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Natural knowledge and sea power: the cultivation of hemp in the British imperial world

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Natural Knowledge and Sea Power:
The cultivation of hemp in the British imperial world

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4 September 2013
Thesis Declaration

I certify that the work presented in this thesis is, to the best of my knowledge and belief, original, except as acknowledged in the text, and that the material has not been submitted, either in whole or in part, for a degree at this or any other university.

I acknowledge that I have read and understood the University’s rules, requirements, procedures and policy relating to my higher degree research award and to my thesis. I certify that I have complied with the rules, requirements, procedures and policy of the University (as they may be from time to time).

Nick Mattingly, 4 September 2013.
Abstract

In the late eighteenth and early nineteenth centuries, the British state encountered a crisis in the supply of naval raw materials, which led to the transplantation of hemp and experiments with substitute fibres on the global scale. This thesis explores the decline of hemp cultivation in early modern England, and the search for an alternative source in Ireland, North America, India and Australasia during a period when knowledge of the land was linked to the pursuit of power by sea. Connections and comparisons are formed in British imperial history with events that have mostly been neglected by historians, only mentioned in passing, or approached as discrete fragments of the past. My findings intersect local, national and regional histories in the fields of agriculture and science, and provide an original perspective on the debate surrounding Australia’s colonial origins.

Ultimately, the British state never located a colonial source of hemp and this thesis therefore traces the causes and consequences of a material non-occurrence. In spite of this outcome, I argue that the experiments produced knowledge about natural resources and human communities that contributed to the nation’s power and its significant role in the formation of the modern world. Yet this is not a narrative of progress, rather the search functions as a metaphoric thread that weaves together a diversity of people, places and plants, in order to reflect upon one of the most pressing issues of our time. In the modern era, the notions of ecology and economy have become increasingly abstracted from one another, which must surely lead to their mutual impoverishment. My research untangles a single strand of the complex process through which this change occurred.
Acknowledgements

First of all, I would like to thank my supervisor Dr Adele Wessell – of the School of Arts and Social Sciences, Southern Cross University – for her wise counsel, patience and encouragement over the years. Since I first commenced my undergraduate degree, she has guided me to think like a historian. Dr Sue Evans – a medicinal plant specialist in the School of Health and Human Sciences – provided additional supervision, and her enthusiasm for the history of science and plants proved infectious. This thesis has also been enriched by other colleagues and friends in the School of Arts and Social Sciences, and lively discussions with researchers in the disciplines of literary and cultural studies. I would also like to thank the Division of Research for granting me an Australian Postgraduate Award, and for providing funding to attend conferences.

The annual conferences of the Australian Historical Association have been particularly rewarding, where many scholars have inspired me with the depth and breadth of their research. The editors of History Australia awarded me a bursary prize to attend the 2011 AHA conference, which included an invitation to participate in a series of postgraduate seminars, where I learned a great deal about the writing of history. For my research, I received invaluable assistance from librarians and archivists at the following institutions: in the United Kingdom, the British Library, the National Archives, the National Maritime Museum, and the Royal Botanic Archives, Kew Gardens; in Australia, the National Library, the State Library of New South Wales, and Southern Cross University Library in Lismore. As a regional scholar, the global digitisation of archival sources in recent years has also been of immense benefit to my studies.
Last, but by no means least, I acknowledge the love and support of my family and friends. In particular, I thank Stef for her continued presence despite my deep immersion in the past. Finally, this thesis is dedicated to the memory of my late father, Gerry, who lived through times of momentous change and nurtured my interest in history from an early age. He never had the opportunity to attend university, and would have been proud to know that I completed this task.
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Introduction

In early modern Europe, where plants and animals still provided most of the raw materials for industry and transportation, the significance of hemp in material life cannot be overestimated. Within this environment, the plant’s fibre provided the prosaic items of twine, rope, sacking and coarse cloth, which were essential to almost any industrious or commercial activity on the land. On the high seas, moreover, it remained the only viable raw material for the production of strong cordage, and an important supplementary material for the manufacture of sailcloth. During the age of European maritime expansion, hemp played a profound role in the making of the modern world.

By the close of the eighteenth century, England had become an ‘advanced organic economy’ where sustained growth was linked to an increase in the productivity of the land. The nation’s inhabitants had overcome the cycles of feast and famine that plagued their ancestors, setting the stage for Britain’s exceptional material progress of the following century.¹ Nevertheless, the nation’s fleets still depended on the supply of hemp from the Baltic region. For strategic and commercial reasons, London’s policy makers had viewed this as a persistent problem since the sixteenth century, and the situation finally reached crisis point during the age of revolution. Over the long term, hemp represented the weakest thread in the formation of the British world-system for reasons that have never been adequately explained.

This thesis explores the contemporary search for a solution: it examines the cultivation of hemp in the British Isles, North America, India and Australia, and experiments with substitute fibres in the Asia-Pacific region. In theory, the project aimed to ensure the future security of British sea power, through the establishment of an independent supply of hemp under state control. In practice, these efforts represented a significant aspect of the collection of natural knowledge, which made an important contribution to the formation of a modern world-economy. Throughout the world, however, I trace a pattern of repeated failure in imperial policy, while investigating the causes and consequences of a material non-occurrence. Paradoxically, I argue that this outcome was an unintended consequence of an ideology of progress. Ultimately, the cultivation of the crop proved incompatible with the structures of modern agrarian capitalism.

Historians Alan Frost and James Davey have examined Britain’s global search for naval raw materials in the age of revolution, when these efforts displayed a greater level of urgency and ingenuity. Davey asserts that Britain’s status as a maritime power shaped the nation’s foreign policy in ways that have previously been underestimated by historians. More broadly, Frost argues that this episode illustrates the emergence in London of a truly globalised approach to the exploitation of natural resources. To an extent, my research builds upon the work of these scholars by providing a longer-term perspective of the problem, together with a more specific and detailed analysis of the search for hemp. However, my approach to the topic differs from my predecessors in fundamental ways.

Frost and Davey are primarily interested in naval strategy and the administrative capacities of the British state. The notion of imperial design therefore represents a major theme throughout their work, whereas my interests lie in the contingencies of everyday life. Rather than reproducing a narrative of progress, which is irrefutable in terms of Britain’s rise as a world power, I focus instead on the limits of state authority during the period in question. As imperial historian John Darwin argues, the formation of the British world-system largely occurred through accident rather than design; an overemphasis on the ideas of London’s policy makers tends to obscure this understanding. As far as possible, within the limits of the available evidence, I attempt to balance the centralised perspective of Whitehall with a more peripheral view of this global process.

C.A. Bayly has observed that the state may represent a problem for historians. Because a great deal of evidence derives from official sources, this tends to narrow our perspective with regards to lived experience and social change. To avoid this pitfall, some historians have shown an increasing tendency to employ a world perspective to imperial processes, while others have taken a cultural approach to the study of local communities. As Bayly points out, however, there is viable ‘analytical space’ between Wallerstein’s broad theory of the capitalist world-system, and the micro-analysis of culture and power. Furthermore, he argues it is no longer tenable to construct a discrete history of the nation-state, and urges practitioners to create

more inclusive frameworks that transcend political and ecological boundaries. My findings confirm Bayly’s view that all local, national and regional histories inform world history in significant ways. In the shadow of Fernand Braudel, who advanced our understanding of the global relations of economic culture, I seek to relate the big picture of the universal human condition to a specific aspect of material life.

For historians of science and empire, the conceptual relations of plants, knowledge and power are becoming a relatively fertile field for inquiry. Londa Schiebinger argues that the culture of natural history provides insight into the relationship of nature to the political economy, and the formation of societies on the global scale. Richard Drayton has addressed this theme by tracing the emergence of an ideology of agrarian ‘improvement’ in early modern England, and its implications for the governance of social ecologies throughout the British imperial world. An embryonic form of agrarian capitalism, improvement conjoined the insights of natural philosophy with notions of Christian providence and economic nationalism. In common with Drayton, my research investigates ‘the agrarian origins of the British Empire’; but where his narrative focused on the Royal Botanic Gardens at Kew, mine pursues the story of a specific group of plants.

The narrative contained in these pages was constructed from a wide range of primary and secondary sources. The primary evidence mostly concerns the representation of hemp in contemporary British policy and natural history, while other historians

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informed my understanding of the local, national and regional contexts in which the experiments I describe took place. On the whole, these perspectives are incorporated into the body of this work. The remainder of this introduction outlines the shape of my narrative, while referring to the most influential secondary research that informed each chapter.

The first chapter – ‘The Culture of Hemp’ – examines the place of hemp within the rural economy of England, the plant’s cultivation and preparation as a raw material, and the symbolic meaning of this practice within the ideology of improvement. From the sixteenth century, the city-state of London introduced a range of measures to stimulate hemp production in the rural localities of England. Agrarian theorists claimed the expansion of the activity would enhance national security, assist the international balance of trade, and provide work for the unemployed. But as demand for the product rose, domestic hemp cultivation entered a period of terminal decline. By the close of the eighteenth century, most observers had concluded that the practice was impossible to revive in England even to meet an emergency.10

To account for this decline, I explore the long-term economic and social changes occurring in the English countryside. Agrarian historian Mark Overton informed my broad understanding of these processes, while Joan Thirsk’s research in local parish archives provided me with a regional perspective that pays specific attention to the production of hemp and flax.11 The cultural relationship of these textiles is clearly

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10 Chapters 1 and 5 of this thesis contain material from the following article: Nick Mattingly, ‘Natural knowledge, sea power and the decline of hemp cultivation in early modern England’, *History Australia*, 9 (2) (2012), 111-34.

apparent in this thesis. In the primary evidence, hemp and flax are often considered together on account of the similarity of their functions in material life. Although I focus on hemp due to its status as a naval raw material, even in this respect the histories of these textiles will be seen to overlap.

While the main theme of this chapter concerns the decline of hemp cultivation in England, I also trace the origins of the British hemp problem with regards to commercial competition in the Baltic region, and show how North America became envisioned as an alternative source of naval raw materials. The search for hemp was closely associated with mercantilist conceptions of the ‘old colonial system’. As Steven Sarson argues, however, this ‘first’ British empire was an imaginative construct in many respects. Commercial self-interest, rather than loyalty to the ‘mother country’, was the most significant factor in the economic formation of the colonies. Consequently, the imperial policies designed to stimulate the export of colonial hemp failed to have any effect.

After the American Revolutionary War, the British state viewed Ireland and Canada as the most likely places to resolve the nation’s dependence on Baltic hemp. By this time, however, a more imaginative solution to the problem had emerged. The second chapter – ‘New Zealand Flax’ – explores the role of Joseph Banks in initiating the search for a substitute fibre. In his role as a prominent naturalist, and later as a

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scientific advisor to the government, the figure of Banks looms large in Britain’s
global search for hemp. His biographer, John Gascoigne, has assisted me to
understand the mechanisms of power through which science was drawn into the
service of the state. This thesis contributes to the historiography of Banks’s career, by
focusing on an aspect of his research which remains relatively neglected.  

The second chapter also addresses the debate surrounding Australia’s national
origins, concerning the British decision to locate a penal colony at Botany Bay. This
debate features frequent references to New Zealand flax. In the 1950s, K.M. Dallas,
an economic historian from Tasmania, first suggested that New South Wales was
founded for the primary purpose of supplying naval stores to the imperial centre.
Geoffrey Blainey added further support to this theory in The Tyranny of Distance,
while Alan Frost has been the major proponent of the ‘flax thesis’ since the 1970s.  

This controversial notion has come under sustained criticism, however, and the
resulting argument has been circular in the extreme. In my mind, the narrow
framework of the debate represents its major limitation. Rather than getting too
cought up in the convict issue, or overstating the importance of flax, this chapter
situates the plant within the broader context of the European pursuit of useful

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knowledge. In particular, economic historian Joel Mokyr provided nuance to my understanding of the intellectual and cultural significance of this theme.\textsuperscript{16}

While Australia’s historians have discussed the Botany Bay decision at length, they paid far less attention to the manufacturing experiments after the colonists arrived. Both sides of the debate concede that the project failed, but the causes of this material non-occurrence have provoked little interest to this point in time. The third chapter – ‘The Norfolk Island Experiment’ – contributes to the historiography of the early penal colony, but I centre my inquiry on Norfolk Island rather than Sydney Cove. Historians of this period – Alan Atkinson, for example – have recognised the significance of Norfolk Island during the first decade of the British occupation of New South Wales, yet provide a limited explanation about why this was the case. This chapter rectifies the issue through a detailed examination of the flax experiments on the island, while supporting Atkinson’s ideas on the significance of the European imagination in shaping Australia’s history.\textsuperscript{17} By investigating the colony’s early cultural contact with the Maori, my analysis also allows a more regional perspective of Australian history to emerge. The work of anthropologist Anne Salmond proved invaluable to my knowledge of this process, while cultural historian Greg Dening influenced my general approach.\textsuperscript{18}

\textsuperscript{17} Alan Atkinson, \textit{The Europeans in Australia: A history, Vol.1: The Beginning} (Melbourne: Oxford University Press, 1997).
Norfolk Island, according to Frost, was initially settled for the purpose of supplying naval stores to the British fleets in India. Certain contemporaries believed this was possible, and I treat their toils on the island with respect. With the benefit of hindsight, however, this outcome appears very unlikely. The site was soon eliminated from Britain’s global inquiries, while Calcutta Botanic Garden became the centre of imperial hemp research in the eastern hemisphere. Chapter Four – ‘Indian Hemp’ – focuses on the work of Dr William Roxburgh and his assistants in Calcutta, who experimented with a range of potential substitutes for hemp, and also attempted to instruct Indian farmers to produce the traditional material according to European specifications. These efforts are contextualised within the development of colonial science in India. Additionally, I examine the tensions that existed between the British state and the East India Company, regarding what was seen as the agrarian improvement of the subcontinent.

In the late eighteenth and early nineteenth centuries, the Indian experiments were far better resourced than the rudimentary equivalent on Norfolk Island, and with the range of available options in Asia appeared much more likely to succeed. Within this timeframe, however, India never provided a practical solution to the naval problem. These experiments, I argue, were highly significant in terms of imperial ideology, though they have mostly been overlooked by historians due to their limited material outcome. To account for this non-occurrence, I attempt to understand the other side of the story as far as possible. The primary evidence provides some indication of the Bengali point-of-view. To support my interpretation, Bayly and Sugata Bose provide

further insight on British-occupied India, the structures of contemporary Indian society, and the problems involved in colonial governance.\textsuperscript{21}

The British hemp problem reached its apex during the first decade of the nineteenth century. The Russian embargo of 1800, though short in duration, raised apprehensions about the consequences of a longer interruption to the hemp supply. During the Baltic Blockade (1807-1812), it appeared that Britain’s worst fears had come to pass. Chapter Five – ‘Hemp and the Continental System’ – explores the research conducted in Europe in the lead up to this event. Naval historian N.A.M. Rodger points out that the blockade proved more porous than expected, and that the crisis never eventuated. As Davey argues, however, the situation was certainly perceived as a crisis at the time, which resulted in a more urgent search for a solution.\textsuperscript{22}

The chapter first outlines the contemporary knowledge in London regarding the mechanisms of the Russian hemp trade. This system had evolved over an extensive period, and the hope of replicating it elsewhere appeared virtually impossible. In the short term, agrarian theorists such as Arthur Young suggested the culture of hemp might be revived in Britain in order to provide an emergency supply. On account of the nation’s food security, however, Banks and the Board of Trade strongly opposed this idea. In a climate of rising bread prices, following a series of poor grain harvests, I show how the decline of domestic hemp cultivation accelerated more rapidly during this period of dire national need. The notion of ‘agrarian patriotism’, as defined by


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Bayly and Drayton, is a central theme of this chapter. My research contributes additional nuance and complexity to the concept, by examining the competing claims of wheat and hemp for a place on British soil.

Chapter Six – ‘Hemp and the World System’ – explores the practical efforts of agrarian patriots in Ireland and Canada during the Napoleonic wars. From the perspective of the core-economy, a supply of hemp from the peripheries of the British Isles or North Atlantic represented the ideal solution to the problem. But persuading local farmers to share this ideal proved more difficult than anticipated, and the limits of imperial authority became clearly exposed. In the post-war period, as detailed by John Darwin, the British state gradually shifted towards an imperialism of free trade. This occurred in part, I argue, due to the futility of governing the peripheries in line with neo-mercantilist doctrine.

In the final two chapters, this shift in economic discourse is investigated from the perspective of an Australian world history. Over recent decades, British imperial historians have become more alert to the ways that engagement with the peripheries shaped material life in the centre. At the same time, Australian historiography has started to become resituated within its global context. Ann Curthoys suggests the construction of national histories, once seen as important in the former colonies of empire, is a process that may have run its course. Instead, she promotes the practice of transnational history in Australia, a field that pays attention to such issues as the movement of ideas, the migration of people and cross-cultural connections in a

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globalised world. The term ‘transnational’ seems inappropriate for my inquiry, however, which predates the political formation of an Australian nation-state.

Tom Griffiths supports the notion of ‘an Australian history of the world’. Taking inspiration from Alfred Crosby’s seminal *Ecological Imperialism*, Griffiths argues that one way to achieve this involves a comparative environmental analysis of ‘neo-European’ settler societies. A similar approach has recently been applied by James Belich, an historian from New Zealand, in his study of the settler societies of ‘the Anglo-World’. This framework enables the history of the United States, once viewed through the prism of exceptionalism, to be seen through the same lens as Australia, New Zealand and Canada. Belich draws comparisons between geographically-disparate Anglophone communities, whose economic adaptations to their local environments were shaped by a shared cultural worldview.

My contribution to Australian world history concerns the transplantation of ideas surrounding the relations of economy, ecology and empire. Chapter Seven – ‘Improvement in the Anglo World’ – explores the ‘yeoman ideal’ or ‘agrarian myth’. Joyce Appleby first applied this notion to the agricultural history of the United States,
while Richard Waterhouse has pursued this theme in Anglo-Australian history.28 During the first half of the nineteenth century, the culture of pastoralism increasingly enabled Australia to fulfil its pre-ordained role as a supplier of raw materials to the imperial centre. Yet to some contemporary observers, the expansion of tillage agriculture represented a more salubrious outcome for colonial society. Supplying Britain’s demand for hemp – rather than wool – was therefore positioned as a more desirable way to contribute to imperial commerce. Set against the idealism of these agrarian thinkers, I also investigate the more pragmatic attitudes of colonial entrepreneurs. Working from the principle of self-interest, these individuals succeeded in drawing the South Pacific region into the modern world-system.

Of all the Anglo-settler societies, the United States was the only place where hemp production became well established in practice. For the purpose of comparison and contrast, the causes of this outcome are addressed in the final section of the chapter. This particular example of American exceptionalism bears little relation to the propagation of the yeoman ideal. By perpetuating this myth, the Australian hemp advocates appear unaware of the commercial reality of American hemp production, which relied upon slave labour and declined rapidly after the Civil War.29 This chapter therefore illustrates the non-transfer of useful knowledge, a significant theme in Schiebinger’s research on natural history, as well as the practical difficulties that attended ecological imperialism in Australia.30

30 Schiebinger, *Plants and Empire*, 1-22.
In the middle decades of the nineteenth century, the cultivation of hemp began to lose its symbolic potency in the Anglo-world. The final chapter – ‘The Nature of Progress’ – explains how and why this occurred. In the first section, I explore the revival of interest in New Zealand flax as a naval fibre, and the establishment of trade with the Maori prior to the formal colonisation of their territory. As part of the imperialism of free trade, the British government, encouraged by the efforts of colonial speculators, decided the exploitation of Maori labour was a more efficient way to equip Britain’s fleets than offering economic incentives to Australian or Canadian settlers. But the substitute never quite lived up to the expectations of its European proponents, and national historians in Australia and New Zealand have paid scant attention to these pre-colonial events. Despite the limited material outcome, I argue that New Zealand flax continued to play a profound symbolic role in the cross-cultural history of Australasia until about 1840.

By this time, the Baltic monopoly on naval fibre had finally been breached by another plant from the Asia-Pacific region: abaca or Manila hemp, a substitute fibre from the Philippines. In the mid-nineteenth century, moreover, Bengal jute superseded the Russian raw material for the production of coarse sacking. In the second section of this chapter, I examine these developments alongside other technological innovations in the British and American shipping industries. Robert C. Allen, together with other economic historians, has shown how the transformation from sail to steam, and from

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timber to iron, was a protracted process.\textsuperscript{33} At the end of the nineteenth century, though, the culture of hemp was no longer associated with the expansion of international sea power. The following century, the species \textit{Cannabis sativa} acquired a controversial reputation, for reasons that would have been inconceivable to the protagonists of this history.

William Cronon, the American environmental historian, has called for ‘not just stories about nature, but stories about stories about nature.’\textsuperscript{34} The explanatory power of narrative lies at the heart of the humanities, though practitioners have become more aware that our stories are constructed through artifice. My story of hemp provides a synecdoche for the history of the world. In making this claim, I am contributing to an ironic literary tradition that can be traced to the French Renaissance, and the work of the naturalist, physician and story-teller François Rabelais. Without hemp, he asked, how could water be drawn from the well, and how would the miller carry wheat to the market? Since ancient times, he reflected, this common plant has harnessed the mighty power of the wind, thus enabling Europeans to search for ‘those remote Nations whom Nature seemed so unwilling to have discovered to us’.\textsuperscript{35} Through his rhetorical use of the paradoxical encomium, Rabelais suggests that even in his time the plant’s significance was often overlooked.


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In the present era, whether ironic or not, hemp no longer carries this meaning. In an extractive mineral- and petroleum-based economy, it seems humanity can manage without this natural fibre. On the global scale, the plant’s cultivation as a textile – together with its twin-product flax – has become a marginal practice serving a niche market. Nevertheless, the household manufacture of these textiles lives on through the metaphors for the narrative function itself: the spinning and weaving of yarn to produce something useful and whole. Like Rabelais, my story of hemp has been woven from both a literal and metaphoric thread, yet I neither celebrate nor denigrate this controversial plant. This thesis is situated on the cusp of our conceptions of nature and culture, allowing reflection upon the ideological and material foundations of global capitalism. The idea of perpetual growth, so intrinsic to this worldview, has led to widespread environmental degradation, together with the understanding that perhaps growth has its limits. By separating a single strand from the historical record, I analyse the evolution of this worldview from within the organic economies of the past.

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Chapter 1: The Culture of Hemp

‘Take not my lines all for a Paradox’, wrote John Taylor in The Praise of Hemp-seed (1620), whose eulogy to ‘this small Atome’ celebrated its profound significance for the citizens of London. The waterman ferried passengers across the River Thames, and from this vantage he observed that hemp provided nets for the fisherman, yarn for the tailor and clothing for the poor. Moreover, the plant served justice in its form as the whip or the noose. But above all, as rope and sailcloth it composed the ‘Art of Navigations wings’ spanning maritime trade from the ‘orient to the occident’. Hemp supplied the merchant with spices and tobacco, while enabling the mariner to extend the boundaries of Christendom. The water-poet’s irony stemmed from the symbolic use of a tiny seed to encapsulate the tapestry of his civilisation.¹

Since antiquity, the English peasantry had sown small plots of hemp for the provision of twine, sacking, cloth, and halters for livestock. Flax was usually preferred for linen, though as cultural artefacts, the histories of these textiles are entwined. Once described as the ‘sisters’ of the ancient linen trade, the plants were grown and prepared by similar methods, and their uses were interchangeable to an extent.² By the late medieval period, the cultivation of hemp and flax had become widely distributed on English peasant holdings for household manufacture and the local market, but neither of these textiles supplied a national demand nor became an article

of export like wool. In the towns and ports, therefore, the larger producers of rope and canvas increasingly relied upon imported raw materials.\(^3\)

In early modern England, the strong fibre of the hemp plant remained an important component of material life. Yet this coarse and prosaic textile acquired a more complex meaning in London during this age of European expansion. On the one hand, it represented the metaphoric thread of the web of commerce; on the other, its scarcity threatened to inhibit the growth of the maritime state. From the sixteenth century, the local rural economy proved unable to support the nation’s maritime ambitions, necessitating the supply of hemp from foreign soil. The supply of naval raw materials would become a persistent source of uncertainty in London.

**The sowing of hemp-seed**

While strong hemp was unrivalled for cordage, the finer fibre of flax was often used for sailcloth. When naval administration became more regulated during the sixteenth century, the first steps were taken in London to secure a domestic supply.\(^4\) In 1579 the Privy Council renewed and extended an earlier Tudor statute to compel the sowing of hemp and flax seed. The Queen’s heralds announced the proclamation throughout rural England with the exception of the far north and west: substantial landholders, with more than sixty acres of arable land, had to ensure that at least one acre was planted with either of these crops in lieu of a fine of £5. The stated purpose

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of this measure was ‘the mainteynance of the Navie’, but the act’s renewal had also been driven by vested private interests who were the main suppliers of the seeds, and promoted the project on behalf of the realm. This form of public-private partnership was standard commercial practice and the merchants received a patent to enforce the monarch’s will. However, farmers who were unaccustomed to the crops resented this intrusion into their affairs.5

Over the long term, a more commercialised economy had started to emerge that featured a greater degree of regional specialisation. According to agrarian historian Joan Thirsk, the fenlands of Lincolnshire, Norfolk and Cambridgeshire had become the most important region for hemp cultivation by the sixteenth century. The plant thrived in a rich alluvial soil and was also grown extensively beside the rivers of Suffolk, Sussex, Dorset and Somerset.6 But the naval stores policy had little effect in areas where the crops were already staples, while landholders outside of these districts simply viewed the fine as a tax. The enforcement of the law also became problematic when certain ‘evil disposed persons’ posed as surveyors in order to collect the fines for their own benefit. Complaints led to a related act that aimed to stem this corruption. By the close of the century, however, the unpopular policy had been abandoned.7

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5 England and Wales, By the Queene ... concerning the sowing of flaxe seede and hempe seede (London, 1579). In 1532 the original statute (24 Henry VIII, c.4) had set the fine at 3s. 3d. Frederic A. Youngs Jr, The Proclamations of the Tudor Queens (Cambridge: Cambridge University Press, 1976), 141-5.
7 England and Wales, By the Queene. A proclamation inhibiting the execution ... of the statute for sowing of hempe and flaxe seede (London, 1589); Nesta Evans, The East Anglian Linen Industry: Rural industry and local economy 1500-1850 (Aldershot: Gower, 1985), 50-5.
1. The Culture of Hemp

In rural England, communications were poor and any form of centralised intervention relied upon the co-operation of local office holders, whose loyalties often lay closer to home. Moreover, the transportation of bulk goods depended on access to navigable rivers and the sea, and the infrastructure was already in place to supply the dockyards from foreign sources. London’s port books from the Elizabethan era show a steady increase in the importation of raw hemp and flax from the Baltic region and Russia, in addition to finished cordage and canvas from commercial rivals in northern Europe. However, the merchants of London’s Eastland and Muscovy companies frequently complained about foreign competition and unfavourable treatment with regards to custom duties. After the defeat of the Spanish Armada, English sea power became a symbol of patriotic pride and national identity, though its maintenance was more precarious than is commonly recognised.

The Baltic Sea during the late medieval and early modern periods has been described by historians as the Nordic equivalent of Braudel’s Mediterranean. The northern zone was darker, colder and poorer, and its exports of grain, timber, hemp and flax were high in bulk and relatively low in value by weight. Yet the Baltic region functioned as a cradle for the development of a modern global economy, by supplying the European maritime powers with the material foundations for their commercial growth. Dutch merchants conducted this trade with greater efficiency than their rivals, however, which inhibited the growth of England’s own merchant shipping and manufacturing industries. Commercial rivalry led to the passage of England’s major navigation laws,

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11 Hanno Brand and Leos Muller, eds, *The Dynamics of Economic Culture in the North Sea and Baltic region during the Late Medieval and Early Modern Periods* (Hilversum: Veloren, 2007), 7.
which aimed to secure a greater share of the international freight trade, contributing to the outbreak of the Anglo-Dutch wars.\textsuperscript{12}

In 1649 an alliance between Denmark and the Dutch Republic provided their merchants with special concessions on the payment of ‘Sound tolls’, and three years later English vessels were denied access to the Baltic Sea. In order to break the monopoly and rectify an immediate shortage of naval stores, Cromwell’s government first initiated a policy of armed intervention in the region.\textsuperscript{13} The encouragement of domestic production represented another form of protection, a way to expand the nation’s natural resources, while reducing the drain of bullion to rivals. In this respect, hemp and flax were particularly significant since their combined monetary value far outstripped every other imported Baltic commodity.\textsuperscript{14}

The Interregnum government viewed the improvement of England’s agrarian economy as part of its system of self-defence. An act of 1649 enabled the drainage of the flood-prone fenlands in order to extend the area under cultivation and allow the region to ‘be improved and made profitable’. Once farms had been enclosed, the act directed the new settlers to sow large quantities of hemp and flax for the production of ‘all sorts of Linen Cloth, and Cordage for Shipping … to the great advantage and strengthening of the Nation’. The preparation of the raw materials would also ‘relieve the Poor, by setting them on work’.\textsuperscript{15} With the availability of local seed and suitable

\textsuperscript{13} Albion, \textit{Forests and Sea Power}, 164-213; Jan Glete, ‘Cities, state formation and the protection of trade in northern Europe, 1200-1700’ in \textit{The Dynamics of Economic Culture}, 13-23.
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soil, the cultivation of hemp was a realistic proposition for the yeomen who settled in the region. Moreover, a ready outlet for the product was provided in 1653 when the Council of State instructed the Navy Committee to purchase the fenland hemp.16

The Navy Board continued to develop the domestic industry during the 1660s and 70s, by sourcing small quantities of hemp from individual producers in East Anglia and the West Country. But, while English prices were at a similar level to the foreign article, the domestic product proved more problematic to obtain.17 Ultimately, these efforts had a negligible effect on the importation of raw materials, due to the magnitude of the nation’s maritime ambitions. Hemp was more exclusively regarded as a naval raw material than its sister product, and though the demand for imported flax settled in the second half of the seventeenth century, the demand for hemp rose to unprecedented levels. Meanwhile, foreign-manufactured cordage, canvas and linen often sold for lower prices in London than the locally-made products.18

**Improvement**

In its genesis, agrarian improvement was associated with domestic self-sufficiency as the fulfilment of divine providence. In 1659 Adolphus Speed argued that the home nation contained enough land for its inhabitants: ‘if men did but industriously and skilfully improve and manure it, we need not go to Jamaica for new plantations.’ Adam was ‘placed in Eden, not only to enjoy, but to labour’, and if every class of person fulfilled their ordained duty then England would become a ‘Paradise’ on

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earth.\textsuperscript{19} Such thinkers also promoted a range of more secular and rational objectives. The personal profit of the gentry was conflated with the national economy and the needs of the local community; the wise management of an estate represented a microcosm of the whole.\textsuperscript{20}

In the husbandry guides of the period, Samuel Hartlib and Joseph Blagrave asserted that it was common knowledge that England’s soil and climate were as suited as any other environment for the growth of hemp and flax.\textsuperscript{21} Yet at great expense, the nation purchased Dutch cordage and linen, and French canvas and nets, in addition to Baltic raw materials. ‘The Defect of us in this kind is so obvious, that all the world takes notice of it’, wrote Hartlib. For without the assistance of foreigners, ‘How can we put our ships to sea, which are the bulwarks of this isle?’\textsuperscript{22} To support the nation’s sea power, hemp cultivation was promoted as a patriotic practice with universal benefit to the land’s inhabitants.

The landowner would profit as planters paid £3 per acre to grow hemp or flax, while the tenant made about £12 per acre, and only half of this was expended on rent, tithes, labour and seed. Blagrave pointed out that ‘all good Housewives’ knew how to spin the fibres, claiming the activity could employ ‘thousands of people in good, honest, and laborious Callings’.\textsuperscript{23} According to these observers, there were many ‘idle’ men, women and children in the country. As the nation lay at the mercy of ‘those who would destroy … our shipping and trade’, this redundant labour should be used to

\textsuperscript{19} Adolphus Speed, \textit{Adam out of Eden} (London, 1659).
\textsuperscript{21} Samuel Hartlib (c.1600-62), \textit{A Treatise concerning the Husbandry and Natural History of England} (London, 1742), 40-3; Joseph Blagrave, \textit{The Epitome of the Art of Husbandry} (London, 1670), 224-7.
\textsuperscript{22} Hartlib, \textit{A Treatise}, 41-3.
\textsuperscript{23} Blagrave, \textit{The Epitome}, 224-7.
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defend the commonwealth. Using a nautical metaphor to draw attention to the issue, Hartlib called for urgent measures from those who steered ‘the Helm of our State’. To agrarian philosophers, it seemed evident that the judicious implementation of agricultural policy could serve the national interest on land and sea.

In 1677 the Commons debated a renewed proposal to compel farmers in every local parish to sow hemp or flax. Based on the former Tudor policy, the bill stated that for every hundred acres of arable land, half an acre had to be planted with either crop to avoid paying a fine. At this time, low corn prices had reduced farmers to threshing their own grain, and the members were concerned by the recent influx of unemployed labourers in London in search of work and bread. Colonel Birch spoke in favour of the scheme: ‘here’s work for all England’, he said. ‘To whip and slash beggars, and have no work for them, is that sense?’ If the proposal could be implemented in every parish, Birch argued that abject poverty would be eliminated.

The chief naval administrator, Samuel Pepys, supported the bill on the grounds of the balance of trade and protection from Holland and France, but others raised practical objections to the scheme. Some members claimed that not every local soil and climate was suited to the crops; Sir George Downing joked that Parliament might as well legislate for the cultivation of olives, oranges and pomegranates. With greater sincerity, he pointed out that despite the cost of the foreign articles, these were still cheaper than their domestic equivalents due to the high price of English land and

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24 Hartlib, A Treatise, 41-3.
25 Thirsk, Agricultural Change, 166.
27 For Pepys’s career as a naval administrator, see Rodger, The Command of the Ocean, 87-183; Pool, Navy Board Contracts, 1-43.
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labour. Mr Swynfin also addressed the economic rationality of the scheme. As the Member for Stafford – a traditional hemp-growing district – his testimony was founded upon local experience: ‘Flax and hemp are no strangers here’, he said. ‘If there be any profit in planting hemp and flax, there needs no law to compel men to do it.’ Instead of compulsion, he urged that an incentive should be found.\(^\text{28}\)

Eventually, a parliamentary committee devised a policy that aimed to increase the farmer’s profit margin. Parish stakeholders collected tithes for the use of agricultural land, and most observers believed that placing limits on this payment for hemp and flax would induce more farmers to sow the crops. In 1691 the tithe was set at a maximum level of four shillings per acre, but this mild policy of encouragement had little effect.\(^\text{29}\) The tillage of grains received much greater encouragement from the corn laws. In an attempt to raise bread prices, maintain food production, and keep workers on the land, the government paid bounties for the export of wheat, barley and rye from 1672.\(^\text{30}\)

The transformation of the rural economy had started to accelerate as the significance of the national and international market became ever more pronounced. Small-holders and labourers were attracted by the higher incomes available in the cities and towns, and the rising demand for food from the growing urban population led to greater agricultural specialisation. Meanwhile, as the revenue from overseas commerce flowed towards property investment, the consolidation of farms resulted in further

\(^{28}\) Debates in 1677: March 1-3, 159-80.


\(^{30}\) Overton, Agricultural Revolution, 146-8; Thirsk, The Rural Economy, 183-4.
reforms to land management. Wheat became the major crop of most of southern, central and eastern England, while London acquired its barley from the East Anglian ports. Moreover, the production of woollen cloth – the nation’s major export industry – also developed within easy access to the rivers and ports. The political measures to support these activities therefore had a much greater influence on the nation’s economy and landscape as a whole. Close to the waterways, hemp could not compete with these more established cargoes, and the crop moved ever further towards the margins.

Agrarian improvement meant raising the productivity of the land in harmony with the civilising influences of town, church and state; but wheat and wool represented the standard bearers of improvement on English soil. Traditionally, farmers produced these items in conjunction with one another, and the class relations of landowner, tenant and labourer proved well suited to this practice. On the other hand, the spinning and weaving of hemp was traditionally associated with cattle-rearing cottagers whose independent lifestyles had come under increased threat from enclosures during the seventeenth century. Within this environment, landowners viewed hemp as an archaic peasant crop, more suited to foreign places where land was thought plentiful and labour cheap.

