1] A draft of this chapter was partially presented as 'Slavery, Natural History and the Cultivation of an Island Colony: The Case of Eighteenth-century Isle de France', at the British Society for the History of Science Postgraduate Conference, Cambridge, 6-8 January 2016. I benefitted greatly from discussions with Mélanie Lamotte (Cambridge) and also Rafaël Thiebaut (Paris). I am also indebted to Silvia Sebastiani, Cécile Vidal, Alessandro Stanziani, and the participants of the *Atelier doctoral interdisciplinaire Méditerranée 2 'Le travail forcé'*, organised at the École française de Rome, 24-28 October 2016, where I presented a more nuanced version about slavery, hierarchy, and treatment on Isle de France. Further, I thank James Delbourgo for his encouragement and comments on a draft chapter.

[2] 'si ce pays etoit cultivé par des hommes libres ce seroit un endroit fort heureux. un climat qui ne donne pas de besoins une campagne toujours verte, une terre qui produit deux recoltes par an sans jamais se reposer, de tres beaux bois beaucoup de rivieres, peu agreables, il est vray, mais qui fertilisent toujours. ce n'est pas apprés un long sejour au port qu'il faut peindre cette isle le port ne ressemble en rien au reste du pays.', Françoise Poivre to Bernardin, 1769, EE BSP_0140.

[3] 'Discours Prononcé par P. Poivre, à son arrivée à l'Isle de France, aux habitants de la Colonie assemblés au Gouvernement', in Poivre, *Mémoires d'un botaniste et explorateur*, 130.

slaves? As Suzanne Miers put it: 'No definition of slavery can be separated from the definition of its antithesis – freedom.'[4] Similarly, it is important to understand what 'black' meant. In *Creating the Creole Island*, Megan Vaughan has explored slavery and bonded labour in detail with regard to Isle de France, concluding that the term '*noir*' ('black') was quite slippery and was not only used to denote someone of African ancestry but also those of Asian origin.[5] Yet, it remains unclear how a '*noir libre*' ('free black') can be defined in the particular case of Isle de France. '*Noir*' was by no means a single, stable term: indeed, the sources do not always define if '*noir*' meant 'enslaved' or referred to skin colour, nor do they offer information about where the '*noir*' originated.

The definition of '*noir*' and the boundaries between free and unfree were complex and messy, determined by race and ethnicity. Did Poivre define 'free' in terms of how they were treated or according to their legal status?[6] This chapter is not primarily concerned with questions relating to legal status and what it meant to be 'free'. Rather than defining 'free', the aim is to understand the role and skills of slaves in various contexts related to plant knowledge. Vincent Brown once put it, 'if scholars were to emphasize the efforts of the enslaved more than the condition of slavery, we might at least tell richer stories about how the endeavours of the weakest and most abject have at times reshaped the world. The history of their social and political lives lies between resistance and oblivion, not in the nature of their condition but in their continuous struggles to remake it.'[7] Coming from there, how were slaves involved in the (botanical) making of the island colony and what role did their plant knowledge and agricultural skills play? While this chapter seeks to understand slavery against the backdrop of unfree/free labour and ethnic prejudice, it sets a particular focus on cultivational activities, plant knowledge, and the tasks slaves fulfilled in the various gardens of the French colonial island.[8]

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[4] Suzanne Miers, 'Slavery: A Question of Definition', *Slavery & Abolition* 24, no. 2 (2003): 2.
[5] Vaughan, *Creating the Creole Island*. On creolisation and language in the Southwest Indian Ocean, see also Pier M. Larson, *Ocean of Letters: Language and Creolization in an Indian Ocean Diaspora* (Cambridge: Cambridge University Press, 2009); See also Kate Marsh, 'Territorial Loss and the Construction of French Colonial Identities, 1763-1962', in *France's Lost Empires: Fragmentation, Nostalgia, and La Fracture Coloniale*, eds. Kate Marsh and Nicola Frith (Lanham, Md: Lexington, 2010), 1–13.
[6] On the legal aspects and slavery in the French colonies, see Pierre Boulle and Sue Peabody, *Le droit des noirs en France au temps de l'esclavage: textes choisis et commentés* (Paris: l'Harmattan, 2014); For a discussion of law and slavery in the Atlantic world, see Sue Peabody and Keila Grinberg, *Free Soil in the Atlantic World* (London: Routlegde, 2015).
[7] Vincent Brown, 'Social Death and Political Life in the Study of Slavery', *American Historical Review* 114, no. 5 (2009): 1249.
[8] On eighteenth-century anti-colonialism, anti-slavery, and free/unfree labour, see Yves Benot, *Les Lumières, l'esclavage, la colonisation*, ed. Roland Desné and Marcel Dorigny (Paris: Éd. la Découverte, 2005); Caroline

This chapter is dedicated to the contribution of slaves to Isle de France, with a particular focus on the relationship between plants both for subsistence, healing and commerce and the tasks slaves fulfilled in the various gardens and plantations of the island. Literature on colonial botany and the French scientific-colonial enterprise more generally hardly recognise the slaves' contributions to the production of knowledge.[9] While numerous studies are concerned with 'indigenous' or 'local knowledge' in different colonial contexts, criticisms and alternative approaches to Eurocentric science-making overseas barely pay any close attention to slave knowledge, let alone in the French Indian Ocean context.[10]

Treating slaves as subjects of Isle de France's natural history makes a significant contribution to questions that, as James Delbourgo has recently observed, scholars have finally begun to ask about the role between knowledge production and the slave trade.[11] For instance, the significance of an informal network of slaves as carriers of knowledge can be seen through the case of Henry Smeathman in Sierra Leone.[12] Similarly, Kathleen Murphy concludes that the famous British apothecary and natural historical collector James Petiver 'transformed the routes of the British slave trade into a means of collecting collectors'.[13] Together with these works, James Delbourgo's most recent study on slaves in the world of the British physician and collector Sir Hans Sloane underlines the significance of slaves for the

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Oudin-Bastide and Philippe Steiner, *Calcul et morale: coûts de l'esclavage et valeur de l'émancipation, XVIIIe - XIXe siècle*, (Paris: Albin Michel, 2015); Michèle Duchet, *Anthropologie et histoire au siècle des Lumières* (Paris: F. Maspero, 1971); Michèle Duchet, *Le partage des savoirs: discours historique et discours ethnologique* (Paris: la Découverte, 1985).

[9] The most obvious works to be mentioned are Schiebinger and Swan, eds., *Colonial Botany* and McClellan and Regourd, *The Colonial Machine*.

[10] Important exceptions are James Sweet, *Domingos Álvares, African Healing, and the Intellectual History of the Atlantic World* (Chapel Hill, NC: University of North Carolina Press, 2011); Gómez, *The Experiential Caribbean*; Carney and Rosomoff, *In the Shadow of Slavery;* Judith A. Carney, *Black rice: the African origins of rice cultivation in the Americas* (Cambridge (Mass.): Harvard University Press, 2001); Kathleen S. Murphy, 'Translating the Vernacular: Indigenous and African Knowledge in the Eighteenth-Century British Atlantic', *Atlantic Studies* 8, no. 1 (2011): 29–48; Susan Scott Parrish, 'Diasporic African Sources of Enlightenment Knowledge', in *Science and Empire in the Atlantic World,* ed. James Delbourgo and Nicholas Dew, 281–310; Schiebinger, *Secret Cures of Slaves;* James Delbourgo, *Collecting the World: Hans Sloane and the Origins of the British Museum* (London: Penguin, 2017).

[11] James Delbourgo, 'Gardens of Life and Death', *The British Journal for the History of Science* 43, no. 1 (2010): 114. Although Brown is not primarily concerned with natural knowledge, his study about slavery and death in Jamaica provides significant insights. Vincent Brown, *The Reaper's Garden: Death and Power in the World of Atlantic Slavery* (Cambridge, Mass.: Harvard University Press, 2008); For examples of plants and herbs used by Africans in the Atlantic World, see, for instance, William Ed Grimé, *Ethno-Botany of the Black Americans* (Algonac, Mich.: Reference Publications, 1979).

[12] Starr Douglas, 'The Making of Scientific Knowledge in an Age of Slavery: Henry Smeathman, Sierra Leone and Natural History', *Journal of Colonialism and Colonial History* 9, no. 3 (2008).

[13] Kathleen S. Murphy, 'Collecting Slave Traders: James Petiver, Natural History, and the British Slave Trade', *The William and Mary Quaterly* 70, no. 4 (2013): 659.

collection of materials and the circulation of goods that came with the slave trade.[14] Moreover, as Judith Carney and Richard Rosomoff explain, oral traditions of black descendants of runaway slaves in northeastern South America tell that enslaved African women concealed rice seeds in their hair or in thee hair of their children prior to being forced to board the slave ship.[15] Most likely, also other natural good travelled via unofficial channels which we might not be able to trace.

Most works with new approaches to slavery, skilled workers and ethnobotanical knowledge focus on the Britsh and Iberian Atlantic. Scholars have focused on the contribution of slave knowledge to European science. Opening up to the Indian Ocean, Anna Winterbottom underlined that in the world of the East India Company, slaves formed considerable percentages of the population of its settlements, where they were used for both their manpower and as a source of knowledge.[16] In relation to knowledge traditions of those who were enslaved, Kathleen Murphy observed that in terms of African knowledge in the eighteenth-century British Atlantic, the distinction between 'know-how' and 'scientific knowledge' was inextricably connected to issues of race and ethnicity.[17] Murphy underlined that colonials appropriated slaves' knowledge – yet, it was regarded as simple 'know-how' rather than genuine knowledge. Susan Scott Parrish has put forward that diasporic African knowledge was a source of Enlightenment knowledge: Europeans who operated overseas admitted in their correspondence their 'reliance on colonial correspondents and, beyond that, on the Africans who did the collecting for them. Indeed, there were some facts that, unless they originated with Africans, had no credibility.'[18] However, as Parrish argues, this reliance was very complex because of political conditions and plantation culture and often went hand in hand with the demonisation of diasporic African traditions.[19] So too does Londa Schiebinger's most recent study on the French and British Atlantic worlds. She takes up on this complexity when examining the circulation of human agents, sickness, and medicinal

[14] Ibid.; Douglas, 'The Making of Scientific Knowledge'; Delbourgo, *Collecting the World;* James Delbourgo, 'Sir Hans Sloane's Milk Chocolate and the Whole History of the Cacao', *Social Text* 29, no. 1 106 (2011): 71–101

[15] Carney and Rosomoff, *In the shadow of slavery*, 88, 88–94.

[16] Winterbottom, *Hybrid Knowledge in the Early East India Company World*, 164.

[17] Murphy, 'Translating the Vernacular'.

[18] Parrish, 'Diasporic African Sources of Enlightenment Knowledge', 283. On the Dutch Cape garden as a middle ground, see also Fleischer, '(Ex)changing Knowledge and Nature at the Cape of Good Hope, circa 1652-1700'; Geri Augusto, 'Knowledge Free and "Unfree": Epistemic Tensions in Plant Knowledge at the Cape in the 17th and 18th Centuries', *International Journal of African Renaissance Studies - Multi-, Inter- and Transdisciplinarity* 2, no. 2 (2007): 136–182.

[19] Scott Parrish, 'Diasporic African Sources of Enlightenment Knowledge', 283.

plants together with related knowledge about them. For healing and cure, Amerindian, African, and European knowledges competed within a very experiential culture on West Indies plantations. Yet not all knowledge traditions were equal and African therapies not even tested because of a variety of reasons.[20]

Outside the 'science and empire' framework, scholars of Atlantic slavery have long argued for the ethnobotanical knowledge that African slaves possessed. With her ground-breaking study on the origins of rice cultivation, Judith Carney has explored the origins of rice cultivation in the Americas.[21] Carney corrects the fundamental fallacy of that Europeans introduced rice to West Africa from where it together with agricultural know-how travelled to the Americas. She further suggested that distinctive agricultural knowledge 'transmitted through practices and technologies to make nature yield [...]' 'followed different paths of development.'[22]

Studies on slave plant knowledge in the Iberian, British and most recently even French Atlantic are much more advanced than those concerned with the Indian Ocean. Particularly in the history of medicinal knowledge, scholars have suggested to understand knowledge-production outside frameworks of science and medicine, such as James Sweet's work on the African healer Domingos Álvares.[23] Pablo Gómez' very recent study on seventeenth-century black and free Caribbean communities opens a window on how leading figures of these communities made use of medicinal plants for their own means. Gómez argues that the testing of remedies, disease origins and cures made colonial settlers and Caribbean people view 'experiential knowledge' as powerful and competitive. [24]

Building upon these important works cited above, I extend those approaches to Indian Ocean slavery in the context of the French colonial island. Therefore, I consider slaves on Isle de France as signal agents and active carriers of plant knowledge, ranging from ethnobotanical to medical knowledge and from collectors to skilled cultivators in various plant-related contexts. I follow the argument brought forward that slaves' plant knowledge was inevitably a source of knowledge and embraced by Europeans in order to accumulate knowledge and to conduct experiments with plants. It was not necessarily downplayed as simple 'know-how' – at least in the island's context where food and medicine were scarce and

[20] Schiebinger, *Secret Cures of Slaves*.
[21] Carney, *Black rice*.
[22] Ibid., 5-6. Carney and Rosomoff, *In the Shadow of Slavery.*
[23] Sweet, *Domingos Álvares.*
[24] Gómez, *The Experiential Caribbean*.

plant-related knowledge crucial for the subsistence of everyday life yet also for the cultivation of spices. Hence, this chapter draws attention to food, practices and cultural identity, yet also to human agency embedded in social structures and – in a wider sense – power relations that shaped life on Isle de France. On the French island, slaves were not only important because of their physical work but also, in some cases, because of their plant knowledge and skills, which sometimes allowed them to hold higher positions in the gardens. In the West Indies context, scholars, such as Virginia Bernhard for the establishment of Bermuda, have long argued that slaves were not merely introduced for their manwork but rather for their expertise as pearl divers or cultivators.[25] On Isle de France, slaves were not only important because of their physical work but also, in some cases, because of their plant knowledge. In individual cases, their skills allowed them to hold higher positions in the gardens (as 'skilled workers').

Against the backdrop of economic motives and anti-slavery sentiments, this chapter investigates the role and treatment of the gardens' slaves.[26] This chapter thus explores the relation between colonisers who employed slaves, as well as free people of colour, from Africa, Madagascar, and South Asia, who worked in both botanical expeditions and the colonial gardens.[27] Hence, it proceeds as follows. First, it elaborates on forms of slavery and bonded labour in the Indian Ocean world(s). In a second step, it explores the links between slavery, treatment, and political economy. It is important to understand slavery on Isle de France both in the context of Enlightenment thought as well as in that of bonded labour in the Indian Ocean more generally. Then, in a third step, it is possible to look in depth into the relation between caste, race, and hierarchy in relation to the tasks the slaves fulfilled. Eventually, by looking at the daily management of gardens, it examines the cases of the gardener slaves Hilaire and Charle Rama, through which it underlines the impact of both skills and interpersonal relations.

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[25] Virginia Bernhard, *Slaves and slaveholders in Bermuda, 1616-1782* (Columbia: University of Missouri Press, 1999); Virginia Bernhard, *A Tale of Two Colonies: What Really Happened in Virginia and Bermuda?* (Columbia and London: University of Missouri Press, 2011); Carney and Rosomoff, *In the Shadow of Slavery;* Carney, *Black rice*; see further on the question of slavery, skills and artisanship James E. Newton and Ronald L. Lewis, *The other slaves: mechanics, artisans, and craftsmen* (Boston: G.K. Hall, 1978).

[26] See further on the link between economic botany and anti-slavery sentiments Grove, *Green Imperialism*, 205–206 as well as Dobie, Madeleine. *Trading Places: Colonization and Slavery in Eighteenth-century French Culture* (Ithaca and London: Cornell University Press, 2010).

[27] On the rise of the free population of colour on Isle de France, see Richard B. Allen, 'Economic Marginality and the Rise of the Free Population of Colour in Mauritius, 1767–1830', *Slavery & Abolition* 10, no. 2 (1989): 126–50.

FORMS OF SLAVERY AND BONDED LABOUR IN THE INDIAN OCEAN WORLD

It is important to understand the meaning of slavery in context, and slavery and bonded labour in the Indian Ocean more generally. And this is where the difficulties start: Gwyn Campbell has observed that there is 'no scholarly consensus as to the meaning of slavery in the Indian Ocean World', since, except for plantations in the Mascarene Islands, Madagascar, and the East African coast, exact numbers and relations with the movement between the Indian Ocean and the Atlantic rarely existed.[28] Yet, in the eighteenth century, the situation on Isle de France was very complex and hierarchical; slavery cannot be reduced to 'average' plantation slaves suggesting 'stereotypical' slave categories.

The history of the Indian Ocean world(s) in general is a very complex one, and so was the slave trade within in, since it was multidirectional with fluctuating directions and principal destinations. It involved both female and male slaves who were forced to fulfil distinct tasks. These tasks ranged from serving as plantation labourers, domestic servants, soldier slaves, and beyond; their status was linked to their origin. However, and quite often, sources will not allow us to establish the ethnic origin of slaves, since they are all referred to as 'black'. This expression does not indicate a slave's origin, which could have been the African mainland, Madagascar (some also must have had Indonesian heritage because of an earlier forced migration of Indonesians), or Asia.

Slavery in the Indian Ocean world must be understood outside ancient or North American slavery.[29] Bondage in the Indian Ocean was very hierarchic, and individuals, or sometimes a group or caste, who were inferior had to serve the superior groups, who in turn had obligations to a superior and so on. In South Asia, for instance, Richard Eaton concluded that 'the only common denominator was the slaves' total dependency on some powerful person or institution.'[30] Rather than the dichotomy between free and unfree, this chapter presses for the

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[28] Gwyn Campbell, *The Structure of Slavery in Indian Ocean Africa and Asia* (London: Frank Cass, 2004), Introduction, x-xi.
[29] Alessandro Stanziani, *Bondage: Labor and Rights in Eurasia from the Sixteenth to the Early Twentieth Centuries* (New York: Berghahn Books, 2014), 11.
[30] Richard Eaton, 'Introduction', in *Slavery & South Asian History,* ed. Indrani Chatterjee and Richard M. Eaton (Bloomington: Indiana University Press, 2006), 3; See also Robert Harms, 'Introduction', *Indian Ocean Slavery in the Age of Abolition*, ed. Robert Harms, Bernard K. Freamon, and David W. Blight (New Haven: Yale University Press, 2013), 12–14.

complex nuances and various degrees of what it meant to be enslaved.[31] Notably, free labour certainly cannot be understood in the same way as today. Instead, it included debt bondage and unfree labour.

Alessandro Stanziani distinguishes two basic systems of Indian Ocean slavery. On the one hand, he notes the 'open system' in commercialised and cosmopolitan cities of Southeast Asia, where slavery and other forms of bondage were not distinct and fluid. On the other hand, there were the 'closed systems' of South and East Asia, in which 'the stigma of slavery made it inconceivable for a slave to be accepted into the kinship systems of their owners as long as they remained slaves; instead they were maintained as separate ethnic groups'.[32] In the majority of cases in the Indian Ocean, people entered slavery through debt, which differed from debt bondage. Whereas the latter was mostly voluntary as a credit security strategy, the former resulted through debt.[33] People entered unfree labour involuntary, just as forced migration through convict labour. This form of forced labour was often made up of prisoners whose penalty was changed from death to lifetime penal servitude. When the conditions of new colonies could not attract free labour, convicts had to stand in and were charged with tasks related to timber, for instance.

A different form of labour were contracts of *engagement* (indentured labour), which mostly referred to whites going overseas, starting in France in the seventeenth century when people from Normandy and Brittany left for the West Indies.[34] In the eighteenth century, *engagés* could also be of colour and existed on the Mascarene Islands as one of the dominating forms of dependence, alongside the plantation economy and forms of slavery similar to those in North America.[35] The dividing line between *engagé* and slave was thus very uncertain and even brought legal difficulties with it, such as on nineteenth-century Isle de Bourbon, where a legal or factual line between both forms did not exist.[36] Most of the forms of Indian Ocean slavery existed long before the arrival of Europeans, mostly of women

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[31] On the question of the shades of 'free' and 'forced' labour, see also Alessandro Stanziani, 'Free Labor – Unfree Labor. An Uncertain Boundary?', *Kritika* 9, no. 1 (2008): 27–52; See also Augusto, 'Knowledge Free and "Unfree"'.
[32] Stanziani, *Bondage*, 176.
[33] Gwyn Campbell, 'Slavery and the Trans-Indian Ocean World Slave Trade. A Historical Outline', in *Cross Currents and Community Networks : The History of the Indian Ocean World*, eds. Himanshu Prabha Ray and Alpers (New Delhi: Oxford University Press, 2007), 291. See also Gwyn Campbell, *Structure of Slavery in Indian Ocean Africa and Asia* (New York: Routledge, 2004).
[34] Gabriel Debien, *Les engagés pour les Antilles, 1634-1715* (Paris: Société de l'histoire des colonies françaises Larose, 1952); Louise Dechêne, *Habitants et marchands de Montréal au XVIIe siècle* (Paris: Plon, 1974).
[35] Campbell, *The Structure of Slavery in Indian Ocean Africa and Asia*.
[36] Stanziani, *Bondage*, 184.

and children, and were not linked to the demand for plantations. Indeed, there were many different forms of slavery. But even if a slave's hierarchical status allowed her or him to enjoy latitude and privileges, they remained slaves by their status. The primary concern in this chapter, as previously stated, is not to understand the difference between free and unfree labour, but the entangled boundaries within the category of being 'enslaved' in relation to agricultural production and plant knowledge. In addition, as the last third of this chapter suggests, one must not underestimate the question of capacity, since there was a difference between skilled slaves/labourers and those slaves conducting labour in the lower ranks of the hierarchy.

By the time Poivre arrived as intendant in 1767, Isle de France had a significant slave population who had been shipped to the French island colony mainly from the African mainland and Madagascar, but also from Asia. Even in the early years of the settlement, many slaves were needed for the establishment of the island, and the slaves' importance in the history of Isle de France – with a few exceptions – tends to be forgotten.[37] Under Governor La Bourdonnais (in office 1735-46), Isle de France's population was by no means only of French origin. Instead, the governor was convinced that he could find skilled and experienced workers in India.[38] According to him, these skilled Indian sailors, known as 'Lascars', were cheaper and more willing to work than French engineers.[39]

But even if Lascars were appreciated for their sailing skills and normally came as free men, Isle de France was already known as a place of slavery in the 1750s, as the following example can illustrate. During the crossing from Southeast Asia back to Isle de France, Pierre Poivre's boat was staffed with twenty-two Indian sailors. Fifteen of them took the opportunity to run away during a stopover in Manila, because it was widely known that Isle de France was a place of slavery, which Poivre explained in a letter to the CIO in 1755.[40] Lascars, however, were needed on Isle de France, and Poivre asked the governor of Pondicherry in 1768 to send sailors to the French island. He informed Minister Praslin about this order, explaining that the Lascars were 'gentle' and one had to treat them 'with lots of respect' because 'they are

[37] Important works on the slave trade and Isle de France are: Allen, *Slaves, Freedmen, and Indentured Laborers in Colonial Mauritius*; Allen, 'The Constant Demand of the French'. On creolisation and slavery, see in particular: Vaughan, *Creating the Creole Island*; Servan-Schreiber, *Indianité et créolité à l'île Maurice*; Larson, *Ocean of Letters*.
[38] K. Hazareesingh, 'The Religion and Culture of Indian Immigrants in Isle de France', *Comparative Studies in Society and History* 8, no. 2 (1966): 241. See also Roberts, '"Le Centre de Toutes Choses"': 323.
[39] Vaughan, *Creating the Creole Island*, 40.
[40] This is what Poivre explained in a letter to the Secret Committee, ANOM COL C/4/9, letter 21, 15 November 1755.

Muslims and very superstitious, they have all the prejudices of their religion, they require lots of moderation and do not listen to mocking in that respect. They do not know our orders or the strict discipline in service provision. I highly doubt that the officers of the king's navy can force them [to work].'[41] Lascars were also brought to Saint-Domingue after the Seven Years' War, where they instructed slaves how to extract and process coconut oil.[42]

SLAVERY, TREATMENT, AND POLITICAL ECONOMY

In eighteenth-century France generally, labour was seen as a service provision, and French case law 'made no clear distinction between hiring a person for services and "hiring" a thing'.[43] For much of the eighteenth century, French Enlightenment thinking among both philosophers and economists remained ambiguous, and attitudes were influenced by both economic and political considerations; only in the 1780s were they radicalised in connection with the first slave revolts in the Antilles.[44]

During the early years of the French settlement on Isle de France, the CIO lacked slaves. They had to borrow them from private slave owners. These women, children, and men had to work under horrible conditions, which were unacceptable even for the engineer Cossigny. He returned to the island in 1736 in order to continue his projects (which he had suspended some years earlier due to a lack of building supplies and workers). In his *mémoire* on the fortifications from 1753, he testified that slaves received insufficient nutrition and were dying of starvation, circumstances which made Cossigny refuse to force them to work.[45] Slaves were not only important for fortifications and plantations but also for military forces. According to the governor of Isle de France, the military forces were well ordered in 1772; this is what he admitted to the British officer Colpoys during his stay on Isle de France. Yet, Colpoys added in his report:

> As to the black troops mentioned in Capt. Johnstones remarks, he was certainly misinformed, for instead of their being assistant to the Island, they are at present its greatest

[41] 'ils sont mahométans et très superstitieux, ils ont tous les préjugés de leur religion, ils demandent beaucoup de ménagement, et n'entendent point la raillerie à leur égard. Ils ne connaissent point nos ordonnances, ni la rigueur de la discipline dans le service. Je doute fort que MM. les officiers de la marine du Roi puissent en tirer aucun parti.' Poivre to the Minister, 17 June 1768, ANOM Col C/4/22, fol. 133r.
[42] Hodson, *The Acadian Diaspora*, 110.
[43] Alessandro Stanziani, *Bondage*, 160.
[44] Ibid., 3.
[45] Charpentier Cossigny: 'Journal concernant les travaux des fortifications', 30 September 1753, ANOM DFC IV, piece 49.

> enemy. I have been well assured that there are now in the woods between three and 4000 of those run away slaves who have formed themselves into bodies, and have appointed officers for themselves; and they frequently make marauding parties, on which they not only plunder plantations, but often kill the white people and set the blacks at liberty. Everybody wonders that when the regiments were here, they were not sent out to destroy so alarming an enemy as these promise to be.[46]

These escaped slaves, as Colpoys explains, had united long before the French settlement in 1721 and the maroons, as they were called, resisted forced labour.[47] Due to the increasing number of escaped slaves, it was prohibited for female and male slaves to live together according to a new law in 1730. The forced workers did not easily accept this new rule and the number of escaped slaves increased. Even raids were organised. So it was, for instance, in 1732: escaped slaves initiated a raid in Flac (a quarter in the north whose name derives from the Dutch word '*Vlakte*', meaning 'plain'), casting out all the French settlers, who had to flee to the Grand Port.[48] As a response, French soldiers took action against rebelling slaves. For instance, in March 1739, one black man and two black women were shot, and in the following June, they discovered a camp of maroons – where an Indian had also been hiding for four years – which was then depleted.[49]

According to a report by the *Conseil de l'Isle de France* to the CIO, dated 15 January 1740, the estimated number of run-away slaves came to twenty-one men and eighteen women, who were struggling with hunger and disease in their hideouts.[50] Escaped slaves continued to exist in the forests of the island. In his journal about Isle de France from 1754, the astronomer Nicolas-Louis de la Caille described four soldiers who caught a black woman and treated her like 'a beast'.[51] In 1785, the British general Sir William Medows (1738-1813) remarked that out of the estimated 32,000 slaves on Isle de France (Medows relied on the numbers provided by the governor Viscount de Souillac), many would probably revolt during a British attack of the island as they were 'in general used in the most inhuman manner by their masters'.[52]

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[46] 'Mr. Colpoy's Remarks', IOR/H/111, fol. 135r.
[47] Cheke and Hume, *Lost Land of the Dodo*, 91.
[48] Patrick Joseph Barnwell and Auguste Toussaint, *A Short History of Mauritius* (London: Longmans, Green & Co, 1949); Harold Adolphe, *Les Archives démographiques de l'Ile Maurice, registres paroissiaux et d'état civil, 1721-1810* (Port-Louis: Impr. commerciale, 1966), 40.
[49] 'Le Conseil de l'Ile de France aux Directeurs de la Compagnie des Indes, au Port Louis, Isle de France, 15 January 1740' (=MA X14/6/5(b)2), printed in Ly Tio Fane-Pineo, *Île de France*, 319.
[50] Ibid. On Marronage during the CIO's administration see ADR C° 2859; 2863, 'Declarations de Marronage': 943- 954 (1730-1764), Reports on 'descents de marrons', on several habitations: 955–973 (1735-1766).
[51] La Caille, *Journal historique du voyage fait au cap de Bonne-Espérance*, 223–226, part. 225.
[52] 'The present state of defence of Port Louis', April 1785, BL MSS EUR D 707/1, fol. 15r.

The treatment of slaves during war time is portrayed differently in a report from 1793, which was based on a statement made by the Frenchmen Gouly and Serves, who had spent some time on Isle de France and were captured by British ships during their passage back to Europe in March 1793:

> In time of war each proprietor furnishes a certain number of negroes, proportioned to the value of his property & it is the best of them when are selected by the public officers for he defence of the island. They represented the blacks of the Isle of France as more to be depended upon the negroes at any other European settlement abroad. Their treatment is mild; they are at all times formed into companys, the Capt of which is a European, but the subalterns & non-commission officers are rather from themselves. And as the blacks are collected from various countrys; the most of Guinea, Madagascar (...) & of the East; they are jealous of each other, & have never been known to combine.[53]

The 1789 events in France largely bypassed the Mascarene Islands, which were effectively independent for several years. Although the French revolutionary government banned slavery, the island's elite did not respect this new law. While we can read in an English account about the state of the Mascarene Islands during the revolutionary years that 'the officers of the troops of the line are in their hearts royalists as well as the governor of the Isle de France, the Military are in very little subordination towards their officers' and the 'Creolians in general are all for the King's party', there is concrete evidence that revolutionary ideas were embraced by 'artisans, innkeepers & others of that class (who) are in general Revolutionists, but more moderate than in France: They are very numerous, and it [was] thro' their means that the chief revolutionists maintain their influence & govern every thing. They [were] for the most part (…) without religion, without education.'[54] 'There [were] also Jacobin clubs, the chiefs of which [were] the authors & promoters of all the revolutionary measure.'[55] In Bourbon, revolutionary ideas were entirely scotched: 'In the island of Bourbon the King's party prevails, and its superiority is manifest. The revolutionists dare not attempt any thing. The oath of the 10th August of liberty and equality has not been administered there, nor the tree of liberty planted.'[56]

In the middle decades of the eighteenth century, slaves enjoyed a certain latitude on Isle de France. Was sympathy with the slaves sentimental or the product of a new consciousness of a

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[53], 'Substance of a conversation between messieurs Gouly & Serves, and M. Cleghorn concerning the present state of the Islands of France & Bourbon', 1 August 1793, BL MSS Eur D 707/10.
[54] 'State of the Isles of France & Bourbon', BL Mss Eur D 707/12, unpaginated, no author or date given. The contents of this account made me to assume however that it refers to the year 1792 or shortly after ('The oath of the 10th August of liberty and equality').
[55] Ibid.
[56] Ibid.

humanistic or, more precisely, social problem? Michèle Duchet argues that 'humanism' in physiocratic thought cannot be understood in the same way as in the works of Enlightenment thinkers such as Montesquieu, Diderot, or Raynal; it must be understood in its own context and with its own goals.[57] Following this assumption and lending weight to Richard Grove's considerations, I read Poivre's writings against slavery and the announcements he made in his *Discours* in 1767.[58] In it, he declared the changes and reforms to be made regarding slavery on the island: here, one must highlight the (botanical) goals which Poivre set for Isle de France. His economic argument – that slaves were less productive than labourers – was by no means a common one. Although physiocratic thinkers raised it, the idea was not radical but highly complex and ambiguous; moral concerns mixed with economic motives.[59] Above all, it was fundamentally racialised, as the next subchapter develops. Why did Poivre use an economic argument and what role did Enlightenment thought play in the criticism of slavery in the colonies in a wider sense?[60]

Despite critical physiocratic voices against slavery, the physiocratic theory of slavery and the good treatment of slaves were, in fact, related to profit and commerce: a 'lazy slave' was counter-productive for the economy. Poivre's own writings reflect this theory between treatment and productivity. His ideas, as underlined above, were not abolitionist or radical but rooted in physiocratic thought and must certainly be understood in the context of the time. His *Voyages d'un Philosophe* (1768) can be seen as a climax in the liberal treatment of plantation workers in Cochinchina. In Cochinchina, Poivre claimed, 'free hands' cultivated sugar cane and worked in the sugar refinery. In comparison to the Americas, where slaves were forced to work on sugar plantations, Cochin-Chinese non-forced labourers could produce at least double. Poivre concluded that the law determined agricultural productivity and that he did not

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[57] See particularly on this question Duchet, *Anthropologie et histoire au siècle des Lumières*, 119–149; On the Enlightenment, science, and slavery in the English Atlantic, see Eric Otremba, 'Enlightened Institutions: Science, Plantations, and Slavery in the English Atlantic, 1626-1700' (PhD Thesis, University of Minnesota, 2012); For slavery, race, and anatomy in the eighteenth century, see Andrew S. Curran, *The Anatomy of Blackness: Science and Slavery in an Age of Enlightenment* (Baltimore: Johns Hopkins University Press, 2011).

[58] Grove, *Green Imperialism*, 205–6.

[59] See on this ambiguity in particular Benot, *Les Lumières, l'esclavage, la colonisation*; Oudin-Bastide/Steiner, *Calcul et morale*; Duchet, *Anthropologie et histoire au siècle des Lumières*.

[60] See in particular on this matter Pernille Røge, 'The Question of Slavery in Physiocratic Political Economy', in *L'economia come linguaggio della politica nell'Europa del settecento*, ed. Manuela Albertone (Milan: Feltrinelli, 2009), 149–69; Pernille Røge, 'A Natural Order of Empire: The Physiocratic Vision of Colonial France after the Seven Years' War', in *The Political Economy of Empire in the Early Modern World*, eds. Sophus Reinert and Pernille Røge (Basingstoke: Palgrave Macmillan, 2013), 32–52; Paul Cheney, 'Aufklärung Und Die Politische Ökonomie Des Kolonialismus', in *Der Moderne Staat und „le Doux commerce"– Staat, Ökonomie und internationales System im politischen Denken der Aufklärung*, ed. Olaf Asbach (Baden-Baden: Nomos, 2014), 207–28.

see it flourishing when people were not free.[61] To Poivre's understanding, the bad treatment of slaves did not make them work more efficiently. His criticism against slavery thus went hand in hand both in terms of profitability and on a human level.[62] As David Allen Harvey put it, 'Poivre's appeal for the cultivation of sugar by free non-white peasant farmers was motivated as much by moral outrage as by economic utility'.[63] The bad treatment of the slaves, Poivre argued, did not mean that they were more efficient, quite the contrary. Speaking in general economic terms, badly treated slaves were not profitable.

This attitude was more than ambivalent and not necessarily a moral disagreement. Did Poivre want to make use of slaves in order to realise his plans for a 'utopian' island? His anti-slavery sentiments were closely connected to – maybe even driven by – economic reason. Free hands produced more than non-free hands, and consequently, so he claimed, one should cultivate Isle de France only by free hands because only then could the island be more productive. In light of his strategic plan to turn Isle de France into an island state rather than a colony, I conclude that his anti-slavery sentiments must be seen as a means to an end. Poivre's arguments were always overshadowed by economic reasons. These considerations were not necessarily a paradox in relation to his moral concerns.

The dilemma in political philosophy regarding slavery and the status of labour was fundamental; slavery and the slave trade were two distinct matters. While Poivre's big words and pleas concerned the good treatment of slaves, he did not see a problem with the slave trade: in May 1755, he, then a CIO agent, set up a contract for slave trading with the Portuguese on the island of Timor. Even later, he remained very much aware of the 'good market' of the slave trade. In his private journal from 1767, he explained that twenty-three black creole men and four women were sent to the island of Bourbon in exchange of horses at the rate of two slaves for one horse, which was according to him 'a very lucrative exchange'.[64] For Poivre, trading slaves was an advantageous affair despite his critical views

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[61] Poivre, *Mémoires d'un botaniste et explorateur*, 93.
[62] On the physiocratic movement and slavery, see Edward D. Seeber, *Anti-Slavery Opinion in France during the Second Half of the Eighteenth Century* (Baltimore: Johns Hopkins Studies, 1937); Røge, 'The Question of Slavery in Physiocratic Political Economy'; On slavery and public opinion in eighteenth-century France, see also Jean Ehrard, *Lumières et esclavage: l'esclavage colonial et l'opinion publique en France au XVIIIe siècle* (Bruxelles: A. Versaille, 2008).
[63] David Allen Harvey, 'Slavery on the Balance Sheet: Pierre-Samuel Dupont de Nemours and the Physiocratic Case for Free Labor', *Proceedings of the Western Society for French History* 42 (2014): 83.
[64] 'un échange bien lucratif', Extract of Poivre's journal (7 July to 24 November 1767), entry from 20 and 21 August, ANOM Col C/4/19, fols. 167v–185r.

on the slaves' treatment. Both slavery and slave trade were two distinct matters to him and, hence, not a direct contradiction.

In 1770, Françoise Poivre declared that she would no longer buy slaves. When Bernardin presented a slave – possibly called Côte – to Françoise before his return to France, she refused to accept his '*petit noir*' ('little black') as a present because she no longer bought slaves and likewise could not accept them as gifts.[65] While Françoise might not have continued to buy slaves for her house, her husband, as intendant, did continue the slave trade for the establishment of the island. Looking at Poivre's garden of *Monplaisir* from this angle, his double standards are even clearer. While his wife (and probably he himself) rejected buying new slaves for their private habitation, the slave trade for the Mascarenes continued and the number of slaves introduced even increased significantly.

Slaves on Isle de France enjoyed latitude in their working and living conditions, but they did not have the status of a freeborn.[66] The high number of slaves contrasted with Poivre's idealism and his argument that the cultivation of *épices fines* required less forced labour. Although he actively supported the slave trade for the Mascarenes, he sought to treat slaves according to a 'good master - good slave' hierarchy, that is to say a patriarchal hierarchy which encouraged the good master to protect his servants. He instructed colonial officials to watch over the treatment of slaves in the colonies. For instance, he wrote to Bourbon's director Crémont in July 1767 that one must ensure the governmental protection of slaves and that masters treated them well.[67]

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As I indicated at the beginning of the chapter, Bernardin sent a manuscript of his *Voyages à l'Isle de France* to his friend Françoise Poivre during his stay on Isle de France. Françoise commented in a letter to Bernardin in 1769 that he should consider that slaves were treated worse in the Americas.[68] Bernardin, in turn, assumed naively that slavery did not exist in the British colonies: Françoise explained that his assumption was wrong.[69] Bernardin's criticism of slavery on Isle de France derived from his first-hand observations, whereas Françoise

[65] Françoise Poivre to Bernardin, 1770, EE BSP_013.
[66] For the nineteenth century and plantation slavery, see also Cooper's work. Cooper argued that plantation slaves could never attain the status of a freeborn, yet they could negotiate their living and working conditions. Frederick Cooper, *Plantation Slavery on the East Coast of Africa* (New Haven: Yale University Press, 1977).
[67] Instructions from Poivre to Crémont, 26 July 1767, ANOM Col E 99 (Crémont's file).
[68] Françoise Poivre to Bernardin, no exact date given but at some point in 1769, EE BSP_0121 and BSP_0140.
[69] Ibid to ibid, no date but surely in 1769, EE BSP_0143.

Poivre might not even have seen the situation of the slaves on the inner island: she was familiar with the treatment of slaves in their habitation of *Monplaisir*. That in turn might underline that slaves were indeed treated with much less harshness in the habitation than Bernardin observed in other parts of the island, an aspect this chapter explores in greater detail with regard to the gardens of *Monplaisir*, *Le Réduit,* and *La Palma* in the last third.