The cultivation of hemp

In eighteenth-century England, agrarian theorists continued to promote the ideal of domestic self-sufficiency. In 1739 Samuel Trowell dedicated his husbandry treatise to the judges and barristers of London’s Society of the Inner Temple, hoping to provide both pleasure and profit by assisting them to improve their country estates. Of all the branches of natural philosophy, he claimed the study of plants offered the greatest satisfaction to the ‘curious Observer’ due to the ‘constant Order’ of nature’s design. The ‘omnipotent Author’ had bestowed his blessings on England in the form of grains, pulses, vegetables, grasses and textiles; it was the duty of the devout patriot to enjoy all of these gifts. Trowell described hemp as a ‘useful Seed’ on account of the immense quantities of cordage consumed by the nation’s fleets. He therefore promoted the plant’s cultivation as a public service.34

Other observers travelled to the localities where the crop was still well established, in order to record and relay its mode of production and thereby contribute to the dissemination of useful knowledge. With good seed and soil, hemp was a simple crop to grow. The plant needed good drainage so heavy clay was unsuitable, as was any soil where excessive moisture was retained. Freshly ploughed pasture was appropriate, while hemp would also thrive in rotation with grains and legumes. Good seed looked bright, felt firm, and was usually sown by hand in April at the rate of three bushels per acre. Prior to germination, a couple of children remained on site to frighten off small birds, but once the crop was established it required little attention.

The thick growth smothered any weeds, and the plants were ready for harvest in October.  

The division of labour for the harvesting and preparation of the raw material employed whole families. After threshing the seeds, the stems were dried in sheaves and then steeped in a stream or pond for a few days. Warmer weather accelerated the process; care needed to be taken as the slight fermentation of the stems fouled the water for the use of livestock. This technique, known as water-retting, separated the inner fibres from the viscous matter that bound them together. Women and children peeled the stems, which were then dried again in the field (if weather permitted) or else in a kiln. Following this procedure, men known as ‘breakers’ commenced the laborious task of crushing the stems lengthways between blocks of wood, before the ‘swinglers’ removed the core of the stems in preparation for heckling. The heckle (a wooden or metal comb) drew out and softened the fibres in preparation for spinning the yarn, described as women’s work. Each of these time-consuming tasks required many hands.

Farmers recognised two types of hemp, distinguished as the ‘male’ and ‘female’ plant: one produced pollen while the other carried the seed. The seed-bearing plant was more robust, as the other withered earlier once its pollen had been released, so these plants were usually harvested in separate stages. If the farmer was unconcerned about collecting seed, then they could be harvested together to produce a fine white

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37 Convention dictated that the stronger seed-bearing plant was the ‘male’. However, Linnaeus reversed the polarity for his classification of Cannabis sativa in 1753. From this point on, it became gradually known in the vernacular as the ‘female’. Carl Linnaeus, Species Plantarum: 2 (Holmia, 1753), 1027; William T. Stearn, ‘Typification of Cannabis sativa L.’ in Cannabis and Culture, ed. Vera Rubin (The Hague: Mouton, 1975), 14.
cloth. But this method was less profitable than pulling the plants separately, which allowed the seed-bearing plants to remain in the ground and develop longer stronger stems. The first harvest was used primarily for canvas, while the second was more valuable and prized by the rope-maker.\(^{38}\)

The weaver used a loom to produce canvas, which the ‘ship’s taylor’ shaped and sewed into sailcloth. To manufacture cordage, the rope-maker laid his hemp-yarns parallel to one another, and then twisted the strands together on a wheeled mechanism to form denser yarns. This work was conducted between the narrow walled confines of a rope-walk, which were often open to the sky and up to a quarter of a mile long.\(^{39}\) When walking by the walls where the rope-maker plied his trade, a naturalist from Dublin enjoyed reflecting upon the many virtues of ‘an inglorious Weed.’ In his reverie, he considered ‘How often is the Mariner saved by this humble Plant, and the stateliest Ash indebted for its safety to the lowest Shrub?'\(^{40}\) To this philosopher, hemp symbolised the ancient union of natural knowledge and sea power.

French philosophers also lavished attention on this humble yet heroic plant.

Marcandier, a magistrate from Bourges, produced the most detailed eighteenth-century study of its natural history in *A Treatise on Hemp*, which was translated by London’s Society for the Improvement of Arts, Manufactures, and Commerce in 1764. The first part was designed for ‘the curiosity of the learned’ and traced the several uses of hemp recorded in antiquity, while the second part provided a study of modern production methods for ‘the utility of the manufacturer’. As a physiocratic

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\(^{38}\) Varlo, *The Essence of Agriculture*, 76-8.

\(^{39}\) *The Book of Trades or Library of the Useful Arts, III* (London, 1807), 8-14.

\(^{40}\) *A Philosophical Enquiry concerning the Nature, Use, and Antiquity of Hemp* (Dublin, 1733), 14-5.
treatise, the theme of the entire work was the plant’s relationship to the national economy.\textsuperscript{41}

The French physiocrats believed that the agricultural landscape represented the source of national wealth, and opposed foreign trade for essential food and raw materials.\textsuperscript{42} Although France produced large quantities of hemp, its domestic supply still needed to be supplemented by imports. Marcandier thought this was folly as ‘Hemp is one of those plants, which Nature has not only made necessary, but also common, and suited to every sort of soil, as well as to every climate.’ He claimed that even the most unpromising land would bear the crop with the prodigious use of manure.\textsuperscript{43} The urbanisation of commerce concerned the physiocrats as the process had disturbed the traditional social order. To stimulate rural industry, therefore, Marcandier proposed that hemp should be grown in every province. Manufacturing the fibre would keep the peasantry ‘in their hovels’, the exported surplus could be exchanged for luxuries, and the nobility would observe ‘the whole kingdom happy, flourishing, and powerful.’\textsuperscript{44} He saw the widespread dispersal of hemp as a panacea for his nation’s ills.

In 1765 Joseph Gee from Lincolnshire, one of the most outspoken advocates of English hemp and flax cultivation, drew upon these insights and applied them to the British economy.\textsuperscript{45} At this time, the custom-house accounts recorded that Britain imported about £820,000 worth of hemp and flax per annum, while England’s yearly contribution to the national market stood at about £200,000. Most of this was

\textsuperscript{41} Marcandier, \textit{A Treatise on Hemp} (London, 1764), v-ii.
\textsuperscript{42} Drayton, \textit{Nature’s Government}, 70-1.
\textsuperscript{43} Marcandier, \textit{A Treatise}, 29-30.
\textsuperscript{44} Marcandier, \textit{A Treatise}, 80-1.
produced in the Lincolnshire fens where thirty villages tended for around 6,000 acres of these crops.\textsuperscript{46} If a greater proportion were to be grown at home, then Gee recognised that the area under corn would have to be reduced. But if corn exports dropped, it was more important that the nation’s supply of naval equipment be secured.\textsuperscript{47}

According to Gee, the notion that hemp and flax only grew in certain soils was merely ‘the Opinion of the Ignorant’. Furthermore, he dismissed the belief that the crops exhausted the land as ‘Vulgar Prejudice’. On the contrary, hemp and flax improved the soil and grew anywhere with adequate manure. Although rope-makers expressed a preference for Russian hemp, Gee argued that the English product was far superior to any imported variety; it was less porous and therefore needed less tar to waterproof the ropes. The expansion of local hemp cultivation would rouse the ‘British Lion’ from sleep and awaken the ‘Spirit of Zeal and Devotion for the Honour and Prosperity of our Native Land’.\textsuperscript{48} Despite the recent improvements to British commerce, he believed that England had not yet realised its potential considering the natural advantages of its soil and climate.

Since the conclusion of the Great Northern War (1700-1721), however, when Russia had wrested the control of the hemp trade from Sweden, the price had remained steady and the supply reliable.\textsuperscript{49} In London’s \textit{Universal Dictionary of Trade and

\textsuperscript{46} Joseph Banks, Hemp Correspondence: 1764-1810. Kew: JBK/1/10: fo. 2. These figures refer to 1763.
\textsuperscript{47} Gee, \textit{Observations}, 14-6.
\textsuperscript{48} Gee, \textit{Observations}, 5, 14-21.
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*Commerce* (1766), the political economist Malachy Postlethwayt presented a more pragmatic perspective on the issue. While he conceded that ‘our whole mercantile, as well as royal maritime power, depends on supplying ourselves at a reasonable expense with cordage’, he thought this outcome was impossible to achieve at home. It had long been understood that English land and labour were too expensive to compete with the Russian product. Nevertheless, Postlethwayt wanted to see far greater efforts from the Board of Trade to develop a colonial hemp supply. North America had promised an alternative source of naval stores since Elizabethan times, and the colonies now provided masts and tar. In the meantime, though, he believed the threat of competition had helped to stabilise the Russian price.\(^{50}\)

**Hemp and the old colonial system**

As early as 1584, Richard Hakluyt – the Oxford cleric and archivist – suggested a radical solution to the problem of foreign competition. His *Discourse on Western Planting* set out the strategic and commercial benefits that would result from the establishment of colonies in North America. In particular, he emphasised the production of naval stores, which could then be exchanged with kinsfolk instead of strangers. Hakluyt proposed that convicts should be sent to plantations and put to work felling timber for masts, burning pine trees for tar, and for the ‘beatinge and workinge of hempe for cordage’.\(^{51}\) The Virginia Company first attempted to compel the sowing of hemp and flax seed in 1619; later on, other colonial authorities used economic incentives to encourage the practice. By the close of the century, however,


the crops were established for local use, but the raw materials had never been
produced for export.52

In the late seventeenth and early eighteenth centuries, war in northern Europe made
the Baltic trade more hazardous for merchants and expensive for the maritime state.53
Vessels sailed out in armed convoys, tariffs were raised to protect the cordage and
canvas industries, and there were renewed calls to promote an alternative supply of
the raw materials.54 In 1704 Parliament turned to Ireland in the hope that ‘such Naval
Stores as are of the product of Hemp might be furnished within Her Majesty’s own
Dominions’. The importation of Irish hemp and flax was rendered duty-free, with the
additional aim of dissuading the locals from producing wool, and thereby competing
with English manufacturers. Indeed, flax cultivation soon expanded in Ireland to fuel
a thriving local linen industry, though growers claimed their land was unsuitable for
hemp.55

Meanwhile, the Board of Trade and Plantations revived the old notion of improving
North America as an emporium for naval stores. Following an inquiry in 1696, the
commissioners reported that local conditions had become more favourable for the
trade, but the main hindrance was the cost of shipping. The price of Atlantic freight
was higher than the Baltic equivalent on account of the greater distance. In order to

52 Laws Enacted by the First General Assembly, Virginia, 2–4 Aug. 1619 in America’s founding
charters, 57; George L. Beer, The Origins of the British Colonial System 1578-1660 (New York:
Macmillan, 1908), 280-6; Lewis C. Gray and Esther K. Thompson, History of Agriculture in the
United States to 1860, Vol.1 (Washington: Carnegie Institution, 1933), 24-5, 180-2; Richard Middleton
74.
54 D.T., To prevent the export of bullion, for purchasing hemp, flax, and linnen (London, 1696);
Reasons for Encouraging the Manufacture of British sail-duck, and the Growth of Hemp and Flax in
Great-Britain (London, 1720).
balance these costs, the naval stores act of 1705 offered bounties to merchants for the importation of colonial masts, tar and hemp. Over the coming decades, the policy succeeded to a large extent with tar and to a lesser extent with masts. These forest products were ripe for exploitation, but there was no great incentive to sow hemp. The raising of tobacco, rice, maize or indigo paid greater profit to the commercial planter.  

During Robert Walpole’s long tenure as Britain’s chief minister (1721-1742), colonial governance entered a period of what the statesman Edmund Burke later termed ‘wise and salutary neglect’. According to historian Steven Sarson, imperial policy was effectively based upon the laissez-faire principle during this period. Yet as David Armitage points out, in the generation after the Act of Union (1707) between England and Scotland, a distinct form of British nationalism was beginning to emerge. By the end of Walpole’s term in office, contemporaries were first describing the motley collection of Anglo-settlements in the Atlantic region as a ‘British Empire’. In order to harness the North American colonies to British interests, the Board of Trade persisted with its inquiries on colonial hemp throughout this period, but failed to devise an effective policy. 

Under the encouragement of the Board of Trade, Archibald Cummings – a customs house official from Boston – submitted a proposal in 1722 for the maintenance of six

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59 For example, see Great Britain, Board of Trade, Representation from the Commissioners for Trade and Plantations (London, 1734), 17-9.
thousand regular troops upon the Continent of America, for the better protection of the same against the Insults of the French and Indians, and the better improvement of the Colonies in raising of Hemp, without any charge to Great Britain’. To raise the revenue to maintain this army, he suggested the introduction of a range of impositions upon the colonists: these included stamp duty, a tax on unimproved land, and excise for locally distilled rum, together with increased duties on imported luxuries. Every soldier would then be granted forty acres of land to ‘very much advance the planting of Hemp, for the service of the Royall Navy’. According to Cummings, his scheme would enable the colonists to provide for their own defence, thereby reducing the burden on the British Treasury, while improving imperial self-sufficiency in naval stores. But the plan was likely to antagonise the colonists, and the Board of Trade decided against this course of action.  

By the time that war broke out with Spain in 1739, the Board of Trade had entered a period of relative inactivity, but the exigencies of war inspired one of the commissioners, Martin Bladen, to devise a similar plan of his own. A member of the Board for more than twenty years, he was recognised as the most informed official on colonial affairs, and had become Walpole’s chief adviser on these issues. As America was likely to become the main theatre of the conflict, Bladen wanted to ensure that the colonists contributed to the war effort. In order to co-ordinate the response, he proposed the establishment of a ‘Plantation Parliament’ in New York, under the ultimate rule of a crown-appointed Captain General, whose tasks would include preventing violations of the navigation laws, dissuading planters from turning to manufacturing, and directing ‘their Industry to the Improvement of Naval Stores’.

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Bladen asserted that Britain needed to exert a far greater degree of imperial control, arguing that the colonies could only be lost ‘by our own Neglect’. Yet Walpole failed to heed this warning, and the plan suffered the same fate as other proposals for a colonial union.\(^{61}\)

In the same year that Bladen devised his plan, he received a poem urging him to persevere in his efforts to improve the colonial dominions through the cultivation of hemp. In the name of ‘George! Emp’ror of the Earth and Sea’, the petitioner wrote:

- Grant me to celebrate with like Applause
- The Plant preservative of Britain’s Laws;
- For Britain’s Use so variously it springs,
- It arms her Justice, and her Fleets it wings;
- The Bane of Villany, the Prop of Trade,
- The Murdrer’s Murdrer, and the Merchant’s Aid.\(^{62}\)

Like the English oak, another denuded symbol of the nation’s sea power, the plant was nevertheless a patriotic icon. But persuading colonial planters to share this sentiment was problematic, and hemp remained a fundamental weakness of the nascent British world-system.

Following the lead of Maryland in the late seventeenth century, ten of the thirteen colonial authorities offered bounties to the planter, at one time or another, for the cultivation of hemp and flax.\(^{63}\) In South Carolina, for instance, the policy originated

\(^{63}\) Alfred W. Crosby, America, Russia, Hemp, and Napoleon: American trade with Russia and the Baltic, 1783-1812 (Columbus: Ohio State University Press, 1965), 17-8; Thomas B. Moore, ‘Southern
in 1722 as a means to encourage the extension of the tillage frontier. Indeed, the crops became important for local self-sufficiency in remote parts of the back country, but remained unviable for large-scale commerce near the coast and river systems. Without access to navigable waterways, freight by cart was required to transport the product to port, which was prohibitively expensive for large quantities. In 1737 a southern planter complained that he had tried to raise hemp, and that 'It thrives very well in this Climate, but Labour being much dearer than in Muscovy, as well as the Freight, we can make no Earnings of it.' Meanwhile, the British government conceded that import bounties had not ‘in the Course of many years Experiment, produced any effect’, and the policy was allowed to expire.

The Scottish naturalist, Dr Alexander Garden, took a more practical approach to the issue in 1757, recounting his efforts in a letter to John Ellis of the Royal Society. A resident of Charlestown, South Carolina, Garden attempted to persuade the local indigo-planters to sow hemp, explaining why the crop made sense from a commercial perspective, and how the colonial authorities paid a bounty for the product. For free distribution, he purchased several bushels of hemp-seed from New York, but to his disgust the ‘obstinate’ planters ‘let it lie and rot’. Hemp production required more labour than indigo, which was attracting a particularly high price at the time. But though Garden admitted that indigo was probably the only crop ‘to bear a price that could reward the labour of a slave’, he still viewed these planters as irrational. He thought they were seduced by the vivid colour of the product, and urged them to diversify their agriculture, warning that the current price for indigo was

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65 Cited in Gray and Thompson, *History of Agriculture*, 179.
unsustainable. Hemp would always be in demand, he argued, while dyes were subject to the whims of fashion.\textsuperscript{66}

Following the Seven Years’ War (1756-1763), British sea power was unrivalled, while the French had been driven out of Canada and India, and the Spanish from Florida. On account of greater isolation from Europe, the British state became determined to achieve the aim of imperial self-sufficiency, which resulted in a more interventionist policy in the North American colonies.\textsuperscript{67} In 1763 a group of trans-Atlantic merchants petitioned Parliament for the reintroduction of the import bounty on hemp. When the Board of Trade investigated the issue, they found that new land had been opened for settlement since the last attempt, and that tobacco, rice, maize and indigo appeared to have been pushed to the limit. The major obstacles remained the high price of American labour and the dearness of freight. Although nothing was done to subsidise this labour, the import bounty was reintroduced in 1764 for a period of twenty-one years. Russian hemp retailed in London for about £21 per ton, and it was calculated that American hemp could not be shipped for less than £29. To make up the difference to the merchant, the bounty was set at £8 per ton for seven years. Thereafter, it was hoped the trade would have become more established and consequently require less encouragement: £6 was offered for the following seven years, and £4 for a final period of the same length.\textsuperscript{68}

To help ensure the success of the venture, the House of Representatives in Boston commissioned Edmund Quincy to compile \textit{A Treatise of Hemp-Husbandry} (1765),

\textsuperscript{66}Dr Alexander Garden to John Ellis, Charlestown, South Carolina, 6 May 1757 in \textit{A Selection of the Correspondence of Linnaeus, and Other Naturalists, Vol.1}, ed. Sir J.E. Smith (London, 1821), 402-3.
\textsuperscript{67}Sarson, \textit{British America}, 206; Frost, \textit{The Global Reach of Empire}, 31-42.
which provided detailed instructions on the correct methods for producing a merchantable raw material. Quincy argued that ‘the Blessing of Providence’ had gifted the colonists with fertile lands, yet they had depended on the generosity of the mother country for far too many years. On account of the continent’s timber and iron-ore, he thought it only natural that Britain should turn to North America for the supply of naval stores. The failure of the colonies to export any hemp – or even to supply their own shipping needs – was therefore ‘a matter of reproach’ that needed to be rectified as soon as possible.⁶⁹ These views were echoed by a landowner from Salem, who argued that the project demanded the immediate attention of everyone who had ‘the real interest of the province at heart’. To set an example to others, he planted ten acres of hemp, and hoped that every township in Massachusetts would commit to producing at least 100 acres per annum by the following spring. The hemp industry, he believed, might become more important to the colonial economy than the local fisheries.⁷⁰

The crop never became well established in the northern colonies, but cultivation expanded in the south. A decline in tobacco prices led the Virginian authorities to offer generous bounties for hemp, where more planters began to adopt the culture in order to supply the local rope-walks.⁷¹ South Carolina, according to Lord Sheffield, produced over five tons of hemp in 1765 which attracted the provincial bounty. On closer inspection, though, the product was deemed unsuitable for export to Britain, and was sent to the rope-walks of Philadelphia and Boston instead.⁷² Although the

Board of Trade sought to encourage colonial imports, as part of their mercantilist conception of empire, the Navy Board showed less enthusiasm from a practical perspective. They had always insisted that American hemp should be ‘water-rotted, bright and clean’, and the equal of the Russian product in every respect. In general, though, American hemp was a low-grade material on account of the relative inexperience of the producers.\(^73\) Experiments at Woolwich Rope Yard in 1766 – with hemp from South Carolina – further persuaded the Navy Board that the quality of the colonial product was too poor for naval purposes.\(^74\)

Nevertheless, following improvements in colonial production methods, relatively small quantities of the raw material started to cross the Atlantic. In 1770 Britain imported only four tons of American hemp, a paltry contribution compared to 18,000 tons from the Baltic, though exports of American masts and tar had also started slowly before entering a period of rapid expansion. To some observers, it only seemed a matter of time before the empire would achieve its long-term goal of naval independence from the Baltic. Five years later, the colonies exported 13 tons of hemp to Britain rising to 27 tons in 1776. In the same year, however, the supply of American naval stores was terminated by war.\(^75\)


\(^74\) Commissioners of the Navy, Woolwich Rope Yard, 2 July 1766. NA: BT 5/6, 303-5.

The Culture of Hemp

The decline of English hemp cultivation

In 1786 Sir Charles Middleton – the head of the Navy Board – expressed his apprehensions over the hemp supply in a letter to William Pitt. Six years earlier, Catherine II of Russia had formed the League of Armed Neutrality with the other Baltic states; this was perceived as an act of hostility in London and diplomatic relations had deteriorated ever since. During the American Revolutionary War, the Navy alone had required between 9 and 12 thousand tons of hemp per annum. As this supply was obtained exclusively from St Petersburg and Riga, it placed British sea power in the hands of seemingly capricious foreign merchants. Middleton wrote ‘It is for Hemp only that we are dependant on Russia’; belatedly, he thought it ‘materially necessary’ to promote the growth of the crop in England and Ireland.

Over the past twenty years, the British government had attempted to revive the culture of hemp in England and Ireland without any encouragement from the Navy Board. With the support of fellow agrarian patriots, in 1767 Joseph Gee successfully petitioned Parliament for the payment of bounties for the home-grown product. An act that year offered the farmer 3s. per stone for hemp and 4s. per stone for flax. The higher rate for flax reflected its greater commercial value, but the crop was already more established in England, and this policy would later prove short-sighted from the perspective of defence. In most districts, farmers possessed a customary preference for flax, and due to the increasing tendency towards crop specialisation, the decline of hemp cultivation proceeded at far greater pace. According to the bounty claims, the

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76 The League of Armed Neutrality prevented the British navy from intercepting neutral shipping carrying naval stores bound for the enemy. David Syrett, *The Royal Navy in European waters during the American Revolutionary War* (Columbia: University of South Carolina Press, 1998), 95-123.
domestic supply of the raw material halved between 1783 and 1785 (from 216 to 106 tons), while the flax supply more than doubled (from 344 to 819 tons).\textsuperscript{79}

Hemp remained a profitable item, however, and its decline to this point in time cannot be attributed to economic factors alone. In 1788 Sir Joseph Banks – the President of the Royal Society – examined the local hemp economy in his native county of Lincolnshire, where households still produced the crop on a small scale in order to minimise the labour costs. On the Isle of Axholme, hemp thrived on the common fields in rotation with wheat, barley and clover. After deducting expenses, Banks estimated that the total profit for the farmer on an acre of hemp was £10 3s. For wheat on the same field, the farmer only earned £2 19s. But at the start of the manuscript, Banks noted that he had made these calculations ‘before the present fluctuation of prices’.\textsuperscript{80} The poor grain harvests of the following two years resulted in an immediate increase in the price of bread; from then on, food prices continued to rise until the mid-nineteenth century.\textsuperscript{81} Contemporaries would witness major transformations to the rural economy at the end of the eighteenth century, when the culture of hemp would almost disappear from the English landscape.

The cost of imported hemp also became more volatile during this age of revolution. In 1786 Britain’s twenty-year commercial treaty with Russia expired, and the price of Riga hemp in London immediately rose from £27 to £41 per ton. At this point, Pitt delegated the issue to the recently reconstituted Board of Trade, composed of

\textsuperscript{79} Hemp and Flax, 1781-1786. BT 6/99. (160 stone equalled one imperial ton.) These figures do not represent total national production. Besides household manufacture, many farmers neglected to claim the bounty due to the complexity of remuneration. Evans, \textit{The East Anglian Linen Industry}, 118.

\textsuperscript{80} Banks, JBK/1/10: fo. 12.

\textsuperscript{81} John Gascoigne, \textit{Science in the Service of Empire: Joseph Banks, the British State, and the uses of science in the Age of Revolution} (Cambridge: Cambridge University Press, 1998), 81-91; Bayly, \textit{The Imperial Meridian}, 123.
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dignitaries from the Privy Council under the presidency of Lord Hawkesbury.\(^\text{82}\) Over the next twenty years, Hawkesbury would become extremely knowledgeable about the problem, but their lordships failed to grasp the potential gravity of the situation at first, as they listened to a range of unlikely schemes for the procurement of hemp.

In the Council Chambers at Whitehall, idle hopes dominated the discussions of the late 1780s. In relation to a home-grown supply, Abbé Brulles, a French clergyman from Amiens, was commissioned to describe an ingenious new production method. When the Navy Board tested a sample, though, this hemp was found too weak for the manufacture of strong cordage.\(^\text{83}\) Despite previous failures, moreover, Ireland and the remaining colonies in North America continued to be seen as the most likely sources of hemp. With a little more encouragement, their lordships assumed that local farmers would soon supply Britain’s needs.\(^\text{84}\) Unsurprisingly, this proved less straightforward than initially thought. But the most unlikely scheme of all involved the transplantation of a mysterious shrub from the Antipodes. In 1789 Hawkesbury was informed about the potential of ‘New Zealand hemp’ as a substitute for the Russian product. A letter was prepared for Governor Phillip of New South Wales to instruct him to send seed at the earliest opportunity.\(^\text{85}\)

In the coming years, the British search for hemp would become more global in scope and innovative in its approach. While the policies in Ireland and Canada displayed continuity with the mercantilist principles of the ‘old colonial system’, scientific

\(^{82}\) Board of Trade, 28 Nov, 1786. BT 5/4: 88; Frost, *The Global Reach of Empire*, 270.
\(^{84}\) Board of Trade, 28 Nov. 1786, 29 Nov. 1787. BT 5/4: 89-90, 394-5.
\(^{85}\) Brook Watson to Lord Hawkesbury, 8 Oct. 1789. BT 6/244: 259; Board of Trade, 13 Oct. 1789. BT 5/5: 382b.
research in the Asia-Pacific region represented a significant break with the past. In order to fulfil the objective of reducing naval dependence on Russia, British naturalists began to consider a range of entirely different species to serve as substitutes for hemp. In hindsight, the experiments with Asian textiles represented the greatest hope of success, yet the search for a naval substitute originated in Australasia.
Chapter 2: New Zealand Flax

The New Zealand hemp or flax plant (*Phormium tenax*) has played a controversial role in the historiography of Australia’s national foundations. The question of whether it provided a significant motive for the Botany Bay decision has been debated at length but never fully resolved. In my mind, however, the national framework for this argument has impeded an understanding of the plant’s broader meaning within the culture of natural history. Rather than focus on the decision making processes of the British administration, related to naval strategy and the use of convict labour, this chapter engages more deeply with the contemporary relations of plants, knowledge and power.\(^1\) In this way, I aim to situate this episode of Australian history within a more expansive scientific and imperial context related to the British search for hemp.

In March 1770, Joseph Banks became the first European naturalist to describe the plant the Maori used ‘instead of hemp and flax’.\(^2\) This was not the first occasion that English explorers had encountered regional alternatives to these textiles. In the early years of the Virginia colony, the strangers referred to native fibres as ‘wild hemp’ (*Acnida cannabina*) and ‘wild flax’ (*Linum virginianum*), though these plants were deemed inferior to the imported species and had little influence on colonial agriculture.\(^3\) In comparison to these North American plants, the Maori textile proved a far more significant agent of cross-cultural contact, yet this largely proceeded from

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1. For a thorough analysis of the ways that naval strategy and convict labour influenced British policy with regards to the Botany Bay decision, see the most recent volume on the topic by Alan Frost, *Botany Bay: The real story* (Melbourne: Black Inc., 2011).
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the timing of the European ‘discovery’ rather than any inherent superiority of the fibre itself. New Zealand flax never became an important item of world commerce, but the plant’s cultural history illustrates the shifting of attitudes in Europe towards the global exploitation of natural resources.

By the close of the eighteenth century, the ‘wild hemp’ of North America was being reassessed by British botanists and rope-makers. The plant was also referred to as ‘Indian hemp’ on occasion, and Native Americans as far north as Canada used its strong fibre to make bow-strings. Ultimately, the research was short lived and this plant never became important to Europeans either. Nevertheless, the revival of interest represented part of the global collection of useful knowledge that became more significant during this period. Linked to the improvement of British sea power, this specific branch of economic botany was first initiated in the South Pacific, and was later developed with greater success on the Indian subcontinent.

**Useful knowledge**

Over the course of the eighteenth century, the acquisition and dissemination of ‘useful knowledge’ became a central feature of the European Enlightenment. The term implied that knowledge of the natural world should have a utilitarian purpose, and contribute to national power by helping to improve the ‘useful arts’ of science and technology. Informed by such thinkers as the French physiocrats and German cameralists, this notion transcended national boundaries. In England and Scotland, though, the pursuit received greater institutional support, particularly from the Royal

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Society (founded in 1660) and the Society of Arts (founded in 1754), whose members aimed to implement the Baconian goal of applying knowledge of nature to ‘the relief of man’s estate’. Agrarian improvement represented the domestic origins of this project, while the voyages of exploration carried this faith in material progress to the farthest flung reaches of the globe.\(^5\)

On behalf of the Royal Society, Joseph Banks took part in the *Endeavour* voyage (1768-71) to promote ‘the advancement of useful knowledge’. As a patron of science, the youthful botanist funded his own passage on the voyage, together with a party of artists and servants, having been recommended to the Admiralty as a person of great merit, ‘a gentleman of large fortune, who is well versed in natural history’.\(^6\) Daniel Solander served as his chief assistant and travelling companion, a compatriot and student of the celebrated Swedish naturalist Carl Linnaeus, whose work had helped to popularise the practice of botany amongst European scholars. When John Ellis of the Royal Society informed Linnaeus of the inclusion of this party on the voyage, he was gratified to hear that ‘All this is owing to you and your writings.’\(^7\)

The life’s work of Linnaeus has often been invoked to describe the intellectual development of economic botany. His most enduring contribution to modern taxonomy remains the system of binomial nomenclature – an efficient sorting-method for the classification of species – but historians of science have also recognised his

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ideological influence in terms of the conceptual relationship between nature and the political economy. Inspired by the cameralists, Linnaeus believed that mercantile trade impoverished his nation through the export of bullion. As an alternative, he aimed to expand Sweden’s commerce through the acclimatisation of useful or profitable species sourced from throughout the world. In practice, many of these plants failed to adapt to the north European climate, though Banks and Solander saw no reason why this would apply to the remarkable shrub they encountered in the Antipodes.⁸

The New Zealand hemp or flax plant looked like an Agave and bore no outward resemblance to its European namesakes.⁹ Yet Banks marvelled at the versatility of the exotic fibre that provided the Maori with clothing, bedding, mats and baskets, in addition to lines, nets and every other type of cordage required by a seafaring people. The finest cloth rivalled silk in its texture, while the strongest rope seemed ‘so much superior to hemp as scarce to bear a comparison with it.’ The mode of preparation appeared straightforward, so Banks did not anticipate any difficulties for European manufacturers. Moreover, the plant grew in both light and boggy soils – whether on hills or in valleys – so he viewed it as an adaptable species that was suitable for transplantation. Having surmised that ‘So usefull a plant would doubt[tl]ess be a great

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⁹ In a letter to Linnaeus, Ellis later described the plant as a type of Aloe or Yucca. French botanists described it as an Agave in 1785, a more accurate comparison in my view. Ellis to Linnaeus, London, 14 Jan. 1772 in *A Selection of the Correspondence*, 277; Roger L. Williams, *French Botany in the Enlightenment: The Ill-Fated Voyages of La Perouse and His Rescuers* (London: Springer, 2003), 21.
acquisition to England’, he collected seeds and specimens of the fibre for further analysis at home.¹⁰

When the *Endeavour* returned, Banks was feted as a celebrity in London and posed for a portrait in a Maori cloak to display what appeared to be his most important find of all.¹¹ In a letter to the Comte de Lauraguais in France, Banks boasted that he had encountered a thousand plants on the voyage that had never been described before by any European. Of all these ‘natural curiosities’, the New Zealand hemp or flax plant, together with the dye plants of Tahiti, seemed the most likely to enter European commerce.¹² Having witnessed the samples, John Ellis shared this enthusiasm for the Maori textile and promised to send a specimen of the fibre to Linnaeus in Sweden. Unfortunately, though, the seeds that Banks collected had perished on the journey home.¹³

European curiosity about the plant soon led to further encounters with the inhabitants of New Zealand. According to anthropologist Anne Salmond, the Maori would have been unsurprised if they had known that flax was the first material thread that tied them to the interests of strangers. In its native land, the plant was known as *harakeke* and the fibre referred to as *muka*; the phrase *muka tangata* – or ‘human flax fibre’ – represented the ancestral connections between all people, while the weaving of a cloak symbolised the weaving of the world.¹⁴ In honour of the gift, Banks and

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¹¹ This portrait by Benjamin West is reproduced in Anne Salmond, *Between Worlds: Early Exchanges Between Maori and Europeans 1773-1815* (Honolulu: University of Hawai`i Press, 1997), 26.
¹³ Ellis to Linnaeus, London, 14 Jan. 1772 in *A Selection of the Correspondence*, 277.
¹⁴ Salmond, *Between Worlds*, 207.
Solander intended to classify the plant genus *Chlamydia*, a name that derived from the Greek and Latin terms for cloak. However, this word was later bestowed upon a sexually-transmitted infection, illustrating the often arbitrary nature of taxonomic naming practices.  

Banks and Solander expected to resume their investigations on the *Resolution* voyage (1772-75), but following a petulant argument with the Admiralty, Banks withdrew his party from the expedition due to his dissatisfaction with the fitting out of the ship. His scientific role was taken instead by the German researcher, Johann Forster, assisted by his seventeen-year-old son George. Out of seething frustration, Banks refused to give them access to the flax specimens from the previous voyage, so the Forsters started this research from scratch. The pair later typified the species *Phormium tenax* – a name that derived from ‘strong basket’ – but they are usually remembered for their anthropological insights rather than their contribution to the ‘pure’ science of taxonomy. Useful knowledge functioned as an ‘applied’ science in which objects were studied, wherever possible, in relation to their cultural uses.

Over the course of several visits to New Zealand, the Forsters closely observed how the blades of the flax plant were prised apart and then woven by Maori women, or beaten roughly and broken up for cordage. Like Banks and Solander before them, they perceived no difficulty in the art. Once established in Europe, Johann believed the plant would ‘soon become one of the most usefull materials for manufactories in

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17 Salmond, *Between Worlds*, 38-9; Schiebinger, *Plants and Empire*, 5-12.
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Linnen, Canvas, & rope’. 18 George confirmed that the plant ‘grows on all kinds of soil’ and noted that it ‘requires scarce any attention or care in the cultivation.’ The fibre was strong, soft and white, and he believed that no other plant ‘promises to become so useful to Europe by transplantation’. 19 However, they also recognised that the fragile seeds they collected were unlikely to survive the voyage home, which proved to be the case. 20

Although the original intention involved the transplantation of the shrub in England, another possibility emerged when Lieutenant James Cook – the commander of the Resolution – surveyed Norfolk Island in 1774 on behalf of the British crown. This remote outcrop of land, situated between New Zealand and New Holland, contained fresh running water, an edible green in the form of the cabbage palm, and access to plenty of fish. In extending the lines of navigation to the South Pacific, moreover, the mariner recognised the strategic value of locating a source of naval stores in the region. Norfolk Island possessed thick stands of ‘a sort of spruce-pine’, which were tall and straight and appeared as suitable for masts as the much-admired New Zealand timber. Furthermore, the hemp or flax plant grew abundantly on the island, but was ‘rather more luxuriant’ in its growth. While the natural resources of New Zealand were protected by the unpredictable and sometimes hostile Maori, Norfolk Island remained uninhabited. Cook therefore viewed the site as a potentially useful resource for the refreshment and repairs of those who might follow in his wake. 21

20 Salmond, Between Worlds, 154.
At this exploratory stage, however, no-one could really be certain whether the fibre would prove valuable to Europeans or not. During the 1770s, English manufacturers worked up a few samples of the raw material, but the lack of seed prevented any further experiments. Under the circumstances, there was no way to properly test the plant’s potential without a more permanent settlement in the region, a possibility that must have seemed exceedingly remote. Yet only fourteen years elapsed before Europeans set foot on Norfolk Island again. By this time, research into the nature of this plant represented part of an extensive social experiment.

The South Sea proposals

In the years leading up to the Botany Bay decision of 1786, the British administration received several proposals from individuals who wished to establish a commercial settlement in the South Seas. These proposals may be seen as part of an enduring tradition in imperial history for they shared much in common with the Elizabethan vision of North American plantations: for example, the production of naval stores as an alternative to Baltic trade, the transportation of convicts to provide the requisite labour, and the idea that all sorts of valuable commodities would eventually be raised there to help ensure that England’s wealth circulated amongst its own subjects. Two hundred years later, imperial schemers continued to envision such outcomes.

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After the American Declaration of Independence, however, there was a great deal of ambivalence in London towards this traditional conception of empire. In the *Wealth of Nations* (1776), the classical economist Adam Smith argued that the notion had ‘existed in imagination only. It has hitherto been, not an empire, but the project of an empire; not a gold mine, but the project of a gold mine’.\(^2^4\) In drawing this analogy, he supported the earlier observation of Whig politician Edmund Burke who asserted: ‘The settlement of our colonies was never pursued upon any regular plan; but they were formed, grew, and flourished, as accidents, the nature of the climate, or the dispositions of private men happened to operate’.\(^2^5\) Following the rebellion, representatives of the British state began to form a new vision for the imperial project that featured a greater level of centralised planning and, hopefully, control over the process. Rather than entrusting the development of New South Wales to private interests, the British occupation of Australia began as a state-sponsored experiment.\(^2^6\)

Before the first fleet set sail for New South Wales, the production of naval stores, particularly the exploitation of New Zealand flax, became the most persistent theme in the proposals that outlined the region’s promise. Nevertheless, in the traditional view of Australia’s national origins, these documents had no bearing upon Britain’s decision to rid the nation of its surplus convicts. Historians including David Mackay and Mollie Gillen have argued that we should pay no heed to these proposals as the petitioners were motivated by self-interest, and possessed unrealistic dreams of a commercial utopia in the South Seas. According to this viewpoint, these documents


cannot be taken as an indication of any official motives because the proposals were rejected by a pragmatic government. 27

On the other hand, Geoffrey Blainey and Alan Frost believe these proposals do provide admissible evidence in the argument surrounding Australia’s national origins. 28 From their perspective, the orthodox penal explanation fails to tell the whole story, and the ideas expressed in these documents help to explain why Botany Bay was selected as a penal colony over a range of other potential sites. The supply of naval stores certainly represents the most obvious link between the private proposals and the government’s plan, which according to Blainey and Frost, provides incontrovertible evidence that the nearby presence of these resources was the key factor in the selection of Botany Bay. Yet their critics have claimed that even the official references to naval stores represent a vague ‘hope for an indefinite future’ rather than evidence of a deliberate policy. 29

It is not my intention to revisit this circular argument in any great detail. Frost has examined this episode more fully than any other historian, and his research has been invaluable to my understanding of the Botany Bay decision, but my interpretation differs in the sense that government motives play a subsidiary role in my sphere of inquiry. This makes it unnecessary to take sides in this adversarial debate, where

convicts and naval stores are often presented as rival explanations for the founding of New South Wales. Instead, I negotiate the middle-ground that Blainey once alluded to when he suggested that the different positions actually complement rather than contradict one another. One side explains why the British government sought a place for a convict settlement, while the other explores why New South Wales was selected instead of a different site.\(^{30}\)

In my overarching approach to this episode, I share the more general view expressed by Richard Waterhouse who believes the penal colony was intended to serve a dual purpose. Ostensibly, New South Wales was founded as a prison, yet a broader interpretation of cultural history reveals that in the long term the site was still expected to develop as a ‘plantation’ or staple-producing colony.\(^{31}\) I therefore continue to focus upon the pursuit of useful knowledge, in order to illustrate contemporary attitudes towards the natural world across a broader spectrum of society than Pitt and his ministers. The remainder of this chapter explores why New Zealand flax became the first potential staple to be associated with New South Wales, and how the plant became woven into the government’s penal experiment.

In England, the production of hemp and flax had long been associated with the public maintenance of the unemployed. The Elizabethan Poor Law of 1601 specified that parish authorities should keep a stock of these raw materials on hand, in order to enable the manufacture of coarse cloth by the indigent in exchange for bread.\(^{32}\) But a more ambitious plan arose in Virginia, after English felons started to be sold as

\(^{31}\) Richard Waterhouse, ‘Cultural transmissions’ in *Cultural History in Australia*, eds Hsu-Ming Teo and Richard White (Sydney: UNSW Press, 2003), 118.
\(^{32}\) Sara Birtles, ‘Common Land, Poor Relief and Enclosure: The use of manorial resources in fulfilling parish obligations 1601-1834’, *Past and Present*, 165 (1999), 78.
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labourers in the settlement. In 1663 a group of tobacco planters proposed the establishment of a separate county named ‘Hempshire’, where convicts would be solely devoted to the cultivation and manufacture of hemp and flax. A local clergyman, the Reverend Hugh Jones, revived this ‘very advantageous’ idea in 1724, though it never came to pass.33

By the early 1770s, about eight or nine hundred convicts were sold in Virginia and Maryland every year. As these were speculative cargoes run by private contractors, it was a cost-effective system for the British government, and this public-private partnership was considered highly satisfactory by both parties. From 1775, however, the plantations refused to co-operate. The government still hoped that transportation would resume once ‘tranquility’ had been restored to the region. In the meantime, those sentenced to transportation were imprisoned on hulks moored in the Thames.34

In 1779 the House of Commons convened a Select Committee to investigate how this labour might be used to support the commonwealth. It was suggested, for example, that the naval rope-walks could employ ‘any Number of Convicts likely to be a Burthen to Government’, while another proposal involved the production of canvas and sacking for the army.35 The association of these tasks with burdensome citizens was taken for granted, but the fiscal-military state had now started to consider a more centralised approach to the use of surplus labour.

At this stage, the agenda mostly involved issues of domestic confinement, but the discussion also turned to the possible resumption of transportation. The Committee sought ‘a distant part of the Globe’ to discourage thoughts of escape; to save expense, the site required sufficiently fertile soil to enable the convicts to subsist ‘with little or no Aid from the Mother Country’ after the first year. Nevertheless, the ideal solution was still expected to prove ‘advantageous both to Navigation and Commerce.’ The Committee listened to a variety of suggestions including Florida, Gibraltar, a site on the River Gambia and Senegal. More significantly, in light of the eventual outcome, they first heard about the potential suitability of Botany Bay.36

According to the testimony of Joseph Banks, Botany Bay was ideally suited for the project in every respect. There was enough fertile soil to support a large colony, escape would be difficult, and he did not anticipate much resistance from the local inhabitants. Moreover, convict labour could be used to lay the groundwork for a more respectable settlement that would provide a new market for British goods and allow further reconnaissance of the expanses of New Holland. Without doubt, he argued, such a vast region ‘would furnish Matter of advantageous Return’. Under the present circumstances, however, the government was not seeking a colony of the traditional kind, while the hulks were yet to become dangerously overcrowded. There was no great urgency to act on such a radical proposal and the idea was shelved.37

Having planted the seed, Banks largely distanced himself from the machinations of an unstable parliament, though he continued to promote the idea through the efforts of

36 House of Commons, 1 Apr. 1779, 311-14; Frost, Convicts and Empire, 7-8; Atkinson, The Europeans in Australia, 49-50.
37 House of Commons, 1 Apr. 1779, 311; Gillen, ‘The Botany Bay decision’, 743-4. For the numbers confined on the hulks, see Frost, Botany Bay, 63-76.
others. After his South Sea adventure, Banks steadily rose to a position of influence in London society. In 1772 George III invited the naturalist to redesign the Royal Botanic Gardens at Kew, two years later he was elected to the Society of the Dilletanti, and he was titled as a baronet in 1781. Yet Banks wielded his greatest influence as the President of the Royal Society, a post he held from 1778 until his death in 1820. As the British state lacked an official scientific department during this period, he became recognised as the government’s chief adviser on matters surrounding the collection and application of useful knowledge.\(^{38}\)

In the aftermath of the American Revolutionary War, Banks played an increasingly central role in Britain’s global search for hemp, while he also displayed a personal affection for New South Wales, which he later described as his ‘favorite Colony’.\(^{39}\) In the early part of his career, these interests coalesced in the form of the New Zealand flax plant. Its thread represented a means to bind the region into the imperial web of commerce, and allow the possibility of further useful discoveries for the improvement of British agriculture and industry. The establishment of a penal colony at Botany Bay represented one way to advance these inquiries, though the social composition of the settlement was irrelevant to the scientist in the larger scheme of things.

In the years leading up to the decision, the South Sea proposals would become more specific in their aims and objectives, having been designed to address the changing needs and objections of government. Convicts were sometimes included in these plans as a source of labour, but strategic and commercial considerations were far


\(^{39}\) Cited in Gascoigne, *Science in the Service of Empire*, 188.
more apparent, especially with regards to the acquisition of naval stores. Mackay argues that the ‘fickle’ nature of these proposals ‘has given a misleading commercial tinge’ to the Botany Bay debate. Besides the government officials, he believes that Banks is the only individual worth taking seriously in this context. This position is somewhat contradictory, however, as Mackay also notes the personal connection between Banks and the petitioners, as well as the similarities between the various plans. Throughout these documents, the naturalist’s influence is clearly apparent.  

James Mario Matra had served as a midshipman on the *Endeavour*, where he first developed an interest in natural history. In July 1783, he wrote to his former shipmate to explain that rumours were circulating about two separate schemes being plotted for New South Wales: one under the direction of Banks himself, while the other was being devised by the naval officer, Sir George Young. Promising his discretion, Matra requested further information from Banks, and wondered whether he could assist the project in any way. The American loyalist was presently living as an exile in England, and hoped to secure gainful employment from a wealthy patron. Although their subsequent discussions are not on public record, one month later Matra submitted the first of his schemes for the colonisation of New South Wales.  

In most respects, Matra’s plan was simply a more detailed exposition of Banks’s testimony to the Transportation Committee, except there was no mention of convicts. Instead, Matra proposed a settlement for American loyalists who had been displaced by the war and deserved some form of recognition for their sacrifice. Having experienced the rare privilege of spending eight days at Botany Bay, he presented

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himself as an authority on the region’s potential. Matra claimed the fertile soil and
enviable climate were suitable for the cultivation of a wide range of valuable
commodities, including spices, sugar, tea, coffee, silk, cotton, indigo and tobacco.
Moreover, the establishment of a naval port would support the expansion of trade
with China, while providing a base to attack the Dutch East Indies or interrupt
Spanish trade in the Philippines in the event of war.\textsuperscript{42}

Yet the most enticing lure was the nearby presence of ‘the New Zeeland Hemp, or
Flax Plant, an object equally of Curiosity & Utility.’ According to Matra, it could
serve all the purposes of hemp, flax and silk, and would be easier to manufacture than
any other textile, but he saw its primary value as a naval raw material. Apparently, a
cable with a ten-inch circumference ‘would be equal in strength to one of eighteen
Inches made of European Hemp’, while New Zealand sailcloth ‘would be superior in
strength & beauty, to any Canvas of our own Country.’ Considering that English
manufacturers had only worked up a few samples of the textile, these claims were
almost certainly exaggerated. In particular, it seems unlikely that such a thick cable
could have been made to any length due to the limited availability of the raw material.
Nevertheless, Sir George Young had tested some samples of cordage and canvas on
his cutter, and Matra may well have been privy to the promising results. Furthermore,
he had a credible witness to call upon, citing the support of Banks who ‘highly
approves of the Settlement, & is very ready to give his opinion’.\textsuperscript{43}

\textsuperscript{42} James Mario Matra, ‘A Proposal for Establishing a Settlement in New South Wales’, 23 Aug. 1783
\textsuperscript{43} Matra, ‘A proposal’, op.cit. Young’s tests are mentioned in the correspondence of Thomas Rowcroft,
In its current form, however, Matra’s plan did not appeal to the government. After recent events, it seemed unwise to lay the foundations of another America in the South Seas. Meanwhile, the penal issue had become more pressing after the war concluded, which presented a more appropriate angle after all. In 1784 the Home Minister Lord Sydney prompted Matra to include convicts in his scheme. He duly submitted a supplement to the proposal in April, agreeing with Sydney that it was a wise and liberal policy. The following year, in his testimony to the Transportation Committee, Matra expressed his willingness to govern the colony whether it was composed of convicts, loyalists or a combination of both parties.

The opportunity to rise in station represented the primary motive that led to Matra’s involvement in the project. Although his pitch failed to win him a post in New South Wales, his efforts were rewarded when Banks secured him the consulship of Tangier in 1786. Over the next twenty years, Matra returned the favour by supplying his observations of North African culture, together with specimens of the region’s plant life. In one form or another, though, the idea of a South Sea settlement remained on the British agenda, chiefly through the advocacy of brothers-in-law Sir George Young and John Call. Both of these individuals shared the scholarly interest in natural history that was popular amongst the elite, and both had been admitted to the Royal Society on account of their contributions to useful knowledge. Like Matra, under the

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45 Matra, Testimony to the House of Commons Committee on Transportation, 1785 in Frost, The Precarious Life, 118-22.
encouragement of Banks, they used these interests as a veil for their personal ambitions.\textsuperscript{47}

Call had formerly served as the East India Company’s chief military engineer at Madras. In September 1784, he wrote to Lord Sydney in support of the general notion of a strategic base in the South Pacific, but whether New South Wales or New Zealand was selected for the purpose was neither here nor there. Either way, Call emphasised the importance of establishing satellite settlements on Norfolk Island and New Caledonia for the supply of naval stores. If Britain aimed to expand its trade in the Asia-Pacific region – for example, through the acquisition of furs from the northwest coast of America – then a regional source of masts, cordage and canvas would relieve pressure on the European supply.\textsuperscript{48} At the end of the year, though, Admiral Lord Howe informed the Home Minister that the region was far too remote from the established trade routes to offer any real prospect of this supposed advantage.\textsuperscript{49}

In spite of these objections, the idea continued to gain impetus. In January 1785, Sydney had another proposal to consider when Young submitted his plan, which was similar to Matra’s effort and probably the result of collusion between the pair.\textsuperscript{50} Young focused on Botany Bay as a starting point for the project, initially composed of both loyalists and convicts, while he sought to allay any fears that the project might lead to the depopulation of the British Isles. In the long term, he envisioned the

\textsuperscript{47} Alan Frost, \textit{Dreams of a Pacific Empire: Sir George Young’s proposal for a colonization of New South Wales (1784-5)} (Sydney: Resolution Press, 1980), 20-6; cf. Mackay, \textit{A Place of Exile}, 30-4.
\textsuperscript{48} Frost, \textit{Botany Bay}, 100-1; Frost, \textit{Convicts and Empire}, 19-25. Frost also attributes the following document to Call: An Anonymous Proposal for the Settlement of New South Wales (c. 1783-6), HRNSW 2: 359-67.
\textsuperscript{49} Howe to Sydney, Admiralty, 26 Dec. 1784, HRNSW 1 (2): 10.
\textsuperscript{50} In Young’s 1793 proposal for a British settlement at Madagascar, he described his and Matra’s earlier plans for New South Wales as basically one and the same. Young to Davidson, Formosa, 3 Feb. 1793, HRNSW 2: 10; Mackay, \textit{A Place of Exile}, 30.
settlement would mostly be populated by immigrants from China and the Friendly Isles (Tonga).\footnote{Matra had made a similar suggestion when he cited Banks’s observation that the Dutch recruited Chinese inhabitants to populate their eastern settlements. Moreover, Matra had specified that women could be procured ‘in any Number’ from the Pacific Islands, with the dubious claim that they preferred intimate relations with European men. Matra’s proposal and supplement, op.cit.}

Young asserted that a small number of free Englishmen, trained in the ‘useful arts’, would be necessary to the colony at first. Through a combination of their expertise and the use of convict labour, the ‘remarkable plant’ that grew in the region would make a vital contribution to British sea power. The versatile fibre could supply ‘any quantity’ of cordage and canvas to meet the nation’s demands. By cultivating the species in New South Wales, moreover, this hemp or flax ‘may be obtained at a much cheaper rate than those materials we at present get from Russia, who may perhaps at some future period think it her interest to prohibit our trade for such articles’.\footnote{Mackay, A Place of Exile, 61-2.} This must have seemed a persuasive argument in the aftermath of the Baltic Armed Neutrality. As Mackay points out, however, the potential freight costs from the South Pacific meant the price of the raw material would have been excessive in London.\footnote{Sir George Young’s Plan, op.cit.}

Following the rejection of his plan, Young addressed this issue more specifically in his next proposal.

Bypassing the government, Young and Call joined forces to petition the Court of Directors of the East India Company in June 1785. The Company’s trade monopoly to the east of the Cape of Good Hope gave them jurisdiction over the establishment of a commercial settlement in the region. Young and Call requested the Company’s permission to establish a private enterprise solely on Norfolk Island, in order to
provide ‘Cordage and Masts for Your Shipping in India.’ They pointed out that these articles ‘are now obtain’d at a most enormous Expence; and from their Scarcity have often reduced the maritime Force employed in the East Indies, to great Inconvenience and even Distress.’\(^{54}\) On this occasion, the personal motives of Young and Call became more apparent, as they obviously viewed the settlement of Norfolk Island as a profitable venture. As Frost has argued, though, this proposal was well-thought out from a strategic perspective. As the ports of Calcutta, Madras and Bombay were supplied with naval stores from Europe, it seemed logical to secure an independent source in the eastern hemisphere.\(^{55}\)

The Court of Directors then sought the opinion of Alexander Dalrymple, the notable hydrographer and Fellow of the Royal Society, who dismissed the idea that such a small island could furnish the East India fleet. Besides, he noted, the freight would still remain costly due to the distance from India, while the Asian continent offered its own alternatives to European timber, hemp and flax that were far more accessible to the Company’s dockyards. Dalrymple affirmed that the ‘introduction of New Zealand Hemp into Britain is an object of great National Importance’, but he was a trenchant critic of plans for a more permanent settlement in the region.\(^{56}\) Dalrymple sought to protect the Company’s monopoly – in which he had a pecuniary interest – and disparaged all of these proposals as a possible front for illicit trade. Later, he warned

\(^{54}\) Young and Call to the Court of Directors of the East India Company, 21 Jun. 1785 cited in Frost Convicts and Empire, 46.

\(^{55}\) Frost, Botany Bay Mirages, 62-9.

\(^{56}\) Cited in Mackay, A Place of Exile, 33.
that the ‘thief-colony’ at Botany Bay would lead to piracy in the South Seas and inevitably result in another War of Independence.\textsuperscript{57}

The Transportation Committee shared this view as late as July 1785. They reached the conclusion that sending convicts to such an isolated site ‘can answer no good or rational Purpose; that such an Experiment has never been made in the History of Mankind’. The founding of a new society with the ‘Outcasts’ of an old one would undoubtedly lead to ‘Confusion and Bloodshed’ in the short term, and might well endanger the future of British trade in the region. Das Voltas Bay – in south-west Africa – appeared a more promising solution. While the Dutch controlled the Cape as a port of refreshment, and the Portuguese held Angola, the British desired a port of their own on the route to the East Indies.\textsuperscript{58} A year later, however, a reconnaissance party reported that the intended site was virtually uninhabitable.\textsuperscript{59}

At this point, the decision was finally taken to locate a penal colony at Botany Bay. As Banks and Matra had personally witnessed the site, their testimonies precluded the necessity of further reconnaissance, a most convenient outcome for the government.

Does this then qualify as an \textit{ad hoc} decision with little consideration for any other outcome besides the disposal of social waste?\textsuperscript{60} After all, the grandiose claims for the region’s future potential were based on a remarkable paucity of evidence. On the other hand, does the decision represent part of a `swing to the east’ in British imperial...


\textsuperscript{58} House of Commons, Sixteenth Parliament: second session, 28 Jul. 1785, 1160-5.

\textsuperscript{59} Frost, \textit{Botany Bay}, 111-30; Mackay, \textit{A Place of Exile}, 52-5.

\textsuperscript{60} This argument was made most forcefully by Robert Hughes, \textit{The Fatal Shore: A history of the transportation of convicts to Australia 1787-1868} (London: Pan, 1988).
policy in the wake of the nation’s Atlantic losses?[^61^] The truth, as I see it, lies somewhere in between these adversarial positions.

In August 1786, Lord Sydney sent a letter to the Treasury, together with a document entitled ‘Heads of a Plan’, which laid out the rationale and practical steps to be taken in the execution of the Botany Bay scheme. Measures were taken to protect the Company’s charter and guard against piracy, yet by comparison to the penal motive there was little reference to any strategic or commercial aspirations. Nevertheless, in the final paragraphs of the document, Sydney reproduced a passage from Matra’s plan to assert ‘that considerable advantage will arise from the cultivation of the New Zealand hemp or flax-plant in the new intended settlement, the supply of which would be of great consequence to us as a naval power’. In addition, the document specified that the region’s timber might be used to supply the British fleets in India, in line with Young and Call’s proposal.[^62^]

Governor Arthur Phillip learned more about this task when he received his instructions in April 1787. After landing at Botany Bay, Phillip was instructed to establish a small settlement on Norfolk Island, as soon as possible, in order ‘to prevent it being occupied by the subjects of any other European power’. At first, the flax plant would provide clothing for the convicts, but it was hoped that it might prove useful ‘for a variety of maritime purposes’ and ‘ultimately become an article of export’. Whenever the opportunity arose, Phillip was ordered to send samples of the

[^61^] In the 1950s, imperial historian V.T. Harlow introduced the notion of ‘a swing to the east’ in British policy following the American Revolutionary War. This theory has since been discussed in the Australian context by Michael Roe, ‘Australia’s place in ‘the swing to the East’ 1788-1810’ in *The Founding of Australia*, 57-61.

fibre for further analysis in London. If these appeared satisfactory for naval uses, then he was told to expect further instructions on the subject.\(^{63}\)

On the basis of this evidence, Blainey has argued that Norfolk Island was supposed to serve as a ‘plant nursery’ for a ‘market garden and flax farm’ on mainland New South Wales. Frost also believes that this was the case.\(^{64}\) In my view, however, this statement requires moderation. Rather than seeing the Norfolk Island project as a definitive instance of government policy, I believe it does represent more of an optimistic hope for an uncertain future. When so little was known about this exotic plant, it stretches the bounds of credulity to suggest the Pitt administration established the distant penal colony for the primary purpose of producing the raw material.

Indeed, in 1785 Lord Sydney described the commercial proposals for Norfolk Island as ‘ridiculous’. Alan Atkinson, another critic of the naval stores theory, argues that Sydney thought he was doing English merchants a favour by including flax in the plan. According to Atkinson, the minister believed the colony’s efforts would soon prove that such ‘lucrative’ ideas were completely unrealistic.\(^{65}\)

Taken at face value, Governor Phillip’s instructions suggest a tentative experiment rather than any certainty regarding the supply of naval stores. However, this should not diminish the relevance of the project for historians. In practice, the collection of useful knowledge often proved less profitable than its eighteenth-century proponents hoped, but through a process of elimination important groundwork was being laid for future advances in science and technology. Economic historian Joel Mokyr associates

\(^{63}\) Governor Phillip’s Instructions, 25 Apr. 1785, HRNSW 1 (2): 89.


this process with what he terms ‘the British Industrial Enlightenment’, and argues that it provided a significant causal factor in the nation’s exceptional material progress of the following century.\textsuperscript{66} The course of human history is littered with examples of ideas that never came to pass, but still contributed to overarching changes in substantial yet subtle ways. Ultimately, the rudimentary experiments on Norfolk Island would fall into this category. Although the native flax plant never solved Britain’s hemp problem, its existence opened the minds of contemporary researchers to a host of other potential solutions. Meanwhile, naturalists from other European nations had also fallen under the spell of this mysterious plant.

**The French interest**

Within a week of landing in New South Wales, an extraordinary incident reminded Governor Phillip of his instructions regarding the occupation of Norfolk Island. At dawn, on 24 January 1788, the British officers were startled to witness the appearance of ‘two strange Ships’ standing at the entrance to Botany Bay. From the colour of their flags it soon became apparent that these vessels were French, and Phillip recalled that a scientific expedition, under the command of the Comte de La Pérouse, had departed from Europe in June 1785. The Governor was curious about their intentions, but strong winds made the entry too hazardous and the officers lost sight of the ships by the afternoon.\textsuperscript{67}

Louis XVI had read avidly about Cook’s voyages of exploration, and with the idea that his own subjects should contribute to this storehouse of useful knowledge, the

\textsuperscript{66} Mokyr, *The Enlightened Economy*, 40-1.

monarch had sponsored La Pérouse to undertake a voyage on a similar model. The botanists on the expedition were instructed to search for new types of food, medicine or anything ‘relating to the arts’. In particular, they were told to seek out the New Zealand flax: their instructions specified that ‘Transporting the roots of that plant could provide one of the handsomest presents that voyagers could make for our climate.’ It was known that the British had already collected a large quantity of seeds – ‘none of which came up’ – so the French intended to try a different method of transplantation at the Jardin du Roi.

La Pérouse and his party never landed in New Zealand. On 13 January 1788, though, they came tantalisingly close to gathering the flax roots when they skirted the cliff-bound coast of Norfolk Island. This was only the second time that Europeans had sighted the island, and the botanists expressed their eagerness to get ashore and commence their work. But the island lacked an obvious harbour and La Pérouse judged the surf was too rough for a safe beach-landing on the longboats. Following Cook’s charts, the French ships had then sailed the thousand miles to Botany Bay.

When the Boussole and the Astrolabe finally anchored in Botany Bay, on 26 January, Governor Phillip had already rejected the site as a suitable place for the settlement, and the last of the British vessels was heading for Port Jackson. La Pérouse took the opportunity to speak with Captain John Hunter, of the flagship HMS Sirius, to ask whether a British officer could collect his journals and send them by the next conveyance to the French ambassador in London. This would ensure a speedier return of the materials since La Pérouse did not expect to arrive in Paris for another fifteen

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68 Williams, French Botany, 15-7.
69 Instructions for La Perouse (c. May 1785) cited in Williams, French Botany, 21.
70 Williams, French Botany, 90.
months. Phillip was too preoccupied to attend this meeting in person, but sent his trusted lieutenants, Philip Gidley King and William Dawes, to welcome the French to what was now formally recognised by the European voyagers as a British territorial possession.\(^\text{71}\)

On 1 February, the British officers sailed in a cutter to Botany Bay and stayed with the French visitors overnight. King recorded in his journal that he was received ‘with the greatest attention & politeness’; to La Pérouse it seemed evident that ‘all Europeans are compatriots at this distance from home’.\(^\text{72}\) On the whole, the almost simultaneous arrival of the French and British voyagers appears to have been a remarkable coincidence. Roger Williams, an historian of science and the French Enlightenment, asserts that this coincidence was purely innocent; he emphasises the peacetime cooperation between the nations in scientific matters.\(^\text{73}\) On the other hand, Frost argues the French also possessed territorial ambitions for the acquisition of timber and flax; he suspects that La Pérouse was spying upon British activities in the region.\(^\text{74}\)

Ostensibly, the French intended to collect water, firewood and repair a damaged longboat before recommencing their voyage. But whatever the true motives of La Pérouse, he happened to mention his attempted landing on Norfolk Island, which certainly raised the suspicions of Governor Phillip. At Sydney Cove, the British had already invoked their claim of ‘prior discovery’ with the ‘tacit consent’ of other

\(^\text{71}\) Phillip to Sydney, 15 May 1788, HRA 1 (1): 18-9; King’s journal, 26 Jan. to 2 Feb. 1788, 136-51.
\(^\text{72}\) King’s journal, 1 Feb. 1788, 143; La Pérouse cited in Williams, *French Botany*, 90.
\(^\text{73}\) Williams, *French Botany*, 3.
European states. Nevertheless, according to this nascent understanding of international law, the land had to be settled, cultivated and made productive by the European invaders for this claim to apply. In order to avoid any potential complications with the French, Phillip took immediate steps to secure the island for the British crown.

As events turned out, the French search for flax ended in disappointment. After the departure of the ships on 10 March 1788, they were never seen by Europeans again. Three years later, an expedition left France – commanded by Bruni d'Entrecasteaux – who attempted to retrace the steps of his predecessor and complete the mission. He concluded the voyagers must have been shipwrecked, but then failed to collect the flax. On the New Zealand coast in 1793, the botanist Jacques Labillardière reminded his commander of the instructions to gather the roots. But though d'Entrecasteaux was aware of the plant’s legendary status, he was unwilling to land due to the fearsome reputation of the Maori. Twenty years earlier, Captain Marion-Dufrense and sixteen French crewmen had been murdered in New Zealand. The flax plant therefore continued to exert a powerful pull on the European imagination. By this time, however, the task of weaving the textile into world commerce had become an exclusively British project.

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77 Williams, *French Botany*, 177; Salmond, *Between Worlds*, 20-1.
Chapter 3: The Norfolk Island Experiment

In some ways, it is surprising that the historians who examined the Botany Bay decision with such fine attention to detail paid less attention to the subsequent events on Norfolk Island. Beyond noting the failure of the naval stores project, they had little to say on the topic.\(^1\) Then again, this was not at issue with regards to the initial decision and the way the debate unfolded, as a question of the original British policy, it seemed to lie outside their remit. This chapter examines the colonial experiments with Norfolk Island flax, during the first decade of the British occupation of New South Wales, but I do not intend to argue that the search for naval stores represented the colony’s central purpose. Instead, I situate these efforts within a host of other possibilities that emerged when the new inhabitants attempted to impose their sense of place within an alien landscape. In my view, the founding of New South Wales was an experiment, in which empirical observation provided the means to either confirm or eliminate the imagined benefits of a British outpost in Australasia.

In hindsight, it seems highly unlikely that the rudimentary experiments on Norfolk Island would ever lead to a reduction in British trade with Russia. Yet certain contemporaries sincerely believed in the possibility before the practical difficulties overwhelmed the vision. In common with Joel Mokyr, I believe the pursuit of useful knowledge should be considered on its own historical terms, and the efforts of its

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protagonists should not be judged according to the standards of modern science.\textsuperscript{2} Above all, then, this chapter explores the European imagination of the late eighteenth century, the first British attempts to shape the commercial future of Australasia, and the adaptation of these strangers to their new life in the Antipodes.

Alan Atkinson affirms that New South Wales was founded upon ‘a deep basis of imagination’, but sees this notion as essentially grounded in the past.\textsuperscript{3} His comparison to the early history of Virginia suggests the penal colony represented an anomalous example of the ‘first’ British empire rather than a harbinger of the ‘second’. However, he applies nuance to the traditional theory that the colony was intended as a ‘dumping ground’. According to his argument, Governor Phillip’s expedition was based upon humanitarian principles, and it was hoped the convicts would redeem themselves through the establishment of a colonial peasant economy. Their labour was not expected to serve any ‘great imperial purpose’; indeed, there was no guarantee that even a second fleet of convicts would arrive.\textsuperscript{4} Yet others may argue that Atkinson has underestimated the more visionary aspects that underpinned the mission.

Angus McGillivery, an Australian agricultural historian, is one such critic. From its inception, he argues, New South Wales was designed to serve as a strategic port of refreshment on the Pacific Rim, supplying water, firewood and fresh food to passing ships, in addition to naval stores for maintenance and repairs. Influenced by the theories of Alan Frost, McGillivery asserts that the convicts represented ‘the means, not the motive of colonization.’ Accordingly, the early development of the penal

\textsuperscript{4} Atkinson, \textit{The Europeans in Australia}, xv-58.
colony shows the capacity of the Pitt administration for long-term imperial planning.\textsuperscript{5} In my opinion, McGillivery rightly emphasises the relationship between agricultural and maritime history during this period, though his position seems too dependent on what later occurred.

This chapter seeks to avoid such a teleological analysis of British policy, in order to examine the more contingent aspects of the Australian project, and show how the European imagination was embedded on the shifting sands of an unexplored landscape, rather than the solid rock of past experience. Over the course of the European Enlightenment, as John Gascoigne argues, a profound belief in the liberatory potential of science emerged, even if such theories often proved difficult to manifest in policy and practice.\textsuperscript{6} The Norfolk Island experiment illustrates the pushing of boundaries at the limits of the possible, and the increasing faith in human ingenuity that later paid dividends for the British state.

**The voyage of Lieutenant King to Norfolk Island**

On 6 February 1788, Philip Gidley King – Second Lieutenant of the *Sirius* – received his instructions as ‘the Superintendant & Commandant of Norfolk Island’. The Governor described him as ‘a very steady, good officer’ with the qualities of ‘patience and perseverance’ that would be necessary for this task.\textsuperscript{7} King’s detachment consisted of twenty-three people, including a ship’s mate, a surgeon, two marines,


\textsuperscript{7} Phillip to Sydney, 10 Jul. 1788, HRNSW 1 (2): 179; King’s instructions, HRA 1 (1): 33-4.
and a sawyer and weaver from amongst the sailors, in addition to nine male and six female convicts. One of these labourers was a seventy-two year old man, while another was a fifteen-year old boy, and though two of the convicts claimed to be skilled in the art of rope-making, King expected that his ‘progress for some time will be very slow’. This was not the most promising selection for what seemed such an important mission, but the numbers were sufficient to manifest Britain’s claim to the territory, and to conduct a preliminary investigation to see whether the island’s occupation was worthwhile.

HMS Supply departed from Port Jackson on 14 February, and through gales and heavy seas, a fortnight passed before the island came into view. It then took another five days to negotiate the reefs and find a safe place to land the settlers, their equipment and provisions. When the ship finally left on 8 March, the party pitched their tents near the beach, made a small clearing for a garden, and started sawing timber to build more permanent habitations. As soon as he could, King attempted to explore the island, but found its vegetation almost impenetrable. To his surprise, moreover, he saw nothing that resembled a flax plant.

Through no fault of his own, the superintendent of this expedition was poorly prepared for his mission, and though he referred to Cook’s survey of Norfolk Island, this did not include a description of the plant itself. When the surgeon Thomas Jamison finally identified the flax on 17 March, King was shocked to realise that it was growing all around them. With its vivid red flowers, he had previously viewed the shrub as a relative of the iris. Although surgeons usually possessed a basic

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9 King’s journal, 15 Feb.-8 Mar. 1788, 155-77.
education in botany, to King’s untrained eyes the plant appeared remarkably exotic. Its leaves resembled spears or swords – five to six feet in length and about four inches wide – and from each bulbous root around eight of these spears sprung forth from the ground. In contrast to the fibrous plants of Europe, however, this flax had no central stem that contained the fibre, merely a woody stalk to hold its flowers. Europeans often sensed that nature worked in reverse in the Antipodes, and King now realised that the textile must be produced from the leaves.\(^\text{10}\)

Understandably, the weaver Roger Morley had no idea how to prepare the plant, but the Europeans worked with what knowledge they had and tried to produce the flax in their customary way. For the first stage of the experiment, they imitated the familiar water-retting process by leaving three large bundles of leaves to soak in a stream. However, this process took much longer than anticipated. After more than four months of soaking, the fibres had mostly separated from the harder tissue, but not cleanly enough to attempt weaving. Nevertheless, from this rough raw material the workers managed to twist a few lines of cord. These had a ‘tolerable’ strength thus enabling King to retain his sense of optimism.\(^\text{11}\)

At the end of July 1788, the *Supply* returned for the first time with fresh provisions, seeds and tools, and the Superintendent of Norfolk Island prepared a full report on the settlement’s progress for the Governor of Sydney Cove. In a few short years, King expected the community would be self-sufficient in food. The soil was rich and deep, promising a dependable supply of grains and vegetables, while the islanders had feasted on abundant fish and even the occasional turtle. With more labourers to clear

\(^{10}\) King’s journal, 17 Mar. 1788, 182-3.
\(^{11}\) King’s journal, 17 Mar. 1788, 183-4; 11 Aug. 1788, 220-1.
the land and plant gardens, he reported that the site could certainly support many more people, especially if some cattle could be spared from the mainland for the provision of manure.\textsuperscript{12}

Most importantly, King still believed that Norfolk Island was a valuable acquisition for the Navy. Together with its magnificent-looking timber, the flax plant would not need to be cultivated since large quantities already grew ‘spontaneously’ on the island. He admitted that ‘the want of a method to separate the woody part from the flax, will be a great hindrance to its being made usefull.’ Yet despite the practical difficulties in working the fibre, he affirmed the botanical observations that the plant would make ‘good cordage, canvas & linnen, as it appears to be of a fine & strong texture’. At present, the major problem with the island remained the absence of a safe landing place.\textsuperscript{13}

On account of a large swell, unloading the store-ship took more than a week testing the patience of all concerned. At daylight on 6 August, King became increasingly apprehensive about the safety of an approaching longboat, and sent a few of his own men out to assist. Tragically, however, their small craft was overturned by the force of the surf and smashed to splinters on the reef. The Superintendent was grief stricken by the loss of his first Mate – ‘whom I sincerely cherished as a good young man’ – the sawyer, and ‘one of the best of the Convicts’, all of whom drowned alongside a seaman from the \textit{Supply}.\textsuperscript{14} Norfolk Island’s lack of a natural harbour appeared to present a significant obstacle to the naval stores project.