That slaves experienced harsh treatment on other parts of the island than in the gardens is indeed portrayed in manuscripts, private accounts, and printed works. The pharmacist Fusée-Aublet (who worked on Isle de France between 1753 and 1761) was shocked by the treatment of slaves, in particular their poor nutrition. He claimed that families were torn apart, which sometimes led to suicide.[70] While the royal administration tried to improve the slaves' situation after 1767, murder and death was not exceptional. Within the first month of Poivre's office, he reported eight dead bodies found on the island: at least one of them was a black woman who had been hung (hung herself?) in the quarter of Moka.[71] An earlier example can be found in an account dated 1756, wherein it is noted that one could tell if slaves had been punished because of the burn marks on their skin: they were shackled and 'doomed to the most painful labour & drudgery during their unhappy lives.[72] Fusée-Aublet also claimed that the CIO's laws permitted colonists to abuse slaves, which was why Fusée-Aublet wrote against them.[73]

Bernardin claims that the *Code noir* were only regulations in theory, which were not respected or implemented when it came to the treatment of slaves and that the judges of the tribunals were always the slaves' 'first tyrants'.[74] In *Voyage à l'Isle de France*, he observes that although according to the *Code noir* slaves were not to work on Sundays and were to receive meat every week and clothes throughout the year, these regulations were not implemented at all.[75] The *Code noir*, established under Louis XIV, were indeed only regulations: they did not try to improve the slaves' situation but only to regulate it.[76] For Bernardin, this was the first time that he witnessed the reality of slavery, which was in his

[70] Fusée-Aublet, 'Observations sur le traitement des nègres', BCMNHN, Ms 452.
[71] Extract of Poivre's journal (7 July to 24 November 1767), entry from 22 August, ANOM Col C/4/19, fols. 167v–185r.
[72] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fol. 10v.
[73] Fusée-Aublet, 'Observations sur le traitement des nègres', BCMNHN, Ms 452.
[74] 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 61. See the most recent and commented edition Jean-François Niort, ed., *Code noir* (Paris: Dalloz, 2012).
[75] Ibid., 60.
[76] See also Françoise Poivre to Bernardin, 1769 (?), EE BSP_0143.

eyes an allegory of immorality and corruption.[77] He criticised the poor conditions under which slaves had to work, which included working almost naked in the burning sun, poor nutrition (he claimed that they only got boiled corn), and insufficient water supply: in addition, they were made to pray to the Christian God.[78]

In contrast, in Bernardin's utopian novel *Paul et Virginie*, a desperate and abused female slave seeks help and begs the female main character Virginie for food while exclaiming: 'While there are still good whites in this country, we must not yet die.'[79] The female main character Virginie and her friend (and love) Paul help the black woman and ask her master for mercy; the children's gentle hearts pay off. At night they get lost in the wood and a group of maroons who had observed the incident earlier carry the children home because they have been kind to the woman slave.[80] Throughout the novel, free slaves help the families of Paul and Virginie to work their lands and gardens.[81] Later in the novel, a slave called Domingue is portrayed as someone who had a good sense of nature and cultivated the fields for the family, turning the lands into fertile fields growing corn, rice, cucumbers, potatoes and sweet potatoes, sugar cane, coffee, banana trees, and also some tobacco.[82]

Utopian? Maybe. Was equality more of a theoretical notion than a practical one? In theory, Poivre aimed at introducing a 'good master – good slave' policy, as he declared in his *Discours* upon his arrival on Isle de France in 1767. Slaves who were treated well would always serve their masters during times of peace and war. He argues that they neither sought to flee to the woods nor desert to the enemy.[83] Therefore he suggested that one should leave the people in peace, particularly with regard to religion. Then, so Poivre claimed, slaves

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[77] Anastase Ngendahimana, *Les idées politiques et sociales de Bernardin de Saint-Pierre* (Bern: P. Lang, 1999), 175.
[78] 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 59.
[79] Bernardin, *Paul et Virginie*, 43, 42–44. 'Puisqu'il y a encore de bons blancs dans ce pays, il ne faut pas encore mourir.'
[80] Ibid., 60-64.
[81] Bernardin de Saint-Pierre, *Paul et Virgini*, Paris: L. Curmer, 1838, passim (= Reproduction of the beautifully illustrated Curmer edition from 1838). The novel has been used by historians of science and environmental historians, namely Juan Pimentel, to reflect about the relationship between literary accounts and their use in the discipline. On the *Voyages* and *Paul et Virginie*, discussed in detail in relation to botany and also slavery, see Juan Pimentel, *Testigos del mundo: Ciencia, literatura y viajes en la ilustración* (Madrid: Marcial Pons, 2003), 299–328. See also Giulia Pacini, 'Paul et Virginie Environmental Concerns in Bernardin de Saint Pierre's Paul et Virginie', *Interdisciplinary Studies in Literature and Environment* 18, no. 1 (2011): 87–103.
[82] Bernardinm, *Paul et Virginie*, 19–20, 21, 41–42, 165.
[83] 'Des esclaves bien traités serviront toujours bien leur maître et pendant la paix et pendant la guerre ; ils ne chercheront ni à fuir dans les bois, ni à déserter chez l'ennemi.', 'Discours Prononcé par P. Poivre, à son arrivée à l'Isle de France, aux habitants de la Colonie assemblés au Gouvernement', in Poivre, *Mémoires d'un botaniste et explorateur*, 133.

would serve their masters with joy and fidelity because they could consider themselves 'free and happy', even when enslaved.[84]

Slavery and free/unfree labour with all their different shades were by no means stereotypically male: women and children were also involved.[85] The annual report for 1769 provides significant insights into the numbers and treatment of slaves who were employed in the king's service. The report lists 19,000 to 20,000 blacks, of whom 6,000 were responsible for the cultivation of the fields – a number that the local administration sought to increase by another 2,000. In service of the crown, Poivre and Desroches counted 1,617 slaves, of whom 1,000 were men, 358 women, and 259 children, which the government sought to increase to 3,000 in 1770 for the establishment of the island.[86] For their 'service', slaves were to receive gratifications in the form of rice instead of a monthly wage. Under the CIO's rule, they had received a monthly 'salary', and the new royal government, so Poivre and Desroches explained, did not want to make them believe that they were treated worse than under the CIO's administration. In the beginning, the new administration also paid them in cash, but with that money, so they argued, slaves bought '*boissons pernicieuses*' – in other words, liquor – which was rather counter-productive. Since the monthly allowance of sixty pounds of corn per head was not sufficient and slaves fell ill from malnutrition, providing rice as gratification was a double strategy for the French: it was more economical and could be modified in case of scarcity. Poivre and Dumas argued that with this change to material gratification, slaves could work harder.[87]

In his manuscripts on his work on Isle de France in the 1750s and 1760s, Fusée-Aublet underlined the slaves' important contribution to the garden of *Le Réduit*. There is evidence that slaves in the gardens and habitations were treated more carefully and that they had certain privileges. While accounts about the general treatment of slaves on Isle de France describe a 'most miserable people' who were treated in 'inhumane ways', worked all day, and were underfed by their masters so that they had to look for food during the nights, there are accounts which portray the situation differently. Joseph-François Charpentier de Cossigny

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[84] 'Discours prononcé à la première assemblée publique du noveau Conseil Supérieur de l'Isle de France, le 3 août 1767, par P. Poivre, commissaire pour sa majesté aux Isles de France et de Borubon, et président des Conseils Supérieurs qui y sont établis', in: Ibid., 149.
[85] See also the list of jail sentences announed in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, (1773-1775), which includes children and women besides men, ranging from Bengali to Malgasy origin.
[86] 'Noirs', in 'Statistiques pour l'année 1770', ANOM Col. C/4/27, fol. 274r.
[87] Ibid.

(who was born on Isle de France in 1736 as the son of Jean-François) argued that such destructive treatment would clearly be against the interests of the masters. Therefore, the slaves in his garden were treated differently. In the case of *Monplaisir* too, the slaves' good treatment was not due to sentiment but economic reasons. Buying new slaves was expensive and therefore, by treating them well and keeping them healthy, one did not have to invest in new ones. Moreover, so the argument went, slaves who were treated well were thought to be loyal to their masters and to work more efficiently.

CASTE, RACE, HIERARCHY, AND TASKS

In the Mascarenes, slaves were usually identified belonging to one of four broadly defined castes, which were linked to their ethnical and geographical origin: Creole (locally born), Indian, Malagasy, and Mozambican (including both the Swahili Coast and Mozambique).[88] Between 1670 and 1769, Madagascar remained the biggest supplier, contributing seventy per cent of the slaves arriving in the Mascarenes: nineteen per cent came from the Swahili Coast and Mozambique, nine per cent from South Asia, and two per cent from West Africa. Between 1770 and 1810, East Africa became the most important supplier of slaves, namely Mozambique and the Swahili Coast with sixty per cent of all imports.[89] Richard Allen suggests that many slaves were needed in order to keep the island populated because the mortality rate was very high.[90] This explanation, however, is too simple, particularly in light of my arguments in chapters one and three. Looking more closely into the sources, during the *époque royale* slaves were needed in order to realise Poivre's idea to establish a proper island colony with substantial infrastructure and housing and to urbanise parts of the island, Port-Louis in particular. While these circumstances might explain the generally high demand for slaves, this subchapter explores more closely the tasks of bond labourers and slaves according to caste, with a special focus on their assignments related to plants and agriculture.

Slave and labour castes were stereotyped.[91] Contemporary observers, such as Bernardin for instance, suggested that Asian slaves had a different status as workers because they were

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[88] Richard B. Allen, 'The Mascarene Slave-Trade and Labour Migration in the Indian Ocean during the Eighteenth and Nineteenth Centuries', *Slavery & Abolition* 24, no. 2 (2003): 35.
[89] Ibid., 36–37.
[90] Ibid., 37.
[91] On stereotypisation and ethnic prejudice in the French empire, see especially Mélanie Lamotte, *Before Race Mattered: Ethnic Prejudice in the French Empire, c. 1635-1767,* in progress.

considered more intelligent and less suitable for hard physical labour than Africans or Malagasies.[92] The latter were those ones labouring on the land on Isle de France. As Bernardin put it, 'it is in Madagascar where one fetches the blacks for the cultivation of land.'[93] Malabars (a term mostly referring to Tamil speakers, but the French did not make a clear distinction and it rather referred to Indians from the east coast), together with Lascars and free people of colour ('*noirs libres*'), formed a minority of the island's population (with 400 to 500 of them). Poivre sought to increase their number because, so he argued in a letter to the minister in 1767, 'these people are industrious, hardworking and frugal. We drew great services from them.'[94] Bernardin confirmed that indeed many Indians on Isle de France came from Pondicherry, 'where they offer themselves for a number of years', yet, they were not the 'true blacks' but were rather treated as Europeans.[95] These people were likely *engagés* from India and formed forty per cent of the free women and men of colour on the Isle de France (fifteen per cent of the servile population).[96] In 1770, some Malabars and Lascars even owned houses, which were located in a separate quarter in Port Louis.[97] This quarter was planned in 1769, separating free people of colour from the white population. The quarter was formed as their village, with fields to make little gardens for cultivations. These free women and men labourers worked according to their abilities.[98] As Richard Allen explored, Isle de France's population of colour was relegated 'to the margins of colonial social and economic life'.[99]

Bernardin confirmed that he never saw any 'Malabar' working in the fields on the island.[100] Governor Dumas put forward that Malabars were '*noirs libres*' ('free blacks'), who seemed to him as 'useless' because they were shy, feeble, and could never serve as defenders

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[92] 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 120–22, see also Charles Grant, *The History of Mauritius, or the Isle de France, and the Neighbouring Islands* (London: W. Bulmer & Co., 1801), 297–98.
[93] 'C'est à Madagascar qu'on va chercher les noirs destinés à la culture de terre', 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 59.
[94] 'ce peuple est industrieux, laborieux et frugal. On en tirerait de très grands services.', Poivre to the minister, 30 November 1767, ANOM Col C/4/18, fol. 381r.
[95] 'où ils se louent pour plusieurs années., 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 1, 59.
[96] Stanziani, *Bondage*, 193; Stanziani relies on numbers provided in Musleem Jumeer, 'Les Affranchissements et les Libres à L'ile de France à la Fin de l'Ancien Régime, 1768-1789' (PhD Thesis, Université de Poitiers, 1979), 24, 54, 105, 212–214.
[97] 'Ordonnance de M. M. les Géneral & Intendant concernant la plantation des arbres dans les rues & les entourages des emplacemens & maisons du Port-Louis, Isle de France. Du dix-sept Juin 1769', Art. VII, in Delaleu, *Code des Isles de France et de Bourbon*, I: 314.
[98] 'Quant aux autres Noirs libres, le plan du gouvernement est de les séparer absolument d'avec les Blancs, et de les mettre tous ensemble dans un quartier séparé où ils formeront un petit village. On leur distribuera des terrains pour former des petits jardins et les occuper à la culture, en leur laissant néanmoins la liberté de travailler, chacun suivant leur talent.', 'Statistiques pour l'année 1770', ANOM Col. C/4/27, fol. 274.
[99] Allen, 'Economic Marginality and the Rise of the Free Population of Colour in Mauritius, 1767–1830', 126.
[100] Ibid.

or cultivators.[101] There is evidence that these free people of colour assisted and hid maroons, as an announcement in Isle de France's weekly newspaper indicates. A young boy from Bengal named Louis, aged between fifteen and sixteen who arrived on the island in March 1773, escaped from his master Senne le Jeune, who was now looking for him. There were rumours that he was looking for wood in the priests' quarter in order to sell it to the Indians, who in return hid him in their houses.[102]

Ethnicity and race were clear factors determining the somewhat unclear distinction between 'free' and 'unfree' as well as the tasks that came with these statuses. There are further indications that South Asians in general had a different status to Africans and Malagasies with regard to the practice of religious customs. A rare private letter, which a certain Jean Pierre Charle sent from the Indian Ocean to his wife in France on 6 August 1778, illustrates this hypothesis. To his letter, in which he mainly expresses his love and longing for his wife, Jean Pierre Charle attached a small sketch with the heading: '*A la mode de Morice deux hommes porte[nt] une maison*' (In the fashion of Mauritius, two men carry a house).[103] The drawing shows two men carrying a small house on their shoulders with the help of two bars. In the upper right, there is a sketch of a heart pierced by an arrow [cf. figure 9].

Besides the exceptional value of this private letter, the actual fact that the lovebird Jean Pierre Charle was able to come up with such a sketch is significant. Presumably, he observed either the Hindu Maha Shivatri festival celebrating Lord Shiva (the God of Gods) or the Cavadee festival, a ceremony to worship the Tamil god of war. The latter is still celebrated in today's Mauritius by Tamil communities and involves participants carrying large model shrines through the streets.[104] That Jean Pierre Charle might have been able to observe this custom suggests that Tamil inhabitants were able to practise their customs – in other words, their status must have allowed it. Contemporary travellers also observed that the island's Indians came together to celebrate the 'Yamsey' festival.[105]

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[101] Dumas to Praslin, 10 June 1768, AD Montauban 20J-130 (Dumas' file).
[102] *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, section 'Avis divers', Wednesday 26 May 1773. See also ibid., 15 January 1773, which announces that the police arrested a young slave boy who could neither say his name nor that of his master.
[103] 'A la mode de morice deux hommes porte[nt] une maison.', drawing attached to a letter from an unknown Jean Pierre Charle to his wife in France, dated Isle de France, 6 August 1778, KEW HCA 30.290.
[104] I thank Simon Schaffer for fruitful discussions about this sketch. On the Kavadi festival today, see Ron Geaves, 'From Pilgrimage to Tourism: Comparative Analysis of Kavadi Festivals in Tamil Disaporas', in *Sacred Space: Interdisciplinary Perspectives within Contemporary Contexts*, ed. Steve Brie, Jenny Daggers, and David Torevell (Cambridge: Cambridge Scholars, 2009), 127–43.
[105] Richard B. Allen, 'Free Women of Colour and Socio-Economic Marginality in Mauritius, 1767–1830', *Slavery & Abolition* 26, no. 2 (2005): 186.

Figure 9. 'A la mode de morice deux hommes porte[nt] une maison.', drawing attached to a letter from an unknown Jean Pierre Charle to his wife in France, dated Isle de France, 6 August 1778, KEW HCA 30.290.

The question of religious tolerance indeed concerned Poivre's administration. The religious customs of 'Malabar' and 'Lascar' families were always tolerated, but, according to the king's wishes, were not to be exercised in public.[106] Hence, my observations are by no means arbitrary. Nevertheless, historians have shown that the caste system and the reasons for privileging South Asian labourers as well as slaves was a much more complex matter. The main reason, so some historians argued, was linked to the fact that in Southern Asia domestic and/or urban slavery were the most common forms of forced labour and that Europeans adopted these patterns and practices when transmitting South Asians to the colonies.[107]

[106] Praslin to Dumas and Poivre, 1 April 1769, AD Réunion 12C. For Dumas' letter raising the question of religious tolerance, see Dumas to Praslin, 10 June 1768, AD Montauban 20J-130.
[107] Lionel Caplan, 'Power and Status in South Asian Slavery', in *Asian and African Systems of Slavery*, ed. James L. Watson (Berkeley: University of California Press, 1980), 70, 173, 182, 189.

Following this assumption, did this sensitivity to local practices also influence the slave system in the Mascarenes?

As indicated, belonging to a certain caste also meant fulfilling certain tasks. Most slaves were not used for plantations or the gardens but rather to build the island's infrastructure instead. Slaves were also needed for the building of houses. In the 1750s, the colonists started building stone houses and the slaves had to dig out the grounds. There were also few European masons employed by the CIO: those who were free demanded one to two Spanish dollars per day, which made the construction of a stone house very expensive.[108] In the middle of the town, there was 'a large spot of ground surrounded by a strong and high stone wall, wherein are the Company's slave houses, stables etc.'[109] European labourers and slaves worked side by side.

Under Poivre, there was also a small group of *Noirs de Maréchaussée* (a 'black police') who were under his direct orders.[110] They were treated better than others: the force was made up of eighty-nine blacks, of whom only eighteen were free: many were married 'or like married, having wives and children', which made their total number rise to 155.[111] These men, together with their wives and children, had certain privileges. Though they were generally given sixty pounds of maize per month, they additionally received biscuits, salt meat, and some eau de vie.[112] Although the *Noirs de Maréchaussée* had certain privileges and while the crown paid for their housing and food, there was nonetheless a certain bond to the crown, one constituted by tasks like keeping order and security in their quarters or by helping to chase down maroons.[113] In 1768, they were actually emancipated, which was enacted on Isle de France on 12 February 1770.[114] 116 slaves of mostly Malagasy and Mozambique origins (although one did come from Timor and others from India, Guinea, and Malaysia:

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[108] Geographical collections of Alexander Dalrymple, BL Add MS 33765, fol. 7r. On currency in the Indian Ocean, see Allen, *European Slave Trading in the Indian Ocean, 1500-1850*, xvii. The Spanish dollar or *piastres* was widely used in the region. In the French possessions, the currency was the livre and depended much on time and region. For example, between 1760 to 1767 the *piastre*'s exchange rate went from 11 *livres* to 33, but remained relatively stable between 8 and 11 *livres* from 1778 to 1786.

[109] Geographical collections of Alexander Dalrymple, 1756, BL Add MS 33765, fol. 7v.

[110] Cf. Praslin's response to Poivre's demands, 19 August 1768, in which Praslin confirms that the *Maréchaussées* are directly ordered by Poivre, ADR PR 22 C.

[111] '(...) ou comme mariés, et ont femme et enfants ; cet accessoire en fait monter le nombre total à cent cinquante-cinq têtes.' Poivre to the minister, 30 November 1767, ANOM COL C/4/18. See also on the Police Mauritius Paul, *Deux siècles d'histoire de la police à l'Île Maurice, 1768-1968*, 24.

[112] Ibid. On the *noirs de maréchaussée*, see also Poivre's letter to Praslin, 30 November 1767, ANOM Col C/4/18, fol. 110r.

[113] 'N° 52. Noir', in: 'Statistiques pour l'année 1770', ANOM Col. C/4/27.

[114] Cf. Praslin's response to Poivre's demands, 19 August 1768, ADR PR 22 C.

some Creoles were also involved) were indeed freed, as had been promised to them when they entered the *Maréchaussée*.[115] Those slaves who were charged with responsible work, like the *Maréchaussée* or – to name another example – the Guinean Charlie and his Creole wife Magdeleine, who had the important task of taking care of the king's cattle, were declared free.[116] Such a strategy was Governor Desroches' means to bring the situation under control. It was not a matter of anti-slavery sentiments or radical thinking, as the following paragraph underlines.

When the island's governor Dumas commanded the destruction of all maroons, Poivre rejected this 'barbaric order' because it was against the rights of 'humanity and public salvation'; the 'desire to be free also affected black people' and he concluded that the 'increase of pain has always led to more miserable souls'.[117] Even if the mass murder of run-away slaves was not permitted, individual 'slave-hunting' was still common.[118] Bernardin reports that colonisers ran with their dogs after maroons like beasts in the woods. If they caught them, their heads were cut off and brought back to the village like trophies – and such scenes he saw almost every week.[119] Bernardin was certainly shocked by such images but, to use his words, 'my quill is tired of writing about these horrors' (and my keyboard does not even want to start).[120] Escaped slaves indeed challenged the colonial fantasy of enslaved people performing productive labour and engaging in political docility.

Individual slaves resisted and challenged colonial affairs, sometimes as groups. Sometimes colonisers did not indulge the system of forced labour and slavery. Governor Desroches sought to mobilise slaves for the hunting of maroons. He promoted that those who committed to the *Maréchaussée* would be freed (and they indeed were in 1770, as stated above). Poivre criticised Desroches by making fun of his idea to control the maroons by publishing 'an amnesty' for all run-aways who returned to their masters and that Desroches naively thought that maroons hiding in the woods would bother.[121]

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[115] 'Registre pour servir à l'enregistrement des actes de liberté accordée à des esclaves', 29 December 1768 - 5 February 1785, 12 February 1770, MA OA 75, 11–13.
[116] Ibid., 10 January 1772.
[117] Extract of Poivre's journal (7 July to 24 November 1767), ANOM COL C/4/19, fols. 167r–185r, entry from 26 September.
[118] On maroon 'hunting', see ADR C° 974-1009. On marronage during the *époque royale*, see ADR PR 37 C and 38 C.
[119] 'Voyage à l'Isle de France', in Bernardin OC (1838), I: 60.
[120] 'ma plume se lasse d'écrire ces horreurs'. Bernardin provides a detailed description of the punishment of run-away slaves, 'Voyage à l'Isle de France', in Bernardin *OC* (1838), I: 61. See also page 77.
[121] Poivre's report to the minister for the year 1769, ANOM C/4/25, fol. 283r.

During the transition period when the island's administration was handed from the CIO to the crown (1767, the first year of Poivre's tenure), the CIO's slaves were also sold. Poivre bought 653 slave*s* from the CIO for service to the crown, of whom 352 were employed in the two ports and marine-related tasks. Poivre sought to increase their number when large numbers of ships arrived. Slaves were used in particular for the fortifications, the construction of hospitals, granaries, and barracks, and for bringing water from the river to the port.[122] Poivre had the idea to introduce 10,000 slaves for the work, which was necessary because the birth rate amongst the slaves was very low. The fact that he treated them well and encouraged family building was part of the plan: instead of buying more slaves, the idea was to encourage child bearing. Slaves from Madagascar in particular resisted this, and Malagasy women sought to induce abortions. Poivre observed that 8,000 new Malagasy slaves were introduced to Isle de France but these people did not 'multiply' because the women practiced 'a terrible usage to destroy their fruits'.[123]

Enslaved women were by no means of marginal importance, but they were valued for their reproductive capacity, which they could use against their masters as an 'alternative' form of female resistance.[124] Because of the slow multiplication of Malagasy slaves, Poivre concluded that Malagasies were 'a very bad breed of slaves' and that 'Indians and Guineans multiply well, Mozambicans less, and Malagasies not at all.'[125] On the other hand, Poivre aimed to introduce more slaves from Goree (Senegal) because 'the blacks of this coast of Africa are stronger and more robust, more loyal than those of other countries; only they multiply here, marry, have a household, and build families. The blacks from Mozambique and Madagascar are libertines and deserters.'[126]

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[122] Poivre to the minister, 30 November 1767, Brest, Service Historique de la Défense, département Marine, Ms 89, n° 80.

[123] 'l'usage affreux de détruire leur fruit', Poivre to the minister, 30 November 1767, ANOM C/4/18, fol. 381r.

[124] On female slaves, see in particular the special issue of Slavery and Abolition, Gwyn Campbell, Suzanne Miers, and Joseph C. Miller, 'Women in Western Systems of Slavery: Introduction', *Slavery & Abolition* 26, no. 2 (2005): 161–79.

[125] 'C'est une très mauvaise race d'esclaves. Les Indiens et les Guinés multiplient bien, les Mozambiques moins, les Madécasses point du tout.', Poivre to the minister, 30 November 1767, ANOM C/4/18, fol. 381r. On the question of race in early modern France, see especially the works by Sue Peabody. Sue Peabody, *There Are No Slaves in France: The Political Culture of Race and Slavery in the Ancien Régime* (New York: Oxford University Press, 1996); Sue Peabody and Tyler Edward Stovall, *The Color of Liberty: Histories of Race in France* (Durham: Duke University Press, 2003); Pierre Boulle, *Race et esclavage dans la France de l'Ancien Règime* (Paris: Perrin, 2007); Silvia Sebastiani and Jean-Frédéric Schaub, 'Between Genealogy and Physicality. A Historiographical Perspective on Race in the Ancien Régime', *Graduate Faculty Philosophy Journal* 35, no. 1–2 (2014): 23–51.

[126] 'Les noirs de cette côte d'Afrique sont plus forts, plus robustes, plus fideles que ceux de tout autre pays ; eux seuls multiplient ici, eux seuls se marient, forment des ménages, des familles. Les noirs mozambiques et de

For the French, race and stereotypical thinking certainly played a role in relation to the task that a slave had to conduct.[127] People from Madagascar were praised and feared for their marine-related skills: although they could have been of great interest for French vessels, Governor Desroches wrote against the idea of employing Malagasy slaves in the service of the navy or ports because, or so he claimed, they would do anything to return to their country.[128] In an account about Isle de France that Charles Grant, Baron de Vaux, published relying on his father's manuscripts, he gave a voice to a Malagasy slave who remarked: '*Sa blanc la li beaucoup malin, li couri beaucoup dans la mer là-haut; mais Madagascar li la'* ('The white man is very clever, he spends much time sailing up there in the ocean; but Madagascar is just over there').[129] According to this remark, Malagasies knew how to reach their home country. Despite the fact that Malagasies did not multiply, Poivre and Desroches considered them as 'gentle and honest people having much more esprit than the other blacks, they are normally lazier and indolent'. Because of these characteristics, they were not suitable for work on the land but rather as domestic slaves.[130]

Other sources clearly show, however, that many cultivators and planters were of Malagasy origin. For the plantation works, slaves from Madagascar were recruited, who were said to be dextrous, intelligent, and to be easily offended in matters of honour.[131] However, this was not exclusive. The inventories of colonists (private slave owners), probably from the late 1760s, indicate habitations, their production of grain, rice, maize, coffee, and manioc, and the number of domestic stock (bullocks, sheep, pigs, horses, and poultry) and slaves. All slaves are indicated as 'black' or 'cultivator' ('*noir*'/'*cultivateur*') and had different origins that were indicated as 'caste'. For the most part, they were Malagasies: the rest were Creole or, more rarely, Indian or Kaffer (someone from the South African mainland). They were divided into male, female, and sometimes children, with their (French) name and age.[132]

Madagascar ne peuplent point, ils sont libertins et déserteurs.', Poivre to the minister, 30 November 1767, Brest, Service Historique de la Défense, Département Marine, Ms 89, n° 73.

[127] See also Lamotte, *Before Race Mattered*.

[128] Desroches to the minister, 6 February 1770, Archive Quimper, dossier Desroches, 12 D (11/15).

[129] Grant, *The History of Mauritius*. See also on Charles Grant, Sydney Selvon, *A Comprehensive History of Mauritius: From the Beginning to 2001*, 2nd ed., rev. (Port Louis: MDS, 2005), 145.

[130] '(...) gens doux, honnêtes, ayant ordinairement beaucoup plus d'esprit que les autres Noirs, sont ordinairement plus paresseux et plus indolents' Poivre and Desroches to the minister, 1 September 1769, ANOM Col C/4/24, no. 36.

[131] Poivre and Desroches to the minister, 1 September 1769, ANOM Col C/4/24, no. 36. See also 'Voyage à l'Isle de France', in Bernardin, *OC*, I: 59.

[132] Extract of this inventory, no date, BCMNHN Ms 280, Vol 1. This is an extract of an alphabetical list, covering letters B to D. There are indications that it must be dated shortly after 1765.

Female slaves were actively employed as cultivators, like men, and could be responsible, for instance, for packing grain to be distributed on the island, such as in Cossigny's Garden of Palma.[133] Sometimes, only Creoles are listed and Malagasies were an exception, such as a woman slave called Rose who was, according to the list, fifty-eight and worked for a certain Jacques Boyes. Jacques Boyes had seven 'blacks', six 'women blacks', and four 'negrillons' ('little blacks' or 'black children'), of whom the youngest was the little Benoit, aged three.[134] All sixteen are indicated as 'cultivators'. However, I suppose that this did not necessarily mean that they all worked in the fields, but that the list follows a simple chart or pattern. A curious case related to this assumption is that of the Creole Antoinette Dsile, aged seventeen, and her two-year-old Creole son, called Elie, together with a Creole woman slave Marianne, aged twenty. Both the little Elie and his mother Marianne are indicated as 'cultivators', which in light of the boy's age is doubtful. This case is also particularly interesting because the 'household' apparently did not produce any harvest. They are all listed as Creoles but nonetheless Antoinette Dsile is listed as the owner – or at least head of the household. Similarly, the inventory of a certain Jean Baptiste Boyes indicates two '*noirs invalides*' ('handicapped blacks'), two Malagasies named Jouan (seventy-five) and Philippe (thirty), in a separate column from the regular blacks, but they are nonetheless listed as 'cultivators'.[135]

Looking into registers related to the king's slaves in Bourbon from 1782, which are quite similar to the previous example in the way they are divided (name, caste, age, occupation), it is also curious to observe that in Bourbon slaves are listed only rarely in relation to agriculture. In fact, the list does not show any '*cultivateurs*' but mostly indicates carpenters, sailors, domestic slaves, blacksmiths, informers, keepers, cooks, wheelwrights, couriers, bakers, and artisans. Out of the about 800 slaves, only four are listed as gardeners in the king's service, such as the Malagasy Ferlaquel (thirty-four), the Creole Jamb de Baccus (forty-eight), the Malagasy Antoine S. Paul (fifty), who is listed as handicapped because he was asthmatic, and the one-eyed Kaffer Bazica (fifty-nine).[136] Although this list opens a

[133] See letter from Cossigny to Céré, 1778, printed in *La Revue rétrospective de l'Ile Maurice* 1953 (4), 103.
[134] On enslaved children, see also the edited volume Gwyn Campbell, Suzanne Miers, and Joseph C. Miller, eds., *Children in Slavery through the Ages* (Athens, OH: Ohio University Press, 2009); See also the special issue on children of Slavery and Abolition, Gwyn Campbell, Suzanne Miers, and Joseph C. Miller, 'Children in European Systems of Slavery: Introduction', *Slavery & Abolition* 27, no. 2 (2006): 163–82; On the Mascarenes, see Richard B. Allen, 'A Traffic Repugnant to Humanity: Children, the Mascarene Slave Trade and British Abolitionism', *Slavery & Abolition* 27, no. 2 (2006): 219–36.
[135] Ibid.
[136] 'Matricule général', 1782, ADR PR 10 C, entry 129, 177, 727, 733. See also *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 15 January 1773, in which a habitation is to be sold

window into the ethnic diversity of gardeners (Malagasy, South African, and Creole, the latter being slippery of course), it does not allow us to understand their precise tasks.

The lists related to Isle de France can highlight that not only Malagasies, but also Creoles, South Africans, and Indians, female and male, worked as cultivators. There is no reference to '*noir esclave*' ('enslaved black') but simply '*noir*' ('black'), which makes it sometimes difficult to understand the degree of enslavement. From a gender history point of view, it is also worth underlining that there were Creole women who ran households and even habitations by themselves, such as a certain Françoise Lucy Magarde DesIsle, aged thirty-two, and her three daughters, aged ten to fourteen. DesIsle was probably a widow because there is no trace of a husband: she supervised twenty-four male and nineteen female slaves as well as seven children on her land.

Moreover, one must point to the particular case of a free Malagasy woman known as 'Betti' or 'Béti'. In fact, this Béti was Princess Bétia of Madagascar, who came to Isle de France in the 1750s as a free woman of colour – she was independent and possessed land and people.[137] She was the daughter of the former chief in Foulepointe (on the east coast of Madagascar) and therefore aunt of the new chief of Foulepointe, Yavi. Béti lived on Isle de France from the early 1750s, where she ran plantations, slaves, and herds.[138] She caused a lot of trouble when threatening Madagascar's supply. In 1772, after her father's death, she sought to claim slaves and cattle as part of her inheritance and went back to Madagascar. There, however, she apparently started an attempt against her nephew, incited by a certain soldier La Bigorne, who had been stationed in Madagascar since the 1750s and who assisted Poivre as well as possibly Commerson and Rochon with the exploration of Madagascar's flora. La Bigorne played games with Isle de France's administration by trying to mobilise the princess for his own interests in Madagascar. There, he seemingly sought an alliance with the Ancoves people in the inner parts of the island, joining Bétia's people against the people of Yavi in Foulepointe. The aim was to force her nephew's people to embark on a ship to Isle de France.[139] In 1771, Foulepointe had been one of the major suppliers of white rice and cattle for Isle de France. If such an attempt had been successful – it failed because La Bigorne died

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including its fifteen slaves who fulfilled tasks ranging from Malagasy and Mozambican carpenters, an Indian cook, and Malagasy and Creole women looking after the poultry or selling things at the bazar.

[137] On free women of colour and their status on Isle de France, see especially Allen, 'Free Women of Colour and Socio-Economic Marginality in Mauritius, 1767–1830'.

[138] Poivre to minister de Boynes, 12 February 1772, ANOM Col E 184, fol. 198r.

[139] Ibid.

during the attempt - Poivre argued that the Malagasies would have lost their trust in the French, hidden in the mountains, and left the ports, where the French vessels would no longer have been secure.[140]

There are several open questions which derive from Bétia's case. She was a Malagasy woman belonging to the Malagasy elite. For her, it was possible to come and live on Isle de France, where she ran fields and owned slaves. There is further evidence that her name was widely known on the French island. The weekly newspaper *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, included on 15 January 1773 a list of imprisoned slaves from June 1771 to August 1772, which also mentions a certain Denis belonging to Bétia, without any further clarification.[141]

It becomes evident that the French were very dependent on Foulepointe and the commerce with the Malagasies. It seems very questionable that they simply went to Madagascar to 'steal' humans and enslave them for Isle de France's purposes because they ran the risk that the local elites would stop supplying corn, rice, and cattle. As an example of a completely different place and time can show, human lives could not simply be collected, loaded onto French vessels, and enslaved in the French colonies. A slave owner in Pondicherry who sought to make such an attempt was punished.[142] So how did these many Malagasies end up as forced workers on Isle de France? The Malagasy elite surely contributed to the French slave trade and entered into commercial relations with them, not only in terms of primary necessities but also human lives.

SLAVES IN BOTANICAL EXPLORATIONS

Despite his harsh antipathy against the slave trade, Bernardin took advantage of it. During his explorations *à pied* on Isle de France, he was accompanied by two slaves named Côte and Duval. Bernardin bought Duval not long before the start of the exploration on 26 August 1769: he named him after the friend to whom he theoretically wrote letters in *Voyage à l'Isle de France*.[143] After Bernardin's departure, there is evidence that Duval worked in *Monplaisir*.

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[140] This is what Poivre explained to Boynes. Ibid.
[141] 'Denis, à Béti', all the other slaves are indicated as '[name] à M. [name]' or 'au roi'. Béti, however, did not need any further explanation, *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 15 January 1773.
[142] Ā<u>n</u>antaraṅkap Piḷḷai and Price, *Private Diary of Ananda Ranga Pillai*, I: 228–29.
[143] 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 73. See also the letter in which Bernardin writes to his friend Duval directly, Bernardin to Louis David Duval, 29 July 1772, EE BSP_0215.

He described Duval as 'well made but who could not speak French': Côte spoke a little French, and was rather short (the feature from which his name derived), very strong, and a brave 'man of fidelity'.[144] Before his return to France, Bernardin emancipated Duval, as he wrote to the real (Louis David) Duval in 1772.[145] He also offered freedom to Côte, but there is evidence that he offered either him to Françoise Poivre as a gift prior to his departure.[146]

Throughout Bernardin's account, he refers to the slaves' assistance and necessity for the exploration of the island. For instance, they helped each other when paths were narrow and when they had to climb, they helped prepare food and search for fire wood and water, and shared their fish. When Duval could no longer carry the heavy load he had been given, they took a break.[147] In the middle of the exploration, Duval cut his foot badly on a rock; Bernardin looked after his wound and gave him and Côte some eau de vie. Not only because of Duval's wound but also because of the heavy luggage, Bernardin planned at least two breaks for the refreshment of the slaves, concluding that they would follow him to 'the end of the world' because he treated them well.[148] Clearly, Bernardin's printed account underlined his generosity in a self-promoting fashion but it is nonetheless curious to observe that he and Duval developed a more and more interpersonal relationship. Were the good relations between master and slaves not as utopian as Bernardin described them in *Paul et Virginie*? Just as he described in his novel, in his travel account he testified that he got to know a family who happily lived with their slaves in a house somewhere in the middle of the island. Here, a young husband and wife 'found their happiness' by living a simple life in the forest from where one could see the sea.[149] When the described young women saw Duval's wound, she insisted on treating the wound herself, preparing a remedy made with two different herbs, sugar, wine, and oil.[150]

Commerson and Sonnerat also hired slaves for their expeditions, who sometimes were able to identify certain plants unknown to the Europeans. During his exploration of Bourbon, Commerson found the 'bois tambour' in the surroundings of the volcano. He climbed together with his draughtsman Jossigny, intendant Crémont, the chevalier Bancks, who was a land-surveyor in Bourbon, Jean-Baptiste Lislet, who assisted Commerson as herbalist, a certain

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[144] 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 73.
[145] Bernardin to Louis David Duval, 29 July 1772, EE BSP_0215.
[146] Françoise Poivre to Bernardin, 1770, EE BSP_013.
[147] 'Voyage à l'Isle de France', in Bernardin, *OC* (1838), I: 74, 75.
[148] Ibid., I: 75.
[149] Ibid. , I: 76.
[150] Ibid.

chevalier de St.-Lubin, a certain M. Payet (who guided the group), and thirty-two slaves, who helped to carry the equipment.[151] Commerson's slaves informed him that one could chew the 'bois tambour' (Tambourissa elliptica *(Tul.) A.DC.)* like betel.[152] Slaves were not only important for carrying the equipment and food: the naturalists also relied on their ethnobotanical knowledge. Commerson's notes illustrate the relationship between the French and the slaves, namely that they ate together as a group. Rather than regarding this expedition as one reliant on human exploitation, Commerson's notes draw an image of a rather jolly group having fun in nature.

When Sonnerat conducted his own explorations in India, he asked for the same slave who had been of so much help to Commerson, as intendant Maillart, Poivre's successor, explained in a letter to the minister.[153] This was probably the slave Joseph whom Commerson indicates in letters to Cossigny de Palma. On the Cape, when Sonnerat explored the so-called Table Mountain in mid-January 1773 together with the Swedish botanist Thunberg, they also hired two slaves in a town who accompanied them during their excursion.[154] There are more examples of botanical explorations in which slaves helped. Yet, they barely appear or do so only – as Neil Safier suggests in the case of Joseph de Jussieu's explorations in the Americas – as little more than an anecdote. Nonetheless, they came into play in the transmission of ethnobotanical and medical knowledge.[155]

INTIMATE WORLDS: (SKILLED) SLAVES IN THE GARDENS

Going back in time a little further, in 1757, when the French Company's botanist and pharmacist, Fusée-Aublet was the responsible gardener of *Le Réduit*, he also supervised and

[151] Lislet Geoffroy, 'Notice Sur Le Voyage de M. de Crémont Au Volcan de Bourbon, En 1772 (D'après Le Manuscrit Autographe de Lislet Geoffroy, Dont Nous Devons La Communication À L'obligeance de M. L. Boutton)', *Revue Historique et Littérature de l'Ile Maurice, Archives Coloniales* 3, no. 33 (1890): 361–65. On the exact number of 32 (!) slaves, see Commerson's letter to Curé Beau, 16 February 1772, printed in Montessus de Ballore, *Martyrologe et biographie de Commerson, médecin botaniste et naturaliste du roi, médecin de Toulon-sur-Arroux (Saône-et-Loire) au XVIIIe siècle*, 155.
[152] 'Suite des descriptions [des plantes observées dans le voyage au volcan de Bourbon] (mois de juin 1769)', BCMNHN Ms 1904, VIII b.
[153] Maillart to the Minister of the Navy and the Colonies, 31 August 1775, ANOM Col E 372.
[154] Thunberg and Hansen, *The Linnaeus Apostles*, 98.
[155] Neil Safier, 'Fruitless Botany. Joseph de Jussieu's South American Odyssey', in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (New York: Routledge, 2008), 209.

instructed slaves who served the garden.[156] In an unpublished '*Eclaircissement particuliere*', Fusée-Aublet even declared: 'I have established a garden. It was done at great expense and the considerable assistance of slaves who served me.'[157] Similarly, in a letter to the minister from 1757, Isle de France's governor Magon pointed to the slaves' responsibility and importance for the cultivation of tropical plants.[158]

Fusée-Aublet was struggling in establishing *Le Réduit*, with appropriate local plants: medical plants were almost out of stock in the hospital, with only few old and dry ones remaining. He thus aimed to look for alternatives but only at a slow rate. Instead, he focused on local 'grasses' particularly for feeding cattle, which was – as he complained – one of his least important but most demanding missions. After some unsuccessful attempts with several species, he focused on 'fatack', which was possibly introduced under La Bourdonnais.[159] 'Fatack' was a plant native to Madagascar and used by run-away slaves on Isle de France.[160] The grass was an excellent source of fodder for cattle, and Fusée-Aublet was relieved that he had finally found a plant to feed domestic animals in his garden rather than having to look for fodder in other parts of the island. This meant, so he argued, that women slaves did not have to carry fodder for the cattle and one was not obliged to feed grain to the animals, which should be given to the slaves instead. Thus, Fusée-Aublet saw in the fatack not only a food source to feed cattle but also something that could make the slaves' lives easier, the women in particular.[161]

Initially, two Creole boys from Bourbon were sent to *Le Réduit* in 1753, but since the boys were not fed sufficiently and were too weak, Fusée-Aublet sent them to the hospital to receive appropriate treatment.[162] When the boys were sent back to Bourbon because their health did not improve, Fusée-Aublet looked for soldiers and slaves to assist him. He praised the slaves for their help in the CIO's garden, claiming that their assistance was indispensable and his

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[156] Magon to the minister, letter dated 20 March 1757, ANOM Col E 296 (Magon's file). Magon divides the slave population into four groups, the first and largest part responsible for construction works, the second for the navy, the third for cultivation, and the fourth for working wood.
[157] 'J'avais etabli un jardin. C'avait été a tres grands frais par les atteliers considerables des noirs qui m'ont eté fournis.' 'Eclaircissement particuliere', BCMNHN Ms 452.
[158] Ibid.
[159] 'Prairies, paturages, a troupeau', BCMNHN 452. On fatack and other herbs and grasses, see also Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 612.
[160] Fusée-Aublet's memoir, BCMNHN Ms 452. Also Poivre makes a reference to fatak in Poivre, *Travels of a Philosopher*, 29. Also 'fatak' or 'fattak'.
[161] 'Prairiers paturager a troupeau', Fusée-Aublet's memoir, BCMNHN Ms 452.
[162] 'Pharmacie', Fusée-Aublet's memoir, BCMNHN Ms 452.

duty was to treat them well. He acknowledged them for their help. Instead of keeping records and registers, he explained, he saw his task as taking good care of them.[163]

Moreover, Fusée-Aublet relied on the slaves' judgement about climate and soil, as he underlined in a document (1767) relating to his defence against Poivre's report about the bad condition of *Le Réduit*. In his list of '*Plantes cultivées au Réduit en 1759*' (Plants cultivated in Réduit in 1759'), he even made references to the names of certain plants which he heard from the slaves. These included the 'sauvurus anmus folie tiliaceo', a sort of betel which the slaves called 'beaume', and a certain 'tabernae montana', which might have been the 'toad tree' native to eastern Africa and which Fusée-Aublet described as 'the timber with which the blacks make their spoons'. Furthermore, there was the 'momordica', the bitter melon, which had been introduced to the island: he remarked that 'the blacks eat the green fruit in their curry'.[164]

The slaves in *Le Réduit*, between forty to eighty men and women, fulfilled various tasks. Besides assisting in the cultivation of useful plants, they also worked as domestic slaves in the habitations, helped the troops who came to *Le Réduit*, cut wood, carried stones and timber from the forests, and made lemon juice, the purpose of which is not indicated.[165] Of course, they also looked after cultivation in the garden, particularly that of fatack, fed the cattle, and constructed the garden slaves' housing.[166] Rather than employing French agents, Fusée-Aublet insisted on the employment of slaves for the cultivation of medical plants. In addition, slaves were sent to destroy locusts in January, the month of their mating season, and to chase them away between June and August, the period when their attacks were strongest. Similarly, they went after the rats and monkeys which also threatened the crops.[167] Furthermore, *Le Réduit*'s slaves were charged with transporting grain and dried herbs to the ports and vessels and gathering medicinal plants for the hospitals, where other slaves looked after the sick and injured slaves received treatment. Later, Poivre employed thirty-six slaves in the hospital, particularly in the pharmacy.[168] This number increased to 100 in 1772.[169] This increase can

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[163] Ibid.
[164] 'c'est le boi[s] avec lequel les noirs font des cuillieurs'; 'les noirs mangent le fruit vert en cari','Plantes cultivées au Réduit en 1759', BCMNHN Ms 452. I had difficulties in reading and interpreting this manuscript; the spelling of some names might differ. See also the entry on 'melopepo' (some sort of squash?) or 'bonduc' and their usage by slaves.
[165] 'Eclaircissements particuliers', Fusée-Aublet's memoir, BCMNHN Ms 452.
[166] Ibid.
[167] Ibid.
[168] Poivre to the minister, 30 November 1767, Col C/4/22, fol. 367r. On the establishment of hospitals, see also the personal file of Charles de Saint-Mihiel, médecin à l'Isle de France, ANOM Col E 362 and the file of

serve as evidence that slaves with medical knowledge were actively engaged in the hospitals and maybe even enriched medical knowledge with their own methods and cultures of healing.

In Poivre's *Monplaisir,* which was not only a nursery for fine spices, slaves fulfilled tasks similar to those in *Le Réduit*. Poivre advertised his garden as the richest the island could ever have received and that one must employ at least seventy slaves after his departure in order keep the garden's order and richness. Otherwise, he claimed, trying to defeat his rival, it would become like *Le Réduit*, which was a 'pasture land' for 'all kinds of tropical curiosities'.[170] Slaves in *Monplaisir* originated in Guinea, India, Malaysia, Mozambique, Mali, and Madagascar. They lived and worked in the habitation, where they were cooks, domestic servants, carpenters, and gardeners. The slaves who worked in the house are listed as six families consisting of the father, mother, children, and even grandchildren.[171] In all cases the father fulfilled a fixed task, which was sometimes shared by the women and, more rarely, their children, such as François, son of the Guinean cook Crispin and his wife, and the baker Mousagué, who also looked after the poultry.[172] The list does not invite us to assume that François was a child but rather a grown-up for two reasons: first, the other family's children are not appointed a fixed task, and, second, François' grandfather Mámourou is also listed as am 'old black' who apparently lived together with the family. In most cases, the children and women are listed without any reference to a specific task.

The twenty-two gardeners, except for the 'little Indian' Fohi, are listed individually. They all came from Mozambique and possibly came together, maybe even knowing each other before arrival. Apparently, only men worked as gardeners whereas women are listed separately and without a particular assignment. While slaves were generally only given a French first name, native names also appear, such as the Mozambicans Marimounou, Charimounou, and Maérouvria (or Mazouveira). Malagasy slaves working as domestics, fishers, or guardians are also listed with their non-French names, such as Farlahé, Oudouda,

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Chevrillon, chirurgien-major des hôpitaux du Roi à l'Isle de France, ANOM COL E 81. Chevrillon complained about his treatment and salary, which was not sufficient in a country 'où la vie est d'un cherté excessive', fol. 62v.

[169] AD Loire 15 J 8: 'Mémoire de Pierre Poivre sur l'état dans lequel il a remis la colonie d'île de France à son successeur', 23 August 1772, paragraph 10: Les hôpiaux.

[170] Ibid.

[171] Besides the 'Liste des noirs de l'habitation de Monplaisir', n.d. possibly between 1772 and 1776, see also 'Etat et apréciation des noirs et negresses achtées par le Roy provenant l'habitation de Monplaisir', which lists Malay and 'noirs bambaras', MA OA 127.

[172] 'Liste des noirs de l'habitation de Monplaisir', n.d. possibly between 1772 and 1776, MA OA 127, no. 42.

Lahémanou, and Conlouvoulou.[173] The slaves' rank was determined by the tasks they fulfilled. The higher the rank, the more privileges they had, like separate accommodation or the fact that they could keep their proper names. The slaves had separate accommodation in *Monplaisir*, 'the camp of the blacks', which consisted of eleven huts situated along the grand ally of the garden, other small buildings, and a kitchen.[174] Slaves not only cultivated for their masters, but also for themselves.[175] Apparently, after the Revolution, the number of slaves was reduced. A list from 1804 indicates thirty-four slaves, mostly from Madagascar and Mozambique. Others were Creoles, including eight children between three and eleven.[176]

In official writings, Poivre insisted that he never forced his slaves to work but instead guided them through their work according to their abilities.[177] The *Instruction du roi pour le sieur régisseur de l'habitation du roi à Monplaisir*, which must have been written shortly before or after Poivre's departure from Isle de France in 1773, stresses that the director of the garden must ensure that ill slaves are treated accordingly and are given the necessary security to recover.[178] Yet it states that one must subordinate slaves to their masters in order to achieve their fidelity.[179]

As I argue in this subchapter, the role of interpersonal relations in a small habitation must not be underestimated. In that sense, the intimate worlds of the gardens, and *Monplaisir* in particular, were social and bio-political test sites, as further examples indicate.[180] In a letter to the minister from 1771, Poivre pointed to the good service of the skilled gardener named Duval, who was probably Bernardin's former slave and passed away shortly before April 1771. Duval had been sent to Isle de France in the summer of 1769 to work in *Le Réduit* and cultivate medical plants, which were needed in the hospitals: he worked with 'much

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[173] Ibid.
[174] 'Etat de l'habitation de Monplaisir ainsi qu'elle se comporte suivant levalution faite par habitans experts et les offres faites par Cere même habitant en payant comptant', 17 September 1772, MA OA 127. See also a surviving plan of Monplaisir, 1738, BnF Cartes et Plans, 220/Div1/P2. Though it must refer to the early establishments under La Bourdonnais, it also indicates the accomodation for slaves. On the slaves' accommodation after the Revolution, see Céré, Nicolas (1796), 'Mémoire sur le Jardin Nationales de l'Ile de France, adressé au Général Decarn le 1rt. Nivose an IV', MA OA 127, 73.
[175] Céré, Nicolas (1796). 'Mémoire sur le Jardin', MA OA 127.
[176] 'Etat nominatif des noirs (...) au Jardin des Plantes, Extrait des régistres de (...) des noirs de l'Etat', 1805, MA GA 91/4. The document is in bad condition: the missing words cannot be read because of holes.
[177] 'Mémoire de Pierre Poivre sur l'état dans lequel il a remis la colonie d'île de France à son successeur', 23 August 1772, AD Loire 15 J 8, paragraph 2 on agriculture.
[178] 'Instruction du roi pour le sieur régisseur de l'habitation du roi à Monplaisir '(n.d.), FGB 15 J3.
[179] Ibid.
[180] Further on social dynamics, death ceremonies, and enslaved Africans, see Brown, 'Social Death and Political Life in the Study of Slavery'.

competence'.[181] Duval's name appears several times in the correspondence between the local administration and Versailles, and when 'the poor Duval' passed away, Poivre urgently sought a replacement.[182]

The most outstanding case of *Monplaisir* was a 'black' gardener called Charle Rama. I learned about Rama in a pamphlet written by Poivre's successor Maillart-Dumesle. This pamphlet was a fictional letter by the head gardener Rama replying to the *mémoire* Poivre had handed to his successor upon his retirement in 1772. In this account, Rama referred to himself as a gardener, saying that he had heard about Poivre's *mémoire*, where he was referenced several times.[183] At first glance, Rama's name would suggest he came from South Asia, but given that he is referred to as '*noir*' ('black') in the pamphlet, his ethnic origin remains unclear in this text.[184] According to Poivre's memoir from 1772, Rama was not only familiar with specialised knowledge about the cultivation of nutmeg and clove, but was also able to instruct others about their cultivation. Before his departure, Poivre had handed him detailed instructions and a catalogue of every tree and plant which grew in *Monplaisir*.[185] A list of the gardens' slaves, sixty-five in total, provides further insights: Rama, as an 'excellent gardener' worked as head gardener in *Monplaisir* and is listed as 'Malabar'.[186] Tracking Rama in the Mauritian archives revealed that he and his wife Catherine were Bengali and, together with their daughter, were freed on 15 October 1776.[187] The document underlines that the reason for his emancipation was his excellent work. Poivre's successor Maillart commented on Rama's emancipation in a letter to the Minister of the Navy and the Colonies a month after the declaration that this favour would certainly have an effect on the king's other slaves. He assured that Poivre had been asking for Rama's emancipation for so long that he could not

[181] Poivre to the minister, August 1779 (?), ANOM Col C/4/25.
[182] Poivre to the minister, 2 April 1771, ANOM Col C/4/29. Poivre speaks of 'le pauvre Duval qui nous avons perdu'.
[183] 'Objections de Rama, jardinier noir esclave de l'habitation de Monplaisir, au mémoire de Pierre Poivre' [libelle de Jacques Maillard-Dumesle], 12 August 1774, AD Loire 15 J 11.
[184] See also, Fusée-Aublet, 'Observations sur le traitement des nègres', BCMNHN, Ms 452, 11. He refers to people with darker skin as 'nègres' – and this also includes people from the Malabar coast.
[185] 'Mémoire de Pierre Poivre sur l'état dans lequel il a remis la colonie d'île de France à son successeur', 23 August 1772, AD Loire 15 J 8, paragraph 15: Exécution de l'ordre du Roi, pour rendre l'Isle de France une colonie de richesses.
[186] 'Liste des noirs de l'habitation de Monplaisir', n.d. possibly 1772, MA OA 127, no. 42.
[187] 'bonne conduite, fidélité et intelligence notamment dans la culture des plants de pieceries existant dans le dit jardin de monplaisir, depuis voulant lui marque notre satisfication et excister de plus en plus son êmulation et celle des autres esclaves de sa majesté pour en vertu des pouvoirs à nous donnés par le roy et sous son bon plaisir.' 'Registre pour servir à l'enregistrement des actes de liberté accordée à des esclaves', 29 December 1768 - 5 February 1785, MA OA 75, entry on Rama, page 135. When emancipated, Rama was 40, Catherine 25, and Marie 7.

reject this wish.[188] The crucial point that I am trying to make here is that the good work of Charle Rama – and thus the satisfication of Poivre with it – conditioned his own and his family's status in the garden and his rank as head gardener instructing others.

Rama's name also appears in the context of the royal *Jardin des Pamplemousses* (which *Monplaisir* became after it was sold to the crown together with its slaves) in the correspondence between Céré and Cossigny in 1779.[189] He might have stayed in the garden as a free man, as Duval may also have done when Bernardin left Isle de France. During his time as head gardener in *Monplaisir*, Rama instructed twenty-two gardener slaves, mostly from Mozambique and Fohi, the 'small Malabar'. Like Conlouvoulou (who was the guardian of the domestic animals), Rama and his family had a separate 'hut made of palisades'.[190] Rama is listed as a gardener, whereas his wife Catherine and their daughter Marie are left with empty spaces. Rama and his family enjoyed better status in the habitations than the gardeners whom he supervised. They are listed as a family unit together with those slaves responsible for works around the house.[191]

In sum, there is strong evidence that sixty-five slaves in the private and rather small institution of *Monplaisir* enjoyed a degree of latitude: they lived together with their families (which was not necessarily a privilege) and some were allowed to keep their names (or name themselves?). Further, some slaves may have decided to stay in *Monplaisir* after their emancipation, which indicates that it became a home to them. The latitude in the garden, however, must be understood together with Poivre's strategic plan for the slave population in other parts of the island. Instead of buying new slaves, it was easier to encourage families and childbearing. Even though it is important to point out these economic reasons, which cannot be considered as mere anti-slavery sentiments, the case of *Monplaisir* can underline that slaves were not treated as 'stereotypical' plantation slaves or coerced into working. Some slaves worked as 'skilled' slaves, and the interpersonal relations between the Poivre family and their slaves had a strong impact on their treatment.

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[188] Maillart to the minister, 8 November 1776, ANOM Col F/3, art. 89, fols. 42v-43r.
[189] Céré to Cossigny, 25 April 1779, cf. Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 44. Céré complained that Hubert did not send tobacco and coffee to Isle de France as he had promised. According to Hubert's notes, he cultivated 'red coffee', 'Nottes des Plantes', ADR 4 J 61. According to Hubert's gardening journal, dated between August 1783 and December 1784, he cultivated clove, nutmeg, mangosteen, cacao, litchi, dak raisins, avocado, small peas, cabbage, and quite a few other species. Tobacco and coffee are not even listed. He might have abandoned their cultivation. Cf. 'Journal de mon jardin', by Hubert, ADR 4 J 62.
[190] 'Registre pour servir à l'enregistrement des actes de liberté accordée à des esclaves, 29 December 1768 - 5 February 1785', MA OA 75, entry on Rama, 135.
[191] 'Liste des noirs de l'habitation de Monplaisir', n.d. possibly 1772, MA OA 127, no. 42.

Upon Poivre's departure, however, the habitation of *Monplaisir* was sold, along with all the land, domestic animals, and furniture, Poivre also sought to sell his eighty-seven slaves (and a baby boy named François) for 1,000 livers each (excluding the baby). He emancipated none of them, although (or because?) the gardeners and cultivators had 'talent' and were required for his long-term plans for Isle de France after his departure.[192] Hence, he had also sold Rama for 2,400 *livres*, his wife Catherine for 800, and their daughter for 200.[193] Yet, Rama and his family, as was said, were indeed freed on 15 October 1776, along with Poivre's private domestic servants, the Guinean Julien Gueblé, his wife Marie, their son Louis (aged six), and the Creole Jean (of Indian origin).[194] Furthermore, it is testified that Françoise Poivre's personal Bengali servant Rita came as a free domestic servant in 1768 on the *Duc de Praslin* from India.[195] Poivre and his wife ensured prior to their departure that their personal slaves, with whom they must have had a close relationship, were freed. The gardens were intimate worlds with with their own social dynamics determined by skills and tasks which sometimes led to a slave's emancipation. These circumstances serve as further evidence that interpersonal relations in small habitations must not be underestimated. This thought will be developed in the remaining pages of this chapter, which explores skills, plant knowledge, and friendship.

The case of *Monplaisir* can serve as an example for understanding the transmission of plant exchange and information with other gardens, such as Cossigny's garden of Palma: this was built on slaves moving between the gardens. Cossigny charged his female and male slaves with brining specimens to Commerson, who lived in *Monplaisir*. In January 1770, he sent one of his slaves to Commerson with a bed of soil in which Cossigny had placed live plants (it is not indicated which ones).[196] Commerson also pressed Cossigny not to rebuke his slave for being late because he had waited at Commerson's door for an hour until he was awake and the naturalist asked him to stay so he could take a personal message to Cossigny.

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[192] Etat de l'habitation de Monplaisir ainsi qu'elle se comporte suivant levalution faite par habitans experts et les offres faites par Cere même habitant en payant comptant', 17 September 1772, MA OA 127.
[193] Indeed, MA OA 127 contains several pricing lists which were negotiated. See 'Etat et apréciation des noirs et negresses achtées par le Roy provenant l'habitation de Monplaisir'.
[194] Cf. 'Registre pour servir à l'enregistrement des actes de liberté accordée à des esclaves, 29 December 1768 - 5 February 1785', OA 75, 135 and 89–91.
[195] Ibid., entry from 1 August 1772.
[196] Commerson to Cossigny, 3 January 1770, printed in Cap, *Philibert Commerson naturaliste voyageur*, 122–23, see also letter 2, which Commerson ends with 'Voila malheureusement votre Noir qui revient, prêt à partir.', 125-126, and letter 12, in which Commerson speaks of Cossigny's 'negrèsse', which underlines that enslaved women also fulfilled these tasks, 153–54.

Commerson asked Cossigny to recommend to his black porters that they bring things concerning Commerson immediately to him instead of placing plants in a vase of water until they were picked up. As a treat for the slaves' good service, Commerson explained to Cossigny that 'there is always a cup of eau de vie or wine for them.'[197] Throwing a twist into the master-slave relationship, Commerson sought to 'nobble' slaves by offering a treat for their service. While one might argue that this personal relationship with slaves served Commerson's own purposes, he made suggestions for improving the slaves' life on the island in general: he asked his friend Cossigny for wood suitable for making shoes, arguing that the slaves always hurt their feet and one should think about making shoes for them from the cinnamon tree.[198]

Commerson and Cossigny had a vivid correspondence regarding knowledge and specimen exchange about plants. In this correspondence, the name of Commerson's slave Joseph appears frequently. Commerson relied on his judgement and ethnobotanical knowledge from the region. For instance, Cossigny sent samples of a '*Panicum orientale, Dactylon semine napi'*, which Joseph recognised from his country and ate the stem.[199] Dactylon is believed to be native to Turkey or Pakistan, but other varieties are also native to numerous regions in Africa, India, Sri Lanka, Israel, Afghanistan, and Madagascar; in other words Joseph's ethnic origin remains unclear. Commerson had a friendly relationship with Joseph, who could move freely on the island; he sometimes took messages for Commerson on his way to the market and slept one night at a wigmaker's.[200] Above all, Commerson consulted him for his ethnobotanical knowledge. After Commerson's death, Sonnerat asked for Joseph.[201] Most of the time, however, Joseph is only referred to as 'my black' in Commerson's letters.

Cossigny de Palma's model for the good treatment of slaves was his garden of Palma, a habitation of Plaines Wilhelms which he bought in 1764.[202] Here, so Cossigny wrote, slaves

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[197] 'Je tâche de les y intéresser pour eux-mêmes, car quand je suis au logis (et vous savez que depuis longtemps je n'en sors guères), il y a toujours le coup d'eau de vie ou de vin pour eux.', Commerson to Cossigny, 22 September 1770, printed in ibid., 136.

[198] 'Les nègres étant sujets à se blesser les pieds, à se gercer ou y contracter des crabes, l'usage des sabots ne leur serait-il pas souvent profitable ? A-t-on jamais essayé d'en faire ? Le bois de cannelle, comme celui qui semble le plus se rapprocher de notre noyer, ne serait-il pas celui que l'on préférerait pour ce sujet ?', Commerson to Cossigny, 2 September (probably rather October) 1770, printed in ibid., 147.

[199] Commerson to Cossigny, n.d., printed in ibid., 124. Commerson makes a reference to Leonrad Plukenet.

[200] Ibid. to ibid., 22 September 1770, printed in ibid., 135–136.

[201] Cf. Maillart's letter to the Ministre de la Marine, 31 August 1775, ANOM Col E 372.

[202] Claude Wanquet, 'Joseph-François Charpentier de Cossigny et Le Projet D'une Colonisation « Eclairée » de Madagascar à la Fin du XVIIIe Siècle', in *Regards sur Madagascar et la Révolution Française*, ed. Guy Jacob (Madagascar: CNAPMAD, 1990), 71.

had two breaks per day, during which they were fed breakfast and lunch while interrupting their work.[203] Furthermore, Cossigny stressed that in the islands' habitations slaves were fed not only maize, manioc, and camanioc (a different kind of manioc native the Antilles and Cayenne), but also potatoes and 'cambars', a sort of yam or 'air potato' rarely planted in the colony.[204] Three other different kinds of potatoes were planted: a) a white one, which was the smallest and the most starchy, b) a red one from China, which was the biggest and the most precocious, yet the least tasty, and c) a kind which Cossigny named '*les patates jaunes de Malaga*' ('the yellow potatoes of Malaga'). The latter were normally served to the masters and not slaves because, so Cossigny explained, the slaves considered them too sweet.[205] Two important facts can be derived from this potato talk. First, and as I explained in chapter three, there was a clear relationship between the slave population and the cultivation of certain crops. Some of them were introduced exclusively to feed the thousands of slaves who lived on Isle de France. Second, there is a clear indication that the slaves working in the habitations and the gardens were fed differently. More specifically, slaves in the private gardens and habitations received maize, potatoes, yam, and manioc and were allowed about two hours of break per day.

Given that Cossigny was familiar with the Malagasy names of certain plants, he must have learned them from the slaves. There are further indications that in the habitation of Palma, Malagasy knowledge-practice and usage of certain herbs were indeed observed. According to Commerson's description of a herb called 'Anguîvi', he observed that the Malagasies used it as a 'tisane' ('herbal infusion'), which he had also seen in the garden of Palma. Here, Cossigny explained that his Malagasies cultivated 'Anguîvi' and used it to make broth.[206] On a more general note, Cossigny also underlined that slaves in the Mascarenes were treated better than those in the Antilles, as they were less strictly supervised, particularly during the night, and, most importantly, they were admitted regular breaks during the working day. Sunday was a day off: if slaves had to work on this day, they were paid and given some liquor.[207]

These circumstances are further indications that the gardens were social environments where interpersonal relations played a significant role. Slaves were not only treated with

[203] Charpentier de Cossigny, *Lettre à M. Sonnerat*, 32.
[204] Ibid., 34.
[205] Ibid.
[206] 'Notte de quelques plantes et fruits de Madagascar et de leurs proprietés', 1769, BCMNHN Ms 888, fol 12.
[207] Charpentier de Cossigny, *Lettre à M. Sonnerat*, 34.

latitude but were also appreciated for their skills and ethnobotanical knowledge. Malagasy slaves in particular possessed knowledge of local flora, which could 'prove either a blessing or a curse. Knowledge of plant-based toxins provided a subversive weapon against oppression.'[208] The example of songe that I discussed in chapter three illustrates these power relations. To cite a different example, Céré asked for his female domestic slave's advice about a plant called 'nourrouc', which I was unable to identify. In a letter to Cossigny dated 27 August 1778, Céré explained that his old woman slave treated asthma with it. She had suffered from asthma for more than forty years and used the leaves of the plant rather than the flower – as Céré had wrongly assumed – to make a *tisane*.[209] Similarly, Cossigny explained in a letter to Céré that Hubert learned in Bourbon how to treat venereal diseases using a *tisane* made of the decoction of benzoin bark and a substance from a tree called 'link', which healed wounds immediately.[210] Though this plant did not grow on Isle de France, Cossigny aimed at testing the benzoin bark for his slaves in Palma, who seemingly were not familiar with practices in Bourbon. Making herbal infusions from plants seems to have been normal practices among the slaves in both gardens where slaves prepared remedies for their own consumption.

The second outstanding case in the story is that of the slave Hilaire. In 1778, when Joseph Hubert, the head gardener of the neighbouring garden in Bourbon, came to see Céré's work in his habitation of *Belle Eau*, he also brought his talented slave Hilaire with him. Céré was so impressed with Hilaire's knowledge that he wanted to buy him, but Hubert refused to give up such an accomplished slave. He explained that Hilaire performed 'difficult tasks in the habitation and the garden'. He would, however, consider the proposal if the king offered him the equivalent of a thousand 'écus in piastres', but only under one condition: Hilaire had to agree to the exchange.[211]

Two important aspects are to be stressed in this context. Hubert obviously appreciated Hilaire's work and skills to such an extent that he even refused to sell him for the king's advantage. More importantly, Hilaire could not simply be sold against his will.[212] Yet, Hilaire

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[208] Roberts, '"Le Centre de Toutes Choses"': 331.
[209] Céré to Cossigny, 27 August 1778, printed in *La Revue rétrospective de l'Ile Maurice* 1953 (4): 296–97.
[210] Cossigny to Céré, 29 August 1778, printed in ibid., 344.
[211] Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 43–44, 145–146; Cf. Roberts, '"Le Centre de Toutes Choses"': 331.
[212] 'opérations difficiles d'habitation et de jardin'; 'Il faudroit un fort prix p^{r} me déterminer à m'en défaire et encore toute fois qu'il le veuille, si le roi m'en donnoit mille écus en piastres, et je le répète, que ce noir y consente, je m'en deferois, j'employerois cet argent en noirs sur les champ, car voilà la guerre et dans peu cette

travelled between Isle de France and Bourbon to transport specimens and young plants to be transplanted, including the hevi, clove, cacao, or Chinese apricot, in October 1778.[213] He had developed a very unconventional method of grafting clove plants, which promised rapid multiplication. During his visit to *Pamplemousses* in September 1778, Hilaire proposed using jamrosa as stock when bud-grafting clove – a method 'against the principles in France' and of which Céré 'would never have thought'.[214] Plant grafting is a horticultural technique to join two plant tissues. Today, one considers Hilaire's method as bud grafting. It should be conducted the following way: A so-called 'stock' selected for its roots, is to grow together with a stem (a so called 'scion') of the desired duplication, inserted into an incision under the bark. If this has been done professionally, the tissues join ('inosculation') and the scion grows. Both the stock and the scion plant must be kept alive during this process; joints are very weak.[215]

Hilaire stayed on Isle de France for a month at least in order to teach Céré about his knowledge-practice. Because his method of multiplying clove was so promising, Céré suggested conducting experiments with different stocks for nutmeg, which were initiated by a slave's suggestion! Despite the high hopes, the cloves dried up after a little less than a fortnight. Céré continued grafting nutmeg and experimenting with oranges, which had given promise for one and a half months, and, more successfully, with peaches on pears.[216]

A similar case in the context of nineteenth-century Bourbon is that of the twelve-year-old gardener slave Edmond (1829-80) in Saint-Denis. He discovered a quick and simple manual technique for pollinating vanilla orchids, which had been introduced to Bourbon from Mexico in the 1820s but would not multiply there because of a lack of pollinating insects.[217] With his method, Edmond revolutionised the cultivation of vanilla and helped Bourbon to achieve a

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somme ne me représentera pas 2 esclaves.' Hubert to Céré, 1 October 1778, transcribed in Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 146.

[213] Cf. letter from Céré to Hubert, 10 October 1778, transcribed in ibid., 147.

[214] Cf. letter from Céré to Hubert, 10 October 1778, transcribed in Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 43.

[215] On grafting, see for instance Donald McEwan Alexander and William John Lewis, *Grafting and Budding Fruit and Nut Trees: A Practical Guide* (Collingwood, Vic.: CSIRO, 1998).

[216] Céré to Hubert, 10 October 1778, transcribed in Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 44 and 145–146.

[217] On popular history accounts of Edmond's discovery, see Tim Ecott, *Vanilla: Travels in Search of the Ice Cream Orchid* (New York: Grove Press, 2004); Sophie Chérer, *La vraie couleur de la vanille* (Paris: L'École des loisirs, 2012); Céré became interested in vanilla from 1784 onwards, but he did not succeed in cultivating it, Céré correspondence with Joseph Hubert, cf. Rouillard and Guého, *Les Plantes et leur Histoire à l'Ile Maurice*, 497.

breakthrough into the vanilla trade. Both Hilaire and Edmond conducted experiments with methods according to the plants' needs and taught the botanists to follow their strategies.

CONCLUSIONS

The main interest of this chapter was to understand the contribution of slaves in the daily management of Isle de France's colonial gardens ranging from their physical labour to ethnobotanical knowledge for cultivation, nourishment and healing. Enslaved women and men fulfilled various tasks in the gardens and sometimes held important positions because of their plant knowledge. Despite the significance that slave knowledge played in the remote island context, their knowledge and contribution has not been attributed in studies concerned with French overseas' science-production. Slavery in the middle decades of the eighteenth century must be understood in its own context. Slaves had many different statuses within hierarchical structures determined by a slave's origin, skills, and the tasks they fulfilled in the daily management of the island's gardens. Local French colonists embraced the slaves' ethnobotanical knowledge regarding the preparation of certain plants for nourishment and remedies. Because of the island's creolisation, it is however in most cases more than uncertain to trace the origin of a slave because the term 'black' could refer to numerous ethnic origins.

Generally speaking, slaves in the gardens were treated differently from slaves who were simply exploited for physical labour. Out of the 20,000 slaves in 1769, only 6,000 worked on the plantations, habitations, or gardens, of which less than 2,000 belonged to the crown. Naturalists like Commerson and the engineer Bernardin, or garden directors like Fusée-Aublet, Poivre, Céré, Cossigny, and Hubert treated their slaves well and appreciated their work and particular skills related to plant knowledge, which sometimes led to a high rank in the garden. In addition, I conclude that Poivre also promoted his idea to cultivate spices using slaves as a means to an end. Because growing spices was easy labour, so he argued, one did not need so much space and so many slaves. He thereby killed two birds with one stone: slaves were not forced to perform hard labour and it would save both lives and money because one needed a fewer of them. Hence, there was a deeper relationship between economic motives and the treatment of slaves. Poivre's vision of Isle de France was not anti-colonial, radical, or abolitionist. Rather, it was 'differently colonial', as was his attitude towards slavery, which sometimes was very ambiguous. Poivre used his anti-slavery sentiments as a justification for his economic interests because 'free hands' worked more efficiently than those that were unfree. While a slave still remained a slave according to law

no matter how liberally she or he was treated, one cannot detach the treatment of slaves from political economy. What might seem at first glance like sentiment or even pity was closely linked to economic considerations. It seems to me though that Poivre used economic arguments to argue for the good treatment of slaves and not necessarily vice versa.

Slaves in private gardens experienced exceptional treatment and were acknowledged as carriers of plant knowledge and those running the garden: this we saw in *Le Réduit*, while in *Monplaisir* and the garden of Bourbon, slaves were even head gardeners. In the gardens and during expeditions, slaves were used as a source of knowledge. The cases of Charle Rama and Hilaire seem to be exceptional because of their exceptional skills. It remains unclear if they were bought exclusively because of their previous recognition of plant knowledge and horticultural skills in their home countries or, upon their arrival, if French administrators observed their skills and made them therefore climb up the hierarchical ladder of small plantation societies. From the examples I brought forward, I conclude that the latter was the case.

But not only Rama and Hilaire contributed to Isle de France's botanical legacy. Lower-ranked garden slaves of African, Malagasy, Indian and even Southeast Asian origin enriched the islands' gardens with their everyday tasks as well as their own ways of knowing and using plants. Despite the great assistance of slaves and revolutionary methods to facilitate reproduction of plants, slave knowledge disappeared over the course of history writing concerned with Isle de France or actually has never entered European discourse back in the days. During their lifetime, however, Hilaire and Charle Rama were praised for their skills that conditioned their treatment and in the latter case was even the reason for Rama's emancipation. The gardens were intimate worlds with their own social dynamics where masters and slaves had strong interpersonal relations. These were strengthened when slaves impressed their masters with their plant knowledge and led not only to a high rank and privileges but even to emancipation.

The slaves were used as a source of knowledge, but they have vanished from the historical record. In comparison, the case of the English naturalist James Petiver in the late seventeenth century shows that it was completely normal and widespread to use slaves as botanists and collectors. This chapter further shows that although using slaves in the process of knowledge-making has been overlooked, they were of significant importance for both their physical labour and as a source of knowledge. Presumably, this was a common occurrence throughout the colonies.

Unlike in other colonial contexts in the Atlantic world, neither works on French science and colonisation nor volumes that deal with colonial botany fully recognise slave contributions to the production of knowledge in the colonies. Therefore, greatly inspired by studies that attribute slaves in histories of knowledge-making, this chapter can make a significant contribution to the developing scholarship on natural history and slavery. Being self-critical, this chapter only allowed us glimpses into how slaves used plants for their own purposes. Instead, the main interest of this chapter was to understand the contribution of slaves to the making of the island.

5

Invisible empire:
The spice quests in the Indo-Pacific (1748-1773)[1]

'One of these rare men who reflect about things which are really useful and does not abandon a project until it is finished had decided to bring wealth to France, his homeland, with the help of fine spice trees. This man was M. Poivre.'

– *Encyclopédie méthodique: Agriculture* entry on 'Epiceries'.[2]

What a hero this Poivre is, one might think! This chapter, however, will be a disappointment for those who believe in this valiant narrative because it seeks to dismantle it. By looking at a single man rather than at his networks, previous studies of the French spice trade have widely ignored the multinational contributions to Isle de France's spice gardens in the making. Narratives about Poivre's apparent success in the spice project neglect the interplay and importance of his networks for such a project. Historians have told this story by centring on Poivre himself and the 'Frenchness' of the spice quest, which has greatly contributed to a simplistic portrayal of the acclimatisation project.[3] As a consequence, Poivre's networks have remained widely invisible until today, possibly because they also remained invisible to contemporaries.

This chapter seeks to re-examine the traditional narrative by focusing in particular on the role of intermediaries and suppliers, previously omitted in mainstream history about the French spice project. Since the Moluccas held the key to the Dutch spice monopoly and were

[1] This chapter was partly written at the *Max-Planck-Institut für Wissenschaftsgeschichte* (MPIWG, Max Planck Institute for the History of Science) in Berlin and the *Koninklijk Instituut voor Taal-, Land- en Volkenkunde* (KITVL, Royal Netherlands Institute of Southeast Asian and Caribbean Studies) in Leiden. I owe a debt of gratitude to Peter Boomgaard, who provided loads of comments on a first draft. I am also particularly indebted to Minakshi Menon for her invaluable advice and comments. Furthermore, I thank the participants of the 'Cabinet of Natural History', HPS, University of Cambridge, 23 November 2015, particularly Katrina Maydom, Simon Schaffer, and Nick Jardine, where a first version was presented.
[2] Tessier et al., *Encyclopédie méthodique*, IV: 194.
[3] Louis Malleret, *Pierre Poivre*; Ly-Tio-Fane, *Mauritius and the Spice Trade,* 2 vols.; Marthe de Fels, *Pierre Poivre Ou L'amour Des épices*; Olivier Le Gouic, 'Pierre Poivre et les épices: une transplantation réussie'; Denis Piat, *L'île Maurice: sur la routes des épices*.

therefore rather well protected, Poivre had to rely on the assistance of previously neglected peripheral actors from diverse backgrounds and ethnic groups. As environmental historian and specialist of Dutch Indonesia Peter Boomgaard suggests, first, 'much of the creation of knowledge in overseas territories was not undertaken by scholars of the colonising polity alone' and, second, that these explorers were 'evidently welcome in territories that often had been closed to foreigners.'[4] By focusing on such territories, this chapter is dedicated to the cross-cultural contribution to the introduction of fine spices to Isle de France in their multiple and very different forms. It consists of two major parts for bringing to light, first, non-European and European informal relationships and go-betweens in the Indo-Pacific worlds and, second, local information and knowledge transmission in the search for spices in the region.

The purpose of this chapter is to explore the social practice of the French spice quests by identifying individuals who have disappeared from history writing and acknowledging their agency and contribution as opposed to their passivity or oppression by European actors overseas. Here, it argues for two major points. For one, the spice quests were decentralised, *ad hoc*, and negotiated affairs operating outside imperial governance and formal conventions. For another, the central importance of relationships and patronage in the Malay-Philippine region is underlined. Here, I not only claim that these relations were key to the French attempts, but I also stress the profit-making activities of local cultures by exploring the mutual interdependence between French actors and local islanders in Southeast Asia. Therefore, this chapter suggests that the spice project was by no means a solitary or purely French affair but required instead an informal and cross-cultural network of Indo-Pacific islanders, Chinese traders, and Spanish and Portuguese allies from the first endeavours onwards.[5] To put it differently, this chapter explores to what extent Spanish colonials, Malay pirates, local kings, and inhabitants, all using a mixture of languages, promises, allegiances, and bribes, decided to co-operate (or not) with the French actors.

The need to rely on networks in the Indo-Pacific was intensified by the lack of support from the French colonial authorities, making the project dependent on more local agents. In

[4] Boomgaard, 'Introduction: From the Mundane to the Sublime: Science, Empire, and the Enlightenment, 1760s-1820s', 21.

[5] For the Spanish-French interaction and the spice quests in the Philippines, see H. de la Costa "Early French Contacts with the Philippines," *Philippine Studies* 11, no. 3 (1963): 401–18; Denis Nardin "La France et les Philippines sous l'Ancien Régime," *Revue Française D'histoire D'outre-Mer* 63, no. 230 (1976): 5–43; Poivre's biographer Malleret also offers superficial insight into Poivre's contacts in Southeast Asia, Malleret, *Pierre Poivre*, ch. 7.

fact, the spice project was never fully supported financially either by the CIO or the crown. Although both ministers Choiseul and Praslin were greatly interested in the success of the spice project and Isle de France after the Seven Years' War, they could not act independently or send money to the East Indies. After the Seven Years' War, Praslin pressed Governor Desroches and Poivre in September 1769 to avoid any additional costs because he could not exceed a certain budget for the French islands.[6] For the crown, the islands were too expensive and Praslin had many difficulties obtaining the necessary financial resources. Furthermore, he could not convince the king to provide considerable sums for two islands which did not return anything to the state.[7] Due to a failure of previous acclimatisation attempts, the crown did not support the spice quests between 1768 and 1772, so Poivre had to initiate them locally. The fact that Poivre, as an experienced traveller and agronomist, held a double position as intendant of the Mascarene Islands of course facilitated these initiatives. He could pull certain strings and, more importantly, rely on his friendly relations with both the populations of the Moluccas and the Spaniards in the Philippines. In short, the project was a matter of local parameters and constituents, negotiation on the ground, and secret diplomacy.

I examine this 'invisible empire' of hidden actors 'behind the scenes' in the Indo-Pacific in two major steps. First, I look into the Spanish-French collaboration in the 1750s and trace the development of these relations. They formed the basis of a wide and intense exchange of knowledge, information, and materials within a secret and unofficial Indo-Pacific island network in the late 1760s and 1770s, which I expose in a second step. By following Poivre's routes in the Indo-Pacific, I explore to what extent we must rethink the big elephant in the room called 'empire' by focusing on its actors and their practices at a local and unofficial level. Therefore, what I call 'invisible empire' is an umbrella term for cross-cultural and cross-imperial relations as well as secret diplomacy. 'Invisible empire' thus must be understood as an alternative approach to both science overseas and formal diplomatic relations.

Although the social sciences challenged and enriched the history of science after the 1970s and international and transnational dimensions were addressed, with the exception of a few works, the 'nation' played too central a role.[8] Using the case of the 'French' spice routes in

[6] Praslin to Poivre and Desroches, 11 September 1769, Médiathèque des Ursulines, Quimper. Q 12 bis A4, fol. 145r.
[7] Ibid.
[8] Works in which nation-states as an interpretative category are put into question are Elisabeth T. Crawford, Terry Shinn, and Sverker Sörlin, eds., *Denationalizing Science: The Contexts of International Scientific Practice*

the Indo-Pacific, I reconsider categories such as 'nation' and 'empire' as negotiable. National categories and affiliations were flexible rather than static. It was not the actors' origins which made them work together but a common interest. When the French sought to collect luxury spices, they collaborated with Spaniards in the Philippines, Portuguese in Timor, and Dutch 'turncoats' in Indonesia, an important aspect which tends to be widely forgotten when historians speak of the 'French' spice quest.

This chapter thus seeks to understand the complexity of these larger narratives about the French empire, colonial politics, the spice trade, and Poivre as such by revising the meaning of his networks. In order to understand them, this chapter juxtaposes colonial French, maritime, and interoceanic approaches. In so doing, it suggests a different historical perspective on the French spice quests and 'the stories of great men' by examining in detail Isle de France's secret networks. This is not only necessary in order to understand the messy process of collecting (or smuggling) spices in the Indo-Pacific but also – as the last part of this chapter examines – to understand the power relations between the islanders with one another as well as Europeans. Unlike Isle de France, which was a creole colonial island, islands in the Moluccan Sea must not be treated as colonial islands: ignoring this would not do justice to my attempt to move beyond a purely French perspective. Therefore, I partly engage with secondary literature which attempts to write the history of these islands from a non-European view in order to read French sources against the purely European perspective on negotiation practices.