\textsuperscript{12} King’s journal, 11 Aug. 1788, 219-27.
\textsuperscript{13} King’s journal, 11 Aug. 1788, 223-4.
\textsuperscript{14} King’s journal, 26 Jul.-6 Aug. 1788, 214-8.
The small community was currently settled in Sydney Bay (near the present town of Kingston), but Lieutenant Ball – the Master of the *Supply* – had seen what he thought were safer places for anchorage on other parts of the island. After the ship’s departure to Port Jackson, King set off on a walking excursion with three others in order to examine the sites that he named Ball Bay and Cascade Bay. This excursion lasted several days; although the island was small – only measuring about six miles by three miles – the walkers were frequently entangled by the thick and thorny scrub, while their clothes were torn from their backs. Yet despite their fatigue, for King at least, the trip was worthwhile. At Cascade Bay, he believed that masts could be loaded on to ships ‘with great ease’, and when surrounded by the tall pines at Ball Bay, he had a glorious vision that ‘in the course of time Vessells might be built here & launched’. He imagined the island as a vast shipyard, where ships could be fully built and equipped on site, supported by a fecund agricultural hinterland.\(^{15}\)

Before word arrived from Norfolk Island, Governor Phillip was somewhat baffled by his instructions regarding the flax plant. Unaware that it had never been sighted on the mainland, he conducted his own search in the vicinity of Port Jackson, recording in May 1788 that he had not yet found the plant ‘described by Capt. Cook’.\(^{16}\) Phillip lamented the absence of a botanist or even ‘an intelligent gardener’ in the colony, while confessing his ignorance in such matters. By observing the local inhabitants, though, he had stumbled upon a different type of ‘flax’, and dispatched a few samples for Sir Joseph Banks to examine.\(^{17}\)

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\(^{15}\) King’s journal, 17-24 Aug. 1788, 227-31.

\(^{16}\) Phillip was probably referring to the authorised account of the *Endeavour* voyage, commonly attributed to Cook. But this particular description was actually adapted from Banks’s journal. See John Hawkesworth, *An Account of the Voyages undertaken by the order of his present Majesty for making discoveries in the Southern Hemisphere, Vol.III* (London, 1773), 39.

\(^{17}\) Phillip to Sydney, 15 May 1788, HRNSW 1 (2): 128.
Two months later, Phillip remained confused by this poorly conceived aspect of his mission. He intended to promote the cultivation of the mainland flax – as per his instructions, he believed – but could not find any seed as the plants had vanished. Quite feasibly, he thought the locals must have harvested the plants he had spotted to make their fishing lines. However, Phillip had not been instructed to cultivate this plant, as the species had never been encountered by a European botanist, and bore no relationship to the *Phormium tenax* of New Zealand and Norfolk Island.\(^{19}\) After reading about Lieutenant King’s experiments at the end of August, Phillip realised his mistake.

The Governor composed the first official reports on the conditions at Norfolk Island in September and November 1788. Apparently, the island was ‘one of the finest in the world’ and he described its inhabitants as ‘very healthy, and perfectly satisfied’.\(^{20}\) On account of its excellent soil, Phillip hoped the site would relieve pressure on the food supply at Sydney Cove, and signalled his intention to expand the numbers on the island.\(^{21}\) Sure enough, in October, the *Golden Grove* transport delivered an additional 32 convicts plus ten sailors and marines. Fortunately, the sea was calm that day and everyone landed safely.\(^{22}\)

On the question of naval stores, the Governor reported that a ship’s carpenter had sailed on the *Supply* – ‘a good judge’ in the eyes of Phillip – who informed him that

\(^{18}\) Phillip to Nepean, 5 Jul. 1788, HRNSW 1 (2): 143.
\(^{19}\) Appendix B: Flax-plants of New South Wales and Norfolk Island, HRNSW 1 (2): 707-8.
\(^{20}\) Phillip to Sydney, 28 Sep. 1788, HRNSW 1 (2): 185-7; Phillip to Sydney, 16 Nov. 1788, HRNSW 1 (2): 210-2.
\(^{21}\) Phillip to Sydney, 28 Sep. 1788, HRNSW 1 (2): 186-7.
\(^{22}\) King’s journal, 13 Oct. 1788, 238.
Norfolk’s pines were ‘superior to any he has ever seen’. On this basis, he pointed out the potential for shipbuilding in the colony, in addition to supplying masts to India. Regarding the flax, Phillip was a little more circumspect. He conceded the weaver he had sent to the island – ‘who calls himself a flax-dresser’ – was clearly not up to the task. The other available workmen had also proved either too ‘idle’ or ‘ignorant’ to offer much assistance. The Governor therefore requested that a more experienced artisan should be sent to the colony, at the earliest opportunity, together with some honest, industrious labourers.

In comparison to the timber, Phillip understood that much greater expertise would be needed to establish flax exports, whether in its raw or finished state. With a little more experience, though, he thought the plant would soon ‘supply the settlers on that island with rope and canvas, as well as a considerable part of their cloathing’. For analysis in London, his dispatches included some rough samples of cord from the first manufacturing experiments. Of greater significance to the government, Phillip also sent flax roots for transplantation at Kew Gardens: ‘If properly dressed’, he wrote, ‘I think it would be superior to any that grows in Europe.’ Considering his self-confessed lack of knowledge in this field, this was a very big call indeed, but reflected the hype that had surrounded the plant since the *Endeavour* voyage.

Such wishful thinking continued to attend every aspect of the project. Although Phillip regretfully informed the government that the geography of Norfolk Island...
somewhat conspired against the supply of naval stores, he managed to soften the blow nonetheless. Lieutenant King had suggested that explosives could be used to improve the reef, while Lieutenant Ball had noticed that safer anchorages existed than the present one. Moreover, Ball had personally witnessed the Baltic port of Riga, one of the world’s premier outlets for naval raw materials. Unlikely as it seems, he had told the Governor that Norfolk Island, despite its obvious dangers, was in fact the less hazardous place to load masts and spars. One way or another, Phillip concluded, the harbour problem would soon be resolved. If not, he was certain the loading of raw materials could be safely conducted in summer.\footnote{Phillip to Sydney, 28 Sep. 1788, HRNSW 1 (2): 187.} At this stage, however, this certainty was not based on anything tangible; the colonists had never experienced so much as one full summer in the Antipodes.

Meanwhile, rumours of progress circulated amongst every class of European at Sydney Cove. In November 1788, a female convict (whose name is unknown) composed a letter to her relatives in England, and though she mostly described the hardships she endured, there were also significant grounds for optimism: ‘We are comforted with the hopes of a supply of tea from China,’ she wrote, ‘and flattered with getting riches when the settlement is complete, and the hemp which the place produces is brought to perfection.’\footnote{Letter from a female convict, Port Jackson, 14 Nov. 1788, HRNSW 2: 747.} She believed the local substitute would draw the East India Company to the region, thereby ensuring a regular supply of provisions. It is impossible to know how widespread these rumours might have been in the colony, but she was far from delusional according to the standards of the time.
3. The Norfolk Island Experiment

Whether located in the southern or northern hemisphere, others continued to share such grandiose visions despite the absence of any solid evidence to affirm the plant’s value. The stretched communications between Norfolk Island and Port Jackson, let alone with London, provided space for the imagination to thrive. In May 1788, Sir George Young and John Call resubmitted their petition to establish a private-commercial settlement on Norfolk Island, unaware that the site had already been occupied on behalf of the government. Having been turned down by the East India Company, three years earlier, on this occasion they sent the document directly to Lord Sydney. Though the pair still aimed to produce cordage and masts on the island, they now intended to supply the British naval fleet in India rather than the Company’s vessels. In return for their investment, which would surely benefit the public, they requested the territory should be granted to themselves and their heirs for perpetuity.29 One year later, however, when the first dispatches arrived from New South Wales, there was nothing in them to contradict the notion that Norfolk Island was a valuable addition to the empire. The site therefore remained a public concern.30

Since the sixteenth century, London’s policy makers had sought to establish alternative sources of timber, flax and hemp, but the colony’s hopes for the project were far more immediate. In Geoffrey Blainey’s famous phrase, the production of naval stores was the first potential means to overcome ‘the tyranny of distance’ between Australia and Europe.31 To the European strangers in the Antipodes, the project appeared to represent a tangible link to their civilisation, though it turned out

30 The dispatches from New South Wales, dated from May to Nov. 1788, arrived in London together on 19 Jun. 1789. See acknowledgement dates in HRA 1 (1).
to be a very slender thread indeed. In the following part of this chapter, I show how such unsubstantiated optimism was typical of the mission as a whole, before examining the practical issues that interfered with this vision on Norfolk Island.

**The Sydney Cove experiment**

In November 1789, the London bookseller, John Stockdale, published the first edition of *The Voyage of Governor Phillip to Botany Bay*. Arthur Phillip was attributed as the chief author, as the third-person narrative was mostly compiled from his early dispatches. To fill the gaps in the Governor’s knowledge, Stockdale incorporated the accounts of other ‘first fleet’ officers, as well as seeking further information from statesmen including Lord Sydney and Evan Nepean, the naval administrator Sir Charles Middleton, and the naturalist Sir Joseph Banks.\(^{32}\) In literary terms, the work functioned as a sequel to John Hawkesworth’s narratives of the British voyages of exploration, which had proved so popular amongst the literate classes of the European Enlightenment.\(^ {33}\) Rather than providing evidence of official state policy, the work provides an insight into the intellectual preoccupations of European society beyond the narrow confines of Whitehall.

Although the first fleet lacked any reputed scientist, Phillip and his officers were considered adequate collectors of empirical evidence for further analysis in London. It appears that natural history was the topic that most intrigued the book’s readership, embracing the disciplines of botany, zoology and anthropology. Above all, though, the work reflected hope for human progress during a period that is often recognised as

\[^{32}\text{For a full list of contributors, see Arthur Phillip, *The Voyage of Governor Phillip to Botany Bay, With an Account of the Establishment of the Colonies of Port Jackson and Norfolk Island* (London, 1789), ‘Advertisement’ n.pag.}\]

\[^{33}\text{Hawkesworth, *An Account of the Voyages, Vols I-III*.}\]
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the climax of the Enlightenment and a significant turning point in world history. To
the ‘polite society’ of London, it seemed the colony’s future prospects were only
limited by the bounds of imagination. Nevertheless, the precise purpose of the
expedition was somewhat amorphous and still appeared to be taking shape.34

The British public were informed of the nation’s great fortune in its annexation of
New South Wales. The stately pines of Norfolk Island rose ‘to a size and perfection
unknown in other places’ and promised ‘a most valuable supply of masts and spars
for our navy in the East Indies’. Moreover, the abundance of flax would soon enable
the production of cordage, sailcloth ‘and even the finest manufactures’ on the island,
making the site a worthy rival to Riga.35 As the book was designed to appeal to a
broad audience, Stockdale tended to accentuate the positive aspects of the mission to
the neglect of less convenient truths. Then again, the publisher simply confirmed to a
credulous public what they wanted to believe: that after the recent loss of thirteen
Atlantic colonies, the seed of a new and improved empire had already been planted in
the South Seas.

In this region of immense opportunity, the production of naval stores only represented
one possible outcome. Although Botany Bay had proved disappointing from an
agricultural and maritime perspective, Phillip’s description of Port Jackson and its
hinterland allowed more expansive visions of a Pacific harbour to emerge.36 On this
‘savage coast’ the Governor had first perceived ‘The wild appearance of land entirely
untouched by cultivation’. Yet as spaces were opened for gardens amongst the
‘perplexed growing of trees’, and between the shrubs that ‘intermingled in the most

34 Phillip, The Voyage of Governor Phillip, passim.
35 Phillip, The Voyage of Governor Phillip, 89.
36 Phillip, The Voyage of Governor Phillip, 62.
promiscuous manner’, he enjoyed ‘the contemplation of order’ that arose in front of his eyes. Clearing the land marked the first act of improvement for this ‘settlement of civilised people’, closely followed by the tillage of the soil. To the leader of this invasive expedition, these tasks represented a moral prerogative that conferred a symbolic legitimacy to the British occupation of the land.37

By selecting the seeds and plants transported via the early convict fleets, Banks played a crucial role in this aspect of the Australian experiment. The climate of New South Wales was considered potentially suitable for a wide range of temperate and subtropical species, and these were conveyed there from the beginning of the settlement.38 From England, the first fleet was supplied with basic necessities such as grains, vegetables and herbs; then at Rio de Janeiro and the Cape of Good Hope, Phillip collected further seeds and cuttings under Banks’s instructions. The selection from Rio was particularly exotic and included indigo, cocoa, coffee, cotton, and even the host plant of the cochineal insect, which produced a red-dye for fabrics.39 These valued commodities for European commerce bore no relationship to the colony’s subsistence, but for Banks and his circle represented an important part of the expedition. Although the quantities of individual seeds and cuttings were insufficient for the production of commercial crops, the experiment would enable the colonists to observe what plants succeeded and allow them to generate seed of their own.

In late 1789, the British public learned that most of the plants from Brazil and the Cape – excepting those that perished in transit – ‘thrive exceedingly’ at Sydney Cove. Despite the absence of any fruit as yet, the orange and fig trees were singled out for special praise, but of all the introduced species the grape vines inspired the most imaginative speculation. Unless some other article should ‘divert the attention of the settlers’, it was thought that a trade in wine might become a future staple for the colony and ‘an indespensable part of the luxury of European tables.’\(^{40}\) To maintain this sense of optimism, however, Stockdale edited out most of the references to the colony’s subsistence.

Unlike the local inhabitants, the European strangers at Sydney Cove possessed a tenuous grip on the land and their very survival was an act of faith. To reduce expenditure, the Treasury had hoped that the colonists would be self-sufficient in food within a year, but Phillip soon realised this was far too optimistic. For at least four or five years, he thought, a regular supply of provisions would be needed to prevent famine.\(^{41}\) In the meantime, much of the grain had been ruined by poor storage on the ships and many of the first sown seeds failed to germinate.\(^{42}\) In contrast to Norfolk Island, the colony’s progress at Sydney Cove was hindered by thin topsoil, a long drought, irregular catches of fish, and a labour force weakened by short rations due to the uncertainty of future supplies.\(^{43}\)

\(^{40}\) Phillip, *The Voyage of Governor Phillip*, 125. For a cultural history of the origins of the Australian wine industry, see J.A. McIntyre, ‘A ‘civilized’ drink and a ‘civilizing’ industry: wine growing and cultural imagining in colonial New South Wales’ Ph.D Thesis (University of Sydney, 2008).

\(^{41}\) Phillip to Sydney, 15 May 1788, HRNSW 1 (2): 127-8.

\(^{42}\) Phillip to Sydney, 28 Sep. 1788, HRNSW 1 (2): 188.

\(^{43}\) Frost, ‘The antipodean exchange’, 60.
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When word first reached London about the poor soil at Sydney Cove, Lord Grenville questioned the wisdom of proceeding with the mainland colony at all. He expected the project would continue, due to the discovery of the harbour and the expense already incurred, but in hindsight he believed that Norfolk Island should have become the principal settlement. By February 1790, Governor Phillip had reached the same conclusion, as well as querying the whole purpose of his mission. He asked whether the main intention of the government had indeed been the humane disposal of convicts in an isolated outpost. If so, they were better off at Norfolk Island as the place was almost self-sufficient and there was less desire or opportunity to escape. He also thought they could be more usefully employed there making flax, which according to his instructions, seemed to be the other major purpose of the expedition.

At Sydney Cove, the initial sense of optimism had evaporated by this time. Before June 1790, neither provisions nor news arrived from England, and the colonists suspected that their situation had been misrepresented in London. According to one of the officers, the continental mainland was a ‘wretched’ country that was ‘totally incapable’ of providing any material returns to Britain; it contained neither ship-timber nor any fibrous plants that produced strong cordage. On account of plummeting morale, and the possibility of either rebellion or starvation, Phillip acted on his own initiative and started to evacuate the site, by instructing the masters of the Sirius and Supply to carry a large proportion of the European community to Norfolk Island. Over the previous year, the island’s population had steadily risen to 149

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45 Phillip to Sydney, 13 Feb. 1790, HRA 1 (1): 158.
46 A letter from an officer, Port Jackson, 14 Apr. 1790, HRNSW 2: 759-62.
people; but in March 1790, in one fell swoop, this figure grew to 498 islanders approaching the same amount of Europeans that lived on the mainland.\(^\text{47}\)

On this occasion, however, the island’s major limitation was even more alarmingly exposed. Due to an unrelenting gale, it took six days to unload the ships and then, terminally, the *Sirius* struck a reef.\(^\text{48}\) Though nobody died, this event represented the most momentous catastrophe of the colony’s early years. Following this mission, Captain Hunter was supposed to take the ship to either China or Batavia (Jakarta) to acquire fresh provisions. The *Sirius* had been the colony’s largest and most dependable vessel and, under the present circumstances, had appeared to be their lifeline.\(^\text{49}\) Furthermore, the shipwreck made a mockery of the Riga comparison once and for all, meaning that Norfolk Island could never be seen again in quite the same light. In Whitehall, Henry Dundas, the Secretary of State, confirmed in 1792 that Norfolk Island would have become the preferred site but ‘for the want of a harbour’.\(^\text{50}\) Meanwhile, Lord Dorchester, the Governor of Quebec, suggested that the entire experiment should be abandoned, and a penal colony established in Upper Canada instead.\(^\text{51}\)

Observing the wreck of the *Sirius*, Lieutenant King also had more personal reasons to feel despondent. Major Robert Ross had arrived to assume the new role of Lieutenant-Governor of Norfolk Island; King was therefore relieved of his duties and told to gather his papers and possessions. He would return to Port Jackson on the

\(^{47}\) King’s journal, 29 Jan. 1790, 331; 24 Mar. 1790, 375; Blainey, *The Tyranny of Distance*, 43-50. The latter figure represented 41 per cent of the European population in the region at this time. Atkinson, *The Europeans in Australia*, 72.

\(^{48}\) King’s journal, 13-23 Mar. 1790, 334-47.

\(^{49}\) Blainey, *The Tyranny of Distance*, 44-8; Atkinson, *The Europeans in Australia*, 73.

\(^{50}\) Dundas to Phillip, Whitehall, 10 Jan. 1792, HRA 1 (1): 329-30.

\(^{51}\) ‘Transportation to Canada proposed’, *Dublin Chronicle*, 8 May 1792, HRNSW 2: 793.
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*Supply*, and then make his way to England in order to explain the colony’s situation in Whitehall. This must have seemed a daunting prospect for a junior officer, but King was preoccupied by a range of complex feelings. In the last two years, he had never left the subtropical island and felt proud that his people were housed and their gardens were flourishing. Whether because or in spite of its isolation from the outside world, King had formed a strong attachment to the place. Though he never directly expressed these emotions, such feelings are quite apparent in his journal. Moreover, he had two illegitimate sons – a one-year old named Norfolk and a baby named Sydney – born to the convict Ann Inett. We will never truly know what he felt about the situation, except that he was clearly reluctant to leave.

On his trip to Port Jackson, King composed an updated report on the promise of Norfolk Island. In addition to the basic necessities, the rich soil and salubrious climate had proved perfect for citrus and grape vines, but King had become ambivalent about the prospect of naval stores. The island’s timber was certainly useful for building houses, plus two small boats had been constructed, which appeared quite ‘durable’ for local purposes. However, the pine was useless for large masts and yards, as the solid butt of the tree was compromised by its ‘rotten and shakey’ top. As the carpenter put it, the grain ‘snaps like a Carrot’. With regards to the flax, Morley the weaver now served as the island’s storekeeper, and the experiments had ground to a halt. But this was not due to any deficiency in the plant’s nature, which King still thought could be worked into ‘fine hemp’. The present shortcomings resulted from a lack of applied knowledge and the want of practical

52 King’s journal, 13 Mar. 1790, 334-7.
experience. To resolve the problem, he recommended that ‘proper Flax dressers’ should be sent to New Zealand, in order to more closely study the Maori preparation methods.54

King spent a fortnight at Sydney Cove during April 1790. Governor Phillip wanted him to gain a thorough understanding of the local conditions, and together they walked to Rose Hill – in the Parramatta district – where farms had been established the previous year. The soil was more fertile here and 22 acres had been sown with wheat, 17 acres with barley, as well as a few acres of maize, oats and vegetables. The surrounding land was thinly forested, and Phillip informed him that another hundred acres would be cleared for gardens in the coming year.55 The farms lacked manure due to the shortage of livestock, but though the colony’s agricultural practices remained primitive by European standards, this represented an incredible feat of labour by a demoralised workforce.56 Despite the trials and tribulations of everyday life, the Europeans and their plants had started to adapt to the landscape. If these crops should succeed, then it seemed the colony might have a future after all.

At Rose Hill, King also noticed the presence of a small patch of European flax.57 For experimental purposes, the first fleet had carried 10 ounces each of English hemp and flax seed that Banks had listed under the heading ‘For Commerce’.58 The fate of the hemp never rated a mention in any of the dispatches from the colony, and as the seed

54 King’s journal, 24 Mar. 1790, 349-76. King, ‘Description of Norfolk Island’, 10 Jan. 1791, HRNSW 1 (2): 429. For further comments on the unsuitability of Norfolk’s timber for maritime uses, see the island’s carpenter cited in Letter from an Officer, ‘Wreck of the Sirius’, Aug. 1790, HRNSW 1 (2): 400.
55 King’s journal, 9 Apr. 1790, 384-7.
57 King’s journal, 9 Apr. 1790, 387.
was notoriously difficult to transport on long voyages, it almost certainly perished on route. European flax seed was hardier, however, and the plants continued to be tended during the coming years, though there was no attempt to manufacture the fibre at this early stage. In contrast to the Anglo-American plantations, neither hemp nor flax was deemed particularly important to the colony’s fortunes. At least not during the first decade of settlement, while hopes still persisted for the Norfolk Island substitute.

After this stopover on the Australian mainland, King sailed to Batavia on the Supply where the ship was loaded with essential provisions for New South Wales. He marvelled at the sights and sounds of the bustling metropolis, populated by Dutch officials, Chinese shopkeepers and the local Javanese, before hitching a ride on ‘a Dutch East Indiaman’ to the Cape. On the final leg of the voyage, the ship dropped him at Beachy Head in Sussex from where he made his own way to London, arriving on 21 December 1790. The concluding section of this chapter follows King’s return to Norfolk Island, and the acquisition of local knowledge for the production of New Zealand flax.

**Local knowledge**

During an eventful three months in England, Philip Gidley King was appointed Lieutenant-Governor of Norfolk Island, promoted in rank as a naval officer, and met with Grenville and Banks to discuss the situation in New South Wales. After the first round of experiments, Norfolk Island was no longer viewed as a potential

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59 By 1798 Governor Hunter had formed the opinion that ‘English flax can be cultivated here with success’, though he also requested the conveyance of a fresh stock of seed. Hunter to the Duke of Portland, 25 Sep. 1798, HRA 2: 233-4.


61 A.G.L. Shaw, ‘King, Philip Gidley (1758–1808)’.
supplier to the British fleets in India. However, flax production was still deemed important in terms of reducing expenditure by enhancing the self-sufficiency of New South Wales. To achieve this more prosaic outcome, a new plan was devised in London.  

By this stage, it was obvious that Europeans required native tutelage in order to fulfil the plant’s potential. King insisted that every known method had been attempted on the island and initially suggested that flax dressers should be sent to New Zealand. Yet as Banks explained from his own limited experience, patience was needed to acquire the necessary communication skills, and this would be simpler to achieve on Norfolk Island itself. Following these discussions, King formally requested that ‘two or three New Zealanders’ should be captured and placed in his care, who could then provide a practical demonstration to the islanders.

On 11 March 1791, Captain King married his cousin Anna Josepha Coombe. Four days later, the couple departed on the *Gorgon* to commence family life in the Antipodes. When they arrived on Norfolk Island, in early November, Anna was heavily pregnant while her husband encountered a very different place to the one he had left only twenty months earlier. Following the authoritarian leadership of Major Ross, the new Lieutenant-Governor faced the immediate challenge of restoring harmony between the officials and the other settlers. More positively, the island’s population had doubled to about a thousand inhabitants, which meant that land

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clearing and house building had continued apace, while a small township had been established at Cascade Bay. As a result there were now two options for landing and loading stores, depending on the prevailing winds, and the most obstructive rocks that surrounded the reefs had been removed.65

During King’s absence, the community had also made a little progress with the flax project. A master weaver, Andrew Hume, who arrived with the second fleet as a superintendent of convicts, had established a workshop at Cascade Bay.66 By February 1791, with the assistance of several male and female prisoners, he had succeeded in weaving two pieces of ‘coarse cloth’. At this point, Hume expressed ‘the strongest hopes of making great improvement’, though felt he needed ‘proper’ equipment and apprentices in order to further develop the industry. The cloth was sent to London for appraisal, together with Hume’s request for looms, spinning wheels and other implements.67 But though the quality of these samples appeared adequate for convict clothing, nearly a year had passed before the equipment was finally dispatched.68 Before it arrived, the weaver’s hopes had already turned to frustration. There is no further record of his efforts and he appears to have given up.

In cordage and cloth production, the islanders had reached the limits of their ingenuity. Without the acquisition of local knowledge, King believed they would never learn how to utilise the plant in the foreseeable future. In September 1792, he reported that flax manufacturing had come to a standstill once again, and reminded

65 King to Nepean, Norfolk Island, 23 Nov. 1791, HRNSW 1 (2): 562-3. For the officious character of Ross, contrasted with the more liberal leanings of Phillip and King, see Atkinson, The Europeans in Australia, 72-8.
67 Hume to Phillip, Cascade Bay, 10 Feb. 1791, HRA 1 (1): 250; Phillip to Grenville, 4 Mar. 1791, HRA 1: 249.
the Governor of the necessity of procuring Maori flax-dressers.\(^6^9\) Yet with no regular intercourse between Australia and New Zealand, and the colony’s vessels in a state of disrepair, Phillip was unable to assist. Unbeknown to either of them, however, a complex scheme to fetch the human cargo had already been hatched.

Following a dispute with Spain, Captain George Vancouver led an expedition to Nootka Sound – on the north-west coast of America – to reassert Britain’s claim to the isolated trading post.\(^7^0\) The supply-ship *Daedalus* carried provisions for the Nootka expedition and would then be sent to New South Wales to act as a go-between across the North and South Pacific. When Banks first heard about this plan from Dundas, the naturalist used his connections within the government to promote the Norfolk Island flax experiment. Consequently, in July 1791 the commander of the *Daedalus* was instructed to take a detour to New Zealand – while en route to New South Wales – in order to collect ‘a flax dresser or two’.\(^7^1\)

This may have sounded straightforward in the boardrooms of London, but like so many aspects of imperial policy during this period, no-one accounted for the vicissitudes that the ship might encounter on the high seas. Historian Greg Dening has described the *Daedalus* as a particularly ‘messy ship’: before the vessel reached Port Jackson – nearly two years later – sickness, death and desertion plagued her ill-fated voyage across the Atlantic and Pacific oceans.\(^7^2\) When Lieutenant Hanson

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\(^6^9\) King to Phillip, Norfolk Island, 19 Sep. 1792, HRA 1 (1): 389.
\(^7^0\) Nootka Sound is located on Vancouver Island in the Canadian province of British Columbia. For an analysis of its strategic value and the dispute between Britain and Spain, see Alan Frost, *The Global Reach of Empire*: *Britain’s maritime expansion in the Indian and Pacific oceans 1764-1815* (Melbourne: Miegunyah Press, 2003), 208-31.
\(^7^1\) Dundas to Admiralty, 6 Jul. 1791, HRNSW 1 (2): 499-501.
finally set out on the Australian leg of the voyage, he was instructed to purchase livestock for the penal colony at the Marquesas Islands and Tahiti, and then proceed to Doubtless Bay in the far north of New Zealand to kidnap the flax dressers. But in his haste to complete the mission, nothing quite went to plan. Out of the livestock, only the pigs survived; the cattle and sheep were found dead on arrival at Port Jackson in April 1793. Fortunately, the two young men from New Zealand – named Huru and Tuki – survived their traumatic experience, though they could hardly be described as flax dressers.73

Hanson was specifically instructed to collect men who were ‘versed’ in this procedure, but had simply taken the first two individuals who fell into his trap.74 He may have presumed that everyone in New Zealand understood the process, a common assumption at the time. More likely, he wanted to complete the dangerous mission as quickly as possible. On a beach in Hawaii, Hanson had previously witnessed the murder of his commander and an astronomer during seemingly innocent negotiations to fill water barrels.75 Understandably, then, he was wary of dealing with any Pacific natives.

According to the Maori account – later interpreted by King – the inhabitants of Doubtless Bay had been fascinated by the sight of the Daedalus, together with the sound of its squealing pigs. Sightings of European vessels remained rare in New Zealand, and canoes had clustered round the ship while the crew distributed gifts of nails and beads. Gestured to climb on board, Huru and Tuki became ‘blinded by the

73 Lieutenant-Governor Grose acknowledged the shipment as Phillip had departed for England. Grose to Dundas, Sydney, 21 Apr. 1793, HRNSW 2: 26.
74 Vancouver’s Instructions to Hanson, 29 Dec. 1792, HRNSW 1 (2): 681-3; See also Vancouver to Phillip, Monterrey, 29 Dec. 1792, HRNSW 1 (2): 680-1.
75 Dening, The Death of William Gooch, 3-9.
Curious things they saw’ before Hanson led them to a lower deck for a meal. But the ship never lowered anchor and immediately set sail. When they realised their predicament, the captives became ‘frantic with Grief’, and would have jumped overboard had the crew not restrained them. At Port Jackson, the pair were then confined on board a merchant ship from Calcutta. The following month, the *Shah Hormuzear* delivered them to Norfolk Island, along with a cargo of livestock and provisions from Bengal.

In an attempt to ease their obvious distress, King treated the captives as honoured guests rather than prisoners. To demonstrate his peaceful intentions, the Maori visitors lived in Government House as part of his family, a household that now included the couple’s two-year old son Phillip Parker, a baby-daughter Maria, and the siblings’ half-brother Norfolk. Moreover, the surgeon Thomas Jamison visited the household on a regular basis, in order to help establish the cross-cultural communications. From the beginning, King and Jamison attempted to impress upon the Maori the importance of showing them everything they knew about flax production. They tried to reassure them that this was the key to their speedy return home. At first, these efforts only contributed to their sense of bewilderment. Gradually, though, the language barrier was overcome and the rudiments of mutual understanding were acquired.

While the culture of flax represented the main reason for the kidnapping, King and Jamison showed a much broader interest in the Maori way-of-life. They viewed this

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77 Grose to Dundas, Sydney, 21 Apr. 1793, HRNSW 2: 26.
78 Salmond, *Between Worlds*, 214-8; While Norfolk had returned to the island with his father, Sydney lived on the mainland with his mother. See Marnie Bassett, ‘King, Anna Josepha (1765–1844)’.
as a unique opportunity to gain anthropological insight, and were highly impressed by the specimens at their disposal. Jamison described these Maori as ‘pleasant and good natured beyond anything one could expect to meet with amongst so barbarous a people’. To account for this, he translated his understanding of their background into European terms, describing Huru as the son of a ‘prince’ and Tuki as the son of a ‘priest’. But unfortunately, due to their elevated social status, they dismissed flax dressing as a task for women of the lower orders.79

King estimated that during their six months on Norfolk Island, Huru and Tuki only shared about an hour’s worth of information on the relevant topic.80 Nevertheless, this provided an important breakthrough, and preparing the raw material proved more straightforward than the Europeans had imagined. First, the leaves were slit with a knife (usually a cockle-shell in New Zealand) and the outer layer peeled off. The inner fibrous matter was then simply washed rather than steeped in water, before being beaten with a round-ended stick and then hung out in the sun to bleach and dry. This was all that Huru and Tuki could explain about the process, but it was sufficient to reach the next step. Once the fibre had dried, it was soft enough for heckling and spinning in the settler’s customary way, which allowed them to produce some samples of ‘excellent canvas’.81 Following this long-awaited achievement, King arranged a safe passage to New Zealand for his homesick friends.

In November 1793, Huru and Tuki – accompanied by King and Jamison – set sail on the Britannia, a merchant ship under the command of Captain William Raven. At the

79 Thomas Jamison, A Letter from Norfolk Island, 19 Nov. 1793, HRNSW 2: 811. Jamison spells their names Odoo and Tugee; King uses Woodoo and Tooke; I have used Salmond's spelling.
80 King to Dundas, Norfolk Island, 19 Nov. 1793, HRNSW 2: 87.
Bay of Islands, Maori canoes approached the ship to exchange their cloth and fishing lines for knives, axes and iron hoops. After recognising an acquaintance, Huru and Tuki disembarked with what appeared to be an emotional farewell. According to Anne Salmond, their tale of Norfolk Island and its strange inhabitants would enter the annals of New Zealand’s oral history. King was honoured in these stories for showing respect to the Maori: he had treated the captives with kindness, learned some of their language and, most importantly, the episode was remembered as a reciprocal exchange. Although the foreign ‘Governor’ (or Kaawana) had effectively stolen their knowledge, his visit led to the introduction of several important commodities in the Maori economy – pigs, potatoes and maize. The tale also elicited amusement, for though the British found the island in an uninhabited state, it had in fact been settled then abandoned by Polynesians in the distant past. The Maori possessed their own cultural memory of the place, and believed the flax on Norfolk Island had shorter, weaker fibres and was therefore relatively useless as a textile.\(^{82}\)

Besides ensuring the safety of his friends, however, King had another motive for embarking on this trip and developing diplomatic ties with his Pacific neighbours. Captain Nepean – the brother of the Under-Secretary of State – was presently the guest of the Lieutenant-Governor, and had also accompanied him to New Zealand. This seemed an opportune moment to see the wider promise of the region, and together they discussed the potential for further British expansion. King felt he had outgrown his current role: ‘If it should be thought necessary to settle N.Z.’, he wrote

\(^{82}\) Salmond, *Between Worlds*, 221, 227-33. Recent research suggests that *Phormium tenax* is not native to Norfolk Island and was introduced by Polynesians. For an ecological analysis, see Peter Coyne, ‘*Phormium tenax* (New Zealand Flax) – Norfolk Island native?’, *Cunninghamia*, 11 (2) (2009), 167-70.
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to London, then he hoped to be considered for the post of governor. For the purpose of reconnaissance, moreover, Captain Raven was a highly qualified guide. The Britannia was chartered to supply the colonists with provisions from Calcutta and the Cape, but he had also conducted an experiment of his own in New Zealand.

The previous year, under licence from the East India Company, Raven had left a sealing gang at Dusky Bay on the southern tip of New Zealand. In case the Britannia was waylaid for any reason, he instructed the men to build a small craft from the local timber, and left them with ‘ironwork, cordage, and sails’ to complete the task. If necessary, the merchant-captain hoped this might enable the men to make their own escape to Norfolk Island. When he returned after ten months, the gang had collected 4,500 skins, but had truly exceeded his expectations with regards to the other aspect of the experiment. Raven viewed a solid-looking vessel that was forty feet in length and about seventeen-feet broad. According to the carpenter, the local ‘spruce fir’ was ‘very little inferior to English oak’; due to the quantity of the available timber, Raven concluded that even first-rate ships could be built on site. He noted that the flax plant also grew abundantly in the south, while the sealers had only ever encountered three local inhabitants, who fled at once never to be seen again.