(Dordrecht; Boston: Kluwer Academic Publishers, 1993); and Lewis Pyenson, 'An End to National Science: The Meaning and the Extension of Local Knowledge', *History of Science* 40 (2002): 251–90. For an excellent case study on a Spanish-French joint mission in Latin America, see Safier, *Measuring the New World*.

POIVRE'S ENDEAVOURS IN ASIA (1748-1755): SECRETS, SMUGGLING, MISCALCULATIONS, AND SELF-FASHIONING

In an essay about nutmeg in the *Magazin der Handels- und Gewebskunde* (1805), we can read the following:

> The common nutmeg tree used to grow on the Malukku Islands wild but since the Dutch having been spreading in East India so powerfully and monopolised them with the exquisite spices, they extirpated the nutmeg tress in many locations and only cultivated them on some islands (...). Here, they were watching carefully that no other European nation received trees; nonetheless, the English and the French succeeded in getting some (...).[9]

Indeed, in 1748, Pierre Poivre proposed to the CIO to collect 'useful' plants and spices in different parts of the world. He aimed at smuggling clove and nutmeg from the Moluccas Islands and introducing them to Isle de France in order to turn the island into the cultivation grounds of the French spice trade. As explained in the introduction, the Moluccas Islands were a coveted spice monopoly of the Dutch, and since these islands were very well protected, Poivre used the following strategy: during his earlier travels in the region in the early 1740s, he had received secret information that Chinese and Malay merchants traded fresh nuts and seedlings in the Philippines by using Manila as a transit spot.[10] Hence, Poivre's plan was to purchase young plants and seeds in the outpost of Manila instead of entering Dutch territory in the Malukku Sea. From Manila he sought to send these live plants to Isle de France.

Poivre had spent several years as a novice in Cochinchina (an expression referring to the modern region of southern Vietnam and the eastern parts of Cambodia) with the *Société des Missions Etrangères* (1742-43) and as a traveller in many parts of Asia, which allowed him to closely observe local practices and gather secret information about the cultivation of spices in (Dutch) Indonesia. In 1748, he thus addressed a double proposition to the CIO, in which he offered, first, to establish commercial relations with the Đàng Trong king in Cochinchina and, second, to collect nutmeg and clove in Manila, where Moluccan nutmeg and clove were

[9] 'Der gemeine Muskatennußbaum wuchs sonst auf allen Moluckischen Inseln wild; seitdem aber die Holländer in Ostindien sich so mächtig ausbreiteten, und den Alleinhandel mit den köstlichen Gewürzen an sich rissen, rotteten sie die Muskatenbäume an vielen Orten aus, und kultivierten sie bloß auf einigen Inseln (...). Hier wachte man sorgfältig darüber, daß keine andere Europäische Nation Bäume erhielt ; dennoch gelang es sowohl den Engländern als Franzosen, sich einige zu verschaffen (...).' K.P. Funke, Muskatnüsse, *Magazin der Handels- und Gewebskunde* 3 (1805), 69.

[10] On the global dimension of the European trading companies and Asia in a comparative perspective, see the recent edited volume Maxine Berg et al., *Goods from the East, 1600-1800: Trading Eurasia* (Basingstoke: Palgrave Macmillan, 2015).

traded, and cultivate these spices on Isle de France.[11] In order to break the Dutch spice monopoly, he was convinced that a two-fold strategic position was necessary. He wanted a depot on the mainland like Cochinchina, which was familiar to the CIO, and to encourage the cultivation of spices in the Indian Ocean outposts.[12] Poivre's proposal was welcomed by the CIO due to the interest in Burma of Jean-François Dupleix, the CIO's governor-general in India (1742-54), who thus was willing to provide ships. A lengthy entangled enterprise began, in which, initially, Poivre did not possess much credibility and was in the same position as the numerous speculators who sought to enlist funding for very uncertain enterprises.

The project easily could have been – and indeed was in 1754 – a failure, wasting resources. So what did the CIO hope for from such a trading establishment in Cochinchina? Apart from gold, the CIO's chief interests were sugars, iron, timber, indigo, silk, white pepper, and copper, among other things.[13] In the '*Instructions du conseil supérieur de Pondichéry au Sr. Poivre, chargé de l'Expédition pour la Cochinchine*', dated 5 July 1749, the CIO's directors Dupleix, de St. Paul, Guillard, Le Maire, Boyelleau, and Friell set down their clear strategic ambitions for Poivre's travels.[14] The instructions give very detailed information on how, where, and when Poivre was supposed to be, which turned out to be rather useless.

Poivre had difficulties due to bad weather conditions. He arrived two months later than the CIO officials had planned.[15] An explanation for why the instructions were so regulated could be the fact that Friell in particular was very suspicious of Poivre's proposal. Unlike other CIO members, Friell did not see the overall advantages of relations with Cochinchina's king. The exact instructions thus served as a tool to convince Friell and can be understood as an envisioned security net for the mission. In reality, such control remained theoretical. The instructions were to regulate processes, but their implementation remained a matter of local practices.

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[11] 'Mémoire sur la Cochinchine', *Revue de l'Extrême Orient* 2 (1884): 324–37. Manuscript copies can be found at the AN and the BnF. Parts of the *Voyage de Pierre Poivre en Cochinchine* are translated into English in: Li Tana (ed.), Southern Vietnam under the Nguyên (...), 60–97. Cf. the written instructions: 'Instructions de la Compagnie à M. David concernant la mission de Pierre Poivre', 30 September 1748; ANOM Col C/4/5; 'Instructions de la Compagnie des Indes Orientales à M. Poivre. Approuvées par M. de Machaux, contrôleur général des finances' 30 september 1748', NAF 9341.

[12] B. E. Kennedy, 'Anglo-French Rivalry in Southeast Asia 1763-93: Some Repercussions', *Journal of Southeast Asian Studies* 4, no. 2 (1973): 200.

[13] 'Instructions du conseil supérieur de Pondichéry au Sr. Poivre, chargé de l'Expédition pour la Cochinchine', Pondicherry, 5 July 1749, NAF 9377, fol. 38r.

[14] 'Instructions du conseil supérieur de Pondichéry au Sr. Poivre', NAF 9377, fols. 36r–41r.

[15] 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 55r. On the instructions Governor David received regarding Poivre's spice quests, see Friell to David, 25 October 1749, NAF 9341, fol. 291v.

When Poivre set sail to East Asia and landed in Canton in August 1750, he arranged things with a Chinese merchant, bought goods made for the Manilan market, and, due to an inability to supply the CIO's ship, went on the Portuguese vessel *Santa Rita* in the direction of Manila, where he went ashore in late May 1751.[16] As mentioned, at this time Poivre had no credibility and the CIO officials remained dubious about Poivre's idea to make use of the Philippines as a transit spot for smuggling *épiceries fines*. They only approved this adventure when two Spaniards who had lived in Mindanao (the second-largest island of the Philippines) stopped over on Isle de France on their way to Spain. They confirmed that such an idea was feasible since the Dutch traded spice seedlings with the Philippines on a regular basis.[17]

Once the mission was approved, Dupleix, hoping for great profit, handed a secret letter to Poivre. In it, he was offered 20,000 piasters for 25 nutmeg and 25 clove plants, which Poivre could load onto a vessel in Manila's port.[18] Dupleix handed the same letter to a Spanish merchant named Carvaillo, who had come from Pondicherry to Manila: he was instructed to receive the spice plants.[19] Apparently, Cavaillo was a big gossip, so when Poivre disembarked in Manila in late May 1751 (two months late), Dupleix's letter had become public knowledge.[20]

One explanation for Dupelix's apparent loose attitude could have been his arrogance and pretensions of superiority over the English and Dutch trading companies. Indeed, he was on his high horse when explaining to his Tamil *dubash* ('man of two languages', translator or

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[16] 'Rapport de la mission du sieur Poivre a la Cochinchine et autres lieux avec l'extrait de ses lettres, mémoires, complets et pièces au Soutien, et sa demande a la Compagnie de la solde de son compte', NAF 9377, fols. 54r–67v. At least two copies of the said report exist. The original by Poivre under the title *Relation abrégée des voyages faits par le sieur... pour le service de la Compagnie des Indes, depuis 1748 jusqu'en 1757* is held a the BCMNHN 312 and 575, fols. 145r–182v. This document was transcribed as *Voyages de Pierre Poivre de 1748 jusqu'à 1757* by Henri Cordier in *Revue de l'Histoire des colonies françaises*, 1918, 5-88. Governor David had to report to the CIO on Poivre's mission in late 1757 and, besides some edited or deleted paragraphs, simply replaced 'je' with 'il'. A different version is to be found in ANOM COL C/1/3, fols. 98r–118v. David's official oral presentation to the CIO took place on 20 June 1758, cf. Malleret, *Pierre Poivre*, 217.

[17] Costa, 'Early French Contacts with the Philippines', 407. For the actual approval, see 'Délibération de la Compagnie des Indes à l'assemblée du 25 juillet 1748', ANOM Col C/1/2, fol. 3r. On the instructions, 30 September 1748, set up by the Secret Committee (CIO), see NAF 9341, fol. 294v. This document is signed by private syndicates, CIO directors, and the Minister of Finance Machault.

[18] On the great hope of the spice project, see also Governor Bouvet's letter to the Secret Committee: 'Enfin l'exemple du pied de caféier qui, porté en 1722 du Jardin Royal de Paris à la Martinique par M. de Clieu, actuellement gouverneur de la Guadeloupe, a changé la face du commerce de nos colonies, l'on pourrait même dire de l'Europe', ANOM Col C/4/7, dated 30 April 1753.

[19] 'Relation abrégée des voyages faits par le sieur [Poivre]. Pour le service de la Compagnie des Indes . Depuis 1748, jusqu'en 1757', BCMNHN Ms 319. This manuscript was transcribed in Cordier, 'Voyages de Pierre Poivre de 1748 Jusqu'à 1757'.

[20] In a letter to M. de St Priest, dated Canton, 31 December 1750, Poivre had estimated his arrival to March. Cf. NAF 9224, fols. 149r–154r.

agent) Ananda Ranga Pillai in 1746 that 'the English Company is bound to die out. It has long been in an impecunious condition, and what it had to its credit has been lent to the King, whose overthrow is certain. The loss of its capital is therefore inevitable, and this must lead to collapse.'[21]

About the Dutch VOC, Dupleix made similar remarks: 'In like manner; the Dutch Company is destined to share a similar fate. Its expenses continue to be enormous, whilst its trade has considerably decreased.'[22] Dupleix was convinced about the success of the French company in comparison to its rivals. Did this arrogance make him improvident? I will come back to this question later in the chapter. Although Dupleix did not put much effort in the spice quest, he did have great interest in commercial relations with Cochinchina and spared no expense on this enterprise. When Poivre stopped over in Pondicherry in July 1749, he asked for a washerman to accompany him to the east, but, although this man initially agreed, he refused to embark. Dupleix asked Ananda Ranga Pillai to order this man to get on board and pay him in advance. This happened on the same day when the instructions for Poivre were signed by the members of the *Conseil Supérieur* of Pondicherry, which might explain the rush to get this washerman on board.[23]

Whatever the reasons for Dupleix's miscalculation, it made Poivre's mission much more challenging because it was no longer secret.[24] Poivre was lucky enough to come across merchants from the Moluccas and Borneo at the river in Manila. He hoped to receive information about spices from these traders and was able to buy 300 fresh nuts in their shells from a Chinese merchant, some even with their maces.[25] According to Poivre's report, he was able to make a good dozen of the nuts sprout, later repeating his success with another thirty-

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[21] Bayly, *Empire & Information*, 6. John Frederick Price, ed., *Private Diary of Ananda Ranga Pillai: Dubash to Joseph François Dupleix, a Record of Matters Political, Historical, Social, and Personal, from 1736 to 1761* (Madras: Gov't Press, 1904), II: 81. I thank Minakshi Menon for providing the full reference to Ananda Ranga Pillai's diary. On Ananda Ranga Pillai and the role of dubashes in French India, see Julie Marquet, 'La médiation des dubashes. Un aspect de la politique française en Inde dans la seconde moité du XVIIIe siècle', *La Révolution française* 8 (2015), available at: http://lrf.revues.org/1259, last retrieved 16 October 2016; and Agmon, 'An Uneasy Alliance'.

[22] Price, *Private Diary of Ananda Ranga Pillai.*

[23] Ibid., VI: 155. 'Instruction du Conseil Supérieur de Pondichéry au sieur Poivre chargé de l'expédition pour la Cochinchine (5 juillet 1749)', ANOM Col C/1/2, fols. 13r–22r.

[24] 'Rapport de la mission du sieur Poivre', NAF 9377, fols. 57v–58r. See also Dupleix' letter to the CIO, 3 October 1750, ANOM Col C/2/82, fol. 284r.

[25] K. P. Funke 'Muskatnüsse', *Magazin der Handels- und Gewerbskunde* 3, no. 1 (1805), 70. On maces see also 'Instructions sur la maniere de planter et cultiver avec success les plants et graines de gerofliers et muscadiers. A l'usage de M. M. Les Habitants des Isles de France & de Bourbon', 1772, AN MAR G/101.

two nuts from the same Chinese merchant.[26] Chinese merchants and their role as traders for goods from the Dutch-possessed Moluccas can be traced throughout the VOC's annual reports, but the idea that Poivre could actually make the nuts sprout is probably false.[27] Nutmeg was and is extremely difficult to bud and cultivate in general as chapter six illuminates.

Although the search for nutmeg was shaping up, finding clove was more difficult. As Poivre explained in his report to the CIO, clove seeds were not common among traders, who only sold grown plants. For that reason, Poivre decided to collect clove seeds directly in the Dutch-possessed Moluccas. During his earlier travels in the region, he had learned that nutmeg and clove also grew on other islands of the same group which were not colonised (or even protected) by the Dutch.[28] It was important to keep the mission as secret as possible after Dupleix's miscalculation.

Since vessels going to the Moluccas were rare and Poivre did not have proper official support, he turned to the governor-general of the Philippines, Don Francisco José de Ovando (1750-54).[29] Without Poivre giving away that his mission to challenge the Dutch spice trade had actually become public, both partners signed a convention. This convention first ordered Juan González Del Pulgar, the Spanish governor of Zamboanga (a district of Mindanao), to provide an armed ship with Mindanao islanders on board to take Poivre to the Spice Islands.[30] Second, it ordered Del Pulgar to ask the representatives of Mindanao to mobilise their people to search spices on the island.[31]

Although Del Pulgar expressed a great interest in such an enterprise, Governor-general Ovando learned that Poivre's mission had become public, a fact which Poivre concealed from

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[26] 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 58r.

[27] J.E. Schooneveld-Oosterling, ed., *Generale Missiven van Gouverneurs-Generaal En Raden Aan Heren XVII Der Verenigde Oostindische Compagnie. Dl. XII: 1750-1755*, vol. 7 (Den Haag: Instituut voor Nederlandse Geschiedenis, 2007). See also the other volumes of the annual reports.

[28] 'Relation abrégée des voyages faits par le sieur [Poivre]. Pour le service de la Compagnie des Indes. Depuis 1748, jusqu'en 1757', BCMNHN Ms 319.

[29] On the Spanish presence and commercial relations in Asia in general, see Florentino Rodao García, *Españoles en Siam (1540-1939): una aportación al estudio de la presencia hispana en Asia oriental* (Madrid: Consejo superior de investigaciones científicas, 1997); Carmen Yuste López, *Emporios transpacíficos: comerciantes mexicanos en Manila, 1710-1815* (México: Universidad Nacional Autónoma de México, 2007); Fradera, *Colonias para después de un imperio*.

[30] In the handwritten French source, Pulgar is spelt Pulgarre. It will be of great interest to look more deeply into the arrangements between Governor-general Ovando and Pulgar: AGI FILIPINAS 457–470 *Duplicados de cartas del gobernador de Filipinas*, (1750-54) and AGI FILIPINAS 385–387 *Correspondencia de los gobernadores con la via reservada*, (1746-1762). He was nominated in 1743, cf. AGI FILIPINAS, 342, L.11, fols. 155r–158r.

[31] Ibid. I presume that the sultan's name was Amiril Mahomenin Campsa, see a letter from Philip V to the king of Jolo and Tamontaca, AGI FILIPINAS 334, L.15, fols. 300r-303r.

him when arranging the agreement. Not willing to risk an open conflict with the Dutch – after all, Poivre's mission clearly aimed at challenging their spice monopoly – Ovando withdrew his orders and decided to modify his plan. In so doing, Ovando played a diplomatic game. On the one hand, he could not risk an open conflict with the Dutch, but, on the other, he was interested in challenging their spice monopoly. Therefore, he did not retract his orders entirely but merely adjusted them. Now, officially, the search for spice plants served his own personal interests.[32]

In light of the shifting power relations between the Dutch and the Spanish, Spanish-French collaboration was a dangerous business. So why did Ovando risk a diplomatic gaffe given that the Dutch could find out about his deal? His reasons must have been economic ones. In a letter dated 30 September 1751, Poivre explained to Monsieur le St Priest, one of the CIO directors, that the Spanish market and the colonies of the Philippines had suffered greatly after losing a galleon from Acapulco.[33] The Manilan government was in constant need of money from the Spanish crown and relations with both the Dutch and the English were in decline.

Moreover, Ovando must have flirted with the idea of acquiring high-quality nutmeg in other parts of the region: although nutmeg was native to some of the Philippine Islands, the plants grew high in the mountains, regions controlled by indigenous peoples who did not permit the Spaniards to collect the spice.[34] These circumstances can serve as an example for rethinking the power relations between islanders and inlanders and the actual influence that Europeans had when islanders resisted. A different example was the struggle between the Dutch and the kingdom of Kandy (in Ceylon) over the search for cinnamon. The Dutch actually had to ask permission to collect this spice, which was said to be best in the Kandy kingdom.[35]

In the later 1750s, the Spaniards attempted to introduce spices to the Philippines in order to receive a financial boost. The Spanish 'Pierre Poivre' was Nicolás Norton Nicols, a naturalised English physician who had lived in Spain for a long time and now sought his

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[32] 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 58v.
[33] Poivre to M. de St. Priest, Manila, 30 September 1751, NAF 9224, fols. 169r–174r.
[34] On the struggle between Spain and Mindanao Islanders in relation to the cultivation of spices, see, for instance, 'El comercio de Manila y las Convenicias y Beneficio de las Islas Phelipinas', Madrid, 2 September 1757, by Nicolás Norton Nicols, AGI FILIPINAS 199, N. 7 and the map entitled 'La Ysla de Mindanao, dedicada al Rey Nuestro Señor Don Fernando VI qui Dios guarde, por Don Nicolás Norton Nicols', 1757, AGI FILIPINAS 39.
[35] On the resistance of islanders on Sri Lanka more generally, see Channa Wickremesekera, *Kandy at War: Indigenous Military Resistance to European Expansion in Sri Lanka 1594-1818* (New Delhi: Manohar, 2004).

fortune in Manila. In his notes, Nicols remarks that one could do in Mindanao '*come en la Isla de Mauricio*', ('like on the island of Mauritius'), that is to say introduce and cultivate spices, namely cinnamon, pepper, and ebony, along with other commodities, because the soil on both islands was similar.[36] Nicols proposed the establishment of a direct trade route between Spain and the Philippines in addition to China, the Coromandel and Malabar coasts, Bengal, and even Persia (Iran). Yet, he expressed his sincere concerns that the islanders of Mindanao, and particularly '*los moros*' in the region, blocked his enterprise, which can serve as yet another example that indigenous people had a certain power over the colonisers rather than vice versa.[37]

Later, in the 1780s, the Spanish botanist Juan de Cuéllar followed up on the plan to cultivate spices, especially cinnamon from both Ceylon and China. He was, however, troubled that the sultans of Mindanao could easily threaten the project.[38] He saw the need to enter into diplomatic relations with them, particularly Sultan Suibar Salaniad, which can be traced throughout Cuéllar's correspondence with the Spanish authorities.[39]

Let us return to the initial French spice quests in the Philippines. Since the Spanish governor-general could no longer provide a boat, Poivre received permission to order a boat from Isle de France, but only under the condition that it anchored in the port of Manila under an Asian flag rather than a French one.[40] Why was that the case? According to one document, voyages to Manila were said to be the most lucrative in the region but were prohibited to all Europeans apart from matters related to the Catholic king or the Portuguese coming from Macao.[41] All other Europeans who sought to trade in the Philippines were obliged to arrive

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[36] Nicolás Norton Nicols, 'El comercio de Manila y las Convenicias y Beneficio de las Islas Phelipinas (a Su Magestad Quien Dios guarde), Madrid, 2 September 1757; 'Petición de licencia para pasar a Filipinas de Nicolás Norton Nicols', 29 October 1757, AGI FILIPINAS 199, N.7. 9. On Nicols, see Fish, who makes a brief reference to his project, Shirley Fish, *The Manila-Acapulco Galleons : The Treasure Ships of the Pacific* (AuthorHouse, 2011), 473. Nicols is also spelt Nichols; Nicolás, Nicholas, Nicholás. See also the map entitled 'La Ysla de Mindanao, dedicada al Rey Nuestro Señor Don Fernando VI qui Dios guarde, por Don Nicolás Norton Nicols', 1757, AGI FILIPINAS 39. I thank Ana Hernández Callejas (AGI) for providing further information on Nicols.

[37] Nicolás Norton Nicols, 'El comercio de Manila y las Convenicias y Beneficio de las Islas Phelipinas, Madrid, 2 September 1757, AGI FILIPINAS 199, N. 7. 'Moro' is the commonly accepted collective designation for all Muslim peoples in the southern Philippines, cf. Pelras, *The Bugis*, 2.

[38] Cf. Cuéllar's correspondence, AGI FILIPINAS 723.

[39] AGI FILIPINAS 723. This reference is a bundle of numerous letters and loose documents. On Cuéllar, see María Lourdes Díaz-Trechuelo Spínola and Pilar San Pío Aladrén, *La expedición de Juan de Cuéllar a Filipinas* (Madrid: Lunwerg Editores, 1997).

[40] 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 58r.

[41] Louis Malleret, ed., *Un Manuscrit Inédit de Pierre Poivre: Les Mémoires D'un Voyageur* (Paris, École française d'Extrême-Orient 1968), 32–33. The original manuscript transcribed by Malleret is held in the BM Lyons as Ms 1094.

with an Asian flag, which allowed them to negotiate.[42] The reason for this law must have rooted in Dutch-Spanish commercial competition: under this regulation, the VOC could not trade goods from their colonial possessions in the region.[43] These fluid flag identities were common practice: the Portuguese also made use of them in Mozambique, for instance. The CIO could not export goods to Mozambique or the east African coast freely but had to ask the permission of the Portuguese king.[44]

In the particular case of 1751, the Dutch eyes on Spanish movements also must have played a role in the flag requirements in order to keep the French-Spanish collaboration secret. Different identities in trade were quite fluid and national identities on the ground flexible. Even if these rules existed and even if they were officially required, this did not necessarily mean that they were actually implemented. For instance, when Poivre anchored in Manila, his captain Du Bois made a mistake by flying a Moorish flag.[45] While such mistakes regarding flags were not blown up out of proportion, Dupleix's mistake threatened the whole mission. Poivre explained this in a letter to the Secret Committee in September 1752 while staying in Manila: 'Since Dupleix's attempt in 1750, the interests of the Company regarding the spices are so well known that it was impossible for me to embark without everyone being aware of the subject of my voyage, and after all, there are Dutch here'.[46] Were the Dutch really aware of Poivre's activities? There is evidence that VOC officials had indeed heard rumours of French who had Moorish accomplices in the Dutch colonies. A VOC report dated 30 December 1752 mentioned this fact, although in reference to Ceylonese cinnamon rather than the Spice Islands.[47]

The Dutch annual reports bring to light that the VOC was well informed regarding the movement of English and French ships (and to a lesser extent Spanish movements, or at least they do not appear in the VOC reports which were consulted for this chapter). In this respect, it seems surprising – at least as far as the annual reports give away – that the Dutch did not have any further information about Poivre's activities in the region or that they believed it

[42] Ibid.
[43] This is also explained in Poivre's account, ibid., 56.
[44] This is what Poivre's explained to Malesherbes. 'Extrait de quelques conversations avec M. Poivre en 1758', BCMNHN 1756, 36°.
[45] Malleret, *Un Manuscrit Inédit de Pierre Poivre: Les Mémoires D'un Voyageur*, 32–33.
[46] Poivre to the Secret Committee, 10 September 1752, ANOM Col C/4/7: '[...] depuis la tentative de M. Dupleix en 1750, les désirs de la Compagnie au sujet des plants d'épiceries sont si connus ici qu'il m'eut été impossible de m'embarquer sans faire deviner à tout le monde le sujet de mon voyage, et il y avait alors ici des Hollandais.'
[47] Mossel XIV, 30 December 1752, Kol. Arch. 2684, VOC 2792, fols. 443r–771v, in Schooneveld-Oosterling, *Generale Missiven van Gouverneurs-Generaal En Raden Aan Heren XVII Der Verenigde Oostindische Compagnie. Dl. XII: 1750-1755*, VII: 245.

was necessary to act at this early stage. Yet, after Poivre collaborated with Spanish and Malays in 1755, a VOC report from 31 December 1755 makes an explicit reference to a certain '*Frans capitain De Poivre*' ('French captain De Poivre'). He was said to be working in Manila and Timor, where he negotiated with the Portuguese. The VOC feared further French attempts on the Indonesian islands and the Indian west coast.[48]

Probably with the help of the governor Del Pulgar, Poivre was able to find two Spanish boats. These were under the command of a Malay captain whom Poivre considered 'a man of capacity and trust'.[49] This captain navigated them to the island of Jolo (one of the Sulu Islands, lying between Mindanao and Borneo) in March 1752. While Poivre continued his mission to collect plants – which was rather unsuccessful since he arrived in the wrong season, right before the monsoon – his collaborator Del Pulgar passed away in 1752 and Francisco Domingo Oscote was named governor of Zamboanga in February 1753.[50] Oscote had a friendly relationship with the people of Mindanao and was thus of great importance as a mediator for Poivre's mission. Poivre claimed that he helped Oscote to become governor of Zamboanga with his influence. After someone else had orally been nominated, Poivre convinced Governor-general Ovando to change his mind; he nominated Oscote instead.[51]

Whereas Poivre received help from his Spanish collaborators, the CIO endured silently. The ships which Poivre had ordered from Isle de France remained absent, which brings us back to Dupleix and the CIO's role in general. During the first attempt, being disappointed and too impatient to wait for the CIO's reaction, Poivre embarked on a vessel together with nineteen nutmeg plants to Pondicherry, from where he later sent plants to Isle de France before heading back to the colony himself in December 1753.[52] The details of this botanical coup are not of interest at this point, but the outcome matters. Poivre had been assured that the one nutmeg plant from Mindanao was the 'true spice plant' of the best quality; Poivre now

[48] XXVI Jacob Mossel et al., 31 December 1755, Kol. Arch. 2738, VOC 2846, fols. 360v–745r, ibid., 7: fols. 614r–615r. I thank Peter Boomgaard for pointing me to the edited edition of the VOC's annual reports. These documents were consulted at the KITLV in Leiden.
[49] Poivre to the Secret Committee, 10 September 1752, ANOM Col C/4/7. He considers him as 'homme capable et de confiance'.
[50] 'Duplicado de carta del marqués de Ovando sobre gobernador de Zamboanga', 5 February 1753, AGI FILIPINAS, 464, N.4. Oscote is spelt in the French source Oscotte. Poivre paid Oscote 2,000 piasters in advance, cf. 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 60r.
[51] Poivre to the Secret Committee, 10 January 1754, ANOM Col C/4/8. See also on this diplomatic coup, Nardin, 'La France et Les Philippines Sous l'Ancien Régime', esp. 12–14.
[52] Ibid. Poivre's French collaborator in Pondicherry, who also took some of the plants with him to Isle de France, was a certain M. Aubry.

needed official approval of the plants' originality.[53] Isle de France's new governor Bouvet, however, was not in favour of a *procès-verbal* and the plant entered Isle de France as 'mangosteen'.[54]

Throughout Poivre's expeditions, the CIO, namely the CIO's director Duvelaer, Pondicherry's governor Dupleix, and the Mascarenes' governor Magon (Bouvet's successor), did not take Poivre's requests for ships into account, particularly towards the end of the mission. Poivre's biographer, Louis Malleret, assumes that both governors were the marionettes of Duvelaer, who remained sceptical about the acclimatisation of spices on Isle de France. Malleret suggests that Duvelaer was driven by jealousy of an unknown young and audacious like Poivre.[55] Perhaps personal factors also played a role; it seems plausible that the CIO was not keen on sponsoring a very costly expedition whose success was more than uncertain. In addition, Poivre's botanical rival and the CIO's gardener Fusée-Aublet destroyed the nutmeg specimens which Poivre had brought to Isle de France and surely sought to influence the CIO's opinion about Poivre.

Undeterred by a lack of French support, Poivre made use of a local network. He returned to Manila in May 1754, but this was an inopportune time. War had broken out between the people of Jolo and the Spanish colonisers. In addition, Pedro Manuel de Arandía Santisteban (1754-61) had replaced Ovando as Spanish governor-general.[56] The Spanish-Jolo conflict impeded Poivre's mission. When he arrived in Manila after a voyage of three and a half months, he could not send or receive any letters from his collaborator Oscote in Zamboanga (southwest of Mindanao).

After waiting five months, Poivre's patience came to an end. He had his boat repaired – it had been significantly damaged during the passage from Port Louis to Manila – and navigated to the port of Calderia (Mindanao). From there, he was able to send news to Oscote in Zamboanga. The war and the difficult circumstances had made it impossible for Oscote to come to Manila as he had promised. Yet, Oscote reported about having successfully collected fresh clove and nutmeg in the Moluccas – together with native islanders, he remarked – but

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[53] Spary, 'Of Nutmegs and Botanists'.
[54] 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 60v. See also on the five plants Bouvet's letter to the minister, ANOM Col C/4/8, letter dated 10 January 1754 and ibid, Poivre to the Secret Committee, 10 January 1754. The said M. Aubry also made Poivre understand that he could protect his plants from jealousy if he did not give away their secret.
[55] Malleret, *Pierre Poivre*.
[56] Poivre to the Secret Committee, Isle de France, 15 November 1755, ANOM Col C/4/9, letter 21. On a side note, Arandía Santisteban was the person nominated as governor of Zamboanga. Cf. note 35 and 36. On the Spanish-Jolo conflict, see AGI FILIPINAS 706 and 707.

these plants were too old after a long voyage back to the Philippines to cultivate properly.[57] Poivre considered going back to the Moluccas himself, but he did not have a boat or a reliable captain who knew the region well enough. He approached a Dutch captain who had been in service of his country for fifteen years before deserting to the Philippines and working for the Spaniards. Even when Poivre offered 1,000 piasters, the captain did not accept this offer because he was too anxious of being caught by his compatriots.[58] Oscote promised to continue the collaboration with Poivre once the war was over and he could collect spices together with people from both Jolo and Mindanao. In short, Poivre had to return almost empty handed: he did not have any nutmeg, although he did obtain a Spanish patronage network instead.[59]

SPI(C)ES: THE QUESTS BETWEEN OLD AND NEW ALLIES

Even when Poivre was intendant between 1767 and 1772, he continued the secret spice quests through this patronage network, but without informing the local governor of the Mascarenes.[60] He initiated four expeditions, charging Provost, *commissaire de la Marine*, to negotiate with the local people on his behalf.[61] These expeditions were not easy to set up and Poivre had to move money around. Sometimes there was not enough money to send a second vessel, as Provost had requested in August 1769, for instance. Both vessels, *Le Vigilant* and *L'Étoile du Matin*, were indispensable for continuing the mission and could not be sent back to Isle de France with nutmeg on board.[62] In order to overcome the lack of money, Provost obtained a letter which authorised him to ask the Spanish governor for cash. Poivre, on behalf of the crown, promised to reimburse the Spanish government.[63] Given the difficult financial circumstances and that the spice mission was secret, this letter was a tool to trick the Spaniards. The French crown was not willing to invest money in the spice project: indeed, the court was not even aware of what was going on.

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[57] Ibid. and 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 62v. In fact, all the nutmeg came from the islands of Banda and Pulo Way and clove from Ambon according to Poivre, who communicated this to Malesherbes. 'Extrait de quelques conversations avec M. Poivre en 1758', BCMNHN 1756, 21°.
[58] Poivre to the Secret Committee, Isle de France, 15 November 1755, ANOM Col C/4/9, letter 21.
[59] Poivre's good relation with Jesuit fathers probably also helped the French-Spanish collaboration against the Dutch, see: 'Extrait de quelques conversations avec M. Poivre en 1758', BCMNHN 1756, 23°.
[60] See the secret letter from Poivre to Praslin, 9 January 1768, ANOM Col C/4/22.
[61] On these spice quests, see particularly Le Gouic, 'Pierre Poivre et les épices: une transplantation réussie'.
[62] Provost to Praslin, Manilla, 13 January 1770, ANOM Col E 343 (Provost's file), fols. 219r–228v.
[63] Authorising letter, dated 25 September 1769, ibid., fols. 229r–230r.

Looking at the negotiations from a reversed perspective, CIO agents also made use of their status during the negotiations. During Poivre's stay in the Portuguese possession of Timor in April 1755, he negotiated with the Portuguese governor and made financial promises in the name of the CIO, promises which the CIO's director Dupleix did not know about since Poivre had been travelling for months without any news exchange.[64] This particular case in Poivre's spice quests in East Asia vividly demonstrates two important aspects of negotiation practices in the colonies. First, CIO agents made use of the power they received through their status as CIO operatives, even when the CIO had not been informed prior to negotiations. Second, colonial botanical projects were multinational and required collaboration between the naturalists and their local collaborators. The letter was probably a trick and can serve as an example that actors overseas made use of their official status as state agents without the authorisation of the state in order to achieve their goals on the spot.

The mission became a matter of games and lies. Before Provost unveiled the real purpose of his mission in the region – he explained that he was anxious of Spanish jealousy – he handed a letter to the Spanish governor in Manila stating that he was on a fake astronomical mission, a little white lie. He invented the story that they were exploring the islands of Bali and Lombok in order to create better maps of the region for ships coming from China, particularly in times of war.[65] This lie was plausible because they had the astronomer Véron on board: he had joined them after leaving Bougainville's circumnavigation.

In 1769, the Spanish governor announced that 'true' nutmeg had been found in the Philippines, but the great excitement caused by the news was brought to a quick end when Provost identified the live plants as not 'true'.[66] The nutmeg in question was a different and inferior type that possessed features distinct from the 'true' one. These features were oval leaves, a felt fruit and, most importantly, an absence of the 'quality of the true spice'.[67]

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[64] 'Rapport de la mission du sieur Poivre', NAF 9377, fols. 54r–67v.
[65] This is what he explained to Praslin. Provost to the Minister, Manilla, 13 January 1770, ibid., fols. 219r–228v.
[66] This is what Commander Trémigon confirmed in his journal: 'Extrait du journal de M. de Trémigon relativement à l'acquisition qu'il a fait des plants de muscadier et de géroflier', ANOM Col C/4/25, fols. 125r–129r, 126r.
[67] Funke, 'Muskatnüsse', 72. On the identification of the 'true' nutmeg and the struggle over identity, see Spary, 'Of Nutmegs and Botanists'.

Figure 10. Map of Indo-Pacific islands

Yet, Poivre pressed for the 'true' spice and included descriptions of nutmeg and clove in his secret instructions for Provost in 1772. He explained that the only visible, or rather tactile, feature for recognising the 'true' species was the leaf, which one could easily grind between the fingers in order to produce an aromatic scent. This was a feature which the 'false' nutmeg did not have.[68] The easiest way to distinguish between the species was to examine the nuts when they were surrounded by the maces and covered with husks. There is evidence relating to the inferior quality of the Philippine nutmeg which apparently naturally grew in Mindanao. In the later agricultural reforms of the Philippines under botanist Cuéllar, however, it was not 'la nuez moscada' or 'nuez myristica' that was of interest: the Spaniards focused on cinnamon instead.[69]

Despite the lower quality of nutmeg, Provost remarked upon how the richness of the Philippines could bring much advantage to the French. He claimed that the advantage would

[68] 'Description abrégée du muscadier et du géroflier pour servir à mettre les Srs Trémigon et Provost dans le cas de n'être pas trompés dans le choix des plants de ces deux espèces d'arbres', 4 February 1772, ANOM Col C/4/22, fol. 127r.
[69] 'Nuez moscada fruto algo largo de la Provincia de la Lafuna de Bay en las Islas Filipinas cogida en el año de 1789', AGI FILIPINAS 723.

be even greater if the Spaniards remained possessors of the rest.[70] Along these lines, Poivre added in a letter to the minister in 1771 that if the French crown aimed to establish a colony in the Philippines, it was of great importance to also form an alliance with the sultan of Jolo, Mohamad Alino Dien (King Fernando I of Jolo). The sultan played a major role in the search for spices and was a reference point for other local island kingdoms.[71]

During Provost's last spice voyage to the Pacific in 1772, he also anchored in the Manilan port, where he was to strengthen the alliance with the Spanish government and the church. Yet, despite his hopes he was received rather coldly.[72] The reasons for this change in attitude remain speculative. The last voyage could have been a sign of French voracity to the Spaniards. After all, they would not receive a piece of the (spice) cake. From a different angle, this change of relations can underline how important the Spanish alliance in the previous attempts had been, particularly in the 1750s. Without their help, the spice project might not have been possible at all. The overall shift of international relations between France, the Dutch, and Spain, that is to say the decline of Dutch power in the East Indies and the effect of the Seven Years' War on the alliances between France and Spain, must certainly be noted. Both France and Spain had an interest in defeating the Dutch spice monopoly. On the one hand, the Dutch defence of their European monopoly over the trade in clove and nutmeg led to the use of violent deterrents. On the other, it fuelled the competition between the French and Spanish colonies over future spice production and trade. In the meantime, in 1757, Spanish colonists sought to establish a spice garden in Mindanao. In light of these reforms, Spain literally spiced up the competition with Isle de France. These were perhaps the reasons why Spanish authorities stopped collaborating with future French efforts in the Indo-Pacific region.

[70] 'Notes détachées sur les Isles Philippines, Extrait du Journal de M. Provost, comm. de la Marine dans son voyage aux Philippines et aux Moluques en 1772', AN MAR 3JJ/377, unpag. See also AGI FILIPINAS 723, documents referring to the cultivation of cinnamon, nutmeg and pepper on the Philippines (1770/1792).
[71] Poivre to Praslin, 21 July 1771, ANOM Col C/4/27 fol. 40r.
[72] See Provost's report on the mission to the Moluccas, June 1771-June 1772, ANOM COL C/4/30, fol. 144r and a letter from Poivre to Bertin, dated 8 April 1772, ANOM COL C/4/30, fol. 290v.

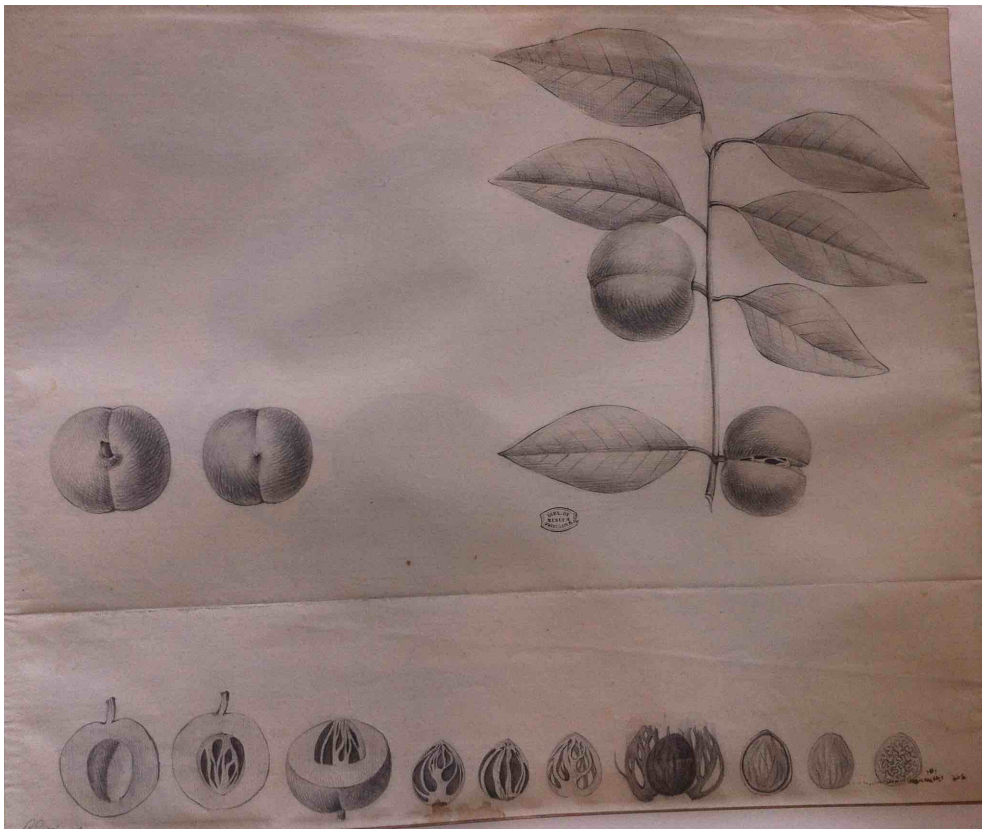

Figure 11. Nutmeg. Drawing by Jossigny, Commerson collection, BCMNHN Ms 280, Vol. 1.

Prior to the big expeditions in the late 1760s and early 70s, in 1755, Poivre could not return to Isle de France empty handed and made one last attempt before writing to the CIO that there were too many obstacles to overcome.[73] Before heading back westwards, he thus stopped over on the island of Timor, one of the Lesser Sunda Islands.[74] Even though the spice quests and Spanish-Filipino collaboration had not been a great success, he still had to rely on middlemen. He now looked for these amongst the Portuguese in Timor in April 1755, the only Europeans who were permitted trade in Manila.[75] The island's governor Manuel Doutel de Figueiredo Sarmento (in office 1751-59?) was interested in the spice project. No sooner said than done,

[73] Poivre to the CIO, letter dated 15 November 1755, printed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 61–73.
[74] On Timor-Portuguese relations, see Artur Teodoro de Matos, *Timor Português, 1515-1769: contribuição para a sua história* (Lisboa: Instituto Histórico Infante Dom Henrique, 1974); Abdul Kohar Rony and Iêda Siqueira Wiarda, *The Portuguese in Southeast Asia: Malacca, Moluccas, East Timor* (Hamburg: Abera Verlag, 1997); Laura Jarnagin, *Portuguese and Luso-Asian Legacies in Southeast Asia, 1511-2011: Culture and Identity in the Luso-Asian World* (Pasir Panjang: Institute of Southeast Asian Studies, 2012).
[75] See also on these circumstances: 'Mémoire sur le commerce de Cochinchine, par. M. de Montaran, commissaire du Roi', 12 juillet 1748, in: Henri Cordier (ed.), 'Mémoires divers sur la Cochinchine', *Revue de L'Extrême-Orient* 3 (1883), 305–398.

he sent two 'naturals' of the island to seek for nutmeg plants according to the description he had received from Poivre.[76] The two islanders found small plants in the western part of the island, which Poivre identified as nutmeg greatly inferior to the 'true' variant: he explained to the Portuguese governor that the plant was wild and degenerated.[77] Poivre was very much aware of the lower quality of the plant. He assumed that the lower quality was caused by Timor's climate, which was different from the islands of Ambon and Banda where the 'true' spices grew.[78] Poivre had also seen this sort of nutmeg on these islands, which grew wild in the forests and was not of a better quality than the one in Timor.[79]

In instructions for Provost during the second big spice quest in 1768, Poivre underlined that 'the long or round nutmegs are of the same good quality.'[80] Yet, in observations made in 1752 while in Manila, he stated that – agreeing with the Dutch botanist Rumphius – the long and the round ones were similar and of equal quality but the long ones were more oily and aromatic.[81] Despite the low quality of the collected plants, Poivre took them on board and signed a commercial contract with the governor with the promise of 14,000 *piastres* for twenty 'true' nutmegs and twenty clove plants.[82] From 1755, the Portuguese governor continually reasserted this collaboration, finally sending a letter to Poivre in Lyon in 1761 by the way of Macau that the spices had been brought by Makassar traders and were ready to be picked up in Timor.[83]

Later, when Poivre returned to the Indian Ocean as the Mascarenes' intendant, he intended to go back to Timor. He originally wanted to send *Le Vigilant*, commanded by Captain Trémigon, to the Portuguese possession, where the captain was to pick up nutmeg and clove. Poivre wrote to the minister in November 1767 that the Portuguese governor had promised in a letter dated 1760 that the plants were ready to be picked up.[84] However, because of tensions

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[76] 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 63v.
[77] Ibid.
[78] 'Extrait de quelques conversations ave M. Poivre en 1758', BCMNHN 1756, 21°.
[79] This is what Poivre explained to Malesherbes, ibid.
[80] 'les noix muscades longues ou rondes sont également bonnes épiceries, pourvu qu'elles aient de l'aromate.' 'Instructions secrètes pour M^rs^. Trémigon, lieutenant des vaisseaux du Roi, commandant la corvette Le Vigilant Et Provost subrécargue sur ledit bâtiment pour le voyage de Quéda Et D'Achem', 4 February 1768, ANOM Col C/4/22, fols. 119r–121v.
[81] 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manila 12 February, 1752, signed by Poivre, ANOM Col C/2/285, fol. 159r.
[82] 'Rapport de la mission du sieur Poivre', NAF 9377, fol. 63v. The commercial relations also concern the slave trade. Poivre remarked that it would be a big advantage to have a stepping stone in this part of Asia.
[83] 'Copie des instructions secrètes données par M. Poivre aux Srs Cornic et D'Olbel, capitaine et lieutenant du vaisseau particulier L'Utile', ANOM COl C/4/22, fols. 122r–124v.
[84] Poivre to the minister, 30 November 1767, ANOM C/4/18.

between Poivre and Governor Dumas, who was not in favour of the spice mission, Poivre was obliged to send a private boat, namely *L'Utile*, commanded by Yves Cornic, to Timor in early 1768 instead. The expedition of *L'Utile* remains full of unanswered questions. As explained above, Cornic was sent on *L'Utile* in order to see if the Portuguese had kept their promise to acclimatise nutmeg and clove from the Moluccas in Timor.[85] Poivre explained in the instructions to Cornic that he had signed a convention with the Portuguese governor in 1755. It included a sum in return for the spice plants, which he was unable to raise given his current financial situation and the lack of metropolitan support. Poivre simply could not pay the Portuguese as he had promised without consulting his financers, particularly in face of Isle de France's debts.[86] Taking these circumstances into account, the Portuguese may have broken their promise because the French did not pay as had been arranged. Moreover, *L'Utile* never made it back: almost its entire crew died from tropical fever and the ship sank in a terrible storm in early summer 1770.[87] There were also rumours that Cornic was poisoned on the orders of the '*roi noir*' ('black king').[88]

For the parallel mission in 1768, *Le Vigilant* went in the direction of Malaysia, where Provost and Trémigon were to collect spices.[89] They considered using Kedah – similar to the strategy of using Manila in the 1750s – as a transit spot and to tighten relations with local peoples. In fact, in the secret instructions to Trémigon and Provost, Poivre explicitly stated that the actual reason for *Le Vigilant* to go to Kedah was to make contacts with navigators from Celebes (present-day Sulawesi), who had an 'interloping trade of spices' and also likely had fresh seeds and live plants of both nutmeg and clove.[90]

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[85] 'Copie des instructions secrètes données par M. Poivre aux Srs Cornic et D'Olbel, capitaine et lieutenant du vaisseau particulier L'Utile', ANOM COl C/4/22, fols. 122r–124v.
[86] Ibid.
[87] This is what Trémigon reports. Trémigon's Journal, ANOM C/4/25, fols. 125r–129r.
[88] 'Requête de Maturin Cornic au Duc de Praslin sur la perte du vaisseau l'*Utile* commandé par son frère, Cornic Le Jeune', dated 20 July 1770, transcribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 70; See also Le Gouic, 'Pierre Poivre et les épices: une transplantation réussie', 110–11.
[89] This is what Poivre explains in a secret letter to the minister, 9 January 1768, ANOM COL C/4/22.
[90] 'Instructions secrètes pour M[rs]. Trémigon, lieutenant des vaisseaux du Roi, commandant la corvette Le Vigilant Et Provost subrécargue sur ledit bâtiment pour le voyage de Quéda Et D'Achem', 4 February 1768, ANOM Col C/4/22, fols. 119r–121v.

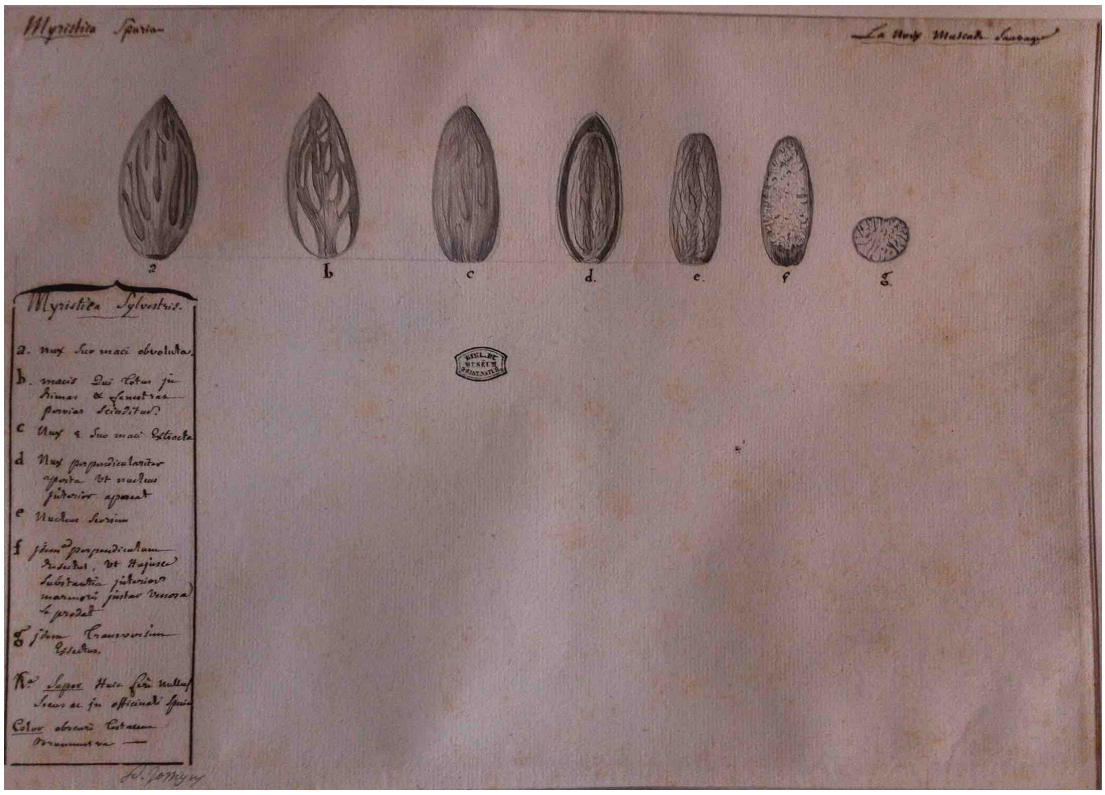

Figure 12. 'Myristica Sylvestris - La noix muscade sauvage', drawing by Jossigny, Commerson collection, BCMNHN Ms 280 Vol. 1.

Indeed, the Bugis had an important community in Makassar, from whence their maritime commerce developed after the fall of Makassar in 1666-67.[91] The Bugis are a Southeast Asian people belonging to the great family of the Austronesian peoples and whose homeland is South Celebes.[92] The most widely known harbour city, Makassar, was home to many Bugis from the eighteenth century onwards. Yet, there is a distinction between the Bugis and the Makassar peoples, who speak two distinct – albeit closely related – languages.[93] The Bugis and the Makassar were already smuggling goods from the Dutch Spice Islands in the seventeenth century. Together with the kingdom of Goa's active maritime trade based on Moluccan spices, they imposed 'a very serious threat to the monopolistic ambitions of the Dutch'.[94] As such, the French were by no means the first to enter a contest with the Dutch!

The Bugis themselves traded nutmeg with the people of the Papuan islands (New Guinea):

[91] Pelras, *The Bugis*, 254, On the Bugis' sea trade and navigation, see ibid., 254-268; On local trading networks in the Maluku Sea, see Leonard Y. Andaya, 'Local Trade Networks in Maluku in the 16th, 17th, and 18th Centuries', *Cakalele: Maluku Research Journal* 2, no. 2 (1991), 71–96.
[92] Pelras, *The Bugis*, 1.
[93] Ibid., 15.
[94] Ibid., 265.

Provost reported about another sort of 'true' nutmeg native to the Papua Islands. The Papuans sold nutmeg to the Bugis and the Bugis traded nutmeg - in their husks – in China, the Coromandel Coast, and Bengal.[95] This type of nutmeg – as the botanists Michel Adanson and Bernard de Jussieu explain in their report from 1773 – was similar to the one Provost had found in Manila, but it did not have any aroma.[96]

The Bugis, however, were not the only important agents in the story: another factor was French deserters who sought to return to France. When Provost tried to gather information about the Dutch post of Saway (which lies in the north of the big island Ceram), he stopped in the village Wayen, where the inhabitants told him that Saway was not well protected: there were only twelve soldiers, most of whom were French. Foreign ships were prohibited from anchoring in Dutch territory. Yet, heading to Saway, Provost pretended that he urgently needed fresh water and refreshments for his crew. He pretended urgency and provided some presents making the VOC officer in charge turn a blind eye to these regulations.[97]

In Saway, an old French soldier who helped to mediate between the French and another local informant of the island (who was afraid of the French soldiers and did not appear in front of the French) sought to send his twenty-year-old son back to the French colonies in exchange for information. Provost accepted the deal since the young man and his knowledge could be useful for the spice garden on Isle de France.[98] A report by Isle de France's governor Desroches confirmed that the young man and another French man who grew up in the Moluccas were admitted to Isle de France, where they were employed in the spice gardens.[99] Provost assumed that the young men could transmit knowledge about spice cultivation, but it turned out that they were not as helpful as Provost and Poivre had hoped, as chapter six explores.[100]

Although Poivre's spice quests were not as successful as he had hoped, it is important to point out again that his enterprise was based on secret relations and the contribution of Spanish and Portuguese middlemen, Chinese and Malay traders, and Moluccan islanders.[101]

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[95] Report by Adanson and de Jussieu, 17 February 1773, transcribed in Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 120.
[96] Ibid.
[97] Provost's journal (Mai 1769 - June 1770), attached to Poivre's letter to the minister, 20 July 1770, ANOM Col C/4/27.
[98] Ibid.
[99] Desroches' report to the minister, 22 July 1770, ANOM Col C/4/26, fols. 168v–179r.
[100] Poivre complains in a letter to the minister, 22 August 1771, ANOM Col C/4/29, fols. 22v–23r.
[101] For a comparative perspective of the early modern Spanish, Portuguese, and French colonial enterprises in relation to science, see also Charlotte de Castelnau-l'Estoile and François Regourd, eds., *Connaissances et*

In short, though Poivre was not able bring 'true' spices to Isle de France, he had a much more precious 'souvenir': a secret network of allies in the region on which he could rely during his future attempts.

BROKERS, PIRATES, AND NEGOTIATIONS (1768-1772)

When Provost arrived in Kedah, he sought not to acquire spices *per se*, but to negotiate with the Moluccan sailors who frequently entered the ports of Kedah.[102] He spoke Malay (and also Dutch), which was a great advantage since he could communicate with the local populations himself. Poivre indicated in his secret instructions to Trémigon and Provost that in Bahasa Malay nutmeg was called *pala* and clove *digne* – expressions which he must have picked up during his own travels in the 1740s and 1750s or in Rumphius' *The Ambonese Herbal* (1741). In modern Malay and Indonesian, '*pala*' indeed means 'nutmeg', but 'clove' is translated as '*cengkih*'. 'Digne' was probably the French way of spelling '*chenge(h)*', '*chengkeh*', or '*chenke(h)*', an earlier form of today's '*cengkeh*', which means 'clove'. In early modern Dutch, the spelling was '*tjengke*'.[103] In the language of the Bugis, the clove is '*imokimong*': this was the word used in Celebes and thus by Dinck Poudony, a Bugi pirate to whose role I will return below.[104]

Thanks to his language abilities, Provost could interact with many islanders directly and, therefore, more easily acquire information about the spice plants as well as Dutch vessels omnipresent around the Moluccas. The Malay-French vocabulary list which Provost shared with his collaborator Cordé can provide various examples, such as '*N'y a-t-il aucune nouvelle de quelque vaisseau*' ('Is there no news about ships'), which was translated as '*Tida Gabar daron derry Darang capal*.'[105] If there were any Dutch vessels in the region, Cordé was to

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pouvoirs: les espaces impériaux, XVIe-XVIIIe siècles, France, Espagne, Portugal (Pessac: Presses universitaires de Bordeaux, 2005).

[102] Poivre to Praslin only, 18 December 1768, letter n° 147, ANOM Col C/4/22.

[103] I thank Peter Boomgaard for pointing me to these different spellings and distinct vocabularies.

[104] 'Instructions secrètes pour M[rs]. Trémigon , lieutenant des vaisseaux du Roi, commandant la corvette Le Vigilant Et Provost subrécargue sur ledit bâtiment pour le voyage de Quéda Et D'Achem', 4 February 1768, ANOM COL C/4/22, fols. 119r–121v. I thank Peter Boomgaard for pointing me to these different spellings and distinct vocabularies. See also the instruction on how to distinguish the plants: 'Description abrégée du muscadier et du géroflier pour servir à mettre les Srs Trémigon et Provost dans le cas de n'être pas trompés dans le choix des plants de ces deux espèces d'arbres', by Poivre, ANOM Col C/4/22, fol. 127r.

[105] 'Instruction secrète pour M. Cordé commandant la corvette du Roi le Nécessaire, au cas de séparation', by Provost, 25 December 1771, ANOM Col C/4/29, fol. 245r.

embark on Gebe fisher boats, which would take him to Maba, where the best port of the region, Bicoli, was located.[106]

Provost's communication skills allowed him to readily obtain refreshments for the ships' crew. Often, islanders presented refreshments upon the vessels' arrival. When Provost reported about this hospitality, Governor Desroches forwarded an extract of Provost's journal to Versailles in July 1770. In it he stated that although the Malays were said to be the most malicious people on earth, Provost found humanity, friendship, and reliability instead.[107] The tactful, even friendly, relationship between the French actors and the Malay-speaking locals in the region can also be illustrated through the French-Malay vocabulary list: '*mon ami*' ('my friend') was translated as '*mohabat*' and the polite form of address '*Vous*' as '*Touan*', that can also be the second person plural.[108] There are indeed scholarly works which underline these friendly relations between those who encountered each other, such as Vanessa Smith' study on eighteenth-century Pacific explorations.[109]

Provost also managed to establish friendly relations with several rulers in both the Moluccas and the Philippines during his voyages. When it seemed that the Dutch forces were about to threaten the French, they were offered 3,000 men as reinforcements.[110] To highlight an example which I mentioned before, during his earlier travels in the 1750s, Poivre succeeded in gaining the favour of Sultan Mohamad Alino Dien of Jolo.[111] This alliance with the sultan was reinforced in 1770, when the sultan nominated the French king as his immediate protector in a letter which he (or rather one of his diplomats) wrote in Spanish [cf. figure 14].[112]

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[106] Muridan Satrio Widjojo, *The Revolt of Prince Nuku: Cross-Cultural Alliance-Making in Maluku, c.1780-1810* (Leiden, Boston: Brill, 2009), 3.
[107] Desroches to the Minister, 22 July 1770, ANOM Col C/4/26, fols. 168r–179r.
[108] 'Instruction secrète pour M. Cordé commandant la corvette du Roi le Nécessaire, au cas de séparation', by Provost, 25 December 1771, ANOM Col C/4/29, fol. 245r.
[109] Vanessa Smith, *Intimate Strangers: Friendship, Exchange and Pacific Encounters* (Cambridge; New York: Cambridge University Press, 2010). On intercultural exchanges in early modern Southeast Asia, see also the omnibus Tara Alberts and David Irving, eds., *Intercultural Exchange in Southeast Asia: History and Society in the Early Modern World* (London: I.B. Tauris, 2013); and in relation to natural knowledge in particular Matthew Sargent, 'Global Trade and Local Knowledge: Gathering Natural Knowledge in Seventeenth-Century Indonesia', in ibid., 144–60.
[110] 'Journal de Sonnerat', transcribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 96–100. The Dutch gathered their forces on the island of Jailolo (also spelt Jilolo or Gilolo, present-day Halmahera), the biggest island of the northern Moluccas.
[111] See 'Extrait du journal de M. de Trémigon', ANOM Col C/4/22, fols. 247r–259r. This extract, together with Provost's journal (fols. 260r–263r), are attached to Poivre's letter to the minister, dated 18 December 1768.
[112] Sultan Mohamad Alino Dien to Louis XV, Jolo, ? February 1770, ANOM Col C/4/27, fol. 43v. See also Dupont de Nemours, *Notice sur la vie de M. Poivre*, 46.

Figure 13. The Maluku Sea.

Poivre's biographer Dupont also testified that Mohamad Alino Dien saw in Poivre a 'father.'[113] Provost underlined that it was because of Poivre's friendship with Jolo's sultan – 'a prince with lots of esprit and knowledge'– that he was well received on the island.[114] The

[113] Ibid.

[114] 'Je dois à l'amitié du sultan de cette île pour M. Poivre, le bon accueil que j'en reçu. Ce prince est plein d'esprit et de connaissances. Il m'entretint de divers objets de commerce très intéressants, et me donna une lettre pour S. M. que j'aie remise à M. Poivre.'Provost's journal (May 1769–June 1770), attached to a letter from Poivre to the minister, 20 July 1770, ANOM Col C/4/27. Provost claimed that the king spoke Spanish well, which might be doubtful. First, the handwriting in the letter differs from the signature. Secondly, he had an interpretor who spoke Spanish. See on this 'Año de 1752. Copia a la Relacion del expediente formado con el motivo a la expedicion de Jolo', AGI FILIPINAS 706, N. 4, fol 3.

Spanish-Moro conflict was a long struggle between Jolo and Manila. It led to the arrest of Mohamad Alino Dien and ended in the sultan's conversion to Christianity in 1749, after which he became King Fernando I.[115] The conflict was a problem for the French; it hindered their ability to collaborate with Zamboanga and Mindanao in the search for nutmeg. Yet, the struggle turned out to be an advantage in the long run.

The French formed alliances in the region from the first mission in the Moluccas. In June 1768, Provost laid the foundations for intense Franco-Malay collaboration in Kedah. Together with the commander Trémigon and relying on the help of the old and respected dervish Hadé Hachem, Provost managed to negotiate informally with a Bugi pirate from Celebes named Dinck Poudony. The pirate was to gather spices for Provost, which he planned to collect a year later in July 1769. The four held a secret meeting in the house of Hadé Hachem, where they came to an agreement using basic Portuguese and also some Bahasa Malay.[116] As a result, the Frenchmen signed a contract which promised them spices in exchange for money and gunpowder.[117]

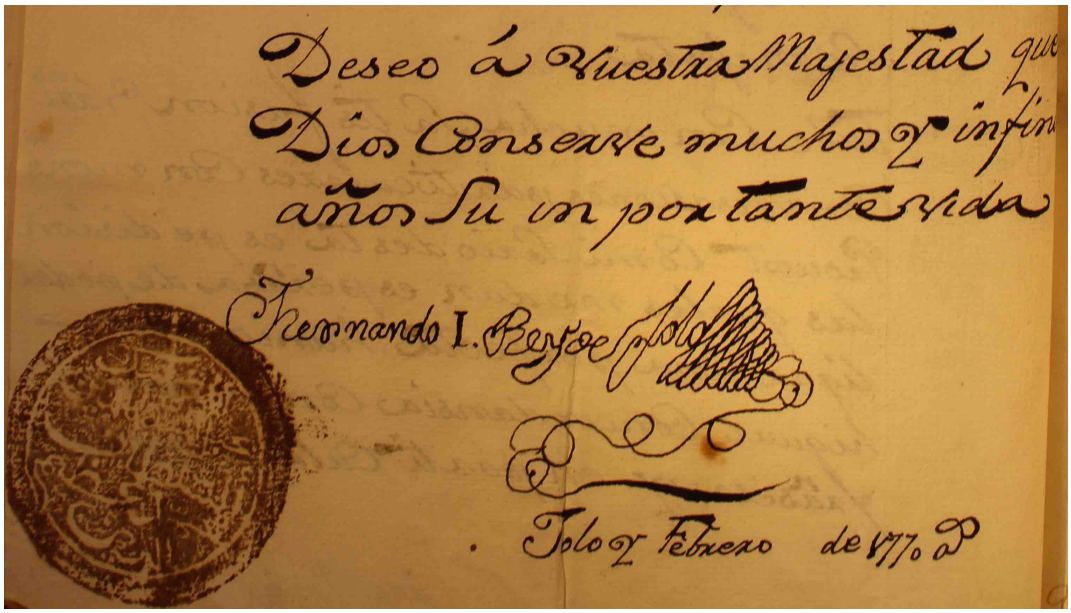

Figure 14. Extract of Sultan Mohamad Alino Dien's letter to Louis XV, Jolo, February 1770, ANOM Col C/4/27, fol. 43v.

[115] On the Spanish-Moro conflict, see two big bundles in the Archivo de Indias: AGI FILIPINAS 706 and 707 as well as FILIPINAS 463, N.6. In Spanish, Fernando I is known as Mahamat Alimudin.
[116] Trémigon's journal, ANOM Col C/4/22, fol. 247v. Hadé Hachem is also called Hadé Hassen in the sources.
[117] Ibid., fol. 249r.

Furthermore, they agreed to cover the expenses of Dinck Poudony's voyage to Selangor while Hadé Hachem was to engage more captains in the Malaysian peninsula in a similar way.[118] With this deal, Provost was convinced that he could achieve a breakthrough by the following year. The French spice quest was not only a cross-cultural but also a cross-religious affair, and Muslims remained an important reference point for the last attempt in 1771. Poivre clarified in the secret instructions to Provost that if this religious man, 'friend of the nation', succeeded in engaging sailors from Mindanao or Makassar, Provost was authorised to give him gifts.[119] In Gebe, Provost entered relations with a certain 'Mohammedan priest, an intelligent man' named Bagousse.[120] Desroches described him as a young 'priest' who was particularly attached to Provost: he asked for explicit objects, and Provost sought to motivate him by promising even bigger presents when time was running short.[121]

Apparently, it was only in 1770 – that is to say, the third attempt to collect nutmeg and clove in the Moluccas – that local informants gave away important information. Provost learned that the Dutch had destroyed all nutmeg and clove plants on all the islands except for Ambon, which had been captured in 1605 and was very well protected. It was an old French soldier who had been living in the Moluccas for more than thirty years who transmitted this information.[122] In Ceram in the same year, Commander D'Etcheverry encountered a Dutch turncoat who did not hide his hatred of the Dutch. He gave away secret information that in Gebe one could find nutmeg of the same fine quality as in Ambon.[123] This Dutch deserter knew the region very well and D'Etcheverry even bought some maps while negotiating in his rusty Dutch. This was very interesting information for the French because the Dutch had not managed to destroy nutmeg trees entirely in the region. The Dutchman was very careful that D'Etcheverry was not seen by the '*noirs malais'* ('Malay blacks') who worked in his house, maybe because they might have been spies or might sell their knowledge to the Dutch. On a

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[118] Ibid., fol. 249v.
[119] Poivre's secret instructions to Coëtivi and Provost, 24 Juni 1771, ANOM Col C/4/28.
[120] 'prêtre mahométan, homme intelligent', 'Instruction secrète pour M. Cordé commandant la corvette du Roi le Nécessaire, au cas de séparation', by Provost, 25 December 1771, ANOM Col C/4/29, fol. 245r.
[121] 'un meuble dont il faisait grand cas et qu'il désirait si passionnément d'obtenir qu'enfin il lui promit de lui faire avoir des plants et des germes de géroflier à condition qu'il aurait ce meuble qui n'était qu'un appareil assez médiocre de tabagie, et un très beau mouchoir tel que ceux dans lesquels les orientaux mettent leur bétel', Desroches to Praslin, 22 July 1770, ANOM Col C/4/26, fols.168r–179r.
[122] 'Extrait du voyage fait en 1769 et 1770 aux Isles Philippines et Moluques, par les vaisseaux la corvette du roi, le Vigilant, et le bateau l'Etoile du Matin sous le commandement de M. Evrard de Trémigon, lieutenant de vaisseaux, commandant le Vigilant; présenté par le sieur d'Etcheverry, lieutenant de frégate, commandant l'Etoile du Matin, d'après les vues de P. POIVRE, pour la recherche des arbres à épiceries', printed in Poivre, *Mémoires d'un Botaniste et Explorateur*, 158–61.
[123] Ibid.

different note, and given that D'Etcheverry and the Dutchman spoke in Dutch, these Malays probably understood Dutch. If these were actually Gebe islanders, Malay servants, or even slaves remains unclear. Provost described the Gebes as having 'a pleasant character' and that 'one does not have to be afraid of anything if one is careful that one does not look at their women because they are very jealous.'[124] Provost understood the need to show respect to peoples' customs and instructed his men to follow his example. He adroitly used his knowledge about the islanders in order to achieve his goals, such as during the negotiations with the sultan of Patani, about whom I elaborate in greater detail in the following.[125]

With this secret information about Gebe, D'Etcheverry, together with Provost, set sail to this island, which was not foreseen in the original instructions they had received. The Gebe islanders, who hated the Dutch for destroying their nutmeg (as the Dutchman in Ceram had given away), understood that the vessel was not a Dutch one. Thus, they offered refreshments to the French while waiting for the island's prince. The king of Gebe was very interested in becoming an ally of the French in order to 'deliver himself entirely from the tyranny of their current masters [the Dutch]', which he sought to express by tearing apart the Dutch flag and replacing it with the French one in a big ceremony.[126] D'Etcheverry explained that their collaboration had to remain secret for the moment in order not to challenge the Dutch in an obvious way. Conflicts were used as diplomatic coups and the French sought to mobilise the islanders' interest in getting rid of their European enemy. At the same time, the islanders sought to mobilise French interests against the Dutch by entering relations with the French, as I argue through the lens of the following example.

The Muslim head of Makassar had long before established a colony in Timor under Portuguese protection.[127] Both partners were interested in weakening their Dutch enemy in the region. In the 1750s, when Poivre landed on the island of Buton (where he also sought to collect spices and make 'local friends'), the Buton islanders were not willing to even let the crew off the ship. The islanders had been at war with the Dutch, and although Poivre's interpreter spoke Malay, he could not convince the Butons that these European-looking men

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[124] 'd'un caractère doux, et l'on n'a rien à craindre d'eux, en ayant l'attention de ne point chercher à voir leurs femmes, car ils sont fort jaloux.' 'Instruction secrète pour M. Cordé commandant la corvette du Roi le Nécessaire, au cas de séparation', by Provost, 25 December 1771, ANOM Col C/4/29, fols. 242r–245r.
[125] Desroches' report to the minister, 22 July 1770, ANOM Col C/4/26, fol. 168r.
[126] 'le délivrer entièrement de la tyrannie de ses maîtres actuels' 'Extrait du voyage fait en 1769 et 1770 aux Isles Philippines et Moluques (...)', printed in Poivre, *Mémoires d'un Botaniste et Explorateur,* 161.
[127] 'Extrait de quelques conversations ave M. Poivre en 1758', BCMNHN 1756, 18°. However, when Provost returned to Timor in 1769, no trace of the Portuguese possession could be found on the island because the inhabitants had destroyed all of the Portuguese buidling in Lifao.

were not Dutch.[128] While Poivre's mediator was trying to negotiate with the islanders, 200 to 300 armed men arrived. They yelled against the Dutch nation to which they thought Poivre and his men belonged. Poivre and his crew were left with no option other than to leave.[129]

The islanders' anger against the Dutch thus also explains why they were willing to co-operate with the French, who sought to challenge the Dutch monopoly over the spice trade. One must also consider the French attempts through the lens of potential advantage for the local populations instead of regarding it as exploitation by Europeans. In assisting the French, the islanders could take advantage of the French attempts by getting rid of the Dutch and by receiving money or goods. In return, the Dutch ferocity in safeguarding their clove and nutmeg monopoly led to more violent deterrents over the course of the middle decades of the eighteenth century, as I explained at the beginning of the chapter.

The crucial point is that the islanders received something in return for serving as spies and collecting spice plants. The price rose according to the difficulty of finding the plants: for instance, it was higher when the islanders had to look for the plants in the mountains or in foreign territory. The inhabitants of Ceram's mountains were called the 'Alphours': they were said to know 'no manners, no religion, no authority', and even the Dutch did not succeed in dominating them.[130] This was the reason why nutmeg and clove grew in their lands: the Dutch did not enter and thus could not destroy their spices.[131]

EMPOWERING SPICES – A REVERSED VIEW

The French sought to mobilise this conflict between the Dutch and the islanders just as the islanders sought to mobilise the French in order to get rid of the Dutch. Poivre explicitly expressed the former when he wrote to the Duc de Praslin on 16 June 1768 that the Makassars would surely collaborate with the French in order to see the Dutch chased off their lands.[132] As the chiefs of Moa (the biggest island of the Leti Islands, lying between Leti and Lakor) explained, they were at war with the inhabitants of Jailolo (present-day Halmahera, the biggest island of the northern Moluccas). The islanders were playing diplomatic games in

[128] This is what Poivre explained in a letter to the Secret Committee, 15 November 1755, ANOM Col C/4/9, letter 21.
[129] Ibid.
[130] Desroches to Praslin, 22 July 1770, ANOM Col C/4/26, fols. 168r–179r. Notably, Desroches refers to the island of Jailolo but possibly mixed it up since the 'Alpours' were on Ceram.
[131] Ibid.
[132] Poivre to the Duc de Praslin on 16 June 1768, secret letter, ANOM Col C/4/22, n° 66.

order to challenge each other and their European enemies. They were keen to collaborate with European explorers who had not tried to conquer their lands, such as the king of Jolo, who was open to the French but not the Spaniards, the king of Patani, who sought to make a good deal with the French while getting rid of the Dutch, or the aforementioned chief who offered to defend the French against the Dutch. Collaborating with the French was thus in their interest for two reasons. First, they could offer their services in exchange for money and goods. Second, by entering commercial relations, they could pit competing Europeans against each other in order to get rid of those who threatened them (like the Spanish or the Dutch, particularly the latter because they were destroying nutmeg in order to protect their monopoly).

Moving beyond Eurasian struggles vs. collaboration, the sources also allow us to examine the relationship and connections between the islanders of several islands in the region, and in particular important individuals. The sultan of Jolo was not only regarded as a sovereign, but also as a 'legislator' and 'prophet'.[133] The islanders of Mindanao, the Moluccas, and Celebes did not take any action prior to consulting him. Had it not been for local information about Dutch vessels, which travelled quickly between several parts of the bigger islands or even across the ocean from one island to another, the Dutch most likely would have chased the French away. Local allies were not only important as spies, but also for providing French ships with fresh water and food supplies.[134]

Because the Dutch largely destroyed nutmeg in Gebe, the ruler of Gebe had secret arrangements with the ruler of Patani, a kingdom in the southeast of the big island Jailolo. Patani's ruler ordered his folks to go deep into the forests to look for the spices.[135] Because the heads of Gebe and Patani were allies, the French were able to enter Patani without any difficulties and were welcome by the head of Patani. In Patani, the islanders were able to find nutmeg, which D'Etcheverry loaded on to his vessel. Like in the earlier case of Poivre's search for spices in the early 1750s, it was much harder to find clove. The *grand prêtre de la loi de Patanie* (the principal head of Patani's ruler) Bagousk Hundes, who might actually have been the same person as the aforementioned Bagousse, was sent on this enterprise.[136] He arrived back with clove after D'Etcheverry had given up hope of his return. D'Etcheverry

[133] See 'Journal de Sonnerat', in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 96–100.
[134] Ibid.
[135] 'Extrait du voyage fait en 1769 et 1770 aux Isles Philippines et Moluques', in *Œuvres complettes de P. Poivre*, 253–80.
[136] Bagousse is also spelt Bagouce.

offered gifts to both the rulers of Patani and Gebe and promised to continue the collaboration. Indeed, the Patani dynasty remained an ally to the French. In their initial encounters in 1770, Provost flattered the king by asking him to report on the curiosities of his kingdom, particularly on spices, to which the king of Patani responded: '(...) we speak with open hearts, you see how much I am fond of being a friend of the French (...), I do not ask for anything better than subordinating myself to your king.'[137]

In the last attempt to gather more spices in 1771/72, however, when Provost and Coëtivy, commander of *L'Isle de France* (which was accompanied by the boat *Le Nécessaire*, commanded by Cordé), continued the spice quest, the sultan of Patani was busy calming revolting villages in Gebe in early March 1772. Hence, he sent his wife (the queen of Patani) to apologise and to promise a further alliance.[138] While the queen was sent to ensure the collaboration, Provost, upon his return to the Patani kingdom, employed Bagousk, whom Provost had befriended during his first voyage in 1769.[139] As a man holding the confidence of the Patani dynasty, Bagousk aimed to collect spices in the territory of the kingdom of Maba, which lies in the east of Jailolo. Here, rumours said that the king of Maba captured him. Some islanders – and it remains unclear who they were – tried to turn this tricky and uncertain situation to their advantage: an unknown chief came to the French pretending to be the king of Maba. He proposed setting Bagousk free once the French bought the few spice plants he had with him, a deal that the French did not accept in light of his suspicious behaviour.[140]

Maybe, the anonymous islander was trying to take the French for a ride and make some money: whatever his reasons were, this anecdote brings to light two important aspects. First, the islanders knew that they could offer their spices in exchange for money. Second, when the pretend king of Maba arrived, he was very hesitant – as Sonnerat's journal describes – because French soldiers did not threaten him when he came on board but let him pass instead. This, along with other examples in this chapter, can serve as evidence that it was pretty normal for locals to easily move around on French vessels when ashore. The sources remain silent about what really happened. Eventually, however, Bagousk and the Maba king,

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[137] '(...) nous parlerons à cœur ouvert, vous verrez combien j'ai envie d'être ami des Français, et que souverain de plusieurs peuples, je ne demande pas mieux que de me soumettre moi-même à votre roi.' Desroches to the Minister, 22 July 1770, ANOM Col C/4/26, fols. 168r–179r.
[138] See the secret instruction for Provost and Coëtivy, dated 24 June 1771; and Instructions particulières pour M. de Coëtivi, dated 24 June 1771, both ANOM Col C/4/28 and the secret instructions to Cordé, 8 June 1772, ANOM MAR B/4, fols. 313r–315r; 'Journal de Sonnerat', in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 98.
[139] Ibid., 99.
[140] Ibid.

accompanied by a larger number of Maba men, arrived with lots of spice plants and seventy-three sea turtles, which were given to Provost in exchange for linen or fathom ('*brasses de toile*').[141]

Had it not been for the local information about Dutch vessels, the French most likely would have been in big trouble. Local allies were not only important as spies. They also provided the French ships with fresh water and food, such as in Gebe in late February 1772, where they were also informed that Dutch vessels were patrolling in the region.[142] Provost was aware that he had the Gebe islanders on his side when it came to receiving information about the Dutch: thus, in the port Pulofaux (to the south of Gebe), he had to make promises to them and present them with gifts to secure the flow of information.[143] The Dutch, in turn, made enquiries into French movements and even put questions to the senghadji of Patani and the senghadji of Gebe in September 1771.[144]

The French not only gave presents to the islanders so that they would serve as spies. They also generously rewarded them in the search for spices. On the island of Moa in March 1772, the islanders offered their service to the French by finding a good anchorage ground and providing refreshments.[145] Once *Le Nécessaire* had anchored, the chiefs arrived to negotiate the price for their help in the search for spices. As the chiefs of Moa explained, they were at war with the inhabitants of Jailolo. But the Jailolos – subordinated to Patani – actually had become an ally of the French in 1770. As said previously, Gebe was subordinated to the Patani king, and the Patani kingdom was subordinated to the sultanate of Tidore (an island west of Jailolo). The sultan of Tidore was allied to the Dutch and was one of the most important ruling authorities in the region. Although Jailolo had a good relationship with Tidore, he would no longer subordinate his kingdom to their authority but rather to the French crown.[146] Later, Prince Nuku (1725/35?-1805) of Tidore launched a rebellion against the Dutch, defeating the VOC in close collaboration with the English in 1801.[147]

These diplomatic games were quite common: for instance, at the end of the sixteenth

[141] Ibid.
[142] Ibid.
[143] Provost's report on the mission to the Moluccas, June 1771-June 1772, ANOM Col C/4/30, fol. 144r. On the encounters with the Gebe islanders and detailed promises the French made to them, Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 26–27.
[144] Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 25.
[145] 'Journal de Sonnerat', in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 98–99.
[146] 'Instruction secrète pour M. Cordé commandant la corvette du Roi le Nécessaire, au cas de séparation', by Provost, 25 December 1771, ANOM Col C/4/29, fols. 242r–245r, and Desroches to Praslin, 22 July 1770, ANOM Col C/4/26, fols. 168r–179r.
[147] Widjojo, *The Revolt of Prince Nuku*.

century, the sultanate of Ternate welcomed the newcomers, the Dutch, as allies in their fight against the Portuguese. The latter had established themselves in Ternate in 1512 and had been threatening the islanders ever since.[148] In his study *The World of the Maluku*, Leonard Andaya observed in relation to the Spaniards and the Dutch in the region that 'both the Europeans and the Malukans sought allies with one another to achieve their respective goals, though their alliances were never more than fragile accommodations because of the radically differing perceptions of the "enemy".'[149] These diplomatic games continued, but studies about the Spice Islands neglect the French-Maluku alliances, where a similar mechanism appeared.

In the late eighteenth century, the diplomatic moves of the inhabitants of Jailolo become more interesting because of a twist in the already complex story, one which reflects the potential advantage of a French-Patani alliance: firstly, though, we need to go back to the events before the meeting between Provost and Patani's ruler. Provost was desperate to bring nutmeg and clove to Isle de France and finally entered commercial relations with the king of Patani. The king offered to bring a large quantity of nutmeg to the island of Gebe where Provost was supposed to meet him.[150] Patani's king was in a superior position to Provost, who did not have any option other than to accept the king's offer if he wanted to bring the spices to Isle de France. Patani's king was very aware of his favourable position. He asked the French ships to fly the flag of the French king and to send French forces to the region in order to defend themselves and the king. Provost was entitled to sign this 'treaty of defensive alliance' ('*traité d'alliance défensif*').[151] As the French were dependent on local allies, the spice quest empowered the islanders and the French were very well aware of the danger in losing them as allies. These circumstances suggest the Indo-Pacific local people's power over the French: had it not been for the islanders' collaboration, the spice project would have failed. The French would have been chased off by the Dutch and would not have been able to collect nutmeg and clove on the Dutch Spice Islands.