In contrast to the populous north, it appeared the remote south was almost uninhabited. For ship-building purposes, Dusky Bay therefore sounded like a superior version of Norfolk Island, yet King’s experience with the Maori led him to believe that their fearsome reputation was unwarranted. Although he never stepped ashore on his visit to the far north, he formed a favourable impression of the local culture and

83 King to Nepean, Norfolk Island, 9 Nov. 1793, HRNSW 2: 79.
84 Raven to King, Britannia, 2 Nov. 1793, HRNSW 2: 94-6; Salmond, Between Worlds, 285-8.
landscape, and pictured the place as a new home for his growing family. Having decided that flax preparation was a ‘tedious’ process for Europeans, he had also concluded it would be more efficient to utilise native labour. In his next report to London, King suggested the establishment of a British trading-post in the Bay of Islands, in the form of a small settlement chiefly composed of skilled rope-makers and canvas weavers. The raw material could then be purchased from the Maori, in a ready state for heckling and spinning, for the exchange of mere ‘trifles’.

King’s personal ambitions remained tightly woven to the search for naval raw materials, and he expected that London’s policy makers would share his enthusiasm for the scheme. However, the plant had already lost its lustre in England. Having been established at Kew Gardens, the species was now simply viewed as a natural curiosity, rather than a miraculous alternative to European hemp and flax. For the time being, moreover, the British state was unwilling to expand its territorial commitments in the South Seas. Following the outbreak of war with France in 1793, even the existing British subjects in the region were expected to fend for themselves.

Over the next few years, King oversaw the development of a small-scale industry on Norfolk Island that produced a fine grade of canvas – considered suitable for light sails – as well as ropes and a few assorted garments such as trousers and aprons. The sailcloth was tested on the Daedalus, and found ‘to be equally strong and durable as that made from European flax’, but the industry never realised its full potential due to the lack of government support. In October 1796, King explained that flax manufacturing employed nine women and thirteen men, but if more tools had been

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85 King to Nepean, Norfolk Island, 19 Nov. 1793, HRNSW 2: 96.
provided then the industry could have provided work for as many as five hundred people: ‘This island would require very little assistance in cloathing the convicts’, he wrote, and ‘should it be thought an object, any quantity of canvas, rope, or linen might be made here, providing there was men, women, weavers, flax-dressers, spinners, and ropemakers, with the necessary tools.’ Following this final report on the subject, King returned to England with his family due to his failing health. In the absence of its chief nurturer, the neglected industry soon withered and died.

The supposed imperial advantages of Norfolk Island had failed to materialise, while the flax only made a minor contribution to the colony’s needs. This hardly inspired confidence in London, and the project failed to attract any further investment. During the final years of the eighteenth century, Governor Hunter wrote to London on several occasions to request a shipment of naval stores for the colony’s supply-craft. Despite the urgency of his pleas, he found himself repeatedly ignored. The Navy paid a premium for these materials in wartime, and equipping New South Wales represented the lowest priority of all. Rather than contributing to the war effort, the colony threatened to become another drain on these precious resources. Nevertheless, the shortages inspired the inhabitants to improvise and utilise the local knowledge they had already acquired.

By this time, in addition to Parramatta, agricultural settlement had spread to the rich soil of the River Hawkesbury’s flood plains. To ferry the grain to Sydney, an Australian boat-building industry started to emerge that relied upon local resources. A talented ship-builder from London, Daniel Paine, travelled to New South Wales in

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87 Hunter to Nepean, Sydney, 19 Nov. 1797, HRNSW 3: 308.
3. The Norfolk Island Experiment

1795, and his observations of the mainland ecology – assisted by Aboriginal guidance – revealed fifteen varieties of timber that were suitable for boats. Complementing these efforts, the colonists also began to utilise a wider range of indigenous fibres. The flax that had first been spotted at Port Jackson became known as ‘settler’s twine’ (*Gymnostachys anceps*) after the invaders brought it into use. As the colony extended its ecological reach, the inhabitants found the Gymea lily (*Doryanthes excelsa*) made stronger cordage, while the bark of the kurrajong tree (*Brachychiton* spp.) was also used for rope-making and cloth-weaving. In the early years of the Hawkesbury boat-building industry, Norfolk Island provided the sails for the craft that linked Sydney to its outlying farms on the Cumberland Plain.

In certain respects, this outcome seems to confirm the idea that New South Wales was founded as a colonial peasant economy. The flax experiment received little support from the imperial centre, and Norfolk Island soon became linked to local subsistence rather than any broader imperial motives. On the other hand, it may also be argued that the commercial development of New South Wales simply entered a period of stasis during the French Revolutionary and Napoleonic wars (1793-1815). Banks reassured Hunter that the lack of support from the imperial centre did not reflect poorly on his station. At present, the ‘critical’ situation in Europe meant that colonies ‘of all kinds’ needed to become more self-reliant. In the future, however, ‘Who

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89 Appendix B: Flax Plants, HRNSW 1 (2): 707-8; for rope-making from kurrajong, see Return of labour at Sydney, Parramatta and Toongabbe, 1 Jan. to 31 Dec. 1797, HRNSW 3: 339; for cloth-making from kurrajong, see Hunter to Portland, Sydney, 25 Sep. 1798, HRA 1 (2): 233-4.  
knows but that England may revive in New South Wales when it has sunk in
Europe.\footnote{Banks to Hunter, London, 30 Mar. 1797, HRNSW 3: 202-3.} The quest for naval stores may have proved fruitless, but the presence of a
British settlement in Australasia had already produced a wealth of useful knowledge.

By the close of the eighteenth century, the exploitation of other maritime products
lured merchant vessels to the region. The Board of Trade, made fully aware of the
potential for whaling and sealing in the southern oceans, viewed the harbour at Port
Jackson, together with its agricultural hinterland, as the most suitable place for
‘refreshing’ their crews.\footnote{Board of Trade, 26 Dec. 1797, HRNSW 3: 335.} Norfolk Island had provided a significant motive for the
initial settlement of the region, but simply represented one minor strand in the global
pursuit of useful knowledge. In the larger scheme of the British world-system, the
island’s potential was tested then eliminated at no great cost to the system as a whole.
Meanwhile, the search for hemp – or a viable substitute – was now centred in British-
occupied India, with seemingly far greater prospects for success.
Chapter 4: Indian Hemp

On account of the distance, the East India Company never viewed New South Wales as a realistic source of naval raw materials. Other alternatives existed within their usual sphere of operations, and it was known that the Asian continent possessed a vast array of indigenous-fibrous plants. At the time of the Botany Bay decision, these had barely come to the attention of European naturalists, and it remained unclear whether any were suitable for equipping the naval and mercantile fleets. However, British territorial expansion on the subcontinent allowed the Company’s botanists to conduct a closer examination of these options, and this research was well underway before the outbreak of war. Events in Europe then led to a greater sense of urgency, while acting as a powerful stimulus to advances in science and technology. This chapter explores the search for hemp in British-occupied India, in order to examine the relations between imperial botany and colonial agriculture in the late eighteenth and early nineteenth centuries.

Following the American Revolutionary War, the British state assumed a more interventionist role in the governance of India. In 1784 the Board of Control was founded in London; two years later, the Governor-General announced in Calcutta that ‘agriculture must flourish’ in order to diversify and expand the region’s commerce.¹ The East India Company’s major commercial imperative on the subcontinent remained the export of artisanal products from Calcutta, Madras and Bombay, but state intervention led to greater engagement with the Indian interior, particularly in Bengal, as the Company came under increasing pressure to raise agrarian revenue.

Initially, the British authorities aimed to reduce the drain of bullion to China. By the mid-nineteenth century, this process had reconfigured the Indian economy as a supplier of raw materials to the imperial centre, and as a consumer of Britain’s manufactured products. In the early stages of this process, the attempt to develop a trade in Indian naval fibres played an important symbolic role. By encouraging the Bengal peasantry to produce either European hemp and flax, or Asian substitute fibres identified by naturalists, the British state hoped to reduce the nation’s dependence on Russia, while accelerating what was seen as the agrarian improvement of the Company’s territorial possessions.

In comparison to Norfolk Island, the Indian experiments were far better resourced and are more recognisably located within the history of science. Nevertheless, translating scientific theory into agricultural practice was highly problematic in colonial India. The project failed in its immediate objectives which accounts for its relative neglect by historians. While the events on Norfolk Island have been linked by some to the founding of Australia, such an argument would be impossible to sustain in the Indian context. Instead, I argue that the search for hemp in India made a significant contribution to the development of botany as an economic science and, like the Australian project, indirectly contributed to the development of the British world-system. Yet both of these episodes illustrate the limits of centralised authority in this

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process. Rather than focusing on the notion of imperial design, I investigate the practical difficulties of putting such plans into action.

**Science, commerce and the East India Company**

In the early eighteenth century, the forests of the western Malabar Coast – from Mangalore in the north to Cape Comorin in the south – appeared almost inexhaustible. In Bombay, a British shipbuilding industry started to develop that utilised Indian teak instead of English oak, together with the skills of local Parsi craftsmen. At first, these shipbuilders constructed Country vessels, the smaller ships that were licensed by the Company to trade in South Asia, but not in China or Europe. In 1778, however, the *Britannia* was launched from Bombay – the largest ship yet with a burden of 749 tons – and its subsequent arrival in London proved beyond doubt the suitability of Indian teak for British maritime uses. In the coming decades, the Company commissioned the building of many ships in the Bombay dockyards, some of which were recommissioned by the Royal Navy during the Napoleonic wars. Meanwhile, the adoption of an Indian substitute for Russian hemp proved less straightforward.

Since the late seventeenth century, English mariners had noted that South Asian vessels tended to use coir cordage made from the coconut (*Cocos nucifera*). Local manufacturers removed the tiny fibres of the husk, which were then softened through a beating process, before being spun into longer yarns and then twisted to make rope. Thomas Bowrey, a Country trader and close observer of Indian culture during this

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5 A total of 159 ships were built in Bombay from 1736 to 1821, including 15 with a burden of over 1,000 tons. David Arnold, *Science, Technology and Medicine in Colonial India* (Cambridge: Cambridge University Press, 2000), 102.
period, formed the opinion that coir was equal in strength to European hemp. Until the early nineteenth century, the raw material was purchased on the Malabar Coast and manufactured as cordage in the Bombay ropewalks. Coir was always described as cheap, strong and durable by British seamen, and Country ships often utilised this local resource due to the high cost of imported cordage. But though the British authorities overcame their prejudice towards Indian teak, they never viewed coir as a viable alternative to Russian hemp. The Royal Navy declined to adopt the tropical fibre, which was considered less suited to northern climes and larger vessels, while the Company only considered its use during times of dire shortage.

The first Asian alternative that attracted serious attention in London was the Chinese variety of the species *Cannabis sativa*. China’s textiles had long been admired in Europe, and British mariners claimed their ropes were particularly strong. Unlike in India, though, access to the Chinese interior was difficult for European botanists. The Chinese guarded their natural resources and British trade was restricted to the port of Canton. Nevertheless, intrepid collectors managed to acquire the seeds of the highly sought-after plant. This ‘Gigantic variety’ of hemp was rumoured to grow from 10 to 15 feet tall and its long fibres sounded ideal for ropemaking. In 1785 a small

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8 For a favourable comparison of Indian teak to English oak, and the early attempts to establish a British shipbuilding industry at Calcutta, see Charles Taylor, *The Literary Panorama and National Register, Vol.1* (London, 1814), 283-4.
4. Indian Hemp

package of this seed was delivered to Sir Joseph Banks for breeding and distribution purposes.\textsuperscript{11}

As the overseer of the Royal Botanic Gardens at Kew, Banks promoted the development of a global network of gardens to enable the transfer of useful plants throughout the British empire.\textsuperscript{12} When Colonel Robert Kyd founded the Calcutta Botanic Garden in 1787, he emphasised that the site should not become a repository for ‘collecting rare Plants … as things of mere curiosity’.\textsuperscript{13} Like Banks, he viewed the project in terms of its utility to both the local inhabitants and those of the British Isles. This included the acclimatisation of sago- and date-palms to guard against famine in India, a teak plantation for repairing ships, and the cultivation of other valuable plants sourced from throughout the Asian continent and further afield. Kyd intended that the Garden would serve as a model of progressive European husbandry, in order to disseminate the seeds of useful knowledge to the peasantry of Bengal.\textsuperscript{14}

By funding the establishment of the Calcutta Botanic Garden, the East India Company served as a patron of colonial science. From 1786 to 1791, botanic gardens were also established with Company support at Bombay, Madras and the Atlantic Island of St Helena. Banks praised this initiative to the Court of Directors and viewed Calcutta as a particularly useful site for acclimatising plants sourced from China. Most importantly, the introduction of the China tea plant to the Bengal economy

\textsuperscript{11}Joseph Banks, Hemp Correspondence, 1764-1810. Kew: JBK/1/10: fo. 69; Gascoigne, \textit{Science in the Service of Empire}, 141.
\textsuperscript{14}Arnold, \textit{Science, Technology and Medicine}, 46-50.
offered a means to break the Chinese monopoly on the product. Although the Company was ambivalent about the scheme, due its vested interest in the established trade, small consignments of the plant arrived in Calcutta in 1788 and 1789. Yet an Indian tea trade only started to develop after an indigenous strain was found in Assam a few years after Banks’s death in 1820.\(^\text{15}\) Many of the schemes he helped to initiate failed to bear fruit during his lifetime, and British interest in Chinese hemp proved especially short lived.

In November 1786, the reconstituted Board of Trade discussed a variety of alternatives to the nation’s dependence on Russian hemp. As previously mentioned, the Navy’s contract for the product had expired earlier that year, and the price in London for the best quality Riga hemp had already risen from £27 to £41 per ton. Although Chinese hemp had not been costed, it was thought to be considerably cheaper, which raised the possibility of establishing a trade for the raw material at Canton. To gauge its potential, Lord Hawkesbury and other members of the Privy Council inspected samples of the product in the Council Chambers at Whitehall. A representative from the Society of Arts presented their lordships with Chinese thread, twine and rope, as well as a small quantity of the raw material. At this stage, however, the Board of Trade was composed of such dignitaries as the Archbishop of Canterbury and contained no-one with any scientific expertise.\(^\text{16}\)

Hawkesbury instructed the master rope-maker at Woolwich Yard to conduct experiments with the fibre, which involved making a rope from the Chinese product


\(^{16}\) Board of Trade, 21 Nov. 1786. BT 5/4: 82-3.
4. Indian Hemp

and testing its breaking point against the Riga hemp. Unfortunately, the rope-maker
concluded that the Chinese product was inferior to the Russian. The twine he
inspected was also very coarse, which led him to believe that China’s hemp was
unsuitable for sailcloth.  At the turn of the century, Alexander Dalrymple raised the
possibility of acquiring Chinese cordage in a ready-made state, while Banks
suggested that lessons could be learnt from the Cantonese rope-makers. Nevertheless,
the East India Company never supplied the product to the Navy, and the plant’s
undoubted potential remained untapped by Europeans.  

Besides the coastal product coir, plenty of other alternatives existed in South Asia. In
the Indian interior, the Company’s naturalists sought less exotic-looking resources
that more closely resembled European hemp and flax. By the late 1780s, they singled
out a plant called ‘Sun’ (Crotalaria juncea) as the most promising substitute for
hemp, while ‘Paut’ – later known as jute (Corchorus capsularis and Corchorus
olitorius) – came to be viewed as the Indian equivalent of flax. Throughout the
subcontinent, the local inhabitants cultivated these plants for rope, sacking and cloth,
and the raw materials could be acquired cheaply from the ryots or Indian peasantry.
In 1791 the Bengal office of the Board of Trade first received the encouraging news
that sunn and jute might become important export articles.

To allow further experiments with the fibres, the East India Company started to
supply the raw materials to British manufacturers. Sunn and jute were prepared using
similar methods to European husbandry, which enabled the manufacturers to work

18 Bebb to Board of Trade, 22 Dec. 1800. PRO 30/8/301: 222; Banks to Court of Directors, 18 Jun.
1802. BT 5/13: 327.
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them into cordage and sailcloth in their customary ways, but they found the Indian materials lacked the tensile strength of European hemp and flax. This may have been the result of poor preparation and packing, and the manufacturers recommended that a means should be found to improve the Indian production methods. In their present state, however, the substitutes were considered useless for maritime purposes. Having already lost about £45,000 on the experiments, the Court of Directors abandoned the project in 1796, believing the trade would never become a profitable concern.20

At this point, the Company was reminded of its responsibility towards ‘the advantage and prosperity of the British Nation.’ Combined imports of Russian hemp and flax now totalled more than £2 million per annum. In the long term, the Board of Trade hoped that India would replace half of these raw materials; in the meantime, even if only a small proportion was procured the competition might alarm the Russians into reducing their prices. The Company’s shareholders would eventually benefit from this new branch of trade, while the project would support rather than compete with British industry. Furthermore, the cultivation of land ‘now lying waste in India’ could provide ‘employment to a vast increased number of Natives’, while also raising the revenue collected from the Company’s territorial possessions.21

According to C.A. Bayly, the Board of Control intended to create an indigenous ‘landed interest’ based on the British model of private property, and influenced by the French physiocratic notion that land represented the inherent source of wealth. The Permanent Settlement of Bengal Revenues was introduced in 1794 as a means to rationalise the collection of taxes from the zamindars or hereditary landholders. To

implement this rent-seeking policy, a bureaucracy of professional civil servants developed in order to root out what was perceived as the older forms of Asiatic corruption, which had supposedly thrived under the Mughals and contributed to the decline of the ancient civilisation of Hindustan. In theory, the cultivation of naval raw materials fulfilled the tenets of both mercantilist and physiocratic doctrine, while displaying a humanitarian concern for the welfare of the dispossessed. For this enlightened policy to succeed, however, a method first needed to be found to improve the quality of the indigenous fibres.

The East India Company also came under pressure from the Board of Agriculture, founded in London as a semi-official organisation with government backing in 1793. The president Sir John Sinclair, and secretary Arthur Young, represented the interests of an influential group of British landowners, whose chief concern involved the domestic improvement of grain and wool production. On account of the high value of British land and labour, the Board of Agriculture recognised that hemp and flax were unsuitable for their own estates, but regretted that the Russians received such an immense sum of money for these essential articles. Therefore, the institution shared the view that the Company’s access to ‘waste land’ and cheap labour should be exploited for the purposes of imperial self-sufficiency. But rather than attempting to improve the indigenous substitutes, the Board of Agriculture suggested what seemed a simpler alternative: the transplantation of European hemp and flax in India.

In 1797 Sir John Sinclair received a detailed proposal that supported this viewpoint, and forwarded the document to the East India Company and the Board of Trade. The author of the essay, George Sinclair, was a fellow Scot from Edinburgh though he was not otherwise related to Sir John, the renowned statistician and promoter of scientific agriculture. Unlike his namesake, George Sinclair left few traces on the historical record. Presumably, he was educated at Edinburgh University like so many botanists of the period, but may have fallen upon hard times as he sought patronage to undertake a voyage to the east. He certainly constructed a persuasive argument. The previous year, Britain had imported forty thousand tons of Russian hemp and flax, and he asserted that ‘To act under a necessitous dependence in articles of such importance, is inconsistent with the enterprizing character of this great nation; and not only humiliating, but truly dangerous.’ George Sinclair claimed to be an expert in the cultivation of these textiles, and his essay demonstrated his familiarity with the most advanced production methods. He volunteered to instruct the Indians in how to prepare the fibres for naval purposes.

The Scotsman understood that in the provinces of Bengal, Bihar and Benares – situated within the fertile valley of the Ganges – there remained ‘vast tracts’ of uncultivated land. This alluvial soil, he argued, was ideal for the transplantation of European hemp and flax. The practice would raise the value of the Company’s territorial possessions, and ultimately provide a potential revenue-stream of £2-3 million per annum. Moreover, the local inhabitants ‘now languishing in poverty and idleness, will find support and happiness, from the employment of the plough’. The

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25 For the relationship between Scottish universities and British economic botany, see David Mackay, ‘Agents of empire’, 41.
26 George Sinclair, Essay on The European Method of Cultivating and Managing Hemp and Flax; with Hints on the Propriety of Introducing the Same into the British Possessions in the East Indies (Edinburgh, 1797), 41-3.
Company had started to introduce the production of opium poppies and indigo, and he proposed that hemp and flax could be rotated with these items to keep idle hands busy in the fallow season.\(^{27}\)

The Board of Trade awarded Sinclair £500 plus a small salary to travel to Bengal and establish an experimental farm. Although the Court of Directors were unwilling to fund the enterprise, having already lost out on the earlier experiments, they allotted him a small dwelling at Reshera, near Calcutta, on a large acreage of cleared land.\(^{28}\)

The initiation of this experiment demonstrated the Board of Trade’s resolve to take a more pragmatic approach to the global search for hemp. In 1797 Hawkesbury finally realised that a greater level of expertise was required in the Council Chambers, leading to the appointment of Banks as a Privy Councillor. This provided the naturalist with formal recognition for his years of service to the empire, gave him a permanent seat on the Board of Trade, and greater influence in his dealings with the Court of Directors. Banks was familiar with the cultivation of hemp as the crop was still grown widely in his native county of Lincolnshire. Therefore, in addition to his status as the President of the Royal Society, his opinions on the topic were highly regarded by the other members of the Board of Trade.\(^{29}\)

Over the coming years, the Company came under further pressure to promote ‘the Growth of Hemp … or at least of a Vegetable, which though of a different name, will answer the same purposes as Hemp’.\(^{30}\) In 1792 the price for the Russian commodity


\(^{29}\) Gascoigne, *Science in the Service of Empire*, 12-5, 118, 141.

\(^{30}\) Board of Trade, 11 Dec. 1800. BT 5/12: 173-4.
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had returned to its average eighteenth-century level of £23 per ton. By 1800, however, the wartime cost had nearly tripled to the unheard of amount of £61.\(^{31}\) Under these circumstances, the Court of Directors became ‘exceedingly anxious to promote the wishes of His Majesty’s Ministers’. On account of Russia’s monopoly of the product, they feared ‘she may raise the price of it at her will’ and the directors finally accepted they might ‘remedy the Evil, by obtaining a Supply from our own Possessions.’\(^{32}\) To provide an incentive for the Company to revive the sunn trade, in 1800 the government removed the duties on imported hemp or substitutes from India. From both a political and economic perspective, an Indian hemp trade started to seem like a more attractive proposition for the Company, and the Navy Board formed the mistaken impression that large deliveries were imminent.\(^{33}\) But the project was far more problematic than it appeared in London.

**The species problem**

When George Sinclair arrived in Calcutta in April 1799, the Bengal Marine Board instructed him to sow 200 acres of hemp, the product in greatest demand, and 12 acres of flax.\(^{34}\) The commissioners of the Marine Board approved of this ‘highly laudable’ scheme as their cordage and canvas was imported from London, and the cost of the finished products had risen five-fold in Calcutta since the outbreak of war. But they doubted that Bengal would ever supply London with the raw material. In comparison to the Baltic, the freight costs from Calcutta for such a high-bulk/low-value article would be too excessive to make it profitable for the Company.

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\(^{31}\) ‘Prices paid for Hemp per Ton by the Navy Board from 1790 to 1800’, 17 Dec. 1800. BT 5/12: 208.

\(^{32}\) East India Company to Bengal Council, East India House, 10 Oct. 1800. BT 6/101.

\(^{33}\) Board of Trade, 14 Jan. 1801. BT 5/12: 265-6.

\(^{34}\) Marine Board, Bengal Public Consultations, 26 Apr. 1799. BT 6/101. Sinclair was also instructed to sow a small area with potatoes. A relative newcomer to the region, this was also viewed as an experimental crop. As in Ireland, the potato was seen as a potentially cheap and nutritious source of food for the local labourers.
Nevertheless, by providing a good-quality material for the local rope-walk, they anticipated the project would certainly contribute to imperial self-sufficiency in the east.\textsuperscript{35}

Dr William Roxburgh – the Superintendent of the Calcutta Botanic Garden from 1793 to 1813 – was less impressed when he first heard about the Reshera experiment. In his view, the Botanic Garden was designed for such a purpose; for several years now, he had worked on the project ‘at no expense, and with more prospect of success’. Although he only maintained a small crop of hemp, he believed it was large enough to set an example to the Indian cultivators, which he saw as the main point of the exercise.\textsuperscript{36} Roxburgh had taken charge of the Botanic Garden following the death of Colonel Kyd, and appeared to take Sinclair’s arrival as a personal slight.

Undoubtedly, Roxburgh was far better qualified for the task. His contemporaries referred to him as the intellectual successor to Linnaeus and praised him as ‘the founding father of Indian Botany’.\textsuperscript{37} Following his education at Edinburgh University, Roxburgh had first arrived in India in 1776. After a short spell as a Company Surgeon in Madras, he moved further north on the Coromandel Coast to Samulcottah on the Godavary River estuary. On his own initiative, he then founded the smaller Samalkot Botanic Garden in 1781, an experience that led to his appointment as Company Naturalist eight years later.\textsuperscript{38} Over the course of his career, Roxburgh acquired a solid grounding in the Linnaean system. His major contribution

\textsuperscript{35} Marine Board, Bengal Public Consultations, 18 Mar. 1799. BT 6/101.
to the ‘pure’ science of taxonomy is generally recognised as the illustrated *Plants of the Coast of Coromandel*, a publication sponsored by the Company and edited by Banks. At Calcutta, meanwhile, Roxburgh also contributed to the development of the ‘applied’ science of economic botany, by attempting to introduce such crops as tea, indigo and sugar to Bengal’s commerce. Although the Company paid his salary, Roxburgh conducted a great deal of his research under the aegis of Banks and the Board of Trade.

Roxburgh’s inquiries into the ‘vegetable fibres’ of Asia had begun at Samulcottah, where he first suggested the use of sunn and jute as naval fibres in the late 1780s. At the turn of the century, he wrote that nothing so deserved ‘the attention of the Philosopher or intelligent artist’:

> Cordage makes the very sinews and muscles of a Ship; and every improvement which can be made in its preparation, either in respect to strength, pliability, or durability, or in bringing to light substitutes equally good or better; particularly where Hemp itself cannot well be had must be of immense service particularly to the Mariner, and to the commerce and the defence of Nations.

Ultimately, Roxburgh spent twenty years of his career engaged in this research, but his attention was divided over a range of important projects. Therefore, Sinclair had been sent to act as the government’s hemp specialist in Bengal.

To meet this purpose, Banks sent Roxburgh a large quantity of the finest English hemp-seed. Upon inspection, however, the seed had perished on the voyage, a

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common occurrence at the time. Roxburgh lamented the carelessness of the captain who had been charged with its care, as hemp-seed was particularly sensitive to humidity and it had been stored in the ship’s hold. In future, he insisted, the seed should be stored in a ‘cool, dry airy place during the passage’ as it had a tendency to turn rancid on long voyages. In the meantime, the precious imported seed remained in short supply and he was unwilling to spare any of his own small stock. The Company promised to send more seed by every possible conveyance – whether on ‘Regular’ or ‘Country’ vessels – but while a further shipment was awaited the Marine Board supplied Sinclair with a quantity of the local hemp-seed.

Whether Indian hemp would serve as a textile crop remained uncertain. As Roxburgh’s deputy Dr James Fleming put it: ‘The Hemp-plant has been cultivated in Bengal from time immemorial for the purpose of intoxication; but is never used by the natives for cordage or cloth, as in Europe. The plant is called by them Ganja, and the intoxicating preparation made from it, Bang.’ Until recently, Indian hemp had only been viewed as a potentially useful medicine by British botanists, though its properties remained poorly understood in northern Europe. The Portuguese had commenced this medicinal research in late-sixteenth century Goa, but English researchers barely knew of the existence of bhang for another hundred years. When the Royal Society first witnessed the plant in 1704, they recorded with surprise that it

44 Bengal Public Consultations, 12 Sep. 1799. BT 6/101. The Company sent more seed from England in May 1800, but this also perished. Six months later, they promised in future to pack it ‘in a different manner’ from the usual sacks. East India Company to Bengal Council, 6 Nov. 1800. BT 6/101.
46 For example, see the entry for ‘Bangue’ in Robert James, A Medicinal Dictionary, Vol.1 (London, 1743).
4. Indian Hemp

‘very much resembles our Common Hemp’.\(^{47}\) Roxburgh and Fleming may well have built upon this strain of medical knowledge in an earlier period, but such interests had been subsumed by the British naval imperative. Due to the difficulties of acquiring English seed in a vegetative state, their research focused on the potential of Indian hemp as a source of fibre.

When Linnaeus typified *Cannabis sativa* in 1753, his analysis suggested that the genus only possessed a single species. But though he attributed the plant’s native origin as India, he had based this classification upon a European hemp cultivar.\(^{48}\) Thirty years later, the naturalist Jean Baptiste de Lamarck acquired a dried specimen of an Indian hemp plant in France. He claimed it was ‘very distinct’ and represented a separate species which he named *Cannabis indica*. On account of the specimen’s relatively short and brittle stem, Lamarck doubted that the Indian species could provide the same yield and quality of fibre as its European relation.\(^{49}\) At the Calcutta Botanic Garden, however, Roxburgh acquired far greater knowledge about the relationship of these plants than either of his better-known predecessors. His experiments persuaded him that Indian hemp could indeed supply fibre, and his analysis appeared to resolve the species problem associated with the plant.

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\(^{48}\) Carl Linnaeus, *Species Plantarum*: 2 (Holmiae, 1753), 1027.

\(^{49}\) Richard Evans Schultes, William M. Klein, Timothy Plowman, and Tom E. Lockwood, ‘Cannabis: An Example of Taxonomic Neglect’ in *Cannabis and Culture*, ed. Vera Rubin (The Hague: Mouton, 1975), 22-31. In modern taxonomy, Linnaeus is associated with the naming of *Cannabis sativa*, but he was not the first to apply the binomial which translates as ‘cultivated hemp’. See Caspar Bauhin, *Pinax Theatri Botanici siue Theophrasti Dioscoridis Plinii et Botanicorum* 1\(^{st}\) ed. 1623 (Basel, 1671), 320. Under the same genus, the Swiss botanist classified ‘Bangue’ as *Cannabis similis exotica*. 
Roxburgh compared English and Indian hemp through all their stages of growth from germination to harvest. He concluded there was ‘no difference whatever, not even to found a variety on’ and confirmed that Indian hemp ‘is no doubt our own famous plant, now so common and useful in Europe.’ He thought it remarkable that ‘Perhaps few vegetables, so widely diffused over almost every part of the known world, and under the immediate management of man, have undergone less change’.\textsuperscript{50} Taxonomists continue to debate the issue in the present era, but the theory that \textit{Cannabis indica} is a variety of \textit{Cannabis sativa} (rather than a separate species) has now become the general consensus, so Roxburgh’s analysis is largely supported by modern science.\textsuperscript{51} Later on in the nineteenth century, British cultivators found that Indian seed certainly produced good fibre, though it produced unsatisfactory yields for the first few years while the variety adapted to this purpose. Whether the cultivator aimed to produce fibre or the medicine/intoxicant, selective breeding was necessary for the species to acquire the most desirable traits.\textsuperscript{52}

From an imperial perspective, then, the problem with the local plant was cultural rather than genetic. Above all, it was recognised that Indian hemp would have ‘to be cultivated in a different mode from that used by the natives’.\textsuperscript{53} To produce fibre, European cultivators sowed their hemp-seed closely together to encourage the vertical growth of the stems; the plants needed to be tall and straight with as few branches as possible. To produce the intoxicant, however, the complete opposite was the case. Indian hemp growers spaced the plants apart to encourage lateral growth from the

\textsuperscript{52} Alex J. Warden, \textit{The Linen Trade, Ancient and Modern} 2\textsuperscript{nd} ed. (London: Longman, 1867), 44.
\textsuperscript{53} Fleming, Bengal Consultations, 5 May 1801 in Wissett, \textit{A Treatise on Hemp}, 21-2.
more even distribution of light. Fleming observed: ‘Instead of sowing the Hemp
(Cannabis sativa) very thick, as it ought to be done when the plant is intended for
cordage, the natives sow it very thin … placing them at a considerable distance from
each other, often nine or ten feet.’\textsuperscript{54} A plant grown in this way produces a bushier
specimen. This was crucial for local purposes as the branches hold the seed-bearing
heads of the female plant, which contain the bulk of the psychoactive resin. However,
little fibre was available from these relatively squat individual plants.\textsuperscript{55}

On the whole, the British authorities had no objection to this custom as Indian hemp
products were simply viewed as an indigenous ‘substitute for malt’.\textsuperscript{56} Indeed, the East
India Company profited from the South Asian trade by imposing an excise tax from
1793.\textsuperscript{57} But the local hemp culture was problematic for the naval imperative, as the
Indian cultivators appeared unwilling to change their production methods. The
Bengal office of the Board of Trade reported that ‘they are notoriously wedded to
their own customs and habits, and averse to innovation of any kind.’\textsuperscript{58} This was
hardly surprising considering the greater returns that would have been available from
their individual plants. But it was hoped that Sinclair’s experiment – which was on a
much larger scale than Roxburgh had attempted – might persuade them to adopt the
European custom, once a fixed price and ready market for the product had been
established by the Bengal Marine Board.\textsuperscript{59}

\textsuperscript{54} Fleming in Wissett, \textit{A Treatise on Hemp}, 52.
\textsuperscript{55} The species only produced this psychoactive resin in a hot climate. In northern Europe, hemp was
not traditionally used as an intoxicant and possessed few medicinal uses. Raman, ‘The Cannabis
Plant’, 29-54. See also the entry for ‘Hemp’ in James, \textit{A Medicinal Dictionary}.
\textsuperscript{56} Milburn, \textit{Oriental Commerce} (1813) cited in Isaac S. Homans, \textit{A Cyclopaedia of Commerce and
University Press, 2003), 58.
\textsuperscript{58} Board of Trade, Bengal Consultations, 5 May 1801 in Wissett, \textit{A Treatise on Hemp}, 54.
\textsuperscript{59} Marine Board, Bengal Public Consultations, 18 Mar. 1799. BT 6/101.
Yet sowing 200 acres by the European method required an enormous amount of seed. Although Indian hemp grew throughout the subcontinent, Roxburgh pointed out that the plant was only found in relatively small quantities, so the seed was difficult to acquire in bulk. The Marine Board also reported that their current stock of ‘Gunja Seed’ was inadequate for the task. For the time being, then, Sinclair sowed the bulk of his acreage with Bengal sunn. As part of his experiment, he intended to manufacture sunn by the European method and then compare its quality to the ganja fibre. Sadly, he never had the opportunity to harvest the plants. After several months of toil in the tropical heat, this servant of empire was found dead at his premises. No reason was ever given for his untimely demise, which provoked little sympathy from the authorities. Of greater importance, an officer was sent to Reshera to check on the progress of the experimental farm, who found the plantation in ‘a flourishing state’. Consequently, Thomas Douglas – an assistant at the Botanic Garden – received orders to take up residence on the farm and continue the work.

When Roxburgh finally visited the large crop, he was so impressed that he started to use the Reshera farm for his practical demonstrations. In December 1800, the Board of Trade learned that he had shown a group of Indian cultivators how to produce their ganja by the European method, who had witnessed that the fibre was ‘infinitely better’ than the strongest sunn. He made it clear that the mode of production was a simple process, and if the hemp was grown in sufficient quantities there would be ample profit to make the practice worthwhile. Roxburgh believed these growers were ‘perfectly convinced’ by his demonstration. Indeed, one of them promised to supply

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60 Roxburgh to Bengal Board of Trade, 12 Sep. 1801 in Robert Wissett, On the Cultivation and Preparation of Hemp (London, 1804), 18.
around seventeen tons of the raw material for about £35 per ton. Within a few short years, Roxburgh thought the culture would be widely adopted in Bengal. Later, he believed, the practice would inevitably become more diffuse and start to take root in other parts of India.  

In comparison to the Botanic Garden, Reshera appears to have been more suited to the culture of hemp. This was probably the result of better drainage, though the site was also located in the vicinity of the Hooghly River, and Roxburgh understood that this swampy landscape was not ideal for large-scale hemp cultivation. He therefore recommended that even larger experiments should take place in the Bengal interior, or further afield in the district of Patna in Bihar, in order to accelerate the diffusion of the practice. Ideally, he thought, hemp should be grown on the elevated rich and loamy soils where the ryots presently cultivated tobacco, sunn and jute.