By offering gifts to local people to employ them as spies and by paying pirates to bring young plants and seedlings to certain transit spots outside Dutch territory, French actors relied heavily on local collaborators. One must not forget that the French paid locals in order to

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[148] Ibid., 1.
[149] Leonard Y. Andaya, *The World of the Maluku: Eastern Indonesia in the Early Modern Period* (Honolulu: University of Hawaii Press, 1993), 151.
[150] 'Instruction secrète pour M. Cordé commandant la corvette du Roi le Nécessaire, au cas de séparation', by Provost, 25 December 1771, ANOM Col C/4/29, fol 242r–245r and Provost's report about the expedition attached to a letter written by Desroches to Praslin, 22 (24?) July 1770, ANOM Col C/4/26, fols. 168r–179r.
[151] Desroches to Praslin, 24 July 1770, ANOM Col C/4/26, fol. 173r.

receive information or even to be led to the Spice Islands. Poivre gave explicit instructions to Provost and Trémigon to negotiate a price for the fresh spices with Bugi pirates from Celebes who traded nutmegs in the Malaysian peninsula and to offer them some money to nobble them.[152] Furthermore, Poivre authorised Trémigon and Provost to offer rifles, gun powder, lead bullets, iron, sheets, and even 'small canons of 4 livers' (possibly muskets), which would wait for them on Isle de France, in return for plants and seeds. The French stressed that they must not make promises which they could not keep because the Bugis could easily be offended and thus not keep their own promises.[153] According to the sources, however, the Bugi pirate Dinck Poudony never returned to the meeting point in Kedah in 1769. The reasons for this remain speculative, but it forced the French to enter further relations deep in the Malukku Sea.

CONCLUSIONS

Looking at the social practices of the quest for spice plants, this chapter argued that the events were complex, entangled, and above all chaotic processes, including colonials, pirates, and local inhabitants in the Indo-Pacific world. These actors used a mixture of languages, promises, and allegiances. Looking into Poivre's report about the spice project to the French Academy of Sciences, it is curious to observe that concrete names of go-betweens vanish. They were not of importance to the Academy, which rather sought to present 'botanical' results.[154] Here, the outcome, not the process, was important: the 'true' spices had come to Isle de France. This can serve as another example that important actors vanished in printed sources but are omnipresent in first-hand written testimony, which Neil Safier observed in the case of the *Encyclopédie* and South American expeditions.[155] It was not only local knowledge about the cultivation of plants which faded away when 'botanical' knowledge – as in European 'standard' knowledge – entered contemporary scientific journals and printed accounts: the Asian actors themselves disappeared. In that sense, it was probably pretty acceptable to erase sources of informants or local assistance if they did not contribute to the

[152] 'Instructions secrètes pour M[rs]. Trémigon, lieutenant des vaisseaux du Roi, commandant la corvette Le Vigilant Et Provost subrécargue sur ledit bâtiment pour le voyage de Quéda Et D'Achem', 4 February 1768, ANOM Col C/4/22, fols. 119r–121v.
[153] 'petits canons de 4 livre', ibid.
[154] Poivre's report to the Academy, HARS 1772, 56–61.
[155] Safier, *Measuring the New World*, 9.

actual purpose of a printed piece. This is not an apology but an explanation of something that must be understood in the context of its time.

The success of the spice project depended significantly on collaboration with brokers, local informants, spies, and pirates from different backgrounds, ethnic groups, and religions. The search for spices was a matter of partly informal arrangements and multinational networks, which remained hidden and therefore invisible in historiography. These networks extended all over the Indo-Pacific, involving French, Filipino, Moluccan, Malay, Dutch, Spanish, and Portuguese agents and more. They were independent of French colonial politics or specific economic structures. Rather, they were offhand, determined by spontaneous possibilities and limits and carried out by intermediaries who often secretly traded nutmeg in different parts of Southeast Asia. In seeking knowledge about spices, the French largely drew on various Asian sources as chapter six suggests. In acquiring the actual plant material, they turned to a network of local informants and local people who offered their services in exchange for money and other goods. Polycentric trading zones constituted the networks of the spice project.

Notably, this was not a one-way street. This chapter sought to move away from a purely French perspective by understanding what the whole story meant for local populations. Because the French had to rely on local islanders and were aware of this fact, the islanders had a certain power over the French. All parties involved sought alliances with one another to achieve their goals. Communication, language, negotiations, and secret diplomacy were the key factors for these interactions. The French spice enterprise only functioned because of interdependence and interactions with other European informants and local collaborators. This argument can also be applied to other European enterprises overseas. Socio-cultural histories of doing empire which stress the collaboration of empire rather than conflict and rivalry are emerging, but mainly in the Anglophone context. Therefore, this chapter is important because it provides a French context embedded in the history of the Malukans.

6

Fragile empire:
Spice plants and material practices from transport to multiplication (1768-1783)[1]

'In the past, one believed that the nutmeg could not germinate through human hands at all but that it had to be ingested by a native bird instead, which would, without digesting it, excrete it. This falsity was naturally rooted in the fact that purchasable nuts do not germinate, and a bird indeed swallowed the same in their fresh condition (...).'

– 'Muskatnüsse', *Magazin Der Handels- und Gewerbskunde*.[2]

Indeed, nutmeg loses its germinative quality easily and too often fails to bud when planted. Only fresh nuts can sprout. Poivre explained in his secret instructions to his collaborators in the Moluccas that '(...) these fruits [nutmegs] are not proper to sow and germinate unless they are freshly picked from the trees which carry them: only eight or ten days after their harvest, they are no longer able to germinate, at least if they have not been conserved in earth.'[3]

Nutmeg was and is a very difficult 'nut to crack'. The difficulties of nutmeg cultivation, however, remained largely hidden in printed accounts about the French spice project of the time and have remained so in the historiography. In 1772, the *Académie royale des sciences* published a report about the successful acclimatisation of nutmeg in the French island colony. Published in the *Observations Botaniques* section of the *Histoire de l'Académie royale des*

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[1] This chapter was written during my stay as visiting doctoral student the *Centre Alexandre-Koyré*, Paris, between March and June 2016. I am indebted to Antonella Romano and her generosity. During my stay in Paris, I also benefitted greatly from discussions with Antoine Lilti, Hélène Blais, and Thomas Maissen. I am grateful to the participants of the 'séminaire de recherche sur les Lumières', where I presented parts of this chapter, held at the *Institut Historique Allemand* Paris, 11 April 2016. Furthermore, I thank Šebestián Kroupa and Catarina Madruga for very fruitful discussions about this chapter as well as António Carmo Gouveia, director of the *Jardim Botânico da Universidade de Coimbra,* for his expertise.

[2] 'Ehemals glaubte man daß die Muskatennuß durch Menschenhände gar nicht könne fortgepflanzt, sondern erst von einem in ihrem Vaterlande befindlichen Vogel müsse verschluckt werden, der sie dann unverdaut von sich gibt. Dieser Irrthum mußte natürlich daher entstehen, weil wirklich keine von den käuflichen Nüssen keimt, und ein Vogel dieselben im frischen Zustande in der That verschlingt (...).', Funke, 'Muskatnüsse', 72.

[3] '(...) ces fruits ne sont propres à être semés et à germer qu'autant qu'ils sont fraîchement cueillis sur les arbres qui les portent : que huit ou dix jours après qu'ils ont été cueillis ils ne sont plus propres à la germination, à moins qu'ils n'aient été conservés dans la terre.' Poivre's secret instructions to Trémigon and Provost, 4 February 1768, ANOM Col C/4/22.

sciences, the report speaks of a smooth and successful 'conquest for botany and for the French kingdom' while glorifying the efforts of a man called Pierre Poivre.[4] Even though the *Académie*'s report admits some obstacles which Poivre and his French collaborators, as heroes of the nation, adroitly managed to overcome, the report does not pay tribute to assisting actors, who consequently vanished over the course of history and who were the focus in chapter five. By engaging with the actual transmission of plants, seeds, and knowledge, this chapter brings the re-interpretation to the next level by engaging with the plant material itself while drawing attention to the complexity of the task, the obstacles before it (often sugarcoated), and the environmental conditions both on ships and on the island as such. The *Observations Botaniques* do not pay much attention to these complications. Instead, it portrays the French spice quest as a smooth enterprise, an image also reproduced in the historiography. Revisiting this simplistic story, the aim of this chapter is to explore the environmental components, knowledge practices, and the plant material itself – in a nutshell, those components determining the success or failure of the spice project.

Even while live spice plants and seeds were eventually loaded onto French ships, their cross-oceanic passage to Isle de France was a very fragile one. Indeed, scholars have started to examine cross-oceanic specimen voyages in different colonial contexts, ranging from the Americas to the Pacific bringing attention to the gap between the instructions given for transport and their actual implementation: Christopher Parsons and Kathleen Murphy for the British and French Atlantic, Anne Mariss in relation to Johann Reinhold Forster's practices of natural history during the James Cook voyages in the Pacific, Nigel Rigby on the *Bounty* voyage or Loreilai Kury examining instructions for French naturalists as well as Marianne Klemun's work on specimen transport in the service of colonial gardens.[5]

Lending weight to their works, this chapter follows the spice plants' paths from their

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[4] 'Observations Botaniques', HARS 1772, 56–61.

[5] Christopher M. Parsons and Kathleen S. Murphy, 'Ecosystems under Sail: Specimen Transport in the Eighteenth-Century French and British Atlantics', *Early American Studies* Fall (2012), 503–39; Nigel Rigby, 'The Politics and Pragmatics of Seaborne Plant Transportation, 1769–1805', in Margarette Lincoln (ed.), *Science and Exploration in the Pacific: European Voyages to the Southern Oceans in the Eighteenth Century*, Rochester: Boydell Press, 1998; Anne Mariss, *„A world of new things". Praktiken der Naturgeschichte bei Johann Reinhold Forster,* Frankfurt a. M.: Campus Frankfurt, 2015; Kury, 'Les instructions de voyages'; Marianne Klemun, 'Live Plants on the Way: Ship, Island, Botanical Garden, Paradise and Container as Systemic Flexible Connected Spaces in between'. *Journal of History of Science and Technology* 5, no. spring (2012): 30–48. See also Marie-Noëlle Bourguet, 'Measurable Difference. Botany, Climate, and the Gardener's Thermometer in Eighteenth-Century France', in *Colonial Botany*, ed. Schiebinger and Swan, 270–86, which includes the transport of specimens from Europe to Isle de France in the 1780s under Joseph Martin, together with more advanced techniques involving a thermometer.

country of origin to their acclimatisation on Isle de France. Taking material practices and environmental factors into account, this chapter closely analyses these circumstances to understand the fragility and material complexity of the spice project. Using praxeological approaches, early modern historians have argued that exploring practices will help us to understand history from different angles and to reinterpret existing great narratives which were, in fact, much more complex.[6] German historian Dagmar Freist has been especially outspoken in advocating the use of praxeological approaches like micro-studies.[7] Following Freist, I stress that they can have the power to revisit the dynamics of knowledge production and colonial practice more generally.

While the previous chapters have been concerned with the collection of plants and knowledge related to cultivation and usage, this chapter seeks to analyse the material culture associated with knowledge-practices ranging from cross-oceanic transportation to planting spices in foreign soil. It thus intends not only to follow the 'spaces inbetween', as Marianne Klemun recently characterised those spaces, places, (and boxes) – in short spatial entities – in which specimens crossed the ocean during their transportation and storage prior to arriving at their final destination.[8] It also seeks to answer a question which requires complex answers: what happened to the nuts, seeds, and live plants upon their arrival and how were they cultivated? Even though – in light of the lack of primary necessities on Isle de France – the introduction of spices could be considered 'useless' for the islanders' subsistance, Poivre was convinced that the spice trade would bring a fortune to Isle de France if successful acclimatisation was achieved. He was therefore greatly occupied with providing detailed instructions on the appropriate transportation and cultivation of nutmeg and clove, which is reflected in the primary sources of the colonial and botanical archives. Hence, it was possible to write a chapter that pays great attention to detail.

These sources open a window on the material practices of seed transfer and cultivation. The detailed instructions, together with their practical implementation in the Indo-Pacific

[6] Dagmar Freist, ed., *Diskurse - Körper - Artefakte: Historische Praxeologie in der Frühneuzeitforschung* (Bielefeld: Transcript-Verl., 2014); Arndt Brendecke, ed., *Praktiken der Frühen Neuzeit. Akteure-Handlungen-Artefakte* (Weimar, Köln, Wien: Böhlau, 2015). In the French context, see the recent omnibus on reflections and case studies as pragmatic histories, Francis Chateauraynaud and Yves Cohen, eds., *Histoires pragmatiques* (Paris: Editions EHESS, 2016); See also Simona Cerutti, 'Histoire pragmatique, ou de la rencontre entre histoire sociale et histoire culturelle', *Tracés. Revue de Sciences Humaines* 15 (2008): 147–68; Bernard Lepetit, ed., *Les formes de l'expérience: Une autre histoire sociale* (Paris: Albin Michel, 1995).

[7] Dagmar Freist, 'Historische Praxeologie Als Mikro-Historie', in *Praktiken Der Frühen Neuzeit. Akteure-Handlungen-Artefakte*, ed. Arndt Brendecke (Weimar, Köln, Wien: Böhlau, 2015), 62–77.

[8] Marianne Klemun, 'Introduction: "Moved" Natural Objects – "Spaces in Between"', *Journal of History of Science and Technology* 5, no. spring (2012): 10.

islands, form the heart of this chapter. First, this chapter engages with the cross-oceanic transport on ships, which I consider as important spaces for an in-depth analysis of plant transfer.[9] Successful acclimatisation was not only a matter of climate conditions and soil, but also one of mastering the practices the plants required, which also included when and how to plant the material. These complex techniques started with the dangerous and costly transportation of specimens and grains from one place to the other.

The key goal of this chapter is two-fold. Firstly, it exposes black-boxed maritime space; and secondly, it seeks to underline the limits of French botanical knowledge about nutmeg that was scant and uncertain. Only if the naturalisation and cultivational techniques succeeded could the plants eventually be distributed on the island – and beyond. In a second step, this chapter explores the cultivation of nutmeg on Isle de France, which required lots of patience and know-how about both cultivation techniques and the very nature of nutmeg. Only after many years did the French naturalists begin to understand why it was so difficult to multiply nutmeg despite having managed to acclimatise the species. Rather than concluding that the whole project was a success or failure, this chapter juxtaposes the reasons why it was such a slow process. Nature was an overall component of the enterprise 'Isle de France', restricting human visions on how to understand and manage it in order to employ it for their purposes.[10]

SPECIMEN TRANSPORT: A SCIENCE TO MASTER

As Harold Cook observed in the context of the Dutch Indies, 'the successful transportation of live plants over long distances by sailing ship took elaborate preparation and continuous attention'.[11] Moreover, Dániel Margócsy pointed out: 'the collection and exchange of plants and animals were based on commercial thinking. While profit was not always the primary concern of collectors, they were all loath to suffer financial losses in these transactions'.[12] Therefore, appropriate packing and transport of collected plants was as important as the

[9] On ships as scientific instruments, see Richard Sorrenson, 'The Ship as a Scientific Instrument in the Eighteenth Century', *Osiris* 11 (1996): 221–36; Antony Adler, 'The Ship as Laboratory: Making Space for Field Science at Sea', *Journal of the History of Biology* 47, no. 3 (2013): 333–62.
[10] See also Stockland, 'Policing the Oeconomy of Nature'.
[11] Cook, *Matters of Exchange*, 325.
[12] Dániel Margócsy, '"Refer to folio and number": Encyclopedias, the Exchange of Curiosities, and Practices of Identification before Linnaeus', *Journal of the History of Ideas* 71 (2010): 63–89. See also Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: Chicago University Press, 2014), 29–73.

collection as such.[13] Costs were immense and all the work could have been lost if anything went wrong. As I have highlighted in chapters two and five, the networks for specimen transport were endlessly entangled and actors were by no means necessarily trained naturalists. In the particular case of spices for Isle de France, specimen transport was not a state-organised matter but was instead reliant on commercial connections, personal favours, communication, and trust.[14] Even when the CIO officially charged Poivre in the 1750s with collecting nutmeg and clove in the Philippines, Poivre was reliant on spontaneous decisions personal favours when sending specimens to Isle de France. It was the frequency of vessels sailing westwards which determined the transport of specimens and not Poivre's desire to send nutmeg as soon and as fresh as possible to Isle de France.

Too often, specimens arrived damaged, if alive at all, because of long journeys and the fact that sailors and members of the crews could not be bothered to take proper care of them. In their work on specimen transport in the British and French Atlantic, Parsons and Murphy underline the importance of maritime space, which has been largely overlooked by historians of science. They argue that it was a space where existing methods for preserving curiosities and specimens increasingly proved insufficient.[15] The fragility of specimen transport calls attention to the gap between instructions for transportation and their actual implementation. The *mise en oeuvre* of instructions was a difficult task and by no means guaranteed success, as Pierre-Yves Lacour similarly concluded in the context of specimen transportation and labelling in revolutionary France (and outside the republic's borders).[16]

Transportation was determined by spontaneous decisions and environmental factors which no calculating 'machine' could regulate or control. Some sources even highlight that the packing could be very chaotic. Looking into a list of specimens which were sent to Le Monnier from Isle de France in 1772, the list shows that the boxes were numbered as '18°1, 18°2, 18°3, 18°4' as well as one 'open box' and that the list corresponded to the boxes'

[13] In Rigby's words, specimen transport was a 'tricky business'. Rigby, 'The Politics and Pragmatics of Seaborne Plant Transportation,', 84, cf. Pasons and Murphy, 'Ecosystems under Sail'. See also Yves-Marie Allain, *Voyages et survie des plantes: au temps de la voile* (Marly-le-Roi: Editions Champflour, 2000).
[14] Sarah Easterby-Smith, 'Reputation in a Box. Objects, Communication and Trust in Late 18th-Century Botanical Networks', *History of Science* 53, no. 2 (2015): 180–208.
[15] Parsons and Murphy, 'Ecosystems under Sail'. Few scholarly works are primarily concerned with the instructions handed to travelling naturalists. Some exceptions are Kury, 'Les instructions de voyages' and the introduction to Collini and Vannoni, *Les Instructions Scientifiques Pour Les Voyageurs*, 15–54.
[16] Lacour, *La République naturaliste*, 105–33, 132.

contents.[17] However, it remains an open question how the individual grains could be identified, particularly in light of a curious side note, possibly written by Commerson himself: 'We could not write the botanical names on the items, which were insufficiently drawn because the shipment did not pass our eyes.'[18] There are further indications that this shipment was rather chaotic because the list also contains a section on '*articles oubliés*' ('forgotten items').[19] These examples contribute to the argument that transportation was a matter of local and *ad hoc* decision-making.

In light of the difficulties in preparing, conserving, and transporting plants across the Indian Ocean, this section examines botanical specimen transport both *a priori* and according to the experience of actors in the Indo-Pacific. These practices circulated in European correspondence and in acclimatisation gardens, including the Parisian Garden. Antoine de Jussieu observed that one had to ensure that the figures and descriptions of seeds and live plants were stored accordingly so that they arrived alive and ready to be transplanted.[20] During the eighteenth century, practical questions on how to make the plant material survive long voyages certainly concerned naturalists most. Indeed, methods were experiential. 'The failure rate in all these methods was high.'[21] Because vessels were ecosystems themselves, with changing weather conditions, air, light, saltwater, heat, and plagues (insects, rats, and others), the precise placement of a specimen determined whether it survived the trans-oceanic voyage or not; on deck, plants could easily be damaged by salt water or exposure to sun light while those stored below could lack air and light.[22] Over time, naturalists developed what Parsons and Murphy call an 'environmental science of ships' – extensive knowledge practice of handling environmental factors on ships correctly and the successful transport of a plant was subject to mastering it.[23]

Ideally, the botanists or men of confidence went on the ships together with the plants. In practice, this was rarely possible. During his first spice attempt in the Philippines, however,

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[17] 'Nottes sur la nature et la prospirité de quelques vegetaux de L'Isle de France faittes a l'occasion d'un envoi d'iceux en France en fevr & mars 1772. Notte des Graines Envoyées a M[r] Le Monnier', BCMNHN Ms 277, IV.
[18] 'On n'a pu mettre les noms botaniques aux articles qui n'etoient pas suffis[amment] désignés. Car l'Envoi ne nous par passer sous les yeux.' 'Nottes sur la nature et la prospirité de quelques vegetaux de L'Isle de France faittes a l'occasion d'un envoi d'iceux en France en fevr & mars 1772. Notte des Graines Envoyées a M[r] Le Monnier', BCMNHN Ms 277, IV.
[19] Ibid.
[20] 'Des Avantages que nous pouvons tirer d'un commerce littéraire avec les botanistes étrangers' (no date), BCMNHN Jus 3, fols. 95r–105r.
[21] Rigby, 'The Politics and Pragmatics of Seaborne Plant Transportation', 84.
[22] The point is also made by Parsons and Murphy Parsons and Murphy, 'Ecosystems under Sail', 523.
[23] Ibid.

Poivre did personally transport the specimens which he had gathered from Manila to Pondicherry. He had been waiting for vessels going from the Philippines to Isle de France for weeks, if not months. While his impatience was growing, he embarked on *Le chevalier-Marin* on 21 February 1753 together with nineteen nutmeg plants, squeezed with other passengers below deck, and landed in Pondicherry two month later.[24] Unfortunately, Poivre's report about his mission does not allow us to understand the methods for transporting the live plants. He reported though that only twelve specimens arrived alive; the others did not have enough air and consequently died.[25]

Four months later, on 19 October 1753, Poivre finally found vessels calling at Isle de France on which he could transport the live plants. Possibly in order to lower the risk of losing all the plants in case of shipwreck or capture, he divided them up and sent three specimens on *Le Rouillé* and two on *Le Lys*, which went to the French islands. Upon Poivre's arrival (he embarked on a different vessel) on Isle de France in early December 1753, he reported that the three sent on *Le Rouillé* survived in good condition, with strong branches and covered with leaves, whereas the ones stored on *Le Lys* were damaged and lost all their leaves.[26] The report does not illustrate the different eco-conditions on the two vessels but invites us to make a more general claim: specimen transport was also a matter of considering the possibility of shipwreck or capture: by dividing the specimens among different ships, one reduced the risk of losing them all.

Young plants were especially fragile. During the transport from the Moluccas to Isle de France in 1771, clove plants were too young and too small (less than two feet in height) and thus suffered a lot: they should have been at least four to five feet high.[27] For live plants in the Moluccas, the French brought instruments (unfortunately it is not indicated which ones) to unearth the fertile plants so that they were fresh and could be put in boxes for transportation back to Isle de France: Provost showed the islanders how to use them correctly to achieve the best result.[28] Poivre had handed detailed instructions to him on how to distinguish 'true' nutmeg and clove from inferior types and how to transport them across the ocean.[29]

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[24] 'Rapport de la mission du sieur Poivre a la Cochinchine et autres lieux avec l'extrait de ses lettres, mémoires, complets et pieces au Soutien, et sa demande a la Compagnie de la solde de son compte', NAF 9377, fol. 60r.
[25] Ibid.
[26] Ibid.
[27] This is what Poivre explains to Praslin, 22 August 1771, ANOM Col C/4/29, fols. 22v–23r.
[28] Ibid.
[29] Poivre's instruction to Provost, 4 February 1768, ANOM COL C/4/22, fol. 127r.

BOXES, PACKING, AND STORAGE METHODS

Optimising the transportation of plants around the globe only developed slowly over the course of the eighteenth century: the question of appropriate boxes in particular remained a most difficult problem. It was only in the first half of the nineteenth century that new inventions facilitated transport, namely the Wardian case. In 1829, the amateur naturalist Nathaniel Bagshaw Ward (1791-1868) invented a sort of terrarium fully made of glass in which live plants could thrive.[30] Until Ward's invention, it was not only the environmental conditions on ships which endangered live plants, but also the boxing as such. This subchapter explores these dangers, which sometimes led to the plants' death.

Conservation methods varied.[31] For instance, nutmeg and clove plants sent to members of the *Académie des Sciences* for examination left Isle de France in '4 jars filled with eau de vie.'Dried branches and berries were sent in a separate package.[32] Live plants, on the other hand, were stored in wooden boxes or exceptionally in porcelain vases. Such was the case for nutmeg from China, when Father Galloys planted germinating nuts in a porcelain vase filled with earth.[33] Porcelain, however, proved to be less than robust: boxes made of wood were more typical. In 1763, François-Etienne le Juge recommended boxes being one inch longer than the plants packed in them.[34] According to Poivre's recommendation from 1768, boxes were to be made of 'strong boards'.[35] In later instructions for Provost, dated 1771, Poivre asked for the opposite, however. Instead of using strong boards, he instructed Provost to make some boxes of light wood while in Manila.[36] They were to be narrow, like the boxes used for weapons, and at least six feet long. The boxes had to be long enough so that one was not

[30] Klemun, 'Live Plants on the Way': 33.
[31] See also on different packing methods during voyages in the Pacific: Rigby, 'The Politics and Pragmatics of Seaborne Plant Transportation'.
[32] Report by Adanson and de Jussieu, ADS PV 1773, fol. 34v.
[33] Poivre to Praslin, 18 February 1769, ANOM Col C/4/25.
[34] François-Etienne le Juge, 'Manière de transporter les jeunes plantes de toutes sortes d'arbres, sans embarras, et sans dépense d'eau pour les arroser dans les vaisseau', 20 November 1763, printed in *Recueil Trimestriel de Documents et Travaux Inédits pour servir à l'Histoire des Mascareignes Françaises* 4 (1939): 185–86.
[35] 'des planches fortes', 'Mémoire sur la manière de conserver les arbres et les graines pour les transporter par mer', 4 February 1768, ANOM Col C/4/22.
[36] 'Instructions secrètes communes à M. de Coëtivi, enseigne de vaisseau, commandant la flûte du Roi, L'Isle de France, et M. Provost, commissaire de la Marine, chargé d'une mission particulière', 24 June 1771, ANOM Col C/4/28, fol. 138r.

obliged to cut the plants: 'The best thing would be to have boxes which are big enough so that we are not obliged to cut the stalk of the plant, the nutmeg and the clove in particular.'[37]

Wooden boxes were the best way to transport live plants. Yet they alone were not the best environment and had to be filled with earth. Placing live plants in good and loose earth, not too dry and not too moist, lowered the risk of drying them out. The importance of good earth echoes Poivre's own experience: 'The earth must be pure, without any mixing of compost and especially not rotten woods or non-rotten foreign wood or roots.'[38] While some preparing methods refer to loose earth, instructions, possibly written by Provost himself, underline that the plants should come in a 'thick earth', which was preferable because it could maintain freshness longer.[39]

The preparation methods were directly contradictory on more than one occasion. In the boxes, the plants were to be embedded in alternating layers and filled up with earth so that the cover could only be fixed with effort. This meant in practice that the plants were squeezed together! In light of Poivre's experience (after all, he had spice specimens transported many times before 1771), it is strange that he did not take into account that plants easily perished in tight boxes covered with heavy earth. In Poivre's code of practice, he explicitly refers to the fact that young/small plants must be transported in uncovered boxes filled with native soil and protected against rats, the sun, and the wind by trellises of iron and bamboo.[40]

In 1763, on the contrary, Le Juge observed that the boxes must never be closed entirely: it was vital to leave a gap of two to three inches for the circulation of air, which was extremely important because of the tropical heat.[41] In light of this observation, Poivre's instructions

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[37] 'Le mieux serait d'avoir des caisses assez grandes pour n'être point obligé de couper la tige du plant, surtout du muscadier et du géroflier', in 'Mémoire sur la manière de conserver les arbres et les graines pour les transporter par mer', 4 February 1768, ANOM Col C/4/22.

[38] 'La terre doit être une terre franche, sans aucun mélange de terreau et surtout de bois pourri et même de bois ou racine étrangère non pourrie', 'Mémoire sur la manière de conserver les arbres et les graines pour les transporter par mer', ibid.

[39] 'Terre forte', 'Instruction sur la manière de cultiver avec succès des plants et graines de gerofliers et muscadiers, apportés des Isles Moluques par M Provost commissaire de la marine', Commerson collection, BCMNHN Ms 280, vol 1. It was neither Commerson's nor Poivre's handwriting.

[40] 'Instructions secrètes communes à M. de Coëtivi, enseigne de vaisseau, commandant la flûte du Roi, L'Isle de France, et M. Provost, commissaire de la Marine, chargé d'une mission particulière', 24 June 1771, ANOM Col C/4/28, fol.138r.

[41] François-Etienne le Juge, 'Manière de transporter les jeunes plants de toutes sortes d'arbres, sans embarras, et sans dépense d'eau pour les arroser dans les vaisseau', 20 November 1763, printed in *Recueil Trimestriel de Documents et Travaux Inédits pour servir à l'Histoire des Mascareignes Françaises* 4 (1936): 185–86. On Turgot's methods on live plant transport and placing and a discussion in France, see Etienne-François Turgot, *Mémoire instructif sur la manière de rassembler, de préparer, de conserver, et d'envoyer les diverses curiosités d'histoire naturelle: auquel on a joint un mémoire intitulé Avis pour le transport par mer, des arbres, des*

seem 'nuts'. When new specimens arrived in 1772, two different types of boxes were used: 500 clove plants (and twenty-eight nutmeg plants) arrived in thirty-six open boxes covered only with some wire netting, while another 500 clove and nutmeg plants were placed between two beds of earth in closed boxes wrapped in tarred cloth.[42] But almost all the plants perished because of a lack of air. Similarly, half of the nutmeg perished when placed in closed barrels filled with earth. In other words, the instructions Poivre set up did not work in practice either. In 1768, he underlined that seeds and nuts were rather easy to transport and that one must only pay attention to the use of clean earth, neither dry nor humid, in a properly closed box: the seeds must not touch each other but be placed between 'beds' of earth. This was 'the only attention one must pay', he claimed, particularly when stored in the '*chambre du conseil*' (the Great Cabin) where the boxes were normally safest and where they were 'open to the light from the windows.'[43] Why was Poivre not more careful with other live plants, particularly given his huge efforts to introduce these spices? A possible explanation might be that this project was about mass transportation where quantity rather than quality were valued in the first place and I will extend this argument throughout this chapter.

Once on ships, it was important to store the plants without exposing them to too much air or direct sun because then they would require only a little water, a scarce commodity on ships. In fact, too much or too frequent watering would make them perish, as Poivre explained. It was best to put them in the ship's store rooms, where they would not require water during the first two months of the voyage. In general, though, fresh water supply was certainly an issue on vessels crossing salt waters, which also caught the naval minister's attention. He underlined that barrels of fresh water must be stored on vessels for this exact purpose.[44] The lack of air, however, concerned botanists more than a lack of water. In the case of nutmeg, the live plants and seeds seemed to perish because of a lack of air and because they were too packed too tightly in the barrels, not because of a lack of water.

In fact, transporting seeds and live plants were distinct matters. Seeds had to be stored in a dry place whereas live plants needed fresh water, light, and air. In 1767, Poivre indicated two distinct methods to transfer live plants by sea from China. He pressed Father Galloys to

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plantes vivaces, des semences, & de diverses autres curiosités d'histoire naturelle (Lyon: Jean-Marie Bruyset, 1758), 165–205.

[42] Tessier et al., *Encyclopédie méthodique*, 4:199.

[43] 'la seule attention à faire', 'Mémoire sur la manière de conserver les arbres et les graines pour les transporter par mer', 4 February 1768, ANOM Col C/4/22. Rigby, 'The Politics and Pragmatics of Seaborne Plant Transportation', 93.

[44] Ly-Tio-Fane, *The odyssey of Pierre Poivre*, 137.

secure the transport with all his efforts and to pack the plants so that they could be replanted in the colonies immediately upon their arrival.[45] In the first method, applying for both plants and trees, one should use stable boxes with iron clamps so that the earth was not loose. In them, one was to pack the samples in horizontal layers in beds separated by earth.[46]

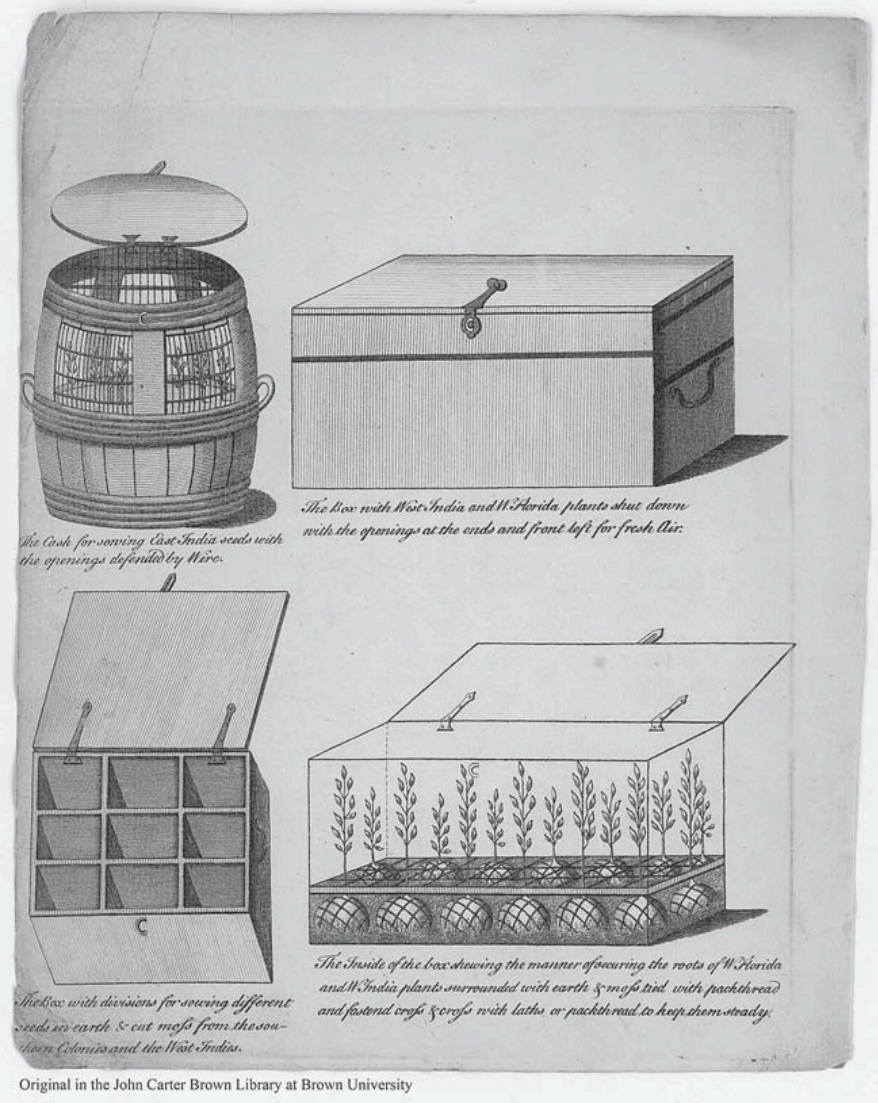

Figure 15. Illustrations of different types of boxes by the British naturalist John Ellies. John Ellis, Directions for Bringing Over Seeds and Plants, from the East-Indies and Other Distant Countries, in a State of Vegetation (London, 1770). Courtesy of the John Carter Brown Library at Brown University, printed in Murphy and Parsons, 'Ecosystem under Sail', 526.

[45] 'Instructions pour Mr L'abbé Galloys', ANOM Col C/4/18, fol. 19v.
[46] Ibid.

The second method was to keep the roots in clod surrounded with 'mousses', which should then be covered with frequently humidified straw or rags: they should be arranged them in boxes by plugging one part of the root in earth and folding their branches so that the plants could 'breathe'.[47] Another method to facilitate the transport and quantity of specimens of the most useful trees was to plant each separately in a pot, which could be arranged in boxes stored in the '*les chambres du Conseil'* (the Great Cabins) of every CIO's vessel: this meant that the plants would not be damaged by the vessels' movement on the open sea.[48] The plants not only had to be protected against weather conditions but also against the movement of the ships, which could cause them to move around and break.

Commerson's examination of the spice specimens in 1772 allows us to gain further insights into the appropriate and inappropriate storage of nutmeg: out of the 12,000 to 13,000 (!) nuts put into sandy earth, half of them had perished and were incapable of budding because they had fermented in the ship's hold. The other half were germinating.[49] A great quantity of clove berries also arrived, most of them germinating and some even with seminal leaves. The live clove and nutmeg plants were green, fresh, and budding, but the clove plants had suffered a lot during the voyage and did not acclimatise.[50] This was the reason for the final quest in 1771.

As indicated, freshly harvested clove and nuts had to be planted immediately after they opened in their husks: this was so that they would not lose their germinative virtues (their ability to bud).[51] Nuts and clove berries were to be placed in earth immediately after the harvest because they lost their vegetative quality after eight to ten days (in other words, they failed to germinate when planted).[52] Poivre underlined that clove berries were not the clove 'nails', which were known in European cuisines and which were nothing but the 'embryo of the fruit' ('*embryon du fruit*') picked before it was ripe. This 'nail' could not be sowed: one required the berry instead. Only the berry, which resembled a 'long bay berry', could germinate. Stripping it from its very aromatic bark, one found a kernel inside; the berry was

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[47] Ibid.
[48] Ibid., fols. 19v–20r.
[49] Commerson's report, 8 June 1772, ANOM Col C/4/30, fol. 303r; and Report by Michel Adanson and Bernard de Jussieu, 17 February 1773, ADS PV 1773, fols. 32v–37r. See also Tessier et al., *Encyclopédie méthodique*, IV:198–99.
[50] Ibid.
[51] 'Description abrégée du muscadier et du géroflier pour servir à mettre les Srs Trémigon et Provost dans le cas de n'être pas trompés dans le choix des plants de ces deux espèces d'arbres', by Poivre, ANOM Col C/4/22, fol. 127r.
[52] Poivre's secret instructions to Trémigon and Provost, 4 February 1768, ANOM Col C/4/22.

closed at its upper part by several small crown-shaped spikes and would only germinate if planted immediately after being picked.[53] Later, Poivre's successor Maillart, for instance, conducted experiments in preserving clove berries by steaming them.[54]

Packing clove berries was to be conducted in a similar procedure to that used for nutmeg, with the berries put in boxes filled with earth and ordered alternately in layers of two inches of earth and berries (arranged like a chessboard with a distance of one inch between them). Some of the boxes were to be kept open to guarantee the circulation of air, but they had to be protected from rats at the same time. Other boxes were to be closed entirely and stored in the council chamber just under the poop deck (the highest level on the starboard side).[55]

Provost's particular instructions (1771) for Commander Cordé in case of the separation of the French vessel and the accompanying boat allow us to understand more. Live clove plants, together with their roots, were to be embedded as described above in boxes, which were additionally wrapped in cloth and then stored in the depot or cargo hold.[56] Provost instructed Cordé to pay particular attention to the roots and leave them in their native soil, which is also reflected in the Malay-French vocabulary attached to the secret instructions: 'I require them with their earth' ('*J'en demande avec leur terre'*), indicated as '*Minta dangan tanair*', as well 'with their roots' ('*avec leurs racines*'), which is translated as '*Diar dangan acana, yangan bri poutousse*'.[57] The earth used for transportation in boxes was to be 'light and not too moist or too dry': the best one for the operation was the sandy black earth from the island of Gebe.

Similar to arranging live plants in 'beds', clove berries and nutmeg grains were to be placed in beds of earth alternately, with each bed of earth being about three to four inches thick. The seeds were to be arranged like a chessboard at a distance of two inches from each other. The clove berries in particular were to be put in open boxes, filled with 'good earth', loose and not firm, and then planted at a distance of four to five inches from each other, covered only with one layer of earth. These boxes had to be protected from sunshine, wind, and heavy rain. To ensure that water could flow and the seeds would not 'swim', one had to

[53] Ibid.
[54] Maillart to the Minister, 8 November 1776, ANOM Col F/3, art. 89, fols. 42v–43r.
[55] 'Instructions secrètes communes à M. de Coëtivi, enseigne de vaisseau, commandant la flûte du Roi, L'Isle de France, et M. Provost, commissaire de la Marine, chargé d'une mission particulière', 24 June 1771, ANOM Col C/4/28, fols. 138v–139r.
[56] 'Instruction secrète pour M. Cordé commandant la corvette du Roi le Nécessaire, au cas de séparation', by Provost, 25 December 1771, ANOM Col C/4/29, fols. 242r–245r.
[57] Ibid., fol. 245r.

pierce the bottoms of the boxes; the holes had to be covered with oyster shells (or something similar) before one put in the earth so that the holes would not become plugged up.[58]

The seeds or nuts were to be placed in a box with about three inches of earth, not dry or too wet, which one worked a little by hand. The seeds or nuts were to be placed without touching each other and covered with a second layer of earth (again three inches), on which another layer of seeds was placed: the same procedure was to be conducted until the box was full.[59] One had to pay attention that the last layer of earth was a little thicker than the previous one. On the top should be placed a layer of lime ('*chaux*') in water: to this, one had to add sugar ('*gros sucre*'), probably for conversation reasons.[60]

One also had to keep in mind the different seasons of the plants and that one should only mix seeds that gave their fruit at the same time of the year.[61] The boxes were never to be placed in direct sun light. If the seeds were stored like this, one did not need to pay too much attention. One should, however, try the following method to keep them alive: one could mix them, especially those which lost their ability to bud easily, with coarse-grained sugar and 'put them in a vial or flask and form the base with a mastic [putty]'.[62] This method differed from the one described above, emphasising that one needed a caulker so that air (through the joints of the boxes but also the planches) could not enter and cause the seeds perish. It was not desirable for the nuts and seeds to germinate too much or not at all: there was a very thin line if they were to arrive in good condition.

Similar close attention was to be paid for live plants, which were to be placed horizontally in boxes containing four to five inches of earth mixed by hand. If there was space, a second layer should be added, separated from the first by earth: the last layer had to be earth, as in the case of seeds. The boxes were to be closed. During the voyage, the plants did not require anything but it would be good to water them once during the voyage from India to Isle de France – of course with freshwater, as is underlined. The boxes were to be stored below and never exposed to sunlight. Plants which germinated too much could be cut slightly.[63] Like seeds, live plants should be alive but not too 'alive'.

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[58] Ibid., fol. 244r.
[59] Poivre, 'Mémoire sur la manière de conserver les arbres et les graines pour les transporter par mer', 4 February 1768, ANOM Col C/4/22.
[60] Ibid.
[61] Ibid.
[62] 'de les mettre dans une potiche ou flacon et de former la base avec un mastic', ibid.
[63] Ibid.

In brief, the instructions for mass transportation Poivre had set up did not work in practice. Methods were very experiential and sometimes because of that even paradoxical; careful instructions did not work in practice or were not even respected because pressure was too high to bring larger quantities from the Moluccas to Isle de France. Surprisingly, neither Poivre nor Provost referred to existing preserving methods of the time. The detailed instructions did not work in practice because they did not pay attention to the plants' needs but were driven by the attempt to bring enormous quantities of material to Isle de France.

ACCLIMATISATION AND CULTIVATION

What happened to plants immediately upon their arrival? How were they unpacked and planted? The sources are rather silent regarding these questions, yet they allow some general insights. One reason why it is difficult to access knowledge-practice related to new arrivals is the jealousy and rivalry between naturalists. This had already occurred between Fusée-Aublet and Poivre in the 1750s and continued between Poivre and Father Galloys in 1769.

Although Galloys imported seedlings and seeds to Isle de France as he was ordered, Poivre refused to provide an appropriate field and slaves for the cultivation of the collected specimens from Asia, partly because he considered that too many of the men were incapable of treating plants properly.[64] Poivre, on his high horse as a well-travelled naturalist, had observed the agricultural skills and methods of Moluccan islanders and beyond while he was travelling in the Indo-Pacific in the 1740s. He explained in a letter to the Minister of the Navy and the Colonies that he sought to practise this knowledge in his acclimatisation garden; this was a way of cultivating clove from the island of Ambon and nutmeg from Banda.[65] As mentioned in chapter five, it is likely that Poivre also drew from other written sources related to the cultivation of Moluccan spices, such as *The Ambonese Herbal* by the Dutch botanist Rumphius, which was the first account (dated to the late seventeenth century) of nutmeg in Dutch territory.[66]

[64] Galloys to Praslin, 14 August 1769, ANOM Col E 197 (Galloy's file) and Poivre to Galloys, 16 February 1769, printed in Laissus, 'Note sur les manuscrits de Pierre Poivre'.
[65] Poivre to Praslin, 16 June 1768, secret letter, ANOM Col C/4/22, letter n° 66.
[66] Rumphius, *The Ambonese Herbal*.

Nutmeg and clove were only acclimatised in Poivre's garden Monplaisir until early April 1771: they were then distributed around the island four months later.[67] For the cultivation of nutmeg, Provost also arranged for two French-Creole boys from the Moluccas because he hoped they could assist with the cultivation of spices. This project backfired though. The two boys watered the seedlings too much because they assumed they required humidity – but this was false information. As Poivre explained in a letter to Minister Praslin, the nutmeg tree with collateral roots perished easily and therefore required only a little humidity, particularly when the plants were still young.[68] Clove seedlings, on the other hand, required a lot of humidity: however, even though the boys watered them sufficiently, the young plants, which had suffered during their transportation on board small boats, did not flourish either. Since the boys ignored the fact that they were sensitive to too much sunlight and heat, they had not been planted under the protecting shades of trees.[69] Poivre blamed the boys for their lack of knowledge but in fact he had failed to instruct them properly!

One main reason for the spice project's lack of success, Poivre observed, was the colonists' impatience. Small sprouting nuts were thrust into the ground with too much strength and small sprouts rising through the soil and taproots were accidentally destroyed. Because many nuts were planted too deeply into the ground, they only showed signs of germination after ten or eleven months.[70] Generally, the spice project was a very slow process. Poivre asked for the minister's patience: in ten years' time, the nutmeg trade could flourish and challenge the Dutch, just like he had envisioned.[71] The colonists' impatience and lack of enthusiasm had deeper reasons related to the frustrating food situation on Isle de France, as chapters one and three vividly demonstrate, but were also rooted in the fragility of the overall project. When Provost called at Isle de France with a vessel loaded with nutmeg and clove seedlings in 1772, the island's inhabitants were rather unenthusiastic about the mission's chances of success. If we believe Poivre's correspondent (or rather rival) Father Galloys, who described the arrival of spice plants in Port Louis, 'no one applauded, (...) there

[67] Galloys to Le Monnier, 6 April 1771, printed in Laissus, 'Note sur les manuscrits de Pierre Poivre', 47, and Poivre to Praslin only, 22 August 1771, ANOM Col C/4/29, fols. 22v–23r.
[68] Ibid.
[69] Ibid.
[70] Ibid.
[71] Ibid.

was not a single man shouting "Long live Pierre Poivre and the great Provost should be crowned."'[72]

Galloys provides several explanations for this lack of enthusiasm. In a nutshell, he claimed that it was the lack of previous success which discouraged the inhabitants. According to him, they had finally come to believe that these trees could not grow successfully in a climate which was so different to their natural environment.[73] In other words, inhabitants and cultivators who were in need of primary necessities were not enthusiastic about spices which simply could not feed them and whose success was the wishful thinking of the intendant.[74] In fact, a summary of Poivre's observation on the cultivation of the spice plants on Isle de France, probably dated 1772, underlines that there was only a restricted area where nutmeg and clove could be cultivated. Because the island was very small and its land had to be employed for the cultivation of staple crops, there was not much land left for 'objects of richness' like luxury spices.[75] Thus, the spice project and the agricultural enterprise certainly hindered each other.

On 22 September 1770, Commerson wrote to Cossigny de Palma: 'Everyone has the same complaints about the nutmeg as you, but M. Poivre underlines nonetheless that one must not lose hope, and that in two months' time one will see it grow.'[76] Poivre was frustrated because of the colonists' lack of interest in his spice project. Finally, in 1772, Poivre had the *Instruction sur la manière de planter et de cultiver avec succès les plants et les graines de Géroflier et de Muscadier* (*Instructions on the manner of successfully planting and cultivating plants and seeds of clove and nutmeg*) printed and distributed to the colonists.[77] These instructions were based on observations which Poivre likely made himself in 1752 and possibly Provost between 1771 and 1772: they were also surely based on Rumphius' *The*

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[72] 'personne n'a applaudit, et les farceurs n'ont pas même été suivis de la popullace ; il n'y a pas eu un seul cri de « Vive Pierre Poivre et que le grand Provost soit couronné »', Galloys to Le Monnier, 20 July 1772, printed in Laissus, 'Note sur les manuscrits de Pierre Poivre', 50–51.
[73] Ibid., 51–52.
[74] As instructions on cultivating nutmeg from 1789 unveil, trees only blossomed after seven or eight years, 'Instructions pour servir aux 30 caisses et 105 barigues d'arbres plantes et graines remises au Sr. Martin pour le Jardin royale de Plantes à Paris, 31 january 1789', BCMNHN Ms 42, file 2.
[75] Poivre's summary is transcribed in Ly-Tio-Fane, *The Triumph of Jean Nicolas Céré*, 109. It is probably dated 1772, Bibliothèque Angers Ms 612, fol. 28r.
[76] 'Tout le monde fait les mêmes plaintes que vous sur la muscade, mais M. Poivre soutient de même qu'il ne faut pas perdre espérance, et que dans le mois suivant on la verra pousser virgoureusement.' Commerson to Cossigny, 22 September 1770, printed in Cap, *Philibert Commerson naturaliste voyageur*, letter 6.
[77] 'Instruction sur la manière de planter et de cultiver avec succès les plants et les graines de Géroflier et de Muscadier', 1772, AN MAR G101, file 4, fols. 171v–175r and ANOM Col C/4/32.

Ambonese Herbal.[78] Poivre's observations (1752) include a description of the flower, leaves, mace, and nut as well as cultivational methods. Furthermore, the description reveals some very curious remarks on the 'true' nutmeg. The 'true' ones were the long or round ones, though the long ones – the female ones – were better, just as Rumphius had documented.[79] However, the long ones – Poivre admitted they were more oily and aromatic – were much rarer in Banda than the round ones. The second last sub-chapter discusses in detail this taxonomy.

It seems that although the long nutmeg was preferred to the round one, only the latter acclimatised successfully on Isle de France. In turn, one might ask whether Provost was only able to get the round ones in 1772 because the long ones were rare? Poivre's portrayal depicts the round, male nut as well: the long ones are considered the 'false nutmeg' ('*muscade fausse*').[80] Were the long ones declared 'false' because Poivre did not succeed in bringing them to Isle de France, even though they were more aromatic? After all, Poivre was very good at 'inventing' reasons why his projects failed, sometimes by simply declaring false identities or by putting the blame on factors which he could not influence, like weather conditions or the settlers' ignorance. Also, it seems very questionable whether it was possible to distinguish between the male and female nutmeg. For the multiplication of nutmeg, the distinction between female and male was crucial, and I will return to that question in the last subchapter.

Moreover and above all, the environmental conditions and climate of Isle de France complicated the spice project. During the initial years of the spice project in the 1750s, Poivre was still convinced that he could cultivate the spices regardless of the climate on Isle de France, which was different from that in the Moluccas. He named three reasons for this. First, the French colony had the same climate as Madagascar, where he had also found wild nutmeg of good quality. Second, the cinnamon he had introduced from Ceylon had not lost its aroma at all on Isle de France. In his third argument, he stressed that other vegetables which naturally grew in the Moluccas also grew in the Mascarenes.[81] He certainly lost this

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[78] 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manila 12 February, 1752, signed with Poivre original signature, ANOM Col C/2/285, fols. 158r–162v; 'Instruction sur la manière de cultiver avec succès des plants et graines de gerofliers et muscadiers, apportés des Isles Moluques par M Provost commissaire de la marine', Commerson collection, BCMNHN Ms 280 Vol 1.

[79] 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manila 12 February, 1752, ANOM Col C/2/285, fols. 158v–159r.

[80] Sonnerat, *Voyage à la Nouvelle Guinée*, 194, plate 118: 'Differentes coupes de la Muscade'.

[81] So Poivre explained to Malesherbes. 'Extrait de quelques conversations avec M. Poivre en 1758', BCMNHN 1756, 21°. This side note was not written by Malesherbes himself: the handwriting is different.

enthusiasm when facing Isle de France's environmental reality, particularly after the Seven Years' War.

Figure 16. Ravensara aromatica Sonn., collected by Poivre in Madagascar in 1756 (?), https://science.mnhn.fr/institution/mnhn/collection/p/item/p00681697.

Becauae of a lack of succees, Poivre thought about conducting experiments with 'imitation spices' like the ravensara before his return to the Indian Ocean in 1767 and surely had these possibilities in mind when charging Rochon with the mission to collect these 'imitations'.[82]

[82] The search for imitation spices was common in the early modern world. For the French case and the debate about the 'true' spice, see Spary, 'Of Nutmegs and Botanists'. For the Portuguese context, see Alírio Cardoso, 'Especiarias na Amazônia Portuguesa: Circulação Vegetal e Comércio Atlântico no Final da Monarquia

By the time Rochon was sent to Madagascar in 1768, Poivre had long been pursuing his plans to domesticate nutmeg and clove on the French islands: he not only charged Rochon with collecting useful plants in general but also had a particular interest in Malagasy plants similar to nutmeg. These included the 'Malao-manghit', which the Malagasies considered to have the same virtues as the 'true' nutmeg, and the 'Rarabé', a sort of wild nutmeg from the nuts of which Malagasies made oil for skin and hair as well as a remedy to strengthen the stomach. Other such plants included the 'Bachi-bachi', with an aromatic nut, stain, and mace, the 'Rharha-horac', which was a wild but 'true' species, and lastly the 'Ravend-sara' (ravensara), which united 'the scent of clove, cinnamon, and nutmeg' and whose leaves and nuts produced better essential oil than the 'true' clove, which was used to season stews.[83] In 1756, Poivre observed during his stay in Madagascar that the ravensara fruit was harvested when small because this would make the fruits more aromatic when dried: this was similar to how clove was picked in the Moluccas [cf. figure 16].

Poivre reflected about the ravensara that one should experiment a little to see whether this species could serve as a new spice with similar features to the clove.[84] In case nutmeg and clove did not acclimatise on Isle de France because of environmental factors, Poivre suggested in 1752 introducing ravensara from Madagascar. He argued that Isle de France's climate was so very similar to that in Madagascar that the acclimatisation process was more likely to be successful than that for nutmeg and clove.[85] That Poivre remarked on the fragility of the 'real' spice project can underline two things. First, he was not necessarily convinced himself about the success of the whole project. Second, environmental factors were omnipresent and blocked the island's improvement more than once despite the colonials' best efforts to manage nature. As Elisabeth de Cambiaire put it in relation to the establishment of the Mascarenes, 'if colonial expansion imposed control over nature, nature in turn imposed constraints on colonial expansion.'[86]

Here, the difficulties which the local actors had to face when transplanting spices from the Moluccas were immense. They had to find the right method and the perfect conditions for

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Hispânica', *Tempo* 21 (2015): 116–33, 118. I thank Cláudia Castelo for poitning me to this article. See also Matthew P. Romaniello, 'True rhubarb? Trading Eurasian botanical and medical knowledge in the eighteenth', *Journal of Global History* 1 (2016): 3–23.

[83] Rochon, *Voyages à Madagascar, à Maroc et aux Indes Orientales*, I: 272–274.

[84] 'Raven-tsara', BCMNHN Ms 1265.

[85] 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manilla, 12 February 1752, ANOM Col C/2/285, fol. 158r.

[86] De Cambiaire, 'Enlightened Alliance', 102.

them in foreign soil. This is precisely where the misery of Isle de France began – the island's climate and microclimates were quite different from those in the Moluccas. In 1758, Poivre explained to the *Académie'*s librarian Malesherbes that one would find the perfect conditions for nutmeg not in the Mascarenes but in Madagascar.[87] However, in Poivre's later observations (probably dated 1772), he affirmed the contrary: on Isle de France, clove and nutmeg were the only exchange commodities that could be profitably grown.[88] These observations must be seen in face of Isle de France's and Poivre's decline during his office. The competition between the colonies, and particularly the colonisation of Madagascar, reflected badly on the Mascarenes, and Poivre had to ensure that his spice project would be acknolwedged and continued after his departure in 1773. The debate about climate difference was crucial yet paradoxical and adapted to French colonial politics; it went hand in hand with political climate.

Particularly because of factors such as climate and soil, transplanting offshoots from one place to another was in general a difficult task. One aspect which remained a problem was that that the soil had to 'rest', as a *gazette* article suggests on a more general note regarding cultivational activities on Isle de France. 'Resting' in this context meant that the soil had to recover from cultivation, which the author considered a self-regulating mechanism of nature determined by season and rainfalls.[89] When transplanting young plants and planting seeds, one had to ensure that they were protected against wind and sun: it was thus preferable to plant them together with banana trees, which could provide shade and block the strong winds.[90] The experience with clove showed, however, that banana trees were the wrong sort of tree because they provided too much shade.[91] In turn, the banana tree was very suitable for cinnamon because it required shade and humidity, which the banana trees could indeed provide. Poivre also referred to the cinnamon's needs in letters to the minister, explaining that many settlers allowed their slaves to grow some banana trees along the river, where they could also grow cinnamon for the reasons mentioned above.[92] As Poivre highlighted, one had

[87] 'Extrait de quelques conversations avec M. Poivre en 1758', BCMNHN, Ms 1765, fol. 240r.
[88] Poivre's summary is printed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 91.
[89] 'Réflexions sur la nécessité prétendue de varier les cultures des mêmes terres, in in *Annonces, Affiches et Avis divers pour le Colonies des Isles de France et de Bourbon*, 19 January 1774, 2.
[90] Cf. 'Instruction sur la manière de cultiver avec succès des plants et graines de gerofliers et muscadiers, apportés des Isles Moluques par M Provost commissaire de la marine', Commerson collection, BCMNHN Ms 280 Vol 1.
[91] Instructions for the cultivation of the clove tree, by Céré, 7 April 1779, transcribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 128.
[92] Poivre to Praslin, 16 June 1768, ANOM Col C/4/22.

to experiment a little to find what worked best for different spice plants. Just because banana trees were suitable for cinnamon did not mean this was the case for nutmeg, let alone clove.[93]

In terms of soil, nutmeg required a 'fat' and humid one. Sprouting nuts had to be sowed in the rainy season; it was better, following the methods of the 'gifted gardeners of Banda', to plant the seeds two months before the rainfalls because then the nut could germinate before the humidity kicked in and therefore start taking root.[94] In this way, the nut could develop its stalk more easily once the rain came. Otherwise, as happened in the case with the Creole boys, the young plants could easily perish because they would be 'drowned' in water. The example of 'overwatering' certainly remained a problem even in 1770, which was part of the reason why further expeditions were initiated in 1771.[95] Growing clove was similarly difficult because it also suffered from too much watering. Clove berries were likewise to be protected from the burning sun with the placement of plants with small leaves, like from the tamarind.[96]

The acclimatisation of both nutmeg and clove were very complicated matters which required special knowledge about the plants' needs. This knowledge was transmitted from the plants' place of origin, the island of Banda. Following his observations on seasons and rain in Banda, Poivre suggested the month of October as the time to start seeding.[97] In practice, the planting of nutmeg was to be conducted as follows. To create an orchard, it was most appropriate to choose a piece of land protected by a hedge made of bamboo. As a second row, one was to choose trees like the mango or the jackfruit tree, if not the betel palm or the coconut palm: for the third row, orange, lemon, cinnamon, or coffee trees were best.[98] These precautions were necessary to ensure freshness, shade, and protection against storms. Here, one also had to pay attention that the protective plants did not harm the nutmeg. One had to ensure that the bamboo did not spread and grow only in direction of the hedge: it also needed to spread towards the middle parts where the nutmeg was to be planted.[99]

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[93] Ibid.
[94] 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manila 12 February, 1752, signed with Poivre's original signature, ANOM Col C/2/285, fol. 159r. The soil is indicated as 'grasse'; 'habiles jardiniers de Banda'. Ibid., fol. 159v.
[95] 'Instruction sur la manière de cultiver avec succès des plants et graines de gerofliers et muscadiers, apportés des Isles Moluques par M Provost commissaire de la marine', Commerson collection, BCMNHN Ms 280 Vol 1. There is a remark in the margin, which underlines this exact reason.
[96] Ibid. Unfortunately, the 'Instruction' are incomplete for the clove. But see for instance ADR 4 J 72 on the cultvation of clove.
[97] 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manila 12 February, 1752, signed with Poivre's original signature, ANOM Col C/2/285, fol. 159r.
[98] Ibid.
[99] Ibid.

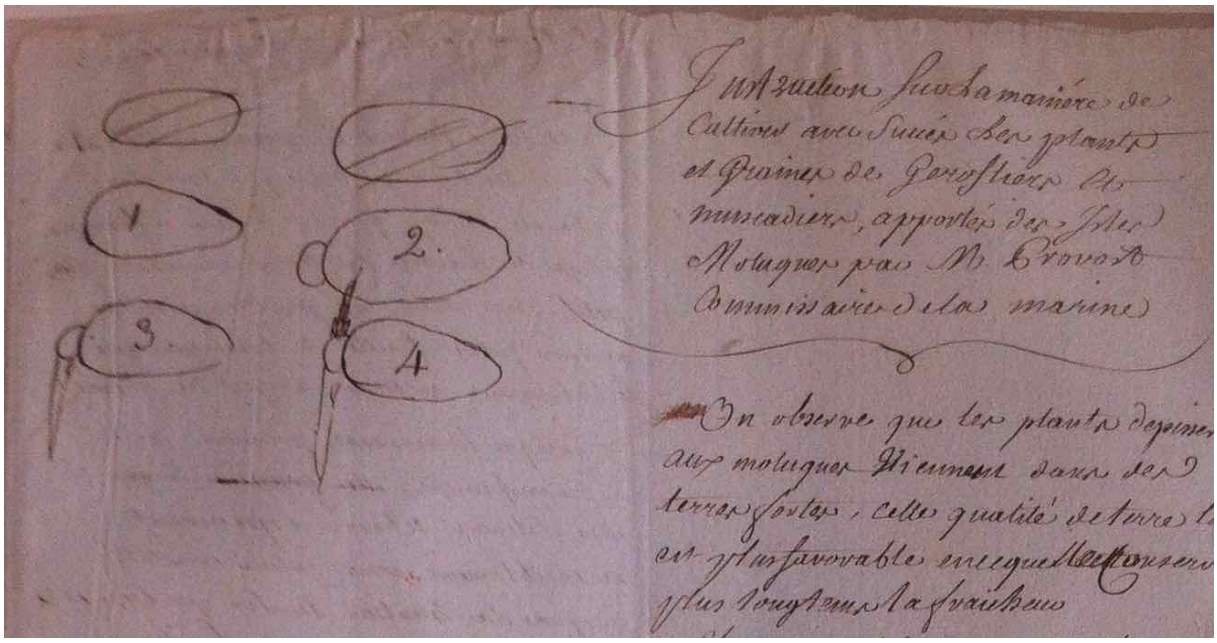

Figure 17. 'Instruction sur la manière de cultiver avec succès des plants et graines de gerofliers et muscadiers, apportés des Isles Moluques par M Provost commissaire de la marine', Commerson collection, BCMNHN Ms 280 Vol 1.

Working the soil was another important form of preparation. After stirring it, one was to enrich it with 'some other materials suitable as an amendment', such as leaves. Although the soil on Isle de France seemed fertile, one had to mix it with these amendments for various reasons. The soil could be too dry because of a loss of water. Consequently, it was too sticky and one had to loosen it so that water could flow more easily.[100] Poivre remarked that it was not necessarily important to keep newly introduced foreign plants in their native earth. Rather, the earth in which they came was much more suitable for these plants because it had been reprocessed. To name one example, the oak tree, which he introduced from the Cape, was left in its native earth: it grew successfully not because the earth was different but because it had already been prepared correctly. One was to prepare the soil as described above because the soil on Isle de France was generally very dry.

Finally, the field was ready for the nutmeg, which was to be planted together with banana trees to ensure shade. The seedling itself required specialised knowledge even for how to place it in the soil, as detailed instructions (dated probably 1771 or 1772) underline [see figure

[100] 'quelques matières étrangères propres à l'amendement', ibid.

17].[101] To germinate, nutmeg was to be planted horizontally with only the long and thick bottoms in the soil, as shown in the *Instruction sur la manière de cultiver avec succès des plants et graines de gerofliers et muscadiers*, number 1 (simple nut) and number 2 (slightly germinating nut) [cf. figure 17].[102] Similar to the storage of seeds for transportation, one should ensure that one used two to three feet of 'clean' earth which did not contain compost. As shown in drawing number 3 [cf. figure 17], the fully germinating nut was to be planted as follows. Rather than putting the entire nut deep into soil, only the seedling had to be placed in the soil, while the nut was to be covered lightly with foliage.[103]

The document explains that some inhabitants falsely assumed that the seedling was 'the start of the root of the tree' ('*l'indice de la lige de l'arbre'*) and consequently planted it upside down. This only led to the nuts perishing. Drawing number 4 [cf. figure 17] indicates the smaller sprout as the growing root at the bottom of the nut, which had a slightly reddish colour and two little leaves. When the nutmeg was rising, the seedling came out of the soil with a green colour, at a height of six inches, and without leaves.

Two things were surely required when growing nutmeg: know-how and patience. The nutmeg only bore fruits after five years, sometimes after ten to twelve years.[104] Once the trees blossomed, it took about nine months before the nut was ready to be picked. One could hope for up to three harvests per year because the nutmeg blossomed all year long once it was mature. After picking, the nuts had to be processed, separated from their maces, and dried before they were ready to be sold.[105]

Growing nutmeg was a long and very difficult process. Looking into *Monplaisir*'s inventory dated 1774, the garden, which had become by then the local *Jardin du Roy*, only had fifty-eight nutmeg trees and thirty-nine clove trees – a very limited quantity of trees for all the efforts made up to 1772.[106] According to a report made by Céré dated 1775, the first

[101] 'Instruction sur la manière de cultiver avec succès des plants et graines de gerofliers et muscadiers, apportés des Isles Moluques par M Provost commissaire de la marine', Commerson collection, BCMNHN Ms 280 Vol 1.
[102] Ibid.
[103] Ibid.
[104] Cf. 'Observations sur le muscadier et principalement sur la culture de cet arbre', Manila 12 February, 1752, signed with Poivre's original signature, ANOM Col C/2/285, fol. 160r.
[105] See on this for instance, Fusée-Aublet's copy of and remarks on Rumphius' observations on the nutmeg on the island of Ambon, BCMNHN Ms 453, dossier II.
[106] MA OA 116.

clove bush only budded in October of the same year.[107] As such, it is highly misleading to speak of Poivre's flourishing success.

From its initial years onwards, the spice project was more than tentative and even led to the search for alternatives. The complications of containers, cross-oceanic transport, environmental factors such as climate and soil, and the right manner of cultivation limited the success of the project. Cultivational methods rooted in Maluku and European systems and techniques (and also African and Malagasy ethnobotanical knowledge that came with the immense slave population) that had to be heavily adapted to the island's ecosystem. One required the understanding of the plant material, their cultivation as well as the conditions of soil and climate. The quality and image of Isle de France changed also when political climate was changing. Because of all these different sets of knowledge that one had to accumulate, practise and experiment with, the cultivation of nutmeg was much more complex than the historiography concerned with the spice project has admitted – and contemporary local actors had committed to metropolitan ones. In face of these overlooked complications and obstacles one last remaining question remains: Did nutmeg then successfully acclimatise and also multiply at all?

A NUTCASE WITH SEX PROBLEMS – OR THE DIFFICULTIES OF DIOECY

To understand why it was so difficult for the French to reproduce nutmeg on Isle de France, one has to understand the biological features of nutmeg which were not that obvious to eighteenth-century French protagonists. There was a persistent general confusion about the different kinds of nutmeg. The confusion about unfamiliar or exotic plants and remedies was omnipresent in early modern Europe. Emma Spary has long discussed the confusion and identity building of the 'true' nutmeg on Isle de France in the 1750s and which caused an immense dispute between Poivre and Fusée-Aublet.[108] The debate about sex, however, was not of great importance in that context, particularly because the sex system and was largely ignored in mid eighteenth-century France.[109] Europeans possessed very sketchy knowledge about the natural world outside Europe and the 'exotic' was constructed from insufficient information. This confusion did not only relate to plants but also animals, as – to name an

[107] Céré's report on the cultivation of spice plants, 4 November 1783, trancribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 100–112.
[108] Spary, 'Of Nutmegs and Botanists'.
[109] Thierry Hoquet, *Buffon-Linné: éternels rivaux de la biologie?* (Paris: Dunod, 2007), 55.

example – Natalie Lawrence has explored in the case of the Mauritian dodo and how naturalists sought to integrate it in European taxonomic systems.[110]

In 1773, the botanists Adanson and Jussieu reported about three different kinds of nutmeg, which were sent to the French Academy for examination. These types were the *Pala parampuan* (female), the *Pala Lakki Parampuan* (female and long), and the *Pala lakki-lakki* (the 'wild' male or long).[111] Furthermore, they were sent a specimen of the small wild nutmeg native to the Moluccas that they compared to Rumphius' description of the so-called *Palala*. Rumphius actually came to Ambon as a VOC employee. He married a local woman who converted to Christianity and became Susanna. In *The Ambonese Herbal*, he praised his wife's assistance and crucial intermediation when collecting and examining native remedies, even naming a white orchid after her, the '*Flos Susanna*' in Latin or '*Bonga Susanne*' in Malay, which means 'Susanna's Flower'.[112] In their report, Adanson and Jussieu confirmed that the *Pala parampuan* and *Pala Lakki Parampuan* were species of the 'true' nutmeg but that the blossom had not survived the journey (the live plants were sent in a flask filled with alcohol): it was impossible to examine them.[113] It is also unclear if the specimen were sent from Isle de France together with descriptions and a determined sex or if the metropolitan botanists only compared them to *The Ambonese Herbal*. It seems that they followed the later strategy.

There are several very important details to mention in this context. Above all, it is impossible to tell if a plant is female or male until the plant actually flowers. It is highly doubtful that the French both in the colony and in Paris could actually distinguish the nuts (that is to say the seed) based on their appearance and tell if either a male or female tree would grow from it. It was known that nutmeg bears monosexual flowers and that male and female reproductive parts are not found on the same individual).[114] At the same time, male plants with male flowers (which do not bear the seeds) are indispensable for pollination and consequently reproduction. Therefore, like other dioecious plants, nutmeg is more difficult to reproduce than monoecious plants. Only female trees yield nuts and therefore it was desirable to have more female trees as I will discuss in greater detail.

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[110] Natalie Lawrence, 'Assembling the Dodo in Early Modern Natural History', *BJHS* (2015) 48: 387–408.
[111] Report by Adanson and de Jussieu, ADS PV 1773, fol. 35r–36r.
[112] Sargent, 'Global Trade and Local Knowledge', 156.
[113] On the Linnaean sexual system and its discussion in France, see, for instance, Hoquet, *Buffon-Linné*, 50–58, 55.
[114] On a discussion of a plant's sex from Leibniz to Linnaeus and the classification in the Linnaen *Systema Naturae*, see, for instance, Drouin, *L'Herbier Des Philosophes*, 110–23.

The second aspect relates to Malay names and their relation to the kind of nutmeg as well as Maluku knowledge systems more generally. *Pala* means nutmeg in Bahasa Malay. Furthermore, *perempuan* means 'female' or 'woman'. Both words *laki* and *laki-laki* mean 'man' or 'male'. Moreover, 'laki' meant 'long', perhaps in relation to the symbol of the phallus. Given that Rumphius documented local knowledge systems of the second half of the seventeenth century, French botanists relied on Maluku knowledge systems when making use of *The Ambonese Herbal*. The inhabitants of Ambon distinguished female and male trees and therefore probably observed that only certain types of trees bore fruits. Given that 'bearing fruits' is a 'female' feature given by nature, local if not indigenous knowledge systems possibly classified the trees according to sex. Furthermore, they possibly believed that could also distinguish the nuts; the classification based on sex.

Yet, as said, it is impossible to distinguish a seed (the nut) through a mere visible examination, what both Ambonese people and Europeans believed to be possible. Here, partly via Rumphius, the French relied upon Ambonese knowledge possessors. The case of nutmeg is an outstanding example of knowledge transfer: the cultivation of nutmeg depended largely on access and extraction of local knowledge transmitted via Rumphius. The only evidence the French had were the nuts together with Rumphius' account and possibly other descriptions sent from Isle de France in 1772 that based on Maluku knowledge. This processed (Europeanised) knowledge led to confusion and misinterpretation. Knowledge claims and the hierarchy of power must be seen as being completely inverted. Europeans were entirely dependent on Ambonese knowledge and they did not have any ability to prove or disprove it. To put it differently, they took Rumphius' account based on local Ambonese knowledge – which might have been falsely transmitted – for granted.

The Ambonese themselves may have believed that they could distinguish the nuts but that did not necessarily reflect reality. Knowledge claims and the hierarchy of power must be seen as being completely inverted. Europeans were entirely dependent on Ambonese knowledge and they did not have any ability to prove or disprove it. Further, the discovery of plant sexuality in France, as Antoine Jacobsohn argued at the turn of the nineteenth century, created a tension between the botanical identification of new species, cross-pollination and the practical needs of farmers.[115] The nutmeg case is an example of nature's uniqueness, and

[115] Antoine Jacobsohn, 'Seed Origins: New Varieties of Fruits and Vegetables around Paris at the Turn of the Nineteenth Century', in *Of Elephants & Roses: French Natural History, 1790-1830*, ed. Sue Ann Prince (Philadelphia: American Philosophical Society, APS Museum, 2013), 65–66.

although the French naturalists sought to examine the specimens 'scientifically', they did not have to practice their cultivation like practical horticulturalists on Isle de France.

What do I mean by this? Because of the nutmeg's specific sexuality, in the later 1770s, Céré had immense difficulties in maintaining the nutmeg trees. Above all, in 1775, he counted nine blossoming trees, of which only one was female.[116] In the same year, he lost two male trees due to root illness, which meant that he could list only five blossoming trees in 1776, of which two suddenly are listed as female.[117] The lists expose Céré's dilemma: he had a ratio of five to three, fifteen male trees and only three female ones, out of which only one was the aromatic 'true' nutmeg.[118] As explained above, only female trees bear fruits but the *Jardin des Pamplemousses* had a clear 'sex problem' because of the 'male overpopulation' (or rather too small a female population for great multiplication). Even though Céré was theoretically aware of the nutmeg's sexuality, he did not have the practical means to overcome the problem of reproduction. The question of sex still concerned Céré in 1783, when he wrote: 'Are all the nuts of the same tree always male individuals or females or do they give one and the other?' and – after elaborating on the frustrating situation when planting nuts – 'How much, then, is it to be hoped that we can discover what kind of nuts or nuts in the diversity of form that a tree offers, we must plant preferably to have fruitful subjects.'[119]

While the French botanists and gardeners accepted the taxonomy according to sex, they could not overcome the obstacle of reproducing dioecious plants in practice. It took Céré from 1776 to 1783 to conclude that he could not know the nut's sex. At the same time, he sought to conduct further experiments with the different types of nutmegs (different shapes and forms). He argued that only then could observations 'enlighten us on the most prompt way of multiplying this precious gift of nature'.[120] This moment in history was not about the concept of dioecy but rather about identifying something as dioecious. In the Indo-Pacific, European science was only one form of knowledge system and had its strong limitations while

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[116] Céré's report on the cultivation of spice plants, 4 November 1783. Trancribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 100–112. See also ADR 4 J (Hubert's documents) and PR 56 A (Hubert's observation on nutmeg).
[117] Céré's report on the cultivation of spice plants, 4 November 1783. Trancribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 107.
[118] Ibid.
[119] 'Sont-ce toutes Les noix d'un même arbre qui donnent ou toujours des individus mâles ou des femelles ou si elles donnent des uns et des autres ?' and 'Combien n'est-il donc pas à Souhaiter qu'on parvienne à découvrir quelle espèce de noix ou quelles noix dans la Diversité de forme que vous offre un arbre, on doit planter de préférence p^{r} avoir des sujets fructifians.', ibid., 111.
[120] 'Les observations suivies peuvent Seules nous éclairer sur la manière La plus prompte de Multiplier ce précieux don de la Nature.', ibid., 112.

borrowing from other systems. Plant breeders all over the world must have known about this concept since possibly always. The crucial point to make is that different peoples in different contexts divide their natural environment into units. As Stephen Jay Gould put it once: 'In short, the same packages are recognized by independent cultures'.[121] Cultivating dioecious plants can clearly serve as such a 'package' that was recognised by practitioners.

To cut a long story short, the French botanists and gardeners did not know better at the time and could not overcome the dilemma. In addition, Céré's report underlines the difficulties with strong winds, which damaged or even deracinated young plants, in addition to rat plagues, which led to the loss of the biggest Creole tree in 1779, for instance.[122] Trees suffered easily and were fragile. For instance, on 4 November 1783, Céré's report about the cultivation of spice plants explains that two nutmeg trees died because of a '*vase mortière*' around their roots: bad earth or mud might have harmed them and caused them to perish.[123] Despite all efforts, trees were fragile and were easily lost; the successful reproduction was more than limited.

Nature itself and uncertain knowledge imposed constraints on the French spice project. While the French theorised about the lack of reproduction, a gardener slave sought to experiment with several methods to graft clove. As I have mentioned in chapter four, the gardener slave Hilaire pointed the French to an invention by using jamrosa to graft clove, a method of which the French never would have thought, as Céré exclaims. For all these reasons, the spice project and knowledge transmission can serve as an example that French knowledge was very experiential, rooted in Malay ways of knowledge, and further developed by the initiative of a slave.

MULTIPLICATION AND DISTRIBUTION

Despite all these reasons related to the nature of nutmeg, which the French botanists did not understand, French metropolitan political actors pressed for the distribution of spice specimens from the early 1770s onwards. Until 1770, Poivre's idea of turning the Mascarene Islands into a second Java was shared by his patrons Choiseul and Praslin. But when Praslin lost his position as Minister of the Navy and the Colonies and was replaced by the chevalier

[121] Stephen Jay Gould, *The panda's thumb: more reflections in natural* history (New York: Norton, 1980), 207.
[122] Céré's report on the cultivation of spice plants, 4 November 1783. Trancribed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 109.
[123] Ibid., 100–112; See also Tessier et al., *Encyclopédie méthodique*, IV: 208.

Ternay in 1770 (until the nomination of Pierre Étienne Bourgeois de Boynes (1718-71)), Ternay began to push Poivre to tighten the bonds with Cayenne.[124] He wrote a letter directly to Poivre with the order to send spices to Cayenne, in which he explains the need to cultivate and multiply fine spices in the colonies. According to Ternay's judgement, Cayenne offered the same climate as the Moluccas. Although Choiseul had planned to strengthen France's position in the West Indies with the help of Guiana, the project of Cayenne was only set in motion in 1773 under de Boynes and after Ternay had insisted and personally contacted Poivre in 1771. He instructed him to send fresh seeds of nutmeg, cinnamon, and clove, from where, in the case of successful acclimatisation, he hoped they could send plants to French colonies in the Atlantic.[125]

In order to protect the secret distribution of the plants to other parts of the world, Desroches and Poivre set up an ordinance in 1770. It declared that stealing, damaging, and, most importantly, exporting the plants and seeds of the newly introduced spices was treasonous.[126] There is evidence though that the British captured a French shipment of nutmeg specimens in 1770: if this is true, these plants were probably transferred to the colonial garden of Saint Vincent, which had been re-established in 1765.[127] Recently, it has been discovered cinnamon and nutmeg had been introduced to either the Lesser Antilles or Venezuela as early as 1767. These conclusions were drawn from a list by the French botanist Jean Baptise D'Arnault, although it seems plausible that he was not correct about nutmeg.[128]

While it remains questionable whether D'Arnault had really observed nutmeg, he may have seen cinnamon, which had been sneaked into French colonial spice gardens from Sri Lanka via Karikal (India) to Isle de France in 1752 and was later acclimatised on the island of Guadeloupe in 1762. Indeed, with the new Minister of the Navy and the Colonies pressing for it, nutmeg, clove, and cinnamon were imported and cultivated in French Guiana with instructions on the plantation of these spices.[129] During Poivre's tenure, however, the nutmeg project was to be exclusively based in the Indian Ocean. In 1772, for instance, Provost sent nutmeg seedlings to Bourbon: Governor Bellecombe thanked him for the delivery of the

[124] Jean-Philippe Zanco, ed., *Dictionnaire des ministres de la marine: 1689-1958* (Paris: Éd. SPM, 2011).
[125] Ternay to Poivre, dated 31 March 1771, ANOM Col B/202.
[126] The Ordinance is printed in Ly-Tio-Fane, *The Odyssey of Pierre Poivre*, 94–95.
[127] Thomas J. Zumbroich, 'The Introduction of Nutmeg (Myristica Fragrans Houtt.) and Cinnamon (Cinnamomum Verum J.Presl) to America', *Acta Bot. Venez.* 28, no. 1 (2005): 156.
[128] Ibid., 155.
[129] Letter from Ternay, dated Versailles, 31 March 1771, ANOM Col C/14/40, fols. 223r–224v.

plants that he brought from Jolo.[130] The nutmegs, however, did not bud and Poivre sent new ones to *ordonnateur* Crémont, asking him to report about their development.[131]

In addition, the local administration of Isle de France aimed at expanding the French territories in the Indo-Pacific region and developed the idea to take possession of the Seychelles by shipping eighty to one hundred men and women to one of the many islands, together with their children and food supply from Isle de France (corn, rice, salted fish, oil, and tobacco).[132] The Seychelles project was also to include the acclimatisation of spices, and Poivre wrote to the minister in August 1771 that he sought to 'transplant a considerable quantity [of fine spices] in the Seychelles (...), which lie in the same latitude as Banda.'[133] Environmental historian Grégory Quenet is currently working on a new project about the establishment of the Seychelles, arguing that the project was forgotten in accounts by Richard Grove, for instance.[134]

Seeing the Seychelles project in relation to Cayenne, Poivre at first disapproved of the idea of sending specimens to the Atlantic because he sought to keep the cultivation monopoly in the Indian Ocean colonies. He possibly feared that the Mascarenes would be abandoned. In his observations on the introduction of spices on Isle de France, Bourbon, and the Seychelles (1773), he argued that the project would not have the same effect on one of the Atlantic islands as keeping it exclusively on the Mascarenes.[135] First, Poivre argued, the largest consumption of spices took place not in Europe but in Asia (China, Japan, the Persian Gulf, and the Red Sea). Therefore, transporting spices from the Atlantic back to the Indo-Pacific would simply not make sense. Secondly, even if the introduction of spice cultivation in the Atlantic could defeat the Dutch spice monopoly, the aim of turning Isle de France into a profitable colony could not be reached; the island would be ruined forever and would remain a burden to the French king.[136] Poivre desperately sought to keep the spices in the Indian Ocean. This may also explain why the immense problems of nutmeg cultivation never reached metropolitan ears at the time, let alone entered printed accounts. The local botanists

[130] De Bellecombe to Provost, 6 July 1772, BCMNHN Ms 357, file XIV.
[131] Poivré to Crémont, 20 July 1772, ADR Sér. C, fol. 264r.
[132] 'Mémoire sur l'établissement des Iles Seychelles', NAF 9341, fols. 249r–254v.
[133] 'Mon objet, Monseigneur, est d'assurer invariablement à la France la possession des épiceries fines, d'en remplir cette île, d'en transplanter une quantité considérable aux îles Seychelles ou des Trois-Frères, qui sont sous le même parallèle que celle de Banda.' Poivre to the minister, 22 August 1771, ANOM Col C/4/29, fols. 18r–21r.
[134] Grove, *Green Imperialism*.
[135] 'Observations de monsieur Poivre sur l'introduction de la culture des épiceries aux îles de France, de Bourbon et de Seychelles', 12 September 1773, FGB 15 J 17 (copy).
[136] Ibid.

sought to keep it as a secret because they feared that the spice project, and consequently Isle de France, would be abandoned.