All of this information made perfect sense to Banks, who pulled the levers of power to put a plan into motion. On behalf of the Board of Trade, he composed a letter to the Court of Directors in June 1802 to instruct them to further encourage ‘the Growth of Strong Hemp’ of any variety. After a ‘long and laborious Investigation’, he explained, their lordships had decided that India offered the most feasible alternative to Russia, for the supply of an essential article for ‘the Defence of the Realm’ and ‘the Annoyance of our Enemies’. Banks also announced his intention to direct a ‘Trial of the European Hemp Plant in India, on an enlarged scale.’ For this purpose, his agent had collected a large quantity of hemp-seed in Lincolnshire and packed it carefully in

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63 Roxburgh, ‘Observations on the Sun Plant of Bengal’ read by Banks to the Board of Trade, 19 Dec. 1800. BT 5/12: 212-3; Fleming in Wissett, A Treatise on Hemp, 53.
thin linen cloth, while Banks insisted that the packets should be stored in the stern
galley during the voyage. He also selected six men from Lincolnshire, ‘conversant in
the English manner of cultivating and preparing Hemp’, who travelled to Bengal to
act as superintendents for the experiment. The Company was expected to provide
small premiums to the Indian farmers who adopted the culture. In return, the
Company was offered a fixed price to supply the Navy of around £40 per ton,
providing the material was deemed strong enough for cordage.65

For their part, the Court of Directors vowed to ‘take the needful measures’ and
promised to support the ongoing experiments with hemp, ganja and sunn.66 But cargo
space was a valuable resource that they could not afford to waste on an inferior
product that the Navy might reject. Instead, they intended to ensure that the culture
had been perfected in India before committing themselves to such a risky speculation.
To achieve this, the directors commissioned Robert Wissett – the Company clerk who
distributed the hemp correspondence in London – to compile a pamphlet of
instruction. The Company’s commercial representatives would then attempt to tutor
the Indians in how to prepare the fibres for British trade.67

**Asia’s natural bounty**

Following the commencement of these measures, Roxburgh largely concluded his
contribution to the economic botany of *Cannabis sativa*. At a time ‘when the
attention of all good patriots is drawn towards the discovery of a substitute for

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65 Banks to Court of Directors, 18 Jun. 1802. BT 5/13: 322-8; Banks, Hemp Correspondence.
JBK/1/10: fos 32, 38, 41, 57; Contract between Banks, and Edward Porter and others, 1 Apr. 1801.
67 Wissett’s *A Treatise on Hemp* (1808) was the second edition of his earlier work *On the Cultivation
and Preparation of Hemp* (1804). For further information on Wissett, see William Ramsay to Sir
Stephen Cottrell, 4 Feb. 1804. BT 6/100.
Russian hemp’, he returned to his studies of lesser-known plant fibres. Since Banks had first described the New Zealand hemp or flax plant, European naturalists had pondered whether a superior alternative to these textiles existed somewhere in the world. Roxburgh aimed to build upon this specific strand of useful knowledge, and his position at the Calcutta Botanic Garden enabled him to conduct the most thorough investigation of the possibilities to this point in time. In 1801 he sent a detailed memorandum of his progress to Wissett, who sent copies to the Court of Directors, the Board of Trade and the Society of Arts. ‘Nature is abundantly kind,’ wrote Roxburgh, ‘and furnishes every country and climate with what is most proper for the use of its inhabitants.’ He felt confident that Asia’s natural bounty could be exploited in support of the war effort.

In 1793 Roxburgh had first described the qualities of the ‘Indian Bow-String Flax’ (*Sanseviera* spp.), a rhizomatic plant from the agave family, that supplied a traditional source of cordage in Asia and Africa. Four years later, he sent samples of the raw material to the Court of Directors, claiming it was probably ‘the strongest vegetable fibre we are acquainted with’, but never received a response.

Undeterred, he then started to explore the potential of the Malaysian feather palm or sugar palm (*Arenga pinnata*), which also grew in Sumatra, Java and parts of eastern India. The base of this palm was densely clothed in strong, water-resistant fibres known as ejoo or gomuti, while the tree was also used for the production of sago and toddy (palm

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Roxburgh regretted that he was unable to obtain a sample of New Zealand flax, which had started to make its way from Kew to other parts of the world. *Phormium tenax* was introduced to the south of Ireland in 1798, and four years later it was planted in the St Vincent Botanic Garden in the Caribbean. But the plant never arrived at Calcutta during Roxburgh’s lifetime, and neither did he have access to the Chinese hemp strain. Even so, he eventually supervised the manufacture of twine from nearly thirty different plants. With characteristic attention to detail, he tested their relative breaking points – both dry and wet – through the use of weights, and then compared their strength against imported hemp-twine from England and Indian hemp sourced from Reshera.

These experiments included coir, sunn and two species of jute. In addition, several species of *Hibiscus* were tested including one used ‘for cordage by the inhabitants of the South Seas’, and the *Hibiscus cannabinus* – sometimes referred to as ‘the Brown

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74 For final results in tabular form, see *Transactions of the Society of Arts Vol.XXIV* (London, 1806), 144-7. For his attention to detail more generally, see Robinson, ‘William Roxburgh’, 262-7.
Hemp of Bombay’ – which was used in Maharashtra for coarse sacking. Other plants included the Nepalese orchid tree (*Bauhinia* spp.), the American aloe (*Agave americana* – native to Mexico), and even the bark of a tree that was used to restrain wild elephants in Bengal (*Sterculia villosa*). Roxburgh also oversaw the spinning of yarn from Indian flax (*Linum usitatissimum*), possibly for the first time he thought. This was the same species that grew in Europe, but in common with hemp the Bengalis traditionally discarded the stems. Instead, they harvested the flax-seed to make linseed oil for their cook pots. To assist the locals to improve their agriculture, Roxburgh aimed to demonstrate the plant’s superiority over jute as a source of fibre. Unsurprisingly, Roxburgh found that English hemp, a dedicated textile strain, was slightly stronger than the Indian variety. Both of these plants were at the upper end of the scale, but he also found the strength of *Cannabis* fibre was not particularly remarkable when pitted against so many other genera. For example, the ejoo or gomuti scored well, but the strongest fibre of all – by a large degree – was the calooee or Sumatran nettle hemp (*Urtica tenacissima*). Roxburgh’s significant contribution to the collection of useful knowledge was recognised in London. Under the category of ‘Colonies and Trade’, the Society of Arts awarded him their annual Gold Medal in 1805 for his communications on Asian plant fibres. Over the coming years, he continued to promote the virtues of the Sumatran nettle, and later reminded the Board of Trade that ‘the commodity itself is so very superior, even to the very best Russian

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Hemp’. Ultimately, events in Europe moved too fast for Roxburgh’s research to make a practical contribution to the war effort, though he left a significant legacy for others to explore after his death in 1815. By the mid-nineteenth century, jute in particular had started to play an important role in reordering the Bengal economy and the mechanisms of world trade.

During the Napoleonic wars, however, sunn remained the most realistic alternative for the production of naval cordage. None of the lesser-known fibres were available in sufficient quantities to alleviate Britain’s wartime dependence on Russia, while jute was considered more suitable for cloth. The Navy had access to other sources of flax besides the Baltic so the supply of sailcloth was much less of an issue at this time. As an emergency resource, Roxburgh conceded that sunn was the most feasible hemp substitute in the short term. To encourage larger-scale cultivation, beyond the needs of local commerce, he recommended that a fixed price should be offered to the Bengali sunn farmers who refused to grow hemp by the European method. While sunn remained an inferior alternative at present, Roxburgh thought this might have been the result of what he saw as the more advanced techniques of European husbandry. In 1801 he suggested that methods could still be found to improve the preparation, cleaning and packing of the raw material, in which case it might prove equally strong as the Russian product.

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79 Roxburgh, Calcutta Botanic Garden, 18 Dec. 1809 in Further Extracts of Correspondence Relating to Indian Hemp [Between W. Roxburgh and R.C. Plowden, Acting Secretary to the Board of Trade] BL, 3.
80 J. Forbes Royle was the most significant researcher to build upon Roxburgh’s legacy. See The Fibrous Plants of India, op. cit. For more on the adoption of jute in British industry, see Warden, The Linen Trade, 66-89. For the social and economic changes that occurred in Bengal as a result of mass jute production, see Bose, Peasant Labour, 52-63.
81 For example, the Navy Board had started to acquire flax and sailcloth from Ireland. Board of Trade, 21 Mar. 1801. BT 5/12: 294-5.
82 Roxburgh to Board of Trade, 29 Jun. 1801. BT 6/100; Roxburgh to Wissett, Calcutta, 27 Feb. 1801 in Transactions of the Society of Arts Vol.XXII, 369-71.
Following this recommendation, Dr Fleming conducted a thorough investigation of the culture of Bengal sunn. In common with European hemp or flax, the plant was prepared through steeping in water, but Fleming concluded that the Bengalis steeped the product for too long. Moreover, they immersed the stems in water directly after pulling them from the ground, rather than first drying them out in line with the European custom. In his opinion, they used this method ‘to save trouble, as the fibres, in this way, separate easily, without requiring them to be bruised or heckled.’ He therefore blamed the comparative weakness of sunn on what he saw as the inherent laziness of the local producers. For optimum strength, Fleming recommended the stems should be dried for two days and then steeped for forty hours, instead of the three or four days of water-retting that the Bengalis traditionally used. This was much shorter than the usual European method, but he found that the hot climate accelerated the process.  

At Reshera, Thomas Douglas tested and confirmed Fleming’s observations, before instructions were delivered to various townships in an attempt to instruct the local labourers. In most places, though, these efforts only led to frustration. As with Indian hemp, the ryots proved reluctant to depart from their usual production methods. The Company’s Resident at Dumroy complained that ‘the Natives manifested the most inflexible obstinancy’. He sent an expert ‘to instruct them in the new mode, who shewed them that it was practicable, they still refused to deviate from their custom.’ Apparently, they felt so strongly about the issue they exclaimed: ‘You may imprison our persons, you may strike our necks, but never will we make Sunn

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83 Fleming, Bengal Consultations, 5 May 1801 in Wissett, A Treatise on Hemp, 162.
84 Douglas, Bengal Consultations, 5 May 1801 in Wissett, A Treatise on Hemp, 200.
according to the Advertisement. The Chittagong Resident also attempted to instruct the local labourers in the improved method of preparation. After his efforts went unheeded, he tersely reported that ‘The Natives are obstinate and stupid.’ Faced with this sort of attitude, the labourers probably enjoyed provoking the exasperation of the commercial residents.

On occasion, the Indians’ seemingly stubborn attitude to change reflected the age-old principle of passive resistance to the oppressor. Since antiquity, sunn had served a range of useful purposes and the ryots were perfectly satisfied with the traditional means of production. Like many other indigenous products, including bhang, the textile was associated with the Vedic tradition. Its name derived from the Sanskrit term Sana, which represented the sacrificial thread of the Rajput warrior caste. At the end of the day, the Bengalis had their own established trade networks, and Britain’s urgent need for cordage was simply not their concern.

In general, British naturalists had a great deal of respect for the ancient civilisation of Hindustan. The Vedic tradition illustrated that the recording of natural knowledge had been significant in India for thousands of years. Yet according to this orientalist conception, the indigenous civilisation had been degraded through successive waves of Mughal invasion and had long since entered a period of decline. While European science and technology had developed rapidly since the renaissance, it seemed that

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85 Dumroy Resident, Board of Trade Consultations, 13 Jul. 1801 in Wissett, A Treatise on Hemp, 212.
86 Chittagong Resident, Board of Trade Consultations, 8 Sep. 1801 in Wissett, A Treatise on Hemp, 201.
87 Royle, The Fibrous Plants of India, 271. For the ancient and modern usage of Cannabis products in India, see Kwaja A. Hasan, ‘Social Aspects of the Use of Cannabis in India’ in Cannabis and Culture, 235–46.
Indian culture had failed to progress. Roxburgh and his ilk therefore viewed themselves as benefactors and saw their interventions into local agriculture in a charitable light, but this patronising attitude created problems in their attempts to improve the cultures of sunn and hemp. Understandably, the Bengalis resented this intrusion into their affairs and often refused to cooperate.

Nevertheless, the British authorities believed they had a moral right to reorder Indian society and expand their economy, while the environment was viewed as an imperial commodity to be reshaped at will. Imperial power dictated that local customs were inferior and that only Europeans had the wit to apply knowledge and reason to agriculture. As the naturalists thought the ryots used their resources in a wasteful manner, they were expected to submit themselves to instruction for the greater good of all. However, the problems with sunn and hemp demonstrate how the patriotic schemes of the invasive authorities were often let down in their practical execution. Neither could the blame be solely attributed to the local labourers. The six men from Lincolnshire failed to persuade the Bengalis to abandon their traditional method of hemp cultivation. One of them died soon after arrival, while the others complained of haughty treatment from Roxburgh and the Bengal Board of Trade. They then disappeared from the historical record.

To be fair, not every British official displayed the same level of arrogance or agreed that the new method of sunn preparation represented an improvement. The Keerpoy

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Resident managed to persuade the labourers to follow the instructions, but decided that ‘the mode practised by the Natives is preferable.’ He thought it best to let them prepare the product in their accustomed manner.\footnote{Keerpoy Resident, Board of Trade Consultations, 8 Sep. 1801 in Wissett, A Treatise on Hemp, 201.} Furthermore, Captain Robert Burrowes conducted an experiment that suggested the product was already suitable for naval purposes. In 1800 the Company vessel \textit{Earl Howe} was rigged with cordage made from Bengal sunn. On the voyage from Calcutta to London, Burrowes found it was ‘equal in strength to the best English rope in the ship.’\footnote{Court of Directors to Governor General in Bengal, East India House, London, 10 Oct. 1800 in Transactions of the Society of Arts Vol.XXXIII (London, 1815), 162; Banks, JBK/1/10: fo. 57.} Country ships also utilised the native resource on a regular basis without any cause for complaint.\footnote{Bulley, The Bombay Country Ships, 99.}

**Malabar Hemp**

While the Bengal authorities struggled in vain to understand the Indian mindset, a more promising development occurred on the other side of the subcontinent. As a result, Bombay rather than Calcutta came to be viewed as the most likely source of a regular supply of sunn. In March 1802 Captain Isaacke, of the Company vessel \textit{Skelton Castle}, informed the Board of Trade in London that he had acquired sixty-three bales of Malabar hemp. This referred to the sunn that grew on the west coast, which in his opinion was nearly as good as the Russian product.\footnote{Board of Trade, 9 Mar 1802. BT 5/13: 71-2.} After testing the sample, the Navy Board confirmed that it was not quite as strong as the St Petersburg fibre, but were still very impressed by the Malabar substitute. It was only one-seventh degree weaker, which made it suitable for running rigging, if not cables and hawsers.\footnote{Board of Trade, 18 Jun. 1802. BT 5/13: 291-7, 322-8; Banks, JBK/1/10: fo. 57.} Banks advised that further investigations were required in order to properly instruct the Malabar growers. But he thought the product could definitely
4. Indian Hemp

serve as an emergency resource, while providing a ‘lucrative Traffic’ for the Company.96

By January 1803, the price of Russian hemp in London had climbed to £90 per ton. The Malabar substitute retailed for £19 in Bombay, and new methods were being devised to freight the product as cheaply as possible for between £15 and £20 per ton. The Board of Control for India recommended Salsette Island – the site of the modern metropolis of Mumbai – as the most suitable place to expand production. Large expanses of ‘waste land’ still existed on the island, where Dr Helenus Scott had already started to experiment with the cultivation of sunn. It was suggested that sending European hemp-seed to Bombay might help to improve the culture, but Scott disagreed. In his experience, the imported seed was difficult to germinate and he believed the native resource was more than adequate for the same purpose. Should the experiment prove successful, the Board of Control hoped it might fund the Company’s expansion on the Malabar Coast.97

Four years later, the alarm caused by the Baltic Blockade – covered in detail in the next chapter – resulted in the shipping of the first large cargo of Malabar hemp. In October 1807, the Navy Board purchased fifty tons of the product from the East India Company at a price of £40 per ton. This was cost price – at £20 for the product and £20 for freight – and the Navy assumed this purchase would lead to further deliveries in London.98 In December that year, the commissioners wrote to Bombay to explain that, under the present circumstances, quantity was more important than quality. They

97 Board of Commissioners for the Affairs of India, Bombay Dispatch, 6 Jan. 1803. BT 6/100; Dr Helenus Scott to Bombay Government, 31 May 1803 in Wissett, A Treatise on Hemp, 24-5; Banks, JBK/1/10: fo. 57.
wanted immediate information on the progress of sunn cultivation on Salsette Island, and asked how long it would take before much larger quantities could be delivered.\footnote{Letter to Bombay, 30 Dec. 1807. ADM B/231.}

In the same month, the Navy Board informed the Company that ‘utmost economy’ was required with regards to naval stores. Therefore, they could no longer expect to receive supplies of Russian hemp, and would have to rely on indigenous resources for the duration of the war.\footnote{Navy Office, 7 Dec. 1807. Reply from Admiralty, 9 Dec. 1807. ADM B/229.} On account of the increased demand for their own vessels, however, the Company reported that it was unable to supply London with large quantities of sunn at present. Moreover, their agents would have to provide advances to the growers, and the Company’s finances were under severe stress. In order to establish a future supply for the Navy, they requested an upfront payment of £80,000 in silver bullion.\footnote{W. Ramsay, East India House, 24 Dec. 1807. ADM/BP/28; W. Ramsay, East India House, to R.A. Nelson, Navy Board, 13 May 1808. ADM B/231.}

Taken aback by this request, the Navy Board initially decided to cease negotiations with the Company, who had reneged on their promise of payment on delivery.\footnote{Navy Board to Admiralty, 2 Jan. 1808. ADM/BP/28.} Out of mounting desperation, though, the bullion was sent to India in May 1808, together with an order for 5,000 tons of sunn for that year, 7,000 tons for 1809, and 8,000 tons in 1810. But this was impossible, according to the Company, who wanted to shift the dates forward a few years.\footnote{Letter to Bengal, 13 Jun. 1808. ADM B/231; Davey, ‘Securing the Sinews of Sea Power’, 176-7.} Against the Company’s wishes, Bombay government officials then encouraged Country merchants to ship the raw material, which the directors saw as a contravention of their monopoly. By the time it arrived, though, the Navy had already filled their stores with Russian hemp, and the worst of the crisis
had passed. Consequently, the merchants were left out-of-pocket and had to seek other outlets on the British market.\textsuperscript{104}

In comparison to the Norfolk Island experiment, the production of Salsette hemp – as the fibre also came to be known – certainly represented a successful endeavour. During the Baltic Blockade, the material was extensively used in the Bombay rope-walks, while it later provided a useful resource for binding cotton bales for export.\textsuperscript{105} Indeed, merchants and seamen found the product indistinguishable from the European raw material, and often confused it with the ‘true’ hemp. This also caused confusion in London. In December 1809, Roxburgh sought to clear up this misunderstanding with the Board of Trade, who had been informed that Bombay could supply the Navy with ‘7 or 8000 tons of real Hemp’ per annum. ‘This you may be assured is a mistake’, he wrote, ‘Sunn has very generally been called Hemp over India, and even to this day, many, who we might think ought to be better informed, insist on it that Sunn is Hemp.’\textsuperscript{106} On balance, the evidence suggests that the raw material was perfectly suitable for naval purposes, yet there remained a residual prejudice towards the native resource.

As events turned out, neither Bombay nor Calcutta displaced the Navy’s reliance on St Petersburg and Riga during the Napoleonic wars. In hindsight, the exportation of finished cordage from Bombay would have been the most effective way to relieve London’s fears of a naval shortage, and far more efficient from a commercial perspective. At this stage, however, the British state remained too attached to the

\textsuperscript{104} Robert Rickards to Court of Directors, 9 Sep. 1812 in House of Commons, \textit{Papers relating to East India Affairs} (London, Jun. 1813), 5-9.
\textsuperscript{105} Bulley, \textit{The Bombay Country Ships}, 100.
\textsuperscript{106} Roxburgh, Calcutta Botanic Garden, 18 Dec. 1809 in \textit{Further Extracts}, 3.
principles of the old mercantilist system. Although import duties were removed on
the different varieties of Indian hemp, policy makers still aimed to protect domestic
manufacturers from competition with colonial products. At the height of the
perceived crisis, even the Navy demanded the importation of sunn in its raw state.\(^\text{107}\)
It remains unclear whether the Company could have done more to assist the Navy
during this period, but the Company’s perceived lack of cooperation surely
contributed to the shift towards a freer system of trade in the post-war period. This
theme will be revisited in later chapters with regards to Ireland, Canada and Australia.
First, though, the narrative returns to Europe during the Napoleonic wars.

Chapter 5: Hemp and the Continental System

In 1799 Henry Dundas, the Secretary of State for War, asserted that Britain’s ‘power and dignity, as well as the safety of Europe, rests on our being the paramount commercial and naval power in the world’.¹ On the European continent, however, the French military reigned supreme, resulting in a long and costly stalemate that the belligerents attempted to resolve through the first major example of economic warfare.² As the enemy was well aware, a sustained interruption to the supply of hemp would have been disastrous for the British war effort, their economy and way of life.³ Although India offered the greatest hope of relief, this contingency plan was woefully undeveloped leading to the investigation of a range of other options. This chapter explores the potential acquisition of an emergency supply from England and Scotland during the Napoleonic wars, and examines why hemp cultivation virtually disappeared from the British mainland at a time of the direst need. First of all, though, I outline the mechanisms of the Russian hemp trade in order to illustrate the scale of the problem.

Russian hemp

Following the outbreak of war in 1793, the British Navy resumed its usual wartime policy of intercepting neutral ships carrying naval stores destined for enemy ports. This was viewed as a legitimate tactic in London, but caused resentment amongst the

Baltic states. According to the long-established maritime principle of ‘free ships, free goods’, neutrals could supply these items to any belligerent nation. The tipping point occurred in July 1800 when the Navy intercepted a convoy of Danish vessels headed for France. The merchants protested in the strongest terms and a standoff ensued while a British squadron was dispatched to Copenhagen. After the Danes finally allowed the convoy to be searched, the diplomatic crisis appeared to have been resolved, but Tsar Paul I was disgusted by this display of British arrogance and refused to let the matter rest. Russia had recently split from its coalition with Britain and Austria, and was starting to move towards an alliance with France.

In August 1800, the Tsar invited the monarchs of Denmark, Sweden and Prussia to re-establish the Armed Neutrality of 1780, while declaring a unilateral embargo on Russian trade with Britain. This resulted in the immediate detention of 200 British merchant ships and 2,400 seamen at St Petersburg and Riga, with cargoes of naval stores including 9,000 tons of hemp. Paul’s actions, like those of his mother twenty years earlier, appeared inconceivable in London. Britain remained Russia’s largest customer and hemp was her most valuable export. During the embargo, the Board of Trade calculated that Britain currently imported about 30,000 tons of hemp per annum, of which 12,000 tons was required for naval uses, and all but a tiny fraction of this amount came from St Petersburg and Riga. Masts could be obtained from Norway and Canada, and flax was available in Ireland, but there was no immediate

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4 The Dutch first established this principle in the seventeenth century, but the English maintained that confiscating enemy goods in neutral ships was acceptable wartime practice. Lance. E. Davis and Stanley L. Engerman, Naval Blockades in Peace and War: An economic history since 1750 (Cambridge: Cambridge University Press, 2006), 6-8.
alternative to Russian hemp. In December, the Navy Board still retained the hope that ‘the spirit of Commerce’ would allow the departure of the vessels in the summer.\textsuperscript{8} At present, though, the blockade had been strengthened by the Baltic ice.

Stephen Sharp, the British Consul at St Petersburg, was asked to provide a thorough report on the situation for the authorities in London, including a detailed analysis of the Russian hemp trade. While merchants rarely ventured beyond the Baltic ports, Sharp had travelled extensively through the Russian interior during his twenty-five years in the country, and acquired a great deal of knowledge about this specific branch of commerce. His report tended to confirm the Navy Board’s optimism, but also illustrated the difficulties of establishing an alternative supply.\textsuperscript{9}

The Russian system of hemp production and distribution had gradually evolved to meet the demands of the world market, chiefly through the agency of the British and Dutch merchant fleets. At St Petersburg and Riga, the foreign merchants paid considerable advances to their Russian counterparts, who employed clerks to scour the countryside and attend local markets in order to purchase the product. To keep the system circulating, the Russian clerks also paid advances for crops that were still in the ground, which assisted the growers to pay their annual rent to the landlord. Yet rural Russia was a semi-feudal society, which resulted in a lack of surplus labour and meant the crop was rarely grown by individuals on a large scale. Instead, the peasantry cultivated small plots of about two or three acres near their dwellings that each household prepared over autumn, winter and the following spring.\textsuperscript{10}

\textsuperscript{8} Navy Office, 24 Dec. 1800. BT 6/100.
\textsuperscript{9} Report from Stephen Sharp, Consul at St Petersburg, received by the Board of Trade, 23 Dec. 1800. NA: PRO 30/8/301: 223-30; Board of Trade, 19 Dec. 1800. BT 5/12: 213-7.
\textsuperscript{10} Sharp to Board of Trade. PRO 30/8/301: 223-30; Board of Trade, 19 Dec. 1800. BT 5/12: 213-7.
5. Hemp and the Continental System

The bulk of the hemp originated far from the Baltic coast. The southern provinces of Russia and the Ukraine represented the major region for hemp production, while the crop was also grown extensively in Polish provinces under Russian control. Land was considered plentiful in these areas and the soil was rich and deep. To bring it to port, the product was transported by river on large, flat barges, each of which held about 80 to 90 tons of raw hemp. Loading occurred during winter, and after the ice had melted the barges floated downstream with the floods. The means of navigation were far more problematic at St Petersburg, where canals had been constructed to bring the product to the nearby outlet of Kronstadt. As the barges could not return to their place of origin, they were then broken up for firewood leading to widespread deforestation in the hemp-producing regions.

The complexity of the system meant there was a considerable delay between the foreign merchant’s advance payment and the actual delivery of the product to his vessel. The process sometimes took nearly two years, but the Russian government ensured there was a high degree of quality control in order to keep their customers satisfied. Once the product arrived at port, it was first delivered to government warehouses where it underwent a careful inspection process known as ‘braaking’, which divided the raw material into four different grades. The British Navy insisted on the first grade for the production of cordage; this was known as ‘clean Hemp’ and contained the longest, strongest fibres, which had been cleaned of any impurities. The

11 Sharp to Board of Trade. PRO 30/8/301: 223-30.
12 Peter I founded St Petersburg in 1703 when Russia lacked an outlet on the Baltic coast, but the site did not possess the natural advantages of Riga with regards to river transport. Russia captured Riga from Sweden in 1711, but the Tsar continued to divert trade to St Petersburg. By the 1790s, the city had a larger population than Moscow and was Russia’s busiest port. Robert E. Jones, ‘Getting the Goods to St Petersburg: Water Transport from the Interior 1703-1811’, Slavic Review, 43 (3) (1984), 413-33.
second grade – or ‘Outshot’ – consisted of the shorter and finer fibres that were suitable for canvas, while the third grade – or ‘half Clean’ – was useful for sacking. Finally, the refuse from the heckling process – known as ‘Codilly’ (or ‘Tow’ in England) – provided caulking for ships. A custom house seal was used to certify the quality of the fibres, while the ‘braakers’ faced severe penalties for attempting to deceive the foreign merchants. Following the delivery of the product, the government collected its export duties.\(^\text{13}\)

In his report, Sharp emphasised that ‘This Trade is of the utmost consequence to the Empire of Russia’ for ‘A stoppage to this Trade would paralize the Empire in every vein’. It employed vast numbers of the poor in growing, preparing and transporting the raw material, contributed to the growth of an urban merchant class, and provided a major source of wealth for the landed aristocracy. This enabled the Russians to purchase the foreign goods and luxuries to which they had become ever more accustomed during the eighteenth century. In total, Britain consumed two-thirds of Russia’s hemp and an even greater proportion of the first-grade product. From a British perspective, then, the Russian embargo defied all reason as these two great empires – of the land and sea – seemed to exist in a state of mutual dependence.\(^\text{14}\)

Yet such a view failed to account for the very different nature of the British and Russian economies. Britain was the most advanced commercial nation in the world, which meant that her wealth depended on a combination of manufacturing and

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\(^\text{14}\) Sharp to Board of Trade. PRO 30/8/301: 223-30.
maritime trade. By comparison, the Russian economy was considered backward in modern terms, but this gave her far greater resilience to ride out any temporary crisis. The goods that Britain imported from Russia, which included grain following a series of poor domestic harvests, were far more critical for survival than anything Russia imported from Britain, such as tobacco, coffee, sugar and indigo. The French hoped to supplant British trade with Russia, though the Tsar must have realised this was unlikely in the foreseeable future. From his perspective, the embargo represented short-term pain for long-term gain. By exploiting Britain’s most obvious vulnerability, he aimed to further stimulate Russian shipbuilding and gain a greater share of the valuable Baltic freight trade.15

Nevertheless, the Tsar’s actions were extremely rash and almost amounted to a declaration of war. This caused dissent amongst his people, especially those with a commercial interest in the hemp trade. Although Britain was reluctant to take any drastic action that might further alienate the Baltic states, armed intervention became inevitable after the breakdown of negotiations. In March 1801, a British squadron under the command of Admiral Nelson bombarded the Danish fleet at Copenhagen, and then prepared to set sail for Narva in order to deal with the Russian navy. In the event, however, this proved unnecessary. Word arrived that Russian conspirators had assassinated the Tsar and his successor wanted peace.16

In spite of its relatively short duration, the Russian embargo provided a powerful reminder in London of the weakest thread in its formative world-system. In order to

15 Ragsdale, ‘A Continental System in 1801’, 87-9. By this time, Russia had started to become a significant maritime power and possessed the fourth-largest navy in the world. Davey, The Transformation of British Naval Strategy, 15.
prepare for further interruptions to the supply of hemp, the Board of Trade listed the following potential alternatives in December 1800: ‘1. England; 2. Scotland; 3. Ireland; 4. Our Colonies in America; 5. Those in the East Indies; 6. The Black Sea; 7. The Levant’. All of these options were deemed worthy of further investigation, though each presented a different set of obstacles.

The Black Sea represented a potential means to acquire the same Russian hemp through a different route. During the 1780s, Empress Catherine had aimed to develop the region as a Mediterranean outlet for Ukrainian grain, though Paul had largely reversed this policy in the following decade. The Board of Trade hoped the British demand for hemp might divert the product to the southern ports, which were much closer to the major areas of production, but this proved impossible due to the vested interests of the Baltic merchants and the opposition of the Russian government. The Levant – or eastern Mediterranean – scheme was also a non-starter. It was thought the region might offer a ‘circuitous’ means to acquire hemp from countries such as Austria and Italy. A small quantity was acquired, but these places tended to produce a finer variety of hemp more suited to linen than naval cordage.

Meanwhile, the Board of Trade investigated how the French, Dutch and Spanish acquired their hemp. It was found that all of these nations had larger domestic

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17 Board of Trade, 16 Dec. 1800. BT 5/12: 181.
19 Premiums were offered to British merchants for hemp sourced via the Black Sea, but there is no evidence to suggest that a regular trade was established. The Board of Trade, 18 Jun. 1802. BT 5/13: 314-20.
20 Board of Trade, 16 Dec. 1800, 14 Jan. 1801. BT 5/12: 185-6, 268-70.
21 Evan Nepean to Navy Board, 22 Apr. 1802, 4 May 1802. NMM: ADM B/204. For further information on the culture of hemp in Italy and Austria, see Alex J. Warden, The Linen Trade, Ancient and Modern 2nd ed. (London: Longman, 1867), 252-9, 285-9. At this time, the Navy Board also hoped to acquire timber from the Black Sea and Levant, but these efforts were also unsuccessful. James Davey, ‘Securing the Sinews of Sea Power: British Intervention in the Baltic 1780-1815’, The International History Review, 33 (2) (2011), 174.
supplies than Britain, but mostly used the product for canvas and sailcloth while importing the stronger Russian hemp for naval cordage. As the Russian system of production had developed over many years, it could not simply be replicated in territories under British control. Therefore, the Board of Trade aimed to devise an entirely different system, an exceedingly difficult task with respect to both quantity and quality. One of the most striking features of Britain’s global search for hemp was the faith that useful knowledge could solve the potential crisis, but translating theory into practice remained highly problematic. The following chapter explores the efforts to transplant the culture of hemp in Ireland and Canada. First, I consider the problems encountered in England and Scotland, the core of the British world-system.

‘A declining culture’

To some observers, the most obvious solution to the problem involved the revival of hemp cultivation in England. Stephen Sharp, for example, suggested the domestic supply of even a small proportion ‘might curb the pride, and Monopoly of Russia, and induce a further Culture of Hemp in time’. To achieve this outcome, he thought that every parish should be compelled to deliver one ton of hemp per annum at an equivalent price to the Russian product. About four acres were needed to produce this quantity, so the policy would fulfil ‘a great National Service’ and need ‘not interfere greatly with the general system of Agriculture.’ Following his long absence from England, Sharp admitted he only possessed a limited understanding of the nation’s rural economy, but hoped that more knowledgeable individuals might improve upon his tentative suggestion.

23 Sharp to Board of Trade. PRO 30/8/301: 223-30.
Despite the urgency of the situation, however, Sir Joseph Banks was strongly opposed to the idea. He advised the Board of Trade that such an attempt would mark a retrograde step in the nation’s economic progress. During the eighteenth century, structural changes to the agrarian economy had led to rising rents and a relative scarcity of workers in the agricultural sector, who were attracted by the higher wages on offer in the cities and manufacturing centres. The failure of the bounty system to reverse the decline of English hemp cultivation provided evidence that the crop was an unattractive proposition for tenant farmers, and the labour intensiveness of hemp preparation meant the practice was unlikely to become a ‘profitable concern’.

Following a series of poor grain harvests – particularly in the years 1795, 1797, 1799 and 1800 – food security also loomed as an important wartime issue. From 1800 to 1802, 72.6 per cent of Britain’s imported wheat came from Russia, Prussia and Poland. Unlike hemp, other sources existed for the supply of grains, but this still contributed to the government’s anxiety over the potential consequences of a Baltic Blockade. As a matter of survival, it was decided that ‘Wheat is more wanted than Hemp’. The Board of Trade concluded ‘that England seemed disqualified for going into this sort of Culture to any extent’, and that the nation’s farmers should concentrate on the supply of food.

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26 For further details on the poor grain harvests during the French wars, see Janet Macdonald, *British Navy’s Victualling Board 1793-1815: Management Competence and Incompetence* (Woodbridge: Boydell Press, 2010), 24-5.

27 Davey, ‘Securing the Sinews of Sea Power’, 163.

28 Board of Trade, 16 Dec. 1800. BT 5/12: 181-3.
Nevertheless, Arthur Young – the Secretary of the Board of Agriculture – was called before the Committee to present his ideas on the feasibility of a home-grown supply. Before the American Revolution, Young had forcefully argued that the colonies should provide the imperial centre with hemp, but this agrarian patriot had since experienced a change of attitude. Influenced by the French physiocratic doctrine, he decided in 1784 that ‘the future dependence of the state should settle more on the basis of internal resources than on such as experience had proved to be insecure (i.e. colonial possessions)’. In such a populous country as England, he saw the presence of any ‘waste’ land, including common pasture, as a national ‘disgrace’ and urged that a greater proportion of the soil should be turned over to enclosed arable farming. The wartime demand for hemp represented an opportunity to accelerate this process.

On account of his regional surveys into England’s agriculture, Young was probably better-qualified than any other individual to speak on such issues. His survey on Lincolnshire farming in 1799 suggested that despite the dramatic increase in the price of wheat, hemp still attracted a slightly higher price per acre in areas where the crop remained established in the local market. In December 1800, Young informed the Board of Trade that England could produce both wheat and hemp in abundance, and in partnership with one another. In order to achieve this, large areas of common pasture would have to be ploughed, but this fresh land would not require manure for the first few years. As wheat and hemp succeeded in rotation with one another,

29 Arthur Young, Political Essays concerning the present state of the British Empire (London, 1772), 101-2.
31 After deducting expenses, the remaining profit on an acre of hemp was about £5 per acre, though this did not include manure which sold for around £2 for ten loads. For the rotation of beans and wheat, the farmer earned about £2 per acre per annum, including the cost of manure. Arthur Young, General View of the Agriculture of the County of Lincoln (London, 1799), 129, 159. Meanwhile, the price of wheat had doubled in England from 1798 to 1800. Macdonald, British Navy’s Victualling Board, 25.
Young suggested placing farmers on government contracts to alternately supply both commodities. He agreed that food must take precedence, but insisted that hemp should be used to prepare the soil for grain.  