CONCLUSIONS

This chapter considered the cross-oceanic transportation and acclimatisation of spice live plants and seeds. The aim was to understand the spice project as a disruption rather than as a success. While the French tried to change the environmental landscape of Isle de France, both through the introduction of foreign crops and deforestation on the island, it was particularly difficult to 'control' nature in spaces like ships where human influence was very restricted, yet also on the island as such. And even when the live plants and seeds finally arrived on Isle de France, they did not promise immediate success but quite the contrary: acclimatising nutmeg and clove was a very long process with little progress. Since the spice project was to give the island a financial boost, local administrators and above all Poivre did not abandon it – possibly also because of his personal ambitions and envisioned personal cultural capital. These were also the reasons why he desperately sought to keep the project exclusively in the Indian Ocean.

I have visualised the challenges and fragility of the whole spice project by highlighting obstacles, such as climate, weather, and soil conditions as well as packing methods as factors which made the project more than uncertain and experiential. I have given consideration to maritime space and the trans-oceanic voyages from the Moluccas to Isle de France as part of the process, which has been widely 'black-boxed' in historiography concerned with French overseas science production, ironically because the 'boxed' plants had not been previously considered. The project heavily depended on environmental factors and the plant material itself both during the transportation on ships and once on the island. Aboard, the proper transportation of the live plants and seeds in boxes and barrels determined if they arrived alive or dead; the methods were quite tentative and chaotic, even paradoxical, and led often to the perishing of the plants.

The spice project was a matter of intersections of plant knowledge rooted in Asian (and possibly African or Malagasy) and European systems. Cultivational knowledge, which arrived in the colony, was sometimes lost, wrongly explained and cultivational projects might have been doomed to go down if one failed to create the perfect conditions for acclimatisation. These obstacles were both human-caused when plants were handled in the wrong way but also occurred naturally due to environmental conditions some of which could not be

controlled. Furthermore, this essay argued for the scant knowledge regarding the reproduction of nutmeg. Even while cultivational methods and the plants' needs were studied, there was a clear explanation why the nutmeg did not reproduce well: nutmeg is a dioecious plant but the French lacked female trees. The French did not have the means to increase the female tree population because they could not know if a nut was female or male in order to plant more female nuts to increase reproduction. The plants in which they had put so much effort and hope limited the French attempts. The spice project and Indo-Pacific knowledge transmission to and within Isle de France can serve as a case *par excellence* that tropical plant knowledge was very experiential if not experimental. Experience lacked and methods were further developed by the initiation of the gardener slave Hilaire.

In sum, this chapter argued for the inclusion of nature, objects and material practices in order to understand the complexity of colonial projects that were in reality very difficult to conduct. Looking at practices and the plant material as such, the spice project was a highly entangled enterprise as opposed to a smooth and coherent project supported by metropolitan institutions. It was determined at the intersection of local possibilities and limits of both cross-oceanic transportation and cultivation based on knowledge deriving from the Moluccas. It was further tested in Isle de France where it remained fragile and tentative.

⌘

Conclusions

This dissertation has examined the globally connected project of plant accumulation on Isle de France in the second half of the eighteenth century, focusing distinctly on the roles and activities of local actors embedded within wider Indo-Pacific networks and environments. De-constructing centres by engaging with the plurality of centres brought about by the need to look for useful plants outside the island, it has sought to understand the establishment and maintenance of the island colony through plant transfer and the practice of natural knowledge. Exploring the complexity of collection and accumulation of plants as localised histories of the plant-related undertaking of a French island colony in the Indian Ocean, this dissertation has asked what 'science' and 'empire' meant at a local level. Relying on an in-depth analysis of the plant-based projects of the island 'from below', it has raised localised approaches to the transfer, production, and practices of plant knowledge and plant material from a cross-cultural perspective. Here, a bottom-up approach tells a very different story than top-down approaches: the whole botanical enterprise was fragile and uncertain, significantly shaped by environmental conditions, and, above all, was built upon the collaboration between French actors and local populations, from Africa to Asia.

Greatly inspired by scholarly works in different contexts, this project has sought a reorientation, a new take on the vivid elements of the French experience and plant accumulation through the perspective of agents in the Indo-Pacific worlds. Isle de France's botanical identity was not simply imposed by an imperial centre. Rather, it emerged through various phases and processes throughout the eighteenth century, deriving from and taking place in distinct Indo-Pacific worlds. Examining this process, this dissertation has been committed to continue the long-proposed revision of 'science' and the 'periphery' in other national contexts by situating Isle de France at the crossroads of an intense geographical and cultural network. Keeping a secure foot on Isle de France, I have sought to understand the movement of knowledge collected in specific regions. In that sense, I have also followed a spatial approach by situating Isle de France in the middle of its wide networks.

The major aim of this dissertation has been to re-assess the French botanical attempts in the Indian Ocean as histories seeking to understand cultivational activities and the social construction of plant-based knowledge-practice with respect to their local sites in both the Indo-Pacific worlds and the French island as such. I have argued for a new picture of the introduction of plants on eighteenth-century Isle de France. Firstly, I have sought to understand plant accumulation outside metropolitan endeavours with Europe as the main market. Instead, I have insisted on local decision-making. Secondly, I have shed light on the interplay of networks for the acquisition of plants in the Indo-Pacific region that reached far beyond the French. The colonial experience and the creation of botanical knowledge did not divide French agents and actors in the Indo-Pacific world, which included slaves, pirates, local kings, traders, turncoats, religious intermediaries, and beyond. Rather, while fracturing institutions, science, and colonialism, the botanical establishment of Isle de France was built on the local possibilities and limits in the Indo-Pacific region. Thirdly, I have argued for the dynamics of different knowledge traditions by insisting on the sketchy knowledge the French possessed. Applied knowledge was experiential and heavily influenced by environmental conditions.

To tackle, juxtapose, and understand plant transfer and knowledge as a nuanced cross-cultural practice conducted by non-elite and elite actors in the Indo-Pacific worlds, this project has coupled approaches from the history of science and empire, environmental history, oceanic history, the politics of empire, economic history, the history of slavery and labour, and global history. Combining these approaches, this project has lent weight to several works in this context while using French colonial archives extensively and reading them from the ground up. With each chapter I have offered an alternative approach to the story. These approaches have ranged from 'blue empire' and 'green empire', symbolising the (blue) oceanic connections as well as (green) plants and agriculture. Further, I examined a 'black empire' in which I resituated the significant role of slaves in cultivational activities. I have proposed an 'invisible empire', retelling the French spice quests partly through the lens of actors who have remained invisible. Lastly, I have put forward a 'fragile empire' reinforcing the experiential nature of knowledge practice.

This dissertation has sought to highlight the island's establishment as a de-centred and self-organised matter largely connected to 'differently-colonial' visions to establish a French overseas territory rather than a colony serving the metropolis. Here in particular, I have argued against the *Colonial Machine* proposed by McClellan and Regourd. The metropolitan institutions played a less significant role than suggested in the current historiography: indeed,

they hardly showed any interest in Isle de France. Rather than considering these circumstances as a failure of the French scientific-colonial system, I have used the complex alternative of agents who tried to build networks through alliances with local actors and indigenous populations in the Indo-Pacific region. At some point, metropolitan financial aid was cut: thus, voyages of exploration were initiated from authorities on the island. The Isle de France project was a very unsettled one that was built on complex local circumstances rather than being regulated or controlled from actors in Europe. This dissertation has argued that it was not metropolitan institutions that ran the colony but actors based in the Indian Ocean, who sought to run it from below. It is highly misleading to speak of a French 'colonial machine' or absolutist power over the colonies. Instead, as I have shown, visions and plans meshed with unforeseen factors and above all non-French actors both outside and inside the island.

While the CIO, until its 'suspension' after the Seven Years' War, aimed for short-term profit, the Ministry of the Navy and the Colonies envisioned the island as a geopolitical and strategic staging post in the middle of the Indian Ocean after 1764. One could even claim that the attempt to heavily centralise the island cut off its nose to spite its face. By trying to make Isle de France turn into a central *entrepôt* of the French colonies in the East Indies, the French government missed an opportunity to let the island colony develop its own identity and self-sufficiency. At the same time, colonies were competing to be imperial centres – not only the French Caribbean with the Indian Ocean theatre (particularly Pondicherry or Madagascar) but also the Mascarene Islands among themselves (Isle de France against Bourbon).

The recognition of Isle de France by French ministries was measured in scales that had little meaning at a local level. For the CIO, in order to achieve the primary goal of profit, the neutrality of the navy and a peaceful and stable policy remained important. Such a policy was a contradiction to the Ministry of the Navy and the Colonies' long-term geopolitical interest to extend its military forces, secure the possessions in India, and permanently cripple the British in the East Indies. The colonial project of Isle de France was framed by Anglo-French rivalry and its maritime tensions, which forced Minister Praslin to rethink and reinforce the island's role. The project, however, was weak, fragile, and could not ensure the French hopes of a well-established island colony for the protection of the French possessions in India. Until the mid-1770s, the island's role was more than tentative, as continued to be the case to the end of the first French empire. The island's identity struggled between the CIO's attempt to create a *rélache*, particularly during wartime, the dissatisfaction of the inhabitants who were brought from many different parts of the world and who had to create their own identity on

the island, the dependency on the island's networks, the lack of food, the lack of money – in short, the lack of a coherent imagination about the usage of the island. Visions correlated with the plans of the island's local administration – depending on the phase and governor, sometimes more, sometimes less. Autonomous ambitions were intensified during Poivre's tenure. At the same time, the botanical activity quickly reshaped the economic, political, and physical landscape of Isle de France: it had an enormous impact on the soil and the climate, which Richard Grove illustrated in his work on Poivre's environmentalist efforts. In other words, what really happened on the island was a matter of local entanglements.

The tensions of the island because of its maritime situation made it vulnerable and marginal, which the local administration tried to overcome by increasing the cultivation of domestically produced stock. But the problem was not solved in its essence: a lack of food production and provision, which was also triggered by the enormous number of slaves. In relation to slaves, I have argued that there was a deeper and two-fold relation between the huge slave population and food crops. On the one hand, slaves were purchased to staff the island but their high number became a problem itself because of a lack of provision. On the other hand, the slave trade was inevitably linked to the travel and cultivation of certain food crops. The lack of food supply was to be overcome by augmenting agricultural activities and the domestication of certain species. These ambitions were unsuccessful because of hard climate conditions, a lack of engagement among colonists struggling with famine, and the arrival of troops stopping over on their way to Pondicherry.

I have placed Isle de France's natural history within this very complex geopolitical and social context. Through the lens of the exploration, collection, and accumulation of plants in the service of the island, I have sought to understand Isle de France as a dynamic and unfinished process. Both the agricultural and the spice projects were de-centred local initiatives which sometimes contradicted each other. Therefore, this dissertation focused on the period of Poivre's tenure when tensions between the use of nature inside and outside the island were strongest. On the one hand, as Poivre envisioned it, economic plants like spices were to bolster the island's position. On the other, he sought to increase agricultural projects on the island in order to feed its inhabitants and create a proper settlers' life instead of a mere stopover to feed landing vessels. The introduction of subsistence crops was a necessary food source for feeding the island's population.

By focusing on the attempts of the island's local administration – and that of Poivre in particular – I have explored his two-fold oeconomic strategy. The acclimatisation of plants of both economic and nutritive value was part of the strategic plan to make the island less

vulnerable and less dependent on resources deriving from France and regional countries in the Indian Ocean. Distance as such was a handicap and forced local authorities to make inquiries into commodities which were less distant. Here, the most obvious solutions were regions in the Indo-Pacific. The aim to be independent from foreign provision regarding food and other necessities resulted in exactly these strategies of acclimatisation, which this thesis brought to light within different social, cultural, and environmental contexts. Even though self-sufficiency was the aim of the local government, Isle de France never reached that status in the period under review – and possibly, it never achieved this goal during its colonial period.

While this dissertation has treated agricultural activities in relation to foodstuff and the spice project as separate matters, there was a deeper relationship between the two. Isle de France struggled between several interest groups. Both enterprises cannot be regarded in isolation since they interfered on the island like they went hand in hand for the entangled collection of plants in the Indo-Pacific and beyond. Actors working on Isle de France had to balance the contradictory instructions of metropolitan state officials and implement them in their own visions, which in return was confronted with local circumstances. This meant that Poivre's plans for the infrastructure and resources on the island had to mesh with the interests of the institutions that he had to take into account in order not to lose financial support. Both projects co-existed, merged, and clashed on the island. Because of the colonists' frustration over the overall bad food situation on the island – goods were rare and expensive – they were especially concerned with the cultivation of crops, which they could either use for themselves or sell. In fact, during the early years of the royal administration, the colonists were encouraged to grow food crops in their gardens and habitations. Shortly after, however, colonists were also encouraged to grow cash crops such as spices, which required lots of know-how and patience. The colonists quickly abandoned their cultivation because it did not promise immediate results or any profit. Cultivational activities were multifaceted matters on the island due to its climate(s), soils, plagues, its overall bad situation, social organisation (particularly the high number of slaves), and remote geographical position.

I have focused on two types of 'useful' plants (of everyday and commercial value) and related knowledge while insisting on the practical knowledge that derived from distinct Indo-Pacific regions. I have argued that natural knowledge on Isle de France was primarily concerned with practice-based knowledge, which derived from distinct geographical and cultural spaces. I have not only shed light on what knowledge arrived but also on how knowledge was applied. I have suggested that Isle de France's plant-related establishment was more than experiential and rooted in knowledge traditions of the Indo-Pacific worlds. In other

words, I have argued that creolisation on the island not only took place in terms of its population but also in terms of its flora, fauna, and knowledge traditions.

Shedding light on the interconnection of Isle de France with Indo-Pacific worlds, I have used information about the natural world as unit of analysis, which could have multiple forms in multiple contexts. The transition and transformation of knowledge according to certain needs can be considered as a transplantation of both knowledge and culture, which means that certain forms of information were taken by travellers and embedded into their own knowledge traditions. Knowledge was – and is – not static but transformed according to certain environments and according to the purpose for which it was used. Local plant knowledge was not only accumulated but also practised in the colonial gardens, meshed with European knowledge which sometimes was not of much use in climates that were so different from European conditions. Local knowledge was the basis of the process of what became 'European knowledge', at which point the original source was too often dropped, and it underwent transitions during this process according to its purpose and aim.

To put it differently, when knowledge and plants were accumulated on the island, they underwent transitions related to social, cultural, and environmental components. Yet, 'useful knowledge' about cultivational techniques and processing could only be applied to a certain extent. Applied knowledge for cultivation had to adapt to the island's climate and other natural conditions. Here, settlers faced similar obstacles of acclimatisation of both food crops and spices because of environmental factors. Nature was not only a component of the project Isle de France. So too was it the driving or restricting force that human agents sought to manage by increasing agricultural production both of subsistence and cash crops in foreign soil. Too often, nature itself limited natural productivity and settlers struggled with the complex management of it. Here in particular, I have insisted on the incomplete and uncertain knowledge about tropical agriculture and the apt handling of plant material. Even while local agents sought to oeconomically manage nature by introducing foreign plants to Isle de France, their acclimatisation heavily depended on natural conditions and the plant material as such, which must be understood as components of Isle de France's history. With regard to local environmental circumstances, Isle de France was buffeted by wild storms, which destroyed the crops and even shiploads in the harbour. Another factor was the quality of the soil, which played an important role in the cultivation of plants. Human-caused factors, such as soil erosion and deforestation, also must be taken into serious consideration. Rather than 'saving' Eden and related environmentalist efforts, as Richard Grove suggests, I have insisted on the French attempt to make use of nature. Despite all the French efforts, it was environmental

conditions and the plant material itself that determined the outcome of the Isle de France project.

Each chapter has focused on one specific aspect of the highly complex and fragile botanical establishment of Isle de France. Looking from a bottom-up perspective at what actually happened 'on the ground', they have sought to understand these complexities by focusing on the political, social, cultural, and environmental aspects as intertwining components. Chapter one ('Envisioning empire') has introduced the historical context of the project, including its regional, political, and commercial dimensions. Chapters two ('Blue empire') and three ('Green empire') have argued that agricultural activities and the question of how to feed the island's population were much more pressing than the introduction of spices. Moving beyond this argument and opening up towards a world history of knowledge approach, both chapters have underlined the importance of local knowledge about plants in relation to their cultivation in two steps: firstly, when the plants were collected outside the island (chapter two) and, secondly, when they were acclimatised and employed in the service of the island, where they fused or clashed when they were brought together and meshed with natural factors of both plants and climate (chapter three).

Poivre's plans to domesticate spices and staple crops could only be conducted because of multidirectional and multinational networks consisting of French, non-French, and above all non-European actors using several types of plant knowledge, communication systems, languages, and negotiation practices. Most importantly, the exploration and collection of plants and knowledge about them did not occur without the assistance of local populations – and European voyagers were aware of their importance. In this context, I have highlighted the importance of cultural diplomacy, which also led to misunderstandings. As both chapters (two and three) underlined, the problem of the efficiency of agricultural products made the island rely heavily on its networks in the region rather than calling to distant France for help. Exactly this weak spot of the island forced the local authorities to make inquiries into products and useful plants as well as knowledge related to them in nearer regions, such as Madagascar, colonial Africa, and to a great extent Asia (India, Cochinchina, Indonesia, and China). These countries served as extensive sources of plant knowledge and plant material.

Furthermore, chapter four ('Black empire') has argued for the importance of the slaves on Isle de France both for their physical work and as sources of knowledge. Here, it has been necessary to understand slavery and bond labour in the Mascarene Islands in its essence, its hierarchy, embedded in Enlightenment ideas about the treatment of slaves and slavery more generally. Isle de France's and Bourbon's gardens, both private and later royal institutions,

served as places of social (power-) relations in which one certainly must not underestimate the notion of interpersonal relations. Chapter four served as a link between the agricultural activities on the island discussed in chapters two and three because it also engaged with the cultivation of spices, with a particular focus on the Bengali gardener slave Charle Rama, who was praised for his cultivational knowledge and later freed for precisely that reason, or Bourbon's gardener slave Hilaire, who initiated and tested new grafting methods then used by the Pamplemousses garden's director Céré. Looking at studies concerned with the contribution of slaves to the dynamics of knowledge production, one might conclude that it was common and widespread to use slaves as botanists and collectors and their ethnobotanical knowledge more generally – and that it happened everywhere. Being self-critical, it will be desirable in the future to move beyond the mere contribution of slaves to European knowledge. Rather, by following a historical-anthropological approach, recent studies have shown that it is possible to reconstruct the material, social, and cultural lives and cultivational activities of forced migrants, slaves, and free black populations in the colonies.

Chapters five ('Invisible empire') and six ('Fragile empire') have focused on the introduction of spices by unveiling social and environmental factors that determined the highly entangled and uncertain project. The French colonial spice project was neither a purely 'French' nor a purely 'European' enterprise but involved actors from different backgrounds for patronage, protection, and assistance, using a mix of languages, promises, and informal relations. Moving beyond national and imperial narratives, the purpose of chapter five has been to understand the connectedness and cross-national interactions in the Indo-Pacific through the lens of plant exchange. The cross-cultural connections were essential for this project: Asian merchants and brokers were indispensable for acquiring nutmeg from Dutch territory. 'Invisible empire' has been divided into two main parts. It has begun with the collaboration between Europeans, with a special focus on the collaboration between Spanish and French actors in the Indo-Pacific. These actors not only interacted with each other but also encountered local populations and brokers with distinct and sometimes fluid identities in several parts of Southeast Asia. These situational identities also applied to European actors, who identified themselves differently according to a given situation or purpose. Thus, in the second big part, I have examined in detail the negotiation practices between French actors and actors from across the Indo-Pacific worlds. In short, chapter five has re-examined the spice project on the interconnected micro-levels of its actors and stressed the social and practical hybridity of the spice quests against the backdrop of arrangements which remained invisible and hidden in the archives.

Lastly, chapter six has dealt with the experiential nature of the spice project, engaging with the material practice associated with the cultivation of spices from their oceanic transportation in boxes to their acclimatisation in foreign soil. Here, the ocean has served as a 'place in-between'. Moreover, chapter six has explored various examples of highly problematic methods of spice cultivation. This last chapter has been primarily concerned with natural obstacles, or rather how local authorities sought to overcome them by employing non-conventional strategies and initiatives. 'Fragile empire' serves as the last chapter of the thesis for two main reasons. Firstly, the French spice project has been portrayed as a successful enterprise which brought a fortune to the island and the state. Yet, as this chapter has illuminated, the enterprise was by no means successful despite all the efforts that had been made since the early eighteenth century. Secondly, one of the main reasons for this lack of success was the very essential components of the story, the spice plants. The sketchy and uncertain knowledge of the French about nutmeg's nature and needs remained fragmented until at least the 1780s, which led to miscalculations and an eventual failure of the project. Exploring the reasons for this failure, the last chapter has reinforced calls to understand the decentred, complex, and slow process of plant knowledge in a French island colony. Despite the French actors' visions of Isle de France as a rich island of commerce, it was the plant material itself which framed the enterprise. The reason why Isle de France as an envisioned source of commerce failed was the very reason for the project: the spice plants themselves. Therefore, following recent claims brought forward by STS environmetnal historians, this chapter has particularly insisted on the integration of nature within human attempts to control it.

This dissertation has endeavoured to write a comprehensive and complex history of Isle de France's botanical history. While global histories surely open up the global travel of plants by drawing large geographical connections, they miss localising the complexities of communication, collection, cultivation, and consumption of plants. In other words, global history largely black-boxed not only spaces 'in-between' such transportation on ships but also what happened to plants and related knowledge once they arrived at their final destination, such as the island colony of France. As I have argued, it is therefore important to localise the circulation of plants both inside and outside the island. In fact, the argument has been two-fold in relation to this: challenges and problems not only occurred in the plants' native countries and but also on the island as such. Here, they had to be adapted to new environmental circumstances as well as a new socio-cultural space. Cutlivational activities for both food and cash crops were unsettled and more than fragile because of nature itself.

In sum, the botanical-agricultural legacy of Isle de France was shaped by the maritime context. Clearly, the Isle de France project was built on socio-cultural diversity and climate conditions which, in addition to human causes and financial problems, fuelled the complex situation in the colony. It was built significantly on the contribution of actors who have disappeared from historiography, in which my research has resituated them. In a nutshell, this dissertation concludes that by reconstructing and localising present-day Mauritius' botanical and cultural legacy, we see how the island was established via historical actors and their networks in the Indo-Pacific and beyond. This island project was significantly built upon non-French actors, different knowledge traditions, and environmental factors, including the to-be-acclimatised plants themselves, which were brought together on the island. Despite all the efforts, however, the island never achieved a significant status for France until the end of the first French empire. When the British took over in 1810, the French abandoned the project of Isle de France while Bourbon remained marginal, likely because of the Mascarenes' failure to live up to expectations. Instead, French colonial politics focused on Madagascar in the nineteenth century.

Particularly in the current political climate where globalisation is on the decline and isolation and nationalism on the way forward, this dissertation should remind us that colonial history and colonial discourse must be reconsidered in order to understand that a colony is rarely the product of one single nation but, as in the case of Isle de France, was constructed by cross-cultural and cross-local encounters. Therefore, it has also aimed to call national narratives into question, which have survived beyond the postcolonial and global turn and – alas! – are still told today. (Cross-cultural) collaboration has always served humanity more than solitary projects, conflicts, and wars. In that sense, the historian's craft is more demanded (and demanding) than ever – and not only in a Marc Blochian sense. *The History Manifesto* should not be about 'big narratives' but about deep histories of the world which not only contribute to the discipline but also, so I hope, change peoples' way of regarding our past, present, and future.[1]

[1] Jo Guldi and David Armitage, *The History Manifesto* (Cambridge: Cambridge University Press, 2014). See also the *Isis* viewpoint on the *Manifesto*, *Isis* 107 no. 2 (2016).

Appendix

BOTANICAL INDEX

This index is partly based on De Cambiaire, *Enlightened alliance*, 190-191 and, to a great extent, on Rouillard and Gueho, *Les plantes et leur histoire à l'Ile Maurice.*

Airpotato: *Dioscorea bulbifera* L.; Madagascar.

Aloe (Asphodelaceae)

Aloe succotrina Lam.; Middle East.

Aloe macra Haw.; Reunion Island.

Ambarella, Golden apple, 'Hévi', 'Arbre à Cythère': *Spondias cytherea* Sonn.; Indo-Malay Pacific islands.

Attier, Pomme cannelle: *Annona squamosa* L.; proably Antilles.

Aubergine, 'bringelle': *Solanum melongena* L.; India (?).

Avocado: *Persea americana* Mill.; Central America.

Bamboo:

'Bambou épineux': *Bambusa bambos* (L.) Druce.

'Gros bambou': *Bambusa vulgaris* Schrad.; India and Malaysia.

Benjoin: *Terminalia bentzoe* (L.) (Combretaceae); Mascarenes.

Benzoin: *Styrax benzoin* (Styracaceae); Indonesia.

Betel: *Piper betle* L.; Malaysia, Madagascar.

Bitter melon, in French 'margose': *Momordica charantia*; origin unknown, possibly India.

Bois noir: *Albizia lebbeck* (L.) Benth. (Mimozoideae); Tropical Asia.

Brède martin: *Solanum nigrum.*

Brède malabar: *Amaranthus spinosus.*

Brède tricolor: *Amaranthus tricolor.*

Cambare Bety: 'Igname d Mozambique': *Dioscorea esculenta* (Lour.) Burkill; Madagascar.

Castor-oil-plant, Ricin, Palma christi: *Ricinus communis* L.; probably tropical Africa.

Chili pepper, 'piment': *Capsicum spp*.; Central America.

Cinnamon (Lauraceae)

Cinnamomum verum; Ceylon.

Wild cinnamon: *Laurus malabathrum*; India.

Coconut palm, 'cocotier': *Cocos nucifera* L.

Cœur de bœuf: *Annina reticulata* L.; Antilles and Central America.

Clove: *Syzygium aromaticum*; Moluccas.

Date: *Phoenix dactylifera* L.; area between Marocco and India.

Durian: *Durio zibethinus* L; Indonesia.

Fatack: *Panicum maximum* Jacq. (Gramineae); Africa, Madagascar.

Fig: *Ficus carica* L.; Mediterranean, Iran.

Jackfruit: *Artocarpus heterophyllus* Lam.; India.

Jamrosa, Jamrosier: *Syzygium jambos* (L.) Alston; Malaysia, Indonesia.

Kaffir lime, 'combava': *Citrus hystrix DC.*; Tropical Asia.

Litchi:

Litchi chinensis Sonn.; China, Cambodia or Vietnam.

Litchi Sonn.; South China or West Malaysia.

Luffa, 'pipangaye', vegetable of the cucumber family (*cucurbitaceae*), several species according to Aublet; India.

'pipangaye': *Petola bengalensis.*

'papongajo': *luffa acutangula.*

'pipangaye unie': *luffa cylindrica.*

Mabolo, also called 'velvet apple': *Diospyros philippensis* (Desr.) Guerke; Philippines.

Maize, 'blé de Turquie': *Zea mays* L.; Central America.

Mango, *Mangifera indica* L.; India (?).

Mangosteen, 'mangoustanier', *Garcinia mangostana L.*; probably Malaysia.

Manioc: *Manihot esculenta* Crantz. (Euphorbiaceae); South America.

Natte (Sapotaceae); Mascarenes.

'Grand natte', 'ébène rouge': *Mimusops maxima* (Poir.) Vaughan.

Nutmeg: *Myristica fragrans* Houtt.; Moluccas.

Pak-Choi, Pe-tsai, or Chinese cabbage: *Brassica chinensis* L.; China.

Papaya: *Carica papaya* L.; Mexico or Costa Rica.

Peach: *Prunus Persica* (L.) Batsch; Iran, Armenia, Greece.

Pepper, bell pepper, 'poivron': *Capsicum annum.*

Ravenala, or traveller's palm: *Ravenala madagascariensis Sonn.* or *Cryptocarya*; Madagascar.

Ravensara: *Ravensara aromatica* Sonn. or *Cryptocarya* R. Br.; Madagascar.

Rima, breadfruit tree: *Artocarpus altilis* (Parkinson) Fosberg; Pacific world.

A. nucifera, introduced by Poivre.

A. incisa, or the real breadfruit tree, only introduced in the 1790s.

Rotin, Rotang: *Calamus*; Malaysia.

Sago palm, 'sagoutier': *Metroxylon sagu* Rott; New Guinea.

Songe, Taro: *Colocasia esculenta* (L) Schott.

'Arum sativum': *Arouille violet*, Taro; Southeast Asia.

Songe, 'Arum colocasia'; Madagascar.

Tacamaca: *Calophyllum inophyllum* L. (Clusiaceae); from Africa to Pacific.

Tallow tree: *Triadica sebifera*; China.

Tamarind: *Tamarindus indica* L. (Fabaceae); Africa or India.

Teak tree: *Tectona grandis* L.f.

Tung oil tree: *Aleurites fordii*; China.

Turmeric, 'safran des Indes': *Curcuma longa* L.; India, Malaysia.

Water coconut 'Cocos Royal or Cocos de mer': *Lodoicea maldivica* (Gmel.) Pers.;Seychelles.

Yam, cush, 'cambare ordinaire': *Dioscorea alata* L.; East Africa.

HISTORICAL ACTORS

Adanson, Michel (1727-1806)
Botanist in Senegal, correspondence with Réaumur, Jussieu and Poivre.

Arandía Santisteban, Pedro Manuel de
Governor-general of the Philippines (1754-1761).

Bagousk Hundes (also Bagouce)
Principal head of the King of Patani, Muslim leader (maybe even imam?), and mediator in the spice project.

Benyovszky, Moricz August (1746?-1786)
Hungarian explorer and self-declared emperor of Madagascar.

Bernardin de Saint-Pierre, Jacques-Henri (1737-1814)
Writer and engineer, resident on Isle de France 1768-1770, later intendant of the Parisian *Jardin du Roi*.

Bétia (also 'Betti' or 'Béti')
Princess of Madagascar and daughter of the former chief in Foulepointe (on the east coast of Madagascar). Came to Isle de France in the 1750s, then under the CIO, where she ran plantations.

Buffon, Georges-Louis Leclerc, Comte de (1707-1788)
Naturalist and intendant of the *Jardin du Roi*.

Céré, Jean-Nicolas (1737-1810)
Bonist, Poivre's friend and successor at the royal *Jardin des Pamplemousses* (1775-1806), informal correspondent of the *Jardin du Roi* Paris.

Choiseul de, Étienne François, (1719-1785)
Minister of the Navy and the Colonies (1761-1766); Minister of Foreign Affairs (1766-1770), cousin of the duc de Praslin.

Choiseul de Praslin, César Gabriel (the duc de Praslin, 1712-1785)
Minister of Foreign Affairs (1761-1766), Minister of the Navy and the Colonies (1766-1770), cousin of Choiseul.

Coëtivy
Marine agent in the spice expeditions (1768-1772).

Commerson, Philibert (1727-1773)
French physician, botanist, naturalist, and Poivre's friend, came to Mauritius while on his expedition with Bougainville (1766-1768), informal correspondent with the *Académie*.

Cornic, Yves
Captain of the private boat *L'Utile*, sent for the spice quests (1768), did not return alive.

Cossigny de Palma, Joseph-François Charpentier de (1736-1809)
Son of Cossigny Père, Creole engineer and botanist, maintained and extended the botanical garden of Palma.

Cossigny, Jean-François Charpentier de (1690-1780)
Chief engineeer for the Compagnie des Indes, founder of the garden de Palma (1764) correspondant of Réaumur.

Dalrymple, Alexander (1737-1808)
Scottish geographer and voyager (with Cook), member of the Royal Society London and also member of the Royal Swedish Academy of Sciences.

D'Etcheverry
Commander of the *Étole du Matin* which was, like *Le Vivilant*, sent to the Moluccas in 1769.

Dinck Poudony
Bugi trader (pirate?), employed to get spice plants from the Moluccas to Kedah (Malaysia).

Fusée-Aublet, Jean Baptiste Christophe (1720-1778)
French pharmacist, responsible for CIO's *Réduit* garden (1753-1761), in contact with the Académie and Jardin du Roi, Paris.

Galles, Jean-Marie
Nephew of Jean-Nicolas Céré and correspondent of both Céré and Poivre.

Grenier, Jacques-Raymond
Chevalier, navy officer, captain (c1760-1780s), scientific voyage to the Indian Ocean, 1767-1770.

Hadé Hachem
Dervish in Kedah (Malaysia) and mediator in the Malay world.

Hilaire
Gardener slave of Joseph Hubert.

Hubert, Joseph (1747-1825)
Horticulturalist in charge of the garden in Saint-Denis, Bourbon.

Jossigny, Paul Philippe Sanguin de (1750-1827)
Engineer and Philibert Commerson's draughtsman.

Jussieu, Antoine de (1686-1758)
Professor of botany, Jardin du Roi, Paris.

Jussieu, Antoine-Laurent de (1748-1836)
Nephew of Antoine Jussieu, member and career in the *Académie* (botany).

La Pérouse, Jean-Fraçois de Galaup, cont de (1741-1788?)
Navy officer, captain, Pacific explorer, also went to the Seychelles.

Lanux (also La Nux or Nux), Jean-Baptiste-François de (1702-1772)
Colonist and planter in Bourbon, correspondent of the *Académie* (to Réaumur and Jussieu).

Le Gentil de la Galaisière, Guillaume Joseph Hyacinthe Jean-Baptiste (1725-1792)
Astronomer, voyager in the Indian Ocean and Pacific, 1760-1771.

Le Juge, François-Etienne
Jurist on Isle de France, founder of the private garden *Mon Gout* (1750).

Maillart Dumesle, Jacques
Navy Commissioner on Isle de France and Poivre's successor as intendant of the Mascarenes.

Martin, Jospeh (1788–1826?)
Gardener at the Parisian *Jardin du Roi*, sent to Isle de France by Thouin in the 1780s.

Mohamad Alino Dien
Sultan of Jolo, became King Fernando I of Jolo when baptized in 1749.

Nicols, Nicolás Norton
English physician and naturalised Spaniard in the service of botanical attempts in Mindanao.

Noroña, Francisco (1748?-1788)
Spanish botanist, contributor to the catalogue of *Pamplemousses*.

Oscote, Francisco Domingo
Governor of Zamboanga, named in February 1753.

Ovando, Don Francisco José de
Spanish governor-general of the Philippines (1750-1754).

Pillai, Ananda Ranga
Dubash to Dupleix in Pondicherry.

Poivre, Françoise
Pierre Poivre's wife and friend of Bernardin de Saint-Pierre. She kept a lively correspondence with Jean-Nicolas Céré after the family's return to France in 1773.

Poivre, Pierre (1719-1786)
Agronomist and traveller, self-declared botanist, intendant of the Mascarenes (1766-1772).

Prince Nuku (1725/32?-1805)
Rebelling prince of Tidore who defeated theVOC with the help of the English in 1801.

Provost, Jean Mathieu Simon (1728-1776)
Commissaire de la Marine, in charge of the spice mission in the Moluccas (1768-1772).

Pulgar, Juan González Del
Spanish governor of Zamboanga. The French spelt his name Pulgarre.

Rama, Charle
Bengali slave and head gardener in Monplaisir (at least 1766?-1774), emancipated in 1774, together with his wife and daughter.

Rochon, Abbé Alexis-Marie de (1741-1768)
Astronomer, physician, and voyager, spent time on Mauritius and Madagascar, correspondent of the *Académie*.

Rumphius, Georg Eberhard (1627–1702)
German-born botanist employed by the VOC. His main work was *Herbarium Amboinense*, a plant catalogue of the island Ambon, which was published in 1741.

Sonnerat, Pierre (1748-1814)
Distant cousin and protegé of Poivre, voyager in the Indian Ocean, 1771, 1774-1781.

Thouin, André (1746-1824)
French botanist, pupil of Bernard de Jussieu, friend of Thomas Jefferson, important figure in the field of agronomy, head gardener of the Jardin du Roy (1764-1793).

GEOGRAPHICAL NAMES

Achem
City in the Malaysian peninsula.

Ambon
Island of the Moluccas, known for its nutmeg.

Banda
An island of the Maluku, colonised completely by the Dutch in 1621.

Bourbon (La Réunion)
Former French colonial island in the Indian Ocean, belongs to the Mascarenes.

Celebes (present-day Sulawesi)
Island between Borneo and New Guinea in the Moluccan Sea.

Ceram (Sulawesi, also Seram)
Moluccan island.

Cochinchina
Referring to the region of present-day southern Vietnam and eastern parts of Cambodia.

Foulpointe (present-day Mahavelona)
Town in the region of Atsinanana, on the northern part of the east coast of Madagascar.

Gebe
An island off the east coast of Halmahera, considered as part of the sultanate of Tidore.

Jailolo (Halmahera, also spelt Jilolo or Gilolo)
The biggest islands of the Northern Moluccas.

Jolo
One of the Sulu Islands, lying between Mindanao and Borneo.

Kedah (in French spelt Quéda)
City located on the western Malaysian peninsula.

Isle de France (Mauritius)
Former French colonial island, belongs to the Mascarenes.

Maba
An important settlement of Gamrange, southern peninsula of Halmahera. It had the most important port in the region named Bicoli.

Makassar
A region on the Dutch-possessed island of Celebes (present-day Sulawesi).

Mindanao
Second largest island of the Philippines.

Moa
The biggest island of the Leti Islands, lying between Leti and Lakor.

Moluccas
Also referred to as the Spice Islands, group of islands in the Indo-Malay Pacific.

Patani
An important settlement of Gamrange, southern peninsula of Halmahera.

Saway
Dutch post in the north of the big island Ceram.

Sulawesi (Ceram)
see Ceram.

Ternate
Island on the west coast of Halmahera.

Tidore
The most important sultanate in the Maluku region.

Timor
One of the lesser Sunda Islands, also former Portuguese settlement.

Weda
An important settlement of Gamrange, southern peninsula of Halmahera.

Zamboanga
Area in the southwest of Mindanao, the second largest island of the Philippines.

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UGANDA
RW.
Kigali
KENYA
Nairobi
BURUNDI
TANZANIA
Dodoma
Dar es Salaam
Mbuji-Mayi
COMOROS
MAYOTTE
FRANCE
Lilongwe
MALAWI
Lusaka
Harare
ZIMBABWE
Antananarivo
MADAGASCAR
TROPIC OF CAPRICORN
MOZAMBIQUE
Maputo
SWAZILAND
Pretoria (Tshwane)
Johannesburg
LESOTHO
Durban
Mozambique Channel
Natal Basin
Madagascar Plateau
Madagascar Basin
Mascarene Basin
Mascarene Plateau
SEYCHELLES
MAURITIUS
Port Louis
RÉUNION
FRANCE
Somali Basin
Arabian Sea
Arabian Basin
PAKISTAN
Faisalabad
Ludhiana
Meerut
Delhi
Agra
Jaipur
Kanpur
Lucknow
Hyderabad
Karachi
INDIA
Patna
Dhaka
BANGL.
Ahmadabad
Indore
Bhopal
Vadodara
Surat
Nasik
Nagpur
Mumbai (Bombay)
Pune
Hyderabad
Bangalore (Bengaluru)
Chennai (Madras)
Coimbatore
Colombo
SRI LANKA
Sri Jayewardenepura Kotte
Bay of Bengal
Kolkata (Calcutta)
Chittagong
MYANMAR (BURMA)
Nay Pyi Taw
Yangon (Rangoon)
Andaman Sea
Chagos-Laccadive Plateau
Mid-Indian Ridge
BRITISH INDIAN OCEAN TERRITORY
UNITED KINGDOM
Mid-Indian Basin
Ninetyeast Ridge
Wharton Basin
Chengdu
Wuhan
Hefei
Wuxi
Shanghai
Chongqing
Nanchang
Hangzhou
East China Sea
Changsha
Wenzhou
Guiyang
Fuzhou
Kunming
Taipei
TAIWAN
Taichung
Guangzhou
Shantou
Nanning
Hong Kong
Kaohsiung
Hanoi
Haiphong
LAOS
THAILAND
Bangkok
CAMB.
Phnom Penh
VIETNAM
Ho Chi Minh City
South China Sea
Manila
PHILIPPINES
Cebu
BRUNEI
Medan
Kuala Lumpur
MALAYSIA
Singapore
SING.
Celebes Sea
Samarinda
Palembang
Mamuju
Jakarta
Java Sea
INDONESIA
Surabaya
Bandung
Dili
TIMOR-LESTE (EAST TIMOR)
Java Trench
CHRISTMAS ISLAND
AUSTRALIA
Timor Sea
TROPIC OF CAPRICORN
Perth
INDIAN OCEAN
Indian Ridge
Agulhas Plateau
Crozet Basin
N
W
E
S
0
462,5
925
1.850
2.775
3.700
Kilometers
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