Once again, though, Banks did not approve of the scheme and called into question Young’s expertise regarding the growth of the crop for maritime purposes. Banks stated that Young had failed to differentiate between ‘the Growth of fine Hemp, fit for the use of Linen Spinners, and of coarse Hemp fit for the manufacture of Cables, Hawsers and other heaving Rigging’. The latter variety required ‘land of the richest quality’ and Banks’s own observations revealed that ‘In Lincolnshire, where strong and heavy Hemp is grown, the Hemp gardens are small and near the Houses of the Growers; these Gardens absorb vast Quantities of Manure’. The report from St Petersburg revealed that the exact same method was used by the Russian peasantry, yet Banks pointed out: ‘It is not fitting that Hemp should be grown in any populous Country, for as it requires more Manure than Wheat to raise Hemp fit for the Roping Trade, it may fairly be said that every Ton of such Hemp grown in any Country, dedicates sixteen Quarters of Wheat at the least from the Consumption of the Inhabitants.’ If Young’s scheme was carried out on a sufficiently large scale, Banks argued it would reduce the availability of pasture for livestock. This would lead to a shortage of manure and, by extension, bread.

Over the coming years, Young continued to research the issue in his regional surveys of England’s rural economy. On his travels, he found small pockets where hemp

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34 Joseph Banks, Hemp Correspondence, 1764-1810. Kew: JBK/1/10: fo. 57.
5. Hemp and the Continental System

cultivation was still established, particularly around the villages of Beccles, Diss and Bungay, in the Waveney valley near the Suffolk-Norfolk border. Young found the quality of the local product excelled over Russian hemp not only in fineness but in strength. English hemp could have provided the British Navy with strong cordage, but only at an even greater expense to the Treasury as it also exceeded the foreign article in price. For this reason, English hemp was considered too valuable for rope or sacking at a local level. Instead, weavers purchased the raw material at the market in order to produce high-quality shirts and linen. Interviews with farmers confirmed that hemp remained a profitable crop. Young asked, therefore, ‘why the culture did not increase rapidly?’ He was told the raw material took too much time and effort to prepare on a large scale, especially as it required harvesting at the same time as wheat.36

The Board of Agriculture collected correspondence on the matter from throughout the rural localities. Elsewhere, the overriding pattern that accounted for the lack of hemp was the price of food. In 1806 John White, a former hemp cultivator from Wykeham, told the Board that the decline of the crop had been particularly evident over the past thirty years. From his own experience, he explained that small farmers, on a few acres, had been ‘obliged to cultivate their hemp-lands with corn for their domestic uses’. Due to the ‘exorbitant’ price of grain, ‘if a man did not grow it himself, he could not afford to buy it.’37 Although hemp attracted a greater profit than many other

36 In Suffolk, Young calculated the total profit for an acre of hemp was between £5 and £7 per acre, which included the expense of manure. Arthur Young, General View of the Agriculture of the County of Suffolk (London, 1804), 141-58. In the mid-nineteenth century, it was recorded that ‘English hemp, when properly prepared, is said to be stronger than that of every other country, Russia not excepted; and would, therefore, make the best cordage.’ However, it was never used for this purpose after the seventeenth century. Isaac S. Homans, A Cyclopedia of Commerce and Commercial Navigation, Vol.I (New York: Harper & Brothers, 1858), 966.
provisions, it was more speculative in terms of the initial outlay and labour costs. Under the circumstances, feeding the family was the chief priority, and tenant farmers in most English districts were unwilling to engage in such a risky enterprise.

In December 1800, Scotland was included in the Board of Trade’s agenda, due to the country’s long established and prosperous linen industry. Although the Scottish used flax to produce linen, it was initially thought that the culture of hemp would complement this traditional system of agriculture, as the mode of production was almost identical. To the Board’s surprise, however, further investigations revealed the linen manufacturers mostly relied on imports of the raw material. With the understanding that Russian hemp and flax were mostly grown in more southern climes, their lordships questioned the suitability of Scotland’s climate for these crops.\(^{38}\)

It soon became apparent that the climate was not an obstacle. Indeed, flax and hemp had been grown in Scotland since time immemorial, but the culture had long since entered a period of decline. By the sixteenth century, Scotland had already started to supplement its domestic supply with imports of Baltic flax and hemp. Flax cultivation remained widely dispersed during the eighteenth century, but these were mostly small crops for home manufacture. The crop was rarely grown on an extensive scale by individual farmers, while hemp cultivation had become a relic of the past. As in England, the crops could not compete with wheat due to rising bread prices and the need for additional labour at harvest time. Meanwhile, the linen industry was becoming ever more urbanised, particularly in Dundee, which made the bulk delivery

\(^{38}\) The Board of Trade, 16 Dec. 1800. BT 5/12: 183.
of foreign raw materials cheaper and more convenient for producers. Nevertheless, agrarian improvers regretted this outcome and measures had already been taken to promote the nation’s industrial self-sufficiency.\(^3^9\)

The Board of Trustees for the Improvement of Fisheries and Manufactures in Scotland first offered premiums for flax cultivation in 1728. The British Treasury established a fund for bounty payments on dressed flax and hemp in 1770, which brought Scotland into line with the English system, but ten years later Scottish-grown flax still only accounted for about one quarter of the industry’s needs.\(^4^0\) At the turn of the century, the Board of Trade concluded that the system must have failed and discussed the suspension of the policy. However, their lordships were dissuaded from taking this action by the Board of Trustees, who argued that Scottish cultivators had indeed made progress with the crops.\(^4^1\)

This was certainly the case with regards to flax. During the Napoleonic wars, Sir John Sinclair – the President of the Board of Agriculture – estimated that Scottish cultivators supplied about half the flax required by the domestic linen industry. Unfortunately, he also noted that hemp cultivation was ‘now almost given up everywhere.’\(^4^2\) Besides maintaining the bounty policy, the British government did not attempt to reverse this process. The Board of Trade quickly eliminated Scotland from its inquiries and decided to look elsewhere. Yet with no obvious solution in sight,


Britain increasingly feared that the foreign supply of hemp might be curtailed altogether.

Following the fragile Peace of Amiens (March 1802 to May 1803), the economic warfare between the belligerent nations intensified. In May 1806, the British Navy commenced its blockade of the North Sea coastline in order to prevent the French import of provisions. Napoleon responded with the Berlin Decree of November 1806, followed by the Milan Decrees one year later, which established what became known as the French Continental System. This system aimed to financially cripple ‘the nation of shopkeepers’ by prohibiting British trade with mainland Europe. At first, the nation’s merchants breached the Continental System by raising the volume of exports through the Baltic. However, the French victory over the Russian army at Friedland appeared to close this loophole.\(^{43}\)

In July 1807, Napoleon dictated peace terms to Tsar Alexander I, on a raft at Tilsit within a few miles of the Baltic coast, which included ceasing Russian trade with Britain. Denmark again bore the brunt of British aggression, due to its strategic position at the mouth of the Baltic. In September, a naval squadron assembled off Copenhagen to deliver an ultimatum to the Crown Prince: neutrality was no longer an option and he was forced to choose between an alliance with Britain or France. While the Danish deliberated, the naval commanders grew impatient and an attack was launched that destroyed a substantial part of the city. After the surrender of the Danish fleet, it was then seized and taken to England together with a large quantity of

confiscated naval stores. The bombardment of Copenhagen led to widespread
condemnation throughout Europe, and hardened the attitudes of the Tsar who had
previously viewed Britain as Russia’s natural ally. At the end of the year, on
account of the interruption to the Baltic supply, the Navy Board requested further
inquiries into the growth of hemp in the British Isles.

Arthur Young lamented that his ideas had been dismissed by the government as mere
‘visionary speculation’. To garner support for his scheme, he prepared a detailed
analysis of the problem in England, which he presented to the general public in his
periodical The Annals of Agriculture. He summarised the nation’s hemp quandary
thus: ‘It is at present a declining culture, for want of a greater price; and yet the price
of English hemp is far beyond that of the Russian.’ Ideally, he argued, the nation
should continue to obtain the product from foreign soil, but the political situation in
Europe threatened ruin to British commerce. Though any measure that might
diminish the food supply was ‘evidently dangerous’, England also needed hemp to
preserve her independence. Fortunately, there remained large tracts of ‘waste land’
still in need of improvement, and though the project would require great exertions and
expense on behalf of the public, the expansion of domestic hemp cultivation would
have far-reaching beneficial consequences beyond the immediate needs of war.

James Durno, the British Consul at Memel, appreciated the wisdom of this viewpoint
and submitted a paper to the Board of Agriculture in support of Young’s ideas. He

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44 Rodger, The Command of the Ocean, 549; Davey, ‘Securing the Sinews of Sea Power’, 176; Alfred
W. Crosby, America, Russia, Hemp, and Napoleon: American Trade with Russia and the Baltic, 1783-
BL.
understood why wheat and other grains were viewed ‘as the first necessary of life’, but thought that Britain’s status ‘as a manufacturing and maritime nation’ entailed a more sophisticated response to the Baltic crisis. If neither ‘our political independence’ nor financial wealth can be maintained without hemp and flax, then ‘are not these articles as necessary as corn? Is bread more necessary than the means of earning or obtaining it?’ Durno cited Holland, Sweden, Denmark and Norway as other places that depended on grain imports, and found the emphasis on food subsistence a rather ‘primitive’ outlook for a civilised nation.47

Ultimately, the Board of Trade and the Board of Agriculture shared a similar vision for England’s rural economy. On the hemp issue, they simply differed on a technicality. While Young viewed the crop as a useful preparation for wheat, Banks had taken a more traditional view. Due to the widespread notion that hemp exhausted the soil, many landowners even inserted clauses into leases to prohibit tenants from growing the crop. In 1808 Lord Somerville, a senior figure in the Board of Agriculture, attempted to counter what he saw as uninformed ‘prejudice’ towards the crop. He instructed his tenants in Gloucestershire and Somerset to include hemp within their usual course of husbandry, and issued an impassioned plea to his peers: because of ‘the unjust, as well as unnatural, alliance of the Continental Powers against our country,’ he called for ‘the most serious attention of the cultivators of our soil to the growth of Hemp.’48 But such isolated efforts were never likely to alleviate the problem. Although the possibility of a coordinated nationwide response to the

47 James Durno, ‘Statement of the Mode of Cultivating Flax and Hemp in Russia, Prussia, and Poland’ from the Communications to the Board of Agriculture (Dublin, 1808) BL, 51-3. The port of Memel was situated at the Dané River estuary on the Baltic Sea. The city is now known as Klaipeda in present-day Lithuania.
crisis had always been remote, without the support of Banks and the Board of Trade the idea never got off the ground.

While there was opposition to hemp cultivation in England and Scotland, the British economy possessed its own internal peripheries where commerce remained far less established. The remote islands of the Hebrides, off the western coast of Scotland, were geographically isolated from any major cities and markets. Until the middle of the eighteenth century, the inhabitants of the Hebrides had lived in a semi-feudal society, but the state was now in the process of exerting a greater degree of centralised control, through the mechanisms of law, taxation and private property. As part of this process, James Macdonald conducted a thorough survey on the region’s potential for economic improvement in 1808. When he submitted his report to the Board of Agriculture three years later, he singled out hemp as one of the most promising agricultural staples.  

Macdonald thought it was ‘astonishing’ that the government had expended so little effort in encouraging hemp cultivation in the remote portions of the British Isles. ‘On this supply’, he argued, ‘our power as a nation, our honour, independence, and even our existence depend.’ The natives of the Hebrides had traditionally grown hemp to manufacture their rope and sacking; rent remained low, labour was cheap and seaweed provided a plentiful source of manure. To illustrate the suitability of the local soil and climate, Macdonald praised the ‘salutary example’ set by a ‘patriotic’ landowner on Islay, who had grown an extensive crop of long-fibred plants that rose to about eight-feet tall. As a means to resist the ‘jealous or hostile powers on the

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continent’, the surveyor hoped that others would adopt the culture on a similar scale. In order to stimulate the development of a prosperous cordage industry, he proposed that naval rope-walks should be established in the Hebrides.  

The British government never acted on this suggestion either, after the influential Sir John Sinclair raised doubts over the scheme. He contended that only small pockets of the Hebrides were suited to the crop. The example at Islay, he believed, represented the exception rather than the rule. There was no infrastructure in place to develop such an industry, and if Sinclair was correct then the project might well have become an expensive mistake. Like Banks, though, his attitude was also informed by prejudice towards the crop. He viewed the decline of hemp cultivation in Britain as an inevitable step on the path of progress.

Citing the Baconian maxim ‘Knowledge is power’, Sinclair conducted a comprehensive statistical analysis of Scotland’s natural productions in 1814, and concluded that neither hemp nor flax was suitable for British agriculture. Although flax cultivation had recently increased in Scotland, he was unimpressed by this outcome. Considering the high price of Baltic imports, together with the recent difficulties in acquiring the product from overseas, Sinclair expected a much larger domestic contribution. If Scottish farmers found the profit margin unenticing even in these circumstances, then he thought their efforts should be directed towards the production of food. The war years probably represented the peak of flax cultivation in Scotland. With diminishing returns, the bounty policy for flax and hemp continued

50 Macdonald, General View, 278.  
51 Sinclair, General Report, 592.  
5. Hemp and the Continental System

until 1834, but the linen industry prospered and grew through the importation of foreign raw materials.\(^{53}\)

With regards to hemp, Sinclair explained that every Scottish habitation had grown small quantities during the medieval period to provide halters for livestock. But leather was now preferred for this purpose, together with the use of iron chains for ploughs: ‘The reasons for cultivating hemp at every homestead have been long ago superseded by commerce, the improved state of civilization, and the division of labour in Great Britain.’ Although the wartime price for Russian hemp peaked at an incredible £120 per ton, Sinclair doubted the farmer could raise a sufficient profit in times of peace. In his view, then, the crop was unsuitable for the long-term improvement of Scotland. More broadly, he believed that ‘As long as Great Britain maintains her naval superiority, the difficulty of procuring hemp is a mere bugbear.’ In order to secure an independent supply for the future, he recommended the government should concentrate its efforts in Canada and New South Wales.\(^{54}\)

In hindsight, Sinclair’s argument was correct: Britain’s naval superiority succeeded in keeping the supply-line open. The Baltic Blockade, which officially endured between 1807 and 1812, proved more porous than first expected. Although the supply of hemp plummeted in 1808, by far the worst year, it was never stopped entirely. In this year, Admiral Saumarez led a large British squadron to the Baltic, charged with protecting the neutral vessels that saw an opportunity to profit from the situation. This naval fleet then remained in the Baltic for the duration of the blockade. Isaac Solly, a prominent hemp merchant, reported that the Swedes and Americans were assisting

\(^{54}\) Sinclair, General Report, 590-5.
the British cause, while his own ships flew neutral flags and carried counterfeit papers. Solly lost seven ships to the French and their allies in 1808, but Saumarez ensured that another thirty-four departed safely from the Sound.\footnote{Isaac Solly to Navy Board, 11 Nov. 1808. ADM/BP/28; Davey, ‘Securing the Sinews of Sea Power’, 177-8; Rodger, \textit{The Command of the Ocean}, 560-1; A.N. Ryan, ‘The Defence of British Trade with the Baltic, 1808-1813’, \textit{The English Historical Review}, 74 (292) (1959), 443-66.}

The Continental System has been described as something of a paradox by historians. Traditionally, a blockade of this nature would have involved restricting the flow of food and essential raw materials to the enemy, but the French lacked the maritime strength to make such a policy effective. Instead, Napoleon largely aimed to restrict British exports to Europe in order to bankrupt the nation, and therefore stop its ability to provide cash subsidies to allies. By these means, he also hoped to stimulate the manufacturing industries of France by protecting them from British goods. Napoleon did not attempt to starve the enemy. After the poor British harvest of 1810, he actually encouraged the export of grain from the continent to take advantage of the high prices and assist French farmers, though these exports stopped the following year when France suffered its own shortages.\footnote{Davis and Engerman, \textit{Naval Blockades}, 30-7; Rodger, \textit{The Command of the Ocean}, 558-9.}

While Napoleon’s economic policy functioned as an extreme form of mercantilism, the British state took a more pragmatic approach to the crisis, through a temporary relaxation of the navigation laws. Rather than restricting commerce to British ships, the Navy convoyed any vessels into British ports whether they flew neutral or even enemy flags.\footnote{Rodger, \textit{The Command of the Ocean}, 559. For an account of the American contribution to supplying the Royal Navy, and the outbreak of war between Britain and the United States in 1812, see Crosby, \textit{America, Russia, Hemp, and Napoleon}, 195-272.} The British also expanded their commerce in other parts of the world, particularly the Caribbean and South America, while the French policy effectively
functioned as a type of self-blockade. Undoubtedly, the Continental System succeeded in restricting the flow of specie to London. This may well have prolonged the war, but Britain’s naval blockade of France probably inflicted greater damage. Napoleon’s economic warfare with Britain was ultimately self-defeating, as he had attempted to engage the enemy on its strongest ground.58

Perhaps the course of history would have been different if Russia had proved a more reliable ally of France. In addition to Britain’s armed intervention, though, the spirit of commerce indeed helped to keep the Baltic supply-line open. By 1810, the Russians had suffered enough from Napoleon’s trade restrictions, and clandestinely opened the hemp trade to its major customer. Despite paying severe premiums for the product, the British Navy had a surplus of the product in its stores by the end of the year. When France declared war on Russia in 1812, due to infractions of the Continental System, Britain was able to legitimately acquire 12,250 tons of hemp from its restored ally. According to naval historian James Davey, the British state’s fears about the supply of hemp were severe during the first decade of the nineteenth century, meaning the issue became an important influence on the nation’s foreign policy. Yet the imagined crisis never eventuated, which has led other historians – with the notable exception of Alan Frost – to underestimate the significance of Britain’s global search for hemp.59

After the conclusion of hostilities, Banks commented to the Prime Minister that these calamitous events had actually strengthened the nation by quickening the pace of

58 Evans, The Forging of the Modern State, 108; Davis and Engerman, Naval Blockades, 30-7.
improvement. High bread prices, on account of interruptions to the supply of grain, had resulted in greater productive efficiency from the tenant farmers. From 1815, therefore, the new corn law maintained these high prices in order to continue this process in peacetime. This supported the interests of the landowning oligarchy by leading to further enclosures and rising rents. Agrarian patriots now conceded that the rich soil of the homeland should be preserved for food, while the colonies should provide the raw materials for the nation’s manufacturing industries.

In spite of the contemporary anxieties of a revolutionary age, the narrative of progress reveals that rising food production provided Britain with a distinct advantage over its competitors. In the first half of the nineteenth century, the nation’s agricultural surplus proved increasingly able to support a growing population of landless labourers, which was important for the development of industries, the expansion of commerce, and the accumulation of capital. The growth of the urban centres, driven by higher wages in the manufacturing sector, provided another causal factor in the establishment of market-oriented agrarian capitalism. In the British economy of scale, fewer hands produced more food, while forcing out the labour-intensive culture of hemp. Nevertheless, the plant continued its association with the ideology of colonial improvement as part of the international division of labour.

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Chapter 6: Hemp and the World System

‘Agrarian improvement was a moral crusade,’ argues C.A. Bayly, and ‘the inner heart of English expansion; indeed, it was seen as the domestic precondition of overseas empire.’¹ In the age of revolution, however, hemp cultivation was largely severed from this ideology in the core-economy of the British imperial world. There were certain exceptions: besides the protestations of Arthur Young and Lord Somerville, for example, a group of Welsh agriculturalists suggested the growth of hemp in their marshlands might support the British war effort. Ultimately, though, this was only viewed as a short-term measure aimed at improving these wastes for potatoes and corn.² During the Napoleonic wars, the moral crusade of hemp cultivation became firmly associated with the long-term improvement of Ireland and Canada.

In 1786 Charles Varlo concluded that ‘the science of agriculture’ together with ‘a judicious rural oeconomy is one of the chief supporters of the prosperity of a state.’ On behalf of the British empire in Europe, the English agrarian patriot had spent forty years in Ireland promoting flax cultivation and the improvement of the local linen industry. An admirer of the cameralist policies of the late King of Prussia, Varlo asserted that agriculture was the true source of national prosperity, while the wealth generated by mercantile trade was transient and uncertain.³ Such thinking remained commonplace for the landowning oligarchy in the age of revolution, defined by

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6. Hemp and the World System

historians as an era of neo-mercantilism in British economic policy. In this transitionary period, theories of economic liberalism started to gain currency in certain areas, while economic nationalism remained prevalent in others, particularly with regards to the protection of shipping and the domestic production of food.⁴

Even Adam Smith distinguished between policies designed to promote ‘opulence’ and those concerned with the maintenance of ‘defence’. He described the navigation laws, for example, as ‘perhaps, the wisest of all the commercial policies of England’.⁵ The supply of hemp also fell under the rubric of defence, but the nation’s policy makers and agrarian patriots struggled to persuade colonial farmers that growing the crop was in their best interests. This chapter investigates the failure of the project in Ireland and Canada, while showing how this non-occurrence influenced the development of an imperialism of free trade. John Darwin argues that the formation of British world-system largely occurred through accident rather than design, in the sense that commercial initiative played a more significant role than government policy.⁶ My analysis supports this idea by illustrating the contemporary limits of state power, and the contingencies of everyday life in the peripheries of the British Isles and the North Atlantic.

Ireland

Over the course of the eighteenth century, the economic, political and social integration of the British Isles gathered pace. By comparison to Ireland, though, the assimilation of Scotland within the British system was a relatively seamless process. On account of increased access to colonial markets, Scotland’s economy expanded at a rapid rate, and the landowning oligarchy found it was in their interests to cooperate with their English counterparts. By the close of the century, the British elite had absorbed Scotsmen of rank such as Henry Dundas and Sir John Sinclair, many of their lesser-known compatriots served in the military and East India Company, and Edinburgh University had made an important contribution towards the development of colonial science. Throughout the empire, argues Linda Colley, Scottish patriotism functioned as a distinct yet complementary feature of British nationalism.  

The assimilation of England’s first overseas colony proved more problematic. In Ireland, the smaller group of Protestant landowners had less influence over the Gaelic peasantry, and the country’s economic growth remained stunted through proximity to the British mainland and restricted access to foreign markets. In her spatial history of Ireland’s linen industry, Marilyn Cohen refers to the region as either semi-peripheral in terms of its economic relationship to the core, or as an internal periphery of the British Isles. From the perspective of London’s policy makers, this made it an ideal site for the cultivation of hemp, with low freight costs to the mainland and comparatively cheap land and labour.

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8 Bayly, The Imperial Meridian, 86-9.
Since the late seventeenth century, Parliament had viewed Ireland as the most desirable portion of the British Isles to alleviate the nation’s dependence on Baltic hemp and flax. To encourage this outcome, Irish linen, sailcloth and cordage became exempt from customs duties in 1704. There was an ulterior motive as the policy also aimed to protect England’s wool trade from Irish competition, but this was still considered a special indulgence towards the annexed yet separate kingdom. Prohibitive duties were placed on the import of these finished products from any other colony in order to protect English weavers and rope-makers. But as linen only made a minor contribution to economic growth in England, this was seen as a worthwhile sacrifice to develop the Irish economy to the advantage of both countries.\textsuperscript{10}

Ireland already possessed a long tradition of domestic linen production, and the absence of duties helped to make the product competitive on the British market at the expense of continental imports. The household industry expanded during the eighteenth century, leading to significant exports of Irish linen to the mainland, together with flax-yarn that was distributed to English weavers via the putting-out system. Traditionally, though, the Irish used flax to produce linen, while hemp had always been a more marginal crop, and the expansion of the linen industry only led to greater agricultural specialisation. During the American Revolutionary War, when the price of linen stagnated, Irish weavers increasingly started to work with imported cotton, before these efforts were suppressed by the British cotton interest in the early

nineteenth century. As an alternative, the state attempted to diversify Ireland’s economy by further encouraging the production of hemp.

In 1779 Parliament introduced a bounty for the importation of Irish hemp, which paid the merchant an additional £8 per ton for delivery to a British port. This was the same policy that had formerly been applied to the North American colonies without any effective outcome. With regards to the American hemp bounty, Adam Smith argued that ‘fatal experience’ had exposed ‘the folly of a system’ that treated the colonies as British property. Yet the Scottish economist was not altogether opposed to the principle. On learning that the policy would be applied to Ireland, he remarked that the British and Irish legislatures were not ‘in much better humour with one another’, but he still hoped that ‘this boon … has been granted under more fortunate auspices’. In theory, the hemp bounty should have functioned as a complementary feature of the navigation laws, in addition to stimulating the agrarian improvement of the peripheries. The product was considered too vital to national defence to be left to the vagaries of foreign trade.

Although the bounty policy had never worked in practice, contemporaries still assumed this wise measure would eventually succeed. In 1787 Sir John Parnell – the Chancellor of the Exchequer in Ireland – was called before the Board of Trade to express his thoughts on the future of an Irish hemp industry. It was only a matter of time, he said, for supplying the British fleets was ‘not only attainable, but that it might in its consequences be one of the most advantageous Branches of Commerce

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which Ireland at this juncture could possibly adopt.’ Following this recommendation, Lord Sydney wrote to the Lord Lieutenant in Ireland to assure him the government was prepared to take further measures in support of the scheme. Yet the sense of urgency diminished when the price for Baltic hemp returned to its pre-war level, and no additional action was taken before the Russian embargo at the turn of the nineteenth century.

In 1800 the Act of Union between Great Britain and Ireland initiated hopes for further integration, following the apprehension that Ireland might have been lost to France. Britain now took over 85 per cent of all Irish exports, compared to 46 per cent a century earlier, so the union already appeared sound on an economic basis. With regards to the hemp problem, the Board of Trade viewed Ireland as the ideal solution in every respect. As in Scotland, the presence of an established linen industry provided an administrative infrastructure, together with a developed system of transport and communications. Unlike Scotland, the Irish cultivators already produced a surplus of flax for this industry, and their land was described as ‘rich and highly fitted for the Culture of Hemp’. Furthermore, the Navy had already started to acquire sailcloth made from Irish flax, though the lack of either raw hemp or finished cordage remained something of a mystery in London.

In January 1801, Lord Liverpool (formerly known as Lord Hawkesbury) attributed the non-occurrence to inter-related cultural and economic causes. Although an Irish

\[14\] Board of Trade, 29 Nov. 1787. NA: BT 5/4: 394-5.
\[16\] Bayly, *The Imperial Meridian*, 82.
\[17\] Board of Trade, 16 Dec. 1800. BT 5/12: 183-4.
\[18\] Board of Trade, 21 Mar. 1801. BT 5/12: 294-5.
hemp supply had always made sense in theory, there was a lack of demand under the usual circumstances when the Russian product could be acquired at a reasonable price. Consequently, the local cultivators had little incentive to develop this new branch of commerce. On the whole, flax had served them perfectly well as a textile crop, so they remained unaccustomed to the culture of hemp. According to Liverpool, the state would have to provide further economic incentives to resolve the issue, as well as taking a more direct role in instructing the Irish how to grow and prepare the product for naval uses.\(^19\) But though the hemp bounty act had expired the previous year, it was not renewed on account of its ineffectiveness. Nearly a hundred years had elapsed since the policy was first introduced in North America, and it had finally become obvious that a new method would have to be devised.\(^20\)

Instead, Liverpool proposed the Navy Board should form a contract with the Irish Linen Board in order to acquire a certain quantity of hemp, yet to be determined, at a fixed price. He recognised this policy resembled a different type of bounty or premium, and he understood that such artificial means of encouragement had become unpopular with the Treasury. In the past, though, bounties had often been used as a stimulus to commerce when ‘the Object we have at present in view, is by no means merely Commercial; it is for the purpose of relieving this Country from the entire Dependence on a Foreign Power for an essential Article of Naval Equipment.’ To provide hands-on training for the cultivators, Liverpool also proposed that the Navy Board should establish a small hemp farm in Ireland. This would enable a thorough

\(^19\) Board of Trade, 14 Jan. 1801: BT 5/12: 261.
investigation of the costs involved, and allow the commissioners to set their contract accordingly.\(^{21}\)

In comparison to Protestant Ulster, the south-west of Ireland was far less developed in terms of manufacturing and commerce. Therefore, Liverpool suggested the counties of Cork and Limerick, the internal peripheries of Ireland, were the most suitable places for production. The soil was rich, manure was available from the local herdsmen, and the harvesting and preparation of hemp would employ the region’s destitute women and children. As the Russian product came from provinces ‘which have made very little progress in Knowledge, or Civilization’, Liverpool also hoped the production methods might be improved in Ireland through ‘the aid of scientific people’. The task was delegated to Sir Joseph Banks, who claimed he ‘was ready to pay every attention to this subject’, and used his connections within the Navy and Linen Board to initiate the experiment.\(^{22}\)

In May 1801, Banks informed the Linen Board in Dublin that the Navy had guaranteed a minimum price of £50 per ton for Irish hemp, which equalled about £12 per acre for the cultivator. Although this price did not appear to attract many English farmers, Banks considered it a strong incentive for Ireland due to the lower cost of land and labour. As the linen industry already supplied a surplus of sailcloth for ‘our Naval & our Mercantile Marine’, it was up to the Linen Board to persuade flax farmers to turn some of their land over to hemp. To Banks, this seemed like a

\(^{21}\) Board of Trade, 14 Jan. 1801. BT 5/12: 261-5.
\(^{22}\) Board of Trade, 14 Jan. 1801. BT 5/12: 263-5.
valuable opportunity for the inhabitants of southern Ireland, but nothing quite went to plan.\textsuperscript{23}

For the time being, the establishment of the Navy’s hemp farm would have to wait. Banks claimed he had ‘ransacked the Fens of Lincolnshire & Cambridgeshire & the Isle of Axholm’ in order to send as much hemp-seed as possible to Ireland. Having recently sent a large quantity to Calcutta, however, he found that little seed was available at present, though he promised to send further shipments in due course. Furthermore, Liverpool had asked him to send a group of English hemp-dressers to Ireland, but Banks thought their demands were unreasonable and decided this was unnecessary. Unlike the Bengalis, the Irish were well acquainted with the production of flax, and the husbandry of hemp was ‘precisely the same’ according to the naturalist.\textsuperscript{24}

Over the coming years, Banks expected the culture would start to take root in Ireland. This initial confidence contributed to his somewhat lackadaisical attitude, but the plan lost momentum before the experiment was fully underway. In 1804 the ageing Lord Liverpool was replaced as President of the Board of Trade. The loss of his political ally led Banks to also cease his involvement in the organisation, which brought their formal partnership to an end.\textsuperscript{25} Over the past twenty years, their personal association had demonstrated how science might contribute to Britain’s future wealth and power, but there was still no substitute for Russian hemp. In hindsight, Banks’s final contribution to the search represented his most improbable effort of all. In 1808 he promoted an experiment to manufacture cordage from the coarse wool of a variety of

\textsuperscript{23} Joseph Banks, Hemp Correspondence, 1764-1810. Kew: JBK/1/10: fo. 50.
\textsuperscript{24} Banks, JBK/1/10: fo. 50.
\textsuperscript{25} Gascoigne, \textit{Science in the Service of Empire}, 63-4.
long-haired sheep. But though he recommended the product to the Admiralty, there is no evidence to suggest that it was tested on any ships.\textsuperscript{26}

During the Baltic Blockade, Britain again looked to Ireland as a potential supplier of hemp. The Linen Board had distributed the available seed to patriotic individuals who expressed an interest in the experiment, as well as offering a bounty to farmers from 1807.\textsuperscript{27} The following year, the Navy Board announced in \textit{The Agricultural Magazine} that it would pay a minimum of £60 per ton for the product, plus a bounty to the merchant, for delivery at Plymouth dockyard. Unfortunately, the news from Ireland made this outcome sound unlikely in the near future. The article that accompanied this notice stated that ‘great and laudable efforts are now making in Ireland, in order to raise a sufficient supply of hemp for the consumption of the royal navy’. However, the landowners regretted that ‘they are retarded in this important national object, in consequence of the want of seed’.\textsuperscript{28}

On this occasion, the British government made a more committed effort to support these efforts, by supplying the Linen Board with 430 sacks of hemp-seed, as well as sending six experienced cultivators from Suffolk and Cambridgeshire to superintend the project. Advertisements were placed in newspapers and a total of nearly £4,000 was spent on promoting the scheme. In January 1809, however, the Commissioners of Account for Ireland reported that the experiment had already failed. In attempting to explain the problem, they cast aspersions on the integrity of the Linen Board, accusing the institution of either incompetence or corruption. In opposition to the

\textsuperscript{26} ‘Accounts of Particular Occurrences, May 1808’, \textit{The Agricultural Magazine}, 394.
\textsuperscript{27} C. Duffin, ‘Culture of Hemp’ (Dublin, 1808) BL, 2-3.
government’s intention, it appeared that wealthy individuals had been given the seed for free, while poorer farmers who wished to experiment with the crop had been charged for the privilege. Money had also gone missing, apparently, but the Commissioners stated it was hard to draw any firm conclusions from their audit, as the papers of the Linen Board were in such disarray.29

When Edward Wakefield investigated the issue in 1810, the statistician estimated that only 323 acres of hemp had been planted in the whole of Ireland. The crop was widely distributed in the south with 45 acres near Dublin, 40 in the Tipperary district, 39 at Limerick, and 38 acres in the vicinity of Cork. By comparison, Ireland contained at least 60,000 acres of flax. According to Wakefield, most of the hemp had been sown at the insistence of patriotic landowners, ‘in consequence of an erroneous opinion prevalent in England, that the navy might rely upon it for a full supply of that necessary article.’ But he doubted the poorer farmers could be persuaded to abandon flax, especially as they ‘cursed’ the bounty system due to the difficulty of getting paid.30

Three years earlier, Arthur Young had proposed the peat-bogs of Ireland should be drained for the purpose of raising hemp. In his opinion, their fertility was almost inexhaustible, and he wanted the government to form individual contracts with farmers in order to improve these wastes for arable farming. According to Young, ‘The Bog of Allen would alone produce more Hemp than all Russia exports’.31

Wakefield was therefore pleased to report that Lord Longford had established ‘a luxuriant crop upon reclaimed bog.’ With all due respect to Young, though, Wakefield viewed his proposal as an idle dream. He understood that ‘it is some gratification to a patriotic mind, to flatter itself with the idea that our sea-girt empire at a future period may derive a sufficient supply of hemp from the bogs of Ireland’, but pointed out that ‘there is a wide difference between hopes and reality’. Indeed, government engineers had recently examined the issue, and it seemed unlikely that the project was feasible on a large scale on account of the immense costs involved.

Despite Wakefield’s scepticism, however, the efforts of Peter Besnard suggested that an Irish hemp industry could become a going concern after all. While most of the planters were gentlemen ‘amateurs’, Besnard was described as ‘an eminent manufacturer near Cork’, a talented farmer and linen producer who was schooled in the art of commerce. In 1808 he grew a small experimental crop of hemp, which raised an impressive profit of £20 per acre. The following year, in order to counter the ‘prejudice’ that the plant exhausted the soil, he sowed another crop on the same patch without the use of any manure. Remarkably, this raised a slightly higher profit which convinced him that hemp was commercially viable for local farmers. Having decided the major problem in Ireland was the lack of knowledge in preparing the product, he then travelled to Lincolnshire to acquire greater expertise from England’s native producers.

33 Wakefield, *An Account of Ireland*, 458.
On his return to Cork, Besnard took it upon himself to encourage the diffusion of the practice, by purchasing all the hemp that was delivered to his household. This amounted to about 10 tons, the produce of around forty acres. Under his supervision, a length of cordage was made from the Irish hemp, which he claimed was stronger than the Russian variety, while he also supplied the Navy Board with samples of sailcloth from the local product. If the government provided the necessary support, he argued, then Ireland could certainly resolve the problem. He recommended that Lincolnshire farmers should be given land in Ireland, on a rent-free basis, ‘on the condition of their raising nothing but hemp.’ In this way, the Irish cultivators would soon improve their preparation methods, while becoming more prosperous in the process. Quality hemp presently attracted a much higher profit than flax, corn, oats or potatoes.\(^{36}\)

Following the report of the Commissioners of Account, however, the British government took no further measures to promote hemp cultivation in Ireland. When the Baltic was reopened in 1812, moreover, the sense of urgency passed. Besnard continued to promote the project in the coming years, but had missed the opportunity to acquire the support he craved. In 1816, having assumed the role of Inspector-General for the Linen Board in southern Ireland, he reported that even flax cultivation had declined in his constituency. On account of the high price of provisions in England, the war years had provided a temporary boon to southern Ireland. The husbandry of cattle and corn had provided a flow of capital, which was easy money by comparison to textile production, and explains why the culture of hemp never took root. As far as Besnard was concerned, though, the end of the war represented a

\(^{36}\) Wakefield, *An Account of Ireland*, 459-60.
tragedy for the smaller farmers. Increased competition from the continent meant the cost of Irish provisions had plummeted. With the decline of the southern linen industry, abject poverty beckoned.  

By the early nineteenth century, Ulster’s linen industry represented the centre of capital investment and accumulation in Ireland, leading to the construction of water-mills for breaking flax and spinning yarn, at the expense of household manufacturers in the south. The only alternative to ‘riot and disorder’, argued Besnard, was the establishment of a thriving hemp industry under the encouragement of the gentry and the protection of the government. In this way,

> The habitation of the poor, now cold and cheerless, a disgrace to the landlord, comfortless to the owners, and distressing to the traveller of feeling, would soon assume a new appearance, and become warm and cleanly: the wretched and half-naked children, disgusting to the eye, would shortly, by the fruits of their own industry, become decently clad and civilized in their behaviour, and all would be in a state to enjoy these blessings which Providence has bestowed on our Island.

His own experiments had demonstrated that the local soil and climate were perfectly suited to the culture. By planting 40-50,000 acres per annum, Besnard estimated that southern Ireland could produce Britain’s entire peacetime supply of hemp.

With its emphasis on domestic economy and rural industry, this treatise closely resembled the earlier French physiocratic perspective on the cultivation of hemp. In the post-war period, however, British economic policy became ever more attuned to the imperialism of free trade. Hemp and cordage production may well have provided southern Ireland with a prosperous industry, but the possibility was far too speculative for private investors without the protection of the British government. In

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37 Peter Besnard, Observations on the Promoting the Cultivation of Hemp and Flax and extending the Linen and Hempen Manufactures in the South of Ireland (Dublin, 1816) BL, 8-10.
39 Besnard, Observations, 14, 26.
40 Marcandier, A Treatise on Hemp (London, 1764).
the context of industrial England, E.P. Thompson has bemoaned the fate of the poor stockingers and ‘obsolete’ hand-loom weavers whose ways of life were becoming rapidly consigned to the past.\(^{41}\) In Ireland, also, the proto-industrial textile producer was destined to become a casualty of progress, while the country as a whole remained a victim of unequal exchange between the core and its semi-periphery.\(^{42}\)

**Canada**

Towards the end of the American Revolutionary War, the British statesman Thomas Pownall – a former Governor of Massachusetts and South Carolina – reflected on the strategic importance of Quebec and Nova Scotia to the future of the empire. Retaining these provinces was essential for supplying the plantations in the West Indies with timber, fish and livestock, and providing a naval station for the protection of British trade. Furthermore, the region promised a valuable supply of naval stores and a means to break the monopoly of the Baltic Armed Neutrality.\(^{43}\) A North American hemp supply was entwined with the ideological foundations of the old colonial system and the vision endured in spite of the rebellion.\(^{44}\)

In 1785 Parliament reintroduced the hemp bounty of £8 per ton for the remaining colonies of British North America, as part of a larger scheme to draw the region into the imperial system of navigation and trade; but the act was not renewed when it expired in 1806.\(^{45}\) The Canadian hemp project received far greater attention than the

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\(^{45}\) Board of Trade, 16 Dec. 1800. BT 5/12: 179; Oddy, *European Commerce*, 296.
Irish equivalent, and for a short period the optimism ran high. In the end, though, the results proved disappointing to British patriots on both sides of the North Atlantic, and provided no relief to the Navy during the Baltic Blockade.

Before the American Revolution, the relatively sparse population of Quebec and Nova Scotia, the majority of whom were Francophone Catholics, had managed to retain a degree of autonomy from the British Protestant state. In the aftermath of the War of Independence, institutional changes gradually eroded this autonomy, but the most immediate transformation related to the large influx of American loyalists. In Nova Scotia, conflicts arose between the Anglo-settlers and their Acadian predecessors. To help resolve these issues and accommodate the settlers, the territory was divided to found New Brunswick in 1784. Traditionally, the local inhabitants of Nova Scotia traded furs and fish, and boat-building soon expanded in support of the fishing industry. Five years later, Britain started importing masts, yards and bowsprits from New Brunswick’s pine forests, while surveyors also suggested the region possessed a favourable soil and climate for arable farming. In London, it was hoped the recent arrival of Anglo-settlers would lead to the agrarian improvement of what became known as the Maritime Provinces.

From 1788, the New Brunswick administration distributed free hemp-seed to settlers and offered premiums for the plant’s cultivation. These encouragements remained in place for the next twenty years, but the region’s agricultural promise would mostly remain untapped. The settlers in the Maritime Provinces showed little inclination to

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even sow wheat, preferring to trade the products of the sea and forest for their bread.\textsuperscript{48} Meanwhile, the more concerted British efforts to acquire hemp took place in Quebec, which was divided into the provinces of Lower and Upper Canada in 1791. First ceded from France in 1763, Quebec already produced a small wheat surplus, relative to the size of its population, so the region’s agricultural potential was real rather than imagined. In the late eighteenth century, Quebec’s most significant exports were also furs and fish, but its prominence for London’s policy makers related to the possible acquisition of naval stores.\textsuperscript{49}

In February 1788, a group of ‘Gentlemen from Canada’ – headed by Adam Lymburner, an English merchant and Quebec administrator – were called before the Board of Trade in order to outline the region’s potential to supply hemp to the British Navy. The roll call for this particular meeting of the Privy Council illustrated the importance of the scheme. In addition to Hawkesbury and regular Committee members such as the Archbishop of Canterbury and the Bishop of London, it was also attended by the ministers Pitt, Dundas, Grenville and Sydney. The testimony they heard suggested the presence of obstacles and opportunities in roughly equal measure.\textsuperscript{50}

The French had already introduced hemp to the Canadian ecology, but the raw material had never been established as an export article, and the plant appeared to have been abandoned by the local inhabitants. Nevertheless, the delegates pointed out that ‘we have often seen it growing wild along the Highways in considerable

\textsuperscript{48} Jonas Howe, ‘Early attempts to introduce the Cultivation of Hemp in Eastern British America’, \textit{A Paper Read before the New Brunswick Historical Society} (Apr., 1892), 1-8.
\textsuperscript{49} Graham, \textit{British Policy and Canada}, 99; Colonial Office, Unsigned report to W.W. Grenville on the Canadian situation in relation to trade, 4 Nov. 1789. NLA.
\textsuperscript{50} Board of Trade, 12 Feb. 1788. BT 5/5: 41-5.
Quantities, apparently of a strong healthy quality.’ They believed the ease with which the plant had become naturalised within the environment clearly demonstrated the suitability of the soil and climate for the culture. Moreover, flax was cultivated in the province, which they presented as further evidence that hemp would succeed.\footnote{Board of Trade, 12 Feb. 1788. BT 5/5: 41-5.}

While the ecological conditions sounded ideal for the project, the inhabitants of the region represented the most significant obstacle. Unfortunately, the ‘Canadian Peasantry’ were described as living ‘in the lowest state of Ignorance; very few of them being able to read, the natural consequences of which is, a strong prejudice in favor of the Customs of their Ancestors.’ Lymburner’s party explained that it was hard to reason with the French-speaking Canadians, and they anticipated difficulties in persuading local farmers to alter their traditional system of husbandry. More fortunately, however, the recent arrival of Anglo-settlers raised the prospect of greater agricultural innovation.\footnote{Board of Trade, 12 Feb. 1788. BT 5/5: 41-5.}

The Governor of Quebec, Lord Dorchester, claimed the thousands of American loyalists who had immigrated to Canada possessed ‘superior skill in Husbandry’, and he believed their presence would provoke ‘the desire of imitation’ amongst their backward neighbours. Moreover, the land surrounding the Great Lakes of Ontario, Erie and Huron – in what became the frontier province of Upper Canada – appeared ‘particularly adapted to the cultivation of Hemp’.\footnote{Lord Dorchester’s report, 29 Jan. 1787 cited by Adam Lymburner et al. Board of Trade, 12 Feb. 1788. BT 5/5: 43.} Many of the recent arrivals had been sent to this region, but when the land was first cleared it often proved too rich for wheat. According to Lymburner, this meant that several crops of hemp could be
grown without the use of manure. The plant was therefore especially suited to
Canada’s own internal periphery, situated on the border with the United States. In
addition to supplying the Navy, the authorities hoped the growth of hemp would
accelerate the agrarian improvement of the frontier, and help to establish a sturdy
yeomanry to support the defence of the province.⁵⁴

To initiate the project, Dorchester received a shipment of 200 bushels of the finest
Russian hemp seed for distribution amongst the settlers.⁵⁵ He suggested that Canadian
hemp could be acquired for about £35 to £40 per ton, including the cost of freight to
London, which was about the same price as the best-quality Russian product at the
time. To encourage this outcome, he offered premiums to growers and raised the
tariff on imports of the raw material. But though the Navy Board recognised the
importance of breaking the Russian monopoly, they failed to share the general sense
of optimism. Canada might be capable of supplying hemp, the Navy pointed out, but
in the past the North American colonies had only ever supplied an inferior raw
material. For naval purposes, the quality of the product was just as important as the
quantity.⁵⁶

‘It is of the utmost consequence to His Majesty’s Service,’ explained the chief naval
administrator Sir Charles Middleton, ‘that the Hemp made use of in the Navy should
be of the first qualities, as the safety of our Ships must depend on the goodness of our
Cables and Cordage.’⁵⁷ In 1790 he conceded that, for the time being, all the Canadian
hemp should be purchased as a form of encouragement, and that Dorchester’s request

⁵⁴ Board of Trade, 12 Feb. 1788. BT 5/5: 41-5.
⁵⁵ Board of Trade, 26 Jan. 1789. BT 5/5: 179.
for a further 2,000 bushels of seed should be fulfilled. Without the introduction of an efficient ‘bracking’ system, however, the Navy Board expected that only the lesser grades would be produced. For the purpose of comparison, samples of all the different grades of Russian hemp were sent to Quebec, but the Navy remained sceptical about the eventual outcome.⁵⁸

Ten years later, at the time of the Russian embargo, the Board of Trade resumed its inquiries on British North America, expecting to find signs of progress. Regardless of quality, though, they learned that Canada had failed to export even one ounce of hemp. Initially, the non-occurrence was attributed to the scarcity of labour and its consequent high price, but subsequent reports revealed the more immediate problem was the shortage of seed.⁵⁹ Most of the imported seed never germinated, which was probably the result of poor storage on the Atlantic crossing, a persistent problem that was not yet recognised let alone resolved. Unsurprisingly, the Canadian authorities found it was impossible to persuade farmers to adopt a ‘novelty’ under these circumstances. Out of frustration, several had already given up.⁶⁰

In the lead up to the Baltic Blockade, however, conditions started to improve. In 1801 Sir Robert Milnes – the Lieutenant-Governor of Lower Canada – appointed Isaac Clarke to act as the superintendent of the hemp experiment, on account of his personal integrity and skill as a farmer. With the aim of providing a local source of seed, the Montreal resident had already grown a few small crops in a variety of soils, and his success with the plant inspired confidence amongst the local authorities.⁶¹ At

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⁵⁸ Board of Trade, 7 Sep. 1790. BT 5/6: 321-7.
⁵⁹ Board of Trade, 16 Dec. 1800. BT 5/12: 184.
⁶⁰ Report of the Committee of the Whole Council, Quebec, 14 Apr. 1801. BT 6/100.
⁶¹ Sir Robert Milnes to Duke of Portland, Quebec, 13 Aug. 1801. BT 6/100.
present, there was only enough good seed in Canada to produce a few tons of hemp, but this stock would multiply with every harvest. Furthermore, the global economic climate looked more favourable for the project. With the cost of Russian hemp now standing at £80 per ton in London, the local farmers could expect to be well rewarded for their efforts.62

The following year, London’s Society of Arts elected to intervene in the project by offering their own premiums and prizes to Canadian hemp growers. The secretary, Dr Charles Taylor, pointed out that Britain’s total expenditure on the product had reached £1,500,000 per annum, and argued: ‘The support of our Navy will be regarded by every friend to this United Empire as an object of the first magnitude.’ After the embargo, this was no longer a question of providing competition to Russia in an attempt to reduce the price. The Society of Arts viewed the independence of the British Navy as a matter of national security; Taylor asserted: ‘The procuring for it a full supply of hemp is necessary to its existence.’ Although his Canadian correspondents suggested this might take a considerable time, he believed the aim was not only realistic, but essential to Britain’s future as an independent entity.63

William Grant, a landholder from Quebec, reminded the Society that the project was still in its infancy, so he doubted anyone would apply for their premiums in the near future. Nevertheless, he assured the members that their hopes were well founded as the whole of Canada was undoubtedly suited to the culture of hemp. He had given a few samples of his own to the Lieutenant-Governor, who had sent them to the

62 Report of the Committee of the Whole Council, Quebec, 14 Apr. 1801. BT 6/100.
Admiralty for inspection, and he intended to persevere with the experiment. Others had also rallied to the cause with the assistance of the Agricultural Society of Quebec, which had started purchasing seed from the United States for free distribution. Grant agreed with the Society’s principle ‘that it is sound policy to make temporary sacrifices to obtain to Britain the ultimate advantage of supplying herself, from her own territories, with hemp’. To achieve this end, Canada’s agrarian patriots were willing to make a loss for the first few harvests, while they learned how to prepare a high-quality raw material. Grant explained, however, that it was hard to inspire such sentiments amongst the local peasantry, whose actions were dictated by a combination of tradition and self-interest.64

Other correspondents also pointed out the seemingly intractable nature of this problem. Not only were the French-Canadian farmers attached to their customs, they were supported by a powerful cartel. The Roman Catholic clergy depended on wheat for their tithes, while the Francophone millers and grain merchants also opposed any British interference in the local economy. Although some Anglo-settlers thought the high price of wheat was an impediment, others noted that dressed hemp was worth five times more, which was more than enough to cover the extra labour. Yet all conceded that it was impossible to reason with the peasantry, who were under the spell of their priests. Despite this difficulty, though, the population of Lower Canada was steadily expanding through the arrival of Scottish and American emigrants, so the social composition of the province was looking ever more favourable for the culture of hemp.65

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64 Grant to Taylor, Quebec, 26 May 1802 in Transactions of the Society of Arts Vol.XXI, 449-54.
In Upper Canada, the main problem at this stage resulted from the scarcity of settlers rather than their loyalty to the empire. A local farmer explained that ‘In a new country, so lately cleared of large trees, the stumps and roots abound in such numbers, and have as yet such strength, as entirely to preclude the use of the drill plough, of which there is not one in the province.’ He felt gratified that the Society of Arts had taken such an interest in the development of the province, reassuring the members that their generosity was appreciated, but sought to temper the notion that Canada was likely to supersede Russia in the foreseeable future.\(^{66}\) To advance the frontier, the new settlers in both Canadian provinces were usually granted land in the more remote districts. These areas had less access to navigable waterways and therefore to the major emporium at the port of Quebec. Understandably, subsistence farming became the chief priority in such places, rather than supplying Britain with hemp.\(^{67}\)

Nevertheless, a significant breakthrough occurred in 1802 when Isaac Clarke sent a ton of the raw material from Montreal to London.\(^{68}\) To test its suitability for maritime purposes, the Canadian hemp was delivered to two different rope-makers who reached similar conclusions. Both agreed the product initially appeared ‘foul’ and ‘rooty’ due to insufficient bracking. The different grades had been mixed together, and in this condition the product would never compete with clean Russian hemp on the British market. On closer inspection, though, the best of the fibre seemed uncommonly long and strong. Separating this fibre from the rubbish was a tedious


process and the finished rope had a poor appearance. Most importantly, however, it held sufficient weight for use on large ships.\textsuperscript{69}

On account of his efforts, the Society of Arts awarded Clarke the Gold Medal for ‘the Culture and Preparation of Hemp’ in Lower Canada.\textsuperscript{70} Meanwhile, progress had also occurred in Upper Canada where one grower raised six acres in 1802, for which he was awarded the Gold Medal or $100 at his discretion, while another received the Silver Medal (or $80) for growing a little under three acres. These crops were inspected and certified by Peter Hunter, the Lieutenant-Governor of the province, who explained their main benefit at this early stage related to the local provision of seed. The cultivators had insufficient experience to prepare the raw material in the correct manner, and he requested further instructions on the subject.\textsuperscript{71}

In consultation with the Chief Justice of Upper Canada, Hunter also formulated a plan for the perusal of the Board of Trade. Having recognised that parliamentary bounties had failed to achieve the desired outcome, he argued that greater incentives should be provided to the farmers rather than the merchants. Therefore, he proposed that the most successful hemp cultivators should be granted up to a thousand acres of ‘Waste Land’. In his view, this prize would attract more settlers to the province. Even if the hemp project never bore fruit, it would accelerate the clearance of the scrub and improve the defence of the Canadian border. Increasing the local population represented an important priority for his administration, and Hunter explained that land was cheap while labour was dear in the province. To reduce the need for manual

\textsuperscript{71} Hunter to Taylor, Upper Canada, 17 Nov. 1802 in Transactions of the Society of Arts Vol.XXII, 353-62.
labour, moreover, he proposed the British government should fund the construction of water-mills in Upper Canada in order break the hemp.\textsuperscript{72}

The Board of Trade never acted on this proposal, chiefly on account of the isolated nature of the province. Upper Canada possessed neither a port nor customs office, and the Great Lake region was separated from the lower St Lawrence River by rapids and waterfalls, meaning that transportation was a costly process before the construction of canals.\textsuperscript{73} In the short term, the project appeared far more likely to succeed in Lower Canada with its established network of transport and communications. While the port of Quebec was dominated by the wheat-marketing faction, Montreal evolved as the centre of the nascent Canadian hemp industry.

Montreal possessed a dedicated Hemp Committee by 1802, which purchased all the hemp that was produced in the region, and funded the construction of six rope-walks and three sailcloth looms. The raw material was mostly acquired from the township of Hull, where one grower succeeded in raising ten acres per year from 1802 to 1805. The Hemp Committee intended to export the surplus raw material, as soon as the province had achieved self-sufficiency in cordage and canvas.\textsuperscript{74} To the Society of Arts, these developments appeared highly promising, though some of the most prominent British merchants in Canada remained unconvinced. At this stage, only a few of the ‘Loyalist settlers’ and ‘Gentlemen of the Colony’ had attempted to grow the crop ‘as a matter of Experiment’. A merchant pointed out that the project was

\textsuperscript{72} Lieutenant-Governor Hunter to Board of Trade on ‘the Cultivation of Hemp in Upper Canada’. Enclosure: Chief Justice J. Elmsley to Hunter, 18 Jun. 1801. BT 6/100.  
\textsuperscript{73} Graham, \textit{Sea Power and British North America}, 134-5.  
\textsuperscript{74} Herman W. Ryland to Taylor, Quebec, 22 Jan. 1806 in \textit{Transactions of the Society of Arts Vol.XXIV} (London, 1806), 156-9.
unlikely to progress any further unless it was clearly in the interests of the local peasantry.  

In England, the agrarian patriot James Campbell, having followed the story in the *Transactions of the Society of Arts*, pondered the range of issues that hindered the widespread cultivation of hemp in Lower Canada. With the support of a number of influential merchants, in addition to the Navy Board, he developed a detailed plan to resolve these issues and volunteered to emigrate to the province on behalf of the British government. The Board of Trade accepted the merits of this scheme in late 1804, after conversing with Sir John Sinclair and Arthur Young on the subject, though Campbell’s departure was delayed for another year, owing to administrative disputes over which government department was supposed to fund the expedition. He was accompanied by his nephew, John Lambert, who ‘cheerfully accepted’ to join the mission ‘because it opened a fair prospect of performing a most essential service’ to the nation. Lambert later described their journey in a narrative that illustrates the contemporary limits of state power, and the everyday difficulties the pair encountered in attempting to implement this imperial design.

According to Lambert, this was not ‘a wild and visionary scheme, reared upon the quicksand of an hypothesis; but that the whole was the result of well-tried, successful experiments.’ His uncle had requested a land grant to establish a hemp farm, together with government funding to construct either a horse- or water-powered mill. In addition, he intended to offer the Canadian peasantry double the price of wheat in

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75 Thomas Forsyth to John Inglis, London, 28 Nov. 1804. BT 6/100.
76 Sir A.J. Hamond to Viscount Melville, Navy Office, 10 Sep. 1804. BT 6/100.
6. Hemp and the World System

order to supply him with hemp. With the assistance of a team of British labourers, Campbell would then take responsibility for preparing the raw material, so the Canadians could be certain of an excellent profit for minimal labour. In the autumn of 1805, the pair set sail with bright hopes, eighteen Scottish farmers and mechanics, and the necessary machinery for constructing the mill.79

On landing in Quebec, Lambert expected to witness a recognisably civilised settlement, after several decades of British governance, but immediately suffered the discomfort of culture shock. The ‘majority of the people were totally different’ to his expectations: ‘their manners, customs, language, and religion, were all new to me; and I found myself at once upon a strange soil, and among a foreign people.’80 However, a more pleasing surprise occurred when he noticed that hemp already grew ‘in a wild uncultivated state’ around many of the people’s homes.81 This strain was actually ‘weedy’ rather than ‘wild’, meaning it had escaped cultivation at an earlier period, and was useless for fibre production without several generations of selective breeding to enhance its quality.82 No-one had attempted to do so, while the locals did not even use the plants for household twine. Instead, they simply viewed them as a useful source of bird-seed for their domestic fowl. Nevertheless, the sight of these plants persuaded Lambert, incorrectly, that hemp was native to North America. Consequently, he concluded the local ecology was more naturally suited to the plant than either Russia or Poland, which he saw as a good omen for his uncle.83

79 Lambert, Travels through Lower Canada, 471-3, 481.
80 Lambert, Travels through Lower Canada, xix-xx.
81 Lambert, Travels through Lower Canada, 465.
83 Lambert, Travels through Lower Canada, 463-5.
On the latter point, Lambert was very much mistaken. The most unwelcome surprise of all related to his uncle’s treatment by the colonial authorities. The Board of Trade had instructed the British government in Canada to provide Campbell with 150 acres of cleared land, but they informed him there was no Crown land available at present, and would have to await further instructions from London. Campbell was ‘thunderstruck’ by this reception, and more than six months elapsed before he was finally granted sixty acres in the Becancour district in the spring of 1806. By this time, all his workers had absconded and he was forced to employ French farmers and American mechanics at considerable personal expense.  

Campbell’s problems did not end there, however, as the Board of Trade had supplied him with £1,000 worth of useless seed. It appeared to be ‘kiln-dried’ meaning it had not been threshed before the stems were cured through heat. As a result, the seed had lost its ‘vegetative powers’ and none of the hemp germinated. The Canadian authorities then supplied him with a fresh stock from the United States. By the time it was planted, though, the season had passed and winter arrived before the crop was fully mature. The whole sixty acres was lost, which meant he was unable to pay the workmen, so the construction of the mill also ground to a halt. Campbell persevered the following year, but was utterly disillusioned by the incompetence of the officials.

Lambert struggled to explain why the scheme had met with so many obstacles, not only for his uncle, but for the other prospective hemp farmers. He did not think that any blame should be attributed to the Board of Trade, whose earnest wishes had been

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84 Lambert, *Travels through Lower Canada*, 480-1.
let down in their practical execution over the last twenty years. Regarding the
‘prejudice’ of the wheat cartel, he remained unconvinced that this was the problem
either. His uncle had a personal audience with the Catholic Bishop of Quebec, in
order to explain that the cultivation of hemp need not interfere with the growth of
wheat. Campbell pointed out that the annual wheat harvest would actually be
improved through the use of a three-course rotation with hemp and fallow.
Furthermore, hemp was officially classified as a grain in Canada meaning the same
tithe could be applied to the crop. The Bishop, apparently, was convinced by this
argument and expressed no objection to the practice. Somewhat bemused by the
conversation, he claimed he had never been prejudiced towards the crop in the first
place.\endnote{86}

Many Anglo-settlers believed the local peasantry simply lacked the Protestant work
ethic; but though Lambert conceded the French Canadians were a ‘naturally indolent’
people, he noted that some had attempted to cultivate hemp on account of the
premiums on offer. Yet the poor quality of the raw material meant the product had
often been rejected by the British authorities. To resolve this issue, Dr Taylor had
provided a manual of instruction – in both English and French translation – but the
pamphlet proved useless because few of the peasantry could even read their own
language. Those who had succeeded in selling the raw material then found the British
agents reluctant to part with the bounty. Word had spread amongst the French
Canadians until they ended up ‘disgusted with the very name of hemp.’\endnote{87}

\begin{footnotes}
\footnote{86}{Lambert, \textit{Travels through Lower Canada}, 486-90.}
\footnote{87}{Lambert, \textit{Travels through Lower Canada}, 467, 487-8; Dr Charles Taylor, ‘Remarks on the Culture and Preparation of Hemp in Canada, communicated at the desire of the Lords of His Majesty’s Privy Council for Trade and Plantations’, 19 Aug. 1805 (Quebec, 1806), 1-19.}
\end{footnotes}
Ultimately, Lambert settled upon a conspiracy theory as the only possible explanation. Soon after his arrival, he was told ‘there is a SECRET PARTY, which is determined to prevent the introduction of hemp into Canada!’ At first, he refused to take this seriously, but his subsequent observations convinced him that Napoleon’s sympathisers must have been responsible for the failure of the project. He claimed the citizens of Quebec spoke openly about this conspiracy, but there was scant evidence to support the theory. His main suspicion related to the seed: because so many farmers complained their stock never sprouted, he suspected that French agents must have tampered with the supplies.88 As we have seen, however, the transplantation of hemp was problematic throughout the British imperial world.

During the Baltic Blockade, the Navy Board corresponded with Isaac Clarke in the hope of acquiring an emergency supply of hemp from Montreal, but the superintendent could only convey his sense of disappointment. In August 1808, Clarke reported that this year’s harvest looked ‘very unpromising’, while last year’s had also been much smaller than anticipated. One farmer complained that his expenses had been greater than his profits, while Campbell had suffered ‘total failure’ and subsequently abandoned the scheme.89 Thanks to the efforts of the Anglo-settlers, the supply of seed had become less of an issue; but if they found themselves unable to raise a profit from the raw material, then there was no hope of persuading the peasantry to grow the plant.

As in Britain, Ireland and India, the majority of the Canadian farmers failed to share the patriotic imperatives of their supposed social superiors, and simply continued to

88 Lambert, Travels through Lower Canada, 490-1.
practice their traditional system of agriculture. According to imperialist discourse, it was important that Britain’s arable farmers grew wheat in support of the nation’s food security. Yet in the peripheries of empire, where naval independence was envisioned as the goal, this was often attributed to the laziness or ignorance of colonial farmers. Although the wealthier farmers had sufficient capital to conduct experiments with hemp, and thereby contribute to the colonial acquisition of useful knowledge, the poorer households could not afford to put this knowledge into practice, because of the speculative risk and potential waste of time. The imperial planners, blinded by the privilege of class, failed to see that the everyday imperative of providing food for the family represented the most fundamental obstacle to the scheme.

For these reasons, Upper Canada’s long-term prospects as a naval hemp producer also seemed doubtful. When the naturalist William Bond travelled to the province in 1809, he found that small amounts had been planted for the provision of household twine, but these farmers were poor and were not prepared to risk growing a large crop of hemp. They already worked long hours to clear and fence the land, but seldom used the plough due to their lack of either livestock or finance. Strong hemp, he pointed out, needed a deeper tap root than the hoe could supply from the freshly-cleared forest. Moreover, labour remained expensive in line with the high price of bread, which suggested that wheat was likely to become the staple of the province.90 Because of its geographical isolation, Upper Canada largely developed a subsistence economy during this period. Nevertheless, British garrisons were stationed along the

border with the United States, so the provincial farmers and merchants found a vent for their wheat by selling flour to the troops.91

When the Continental System was in operation, British trade with Canada still provided an important source of relief. From Quebec, cargoes of wheat and flour were exported to Britain, her ally Portugal, and the plantations in the West Indies.92 Yet this contribution was relatively minor by comparison to Canadian exports of naval timber. This trade grew exponentially through the Blockade period, while the Baltic supply was reduced by more than half. Under economic protection, the Atlantic trade continued to expand until about 1820, when these measures were removed and growth stabilised. The Baltic merchants had complained of unfair competition. The British government concluded that Canadian timber could now fend for itself in a free market, which also reduced the cost.93

The Continental System had accelerated the formation of the British world-system, and the stage was set for a long period of global hegemony. As John Darwin points out, London replaced Amsterdam as the financial centre of Europe by 1815, Britain had acquired a strategic foothold on Ceylon, Mauritius and the Cape of Good Hope, and the nation had enlarged its trade with Brazil and other parts of South America. Furthermore, Britain’s naval blockade of the continent, in combination with the French ‘self-blockade’, had stymied the growth of European manufacturing to the advantage of British industry. Having assumed such a position of strength on the

93 From 1803 to 1806, British North America exported an average of 10,519 loads per annum, while the Baltic supplied Britain with 218,857 loads. From 1816 to 1819, the Canadian figure had risen to 188,322, while the Baltic only supplied 93,659. Graham, *Sea Power and British North America*, 149-50. See also Belich, *Replenishing the Earth*, 109.
world stage, the ‘second’ British empire no longer needed to defend its economy to the same extent, and its policy makers continued to learn the benefits of free-trade imperialism.94

In the post-war period, the Navy Board continued to develop its strategic options for the supply of timber, by improving the domestic reserve as well as establishing new sources in Italy and Africa. The supply of hemp had always been more problematic, yet little was done to resolve the issue after the emergency had passed.95 Russia maintained its monopoly, but the amity between the nations ensured there were no further interruptions before the Crimean War (1853-1856). During the first half of the nineteenth century, however, the cultivation of hemp retained its association with the improvement of Australia. Meanwhile, there was a revival of British interest in the potential of New Zealand flax, together with other substitute fibres from the Asia-Pacific region.

In the first decade of the nineteenth century, the first concerted experiments with the cultivation of hemp occurred in New South Wales. Unlike the contemporaneous efforts in India, Ireland and Canada, there was no suggestion the penal colony would alleviate Britain’s immediate crisis; but the plant thrived in the Australian ecology, and the availability of unfree labour appeared to offer a unique opportunity for imperial planners to develop a long-term solution to the problem. Before the conclusion of the Napoleonic wars, British researchers continued to associate New South Wales with a future supply of hemp.¹

In the post-war period, the cultivation of hemp in Australia appeared increasingly irrelevant from a strategic or commercial perspective. There was a revival of interest in New Zealand flax, which offered a regional substitute for cordage production, while colonial graziers located an agricultural staple from the fleeces of sheep. Yet pastoralism never possessed the same degree of moral legitimacy as the tillage of the land. To some observers, supplying Britain’s demand for hemp represented an alternative way of contributing to imperial commerce, and a more suitable method for improving the Australian landscape and the virtues of its invasive inhabitants. The culture of hemp therefore continued its association with the ideology of improvement, as part of what Richard Waterhouse terms the ‘yeoman ideal’.² Ultimately, however,

the governance of nature proved impossible to achieve with regards to the culture of this unruly plant.

This chapter explores this vision and compares the outcome to the agricultural history of the United States, the only Anglo settler-society where hemp production became reasonably well established. In American history, Thomas Jefferson has been associated with the propagation of the yeoman ideal, a synonymous term for what Joyce Appleby also refers to as the ‘agrarian myth’. A correspondent of Sir John Sinclair and Arthur Young, the ‘founding father’ promoted a scientific approach to agricultural improvement, and was a champion of the small-scale farmer, as part of his apparently enlightened attitude to the principles of democracy, household self-sufficiency and national commerce.3

Jefferson recognised the importance of hemp cultivation to the nation’s independence. To set an example to others, the crop was raised on his plantation at Monticello in Virginia, and he even developed an ingenious ‘hemp-break’ as a labour-saving device to prepare the raw material. In 1811 the former president described hemp as one of the nation’s ‘primary staples’ alongside wheat and tobacco.4 Nevertheless, the expansion of hemp cultivation in the Early Republic was not the result of Jefferson and his compatriots propagating the yeoman ideal. In the antebellum period, the industry’s relative success resulted from the availability of

slave labour, together with the market forces of the cotton-producing southern states. Following the Civil War, however, the rapid decline of American hemp cultivation was no longer seen as problematic on the national scale. In the final chapter, I examine the plant fibres and technological innovations that finally severed the culture of hemp from the ideology of improvement throughout the Anglo-world.

‘A pint of hemp seed from India’

After ten years of the British occupation of New South Wales, Sir Joseph Banks was perplexed that nothing tangible had yet been discovered to defray the cost of founding and maintaining the penal colony. The remote settlement was a low priority for the Home Department, and though the Secretary of State for War and the Colonies assumed official responsibility in 1801, the ministry’s portfolio was preoccupied by war. With the blessings of the administration, therefore, the naturalist continued to direct the experiment in an unofficial capacity. Having recommended the site to the government, Banks felt personally responsible for assuring its future prosperity, and developed a new plan to achieve this end.  

At Norfolk Island, Philip Gidley King had demonstrated his commitment to the improvement of the Australasian region in British interests. After returning to England, he contemplated becoming a farmer in his native county of Cornwall, but his experience of colonial administration was too valuable to be wasted on an early retirement in the English countryside. Following criticisms of Governor Hunter’s administration, whose authority had been fatally undermined, Banks used his

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5 Sir Joseph Banks to Under-Secretary King, Soho Square, 15 May 1798, HRNSW 3: 382-3; John Gascoigne, Science in the Service of Empire: Joseph Banks, the British State and the uses of science in the Age of Revolution (Cambridge: Cambridge University Press, 1998), 190-1.
influence to ensure that King was appointed as Hunter’s successor in 1798. In the early years of the nineteenth century, following the disappointing commercial outcome on Norfolk Island, King turned his attention to the cultivation of European hemp and flax on the Australian mainland.

At Portsmouth, in May 1798, the preparations for King’s voyage began with the construction of a ‘plant-cabbin’ on board the HMS Porpoise, where the gardener George Suttor cared for a variety of useful plants and seeds. ‘For Experiment’, these included tobacco, coffee, cotton and rhubarb, along with ten pounds each of hemp and flax seed. A master weaver, Edward Wise, also planned to settle in the colony with his wife and two children, and the ship was loaded with wheels, looms and other equipment for his trade. Through the manufacture of European hemp and flax, Wise intended to improve the colony’s self-sufficiency in cordage and cloth, allowing King to gauge the possibility of developing an export industry.

In addition to Suttor and Wise, an inexperienced botanist from Manchester, George Caley, managed to secure Banks’s patronage through a combination of persistence and enthusiasm. Caley would become the colony’s first dedicated, resident botanist. In recommending himself for the post, he noted that the amateur collectors in New South Wales had tended to focus on the more attractive looking specimens and argued: ‘if that invaluable plant hemp was unknown there, and grew there, it most

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7 Banks to King, 15 May 1798, HRNSW 3: 382-3.
probably never would be found out to be of any utility till by being discovered by
change’. Rather than viewing the continent as a natural curiosity, Caley insisted he
would attend to its utilitarian potential for British manufacturers, as well as
contributing to the European *materia medica*.

If everything went to plan, it was hoped the voyage of the *Porpoise* would represent a
turning-point in the commercial development of New South Wales, but the problems
began before the ship had even departed from Portsmouth. The modifications made
the vessel unseaworthy and the delayed departure tested the patience of all concerned.
Eventually, King, Wise and Caley set sail on the *Speedy* in the winter of 1799, while
Sutton was left to care for the plants and await further repairs to the ship. However, he
struggled to keep the organic cargo intact in the cold, dank climate. As he wrote to
Banks, for example: ‘I beg leave to mention the 2 Sacks of Hemp Seed one of the
Sacks being much Rotten. I am afraid neither of them will serve to the Cape.’

Whether or not these sacks were replaced, neither the *Porpoise* nor the *Speedy* arrived
in New South Wales with a viable stock of hemp seed. Other aspects of the plan also
grew awry before they could be implemented. In the Indian Ocean, tragically, the
weaver was washed overboard and drowned.

After landing in Sydney in April 1800, King waited until September to assume the
governorship, which led to a strained atmosphere with his predecessor. He informed
Banks that ‘Vice, dissipation, and a strange relaxation seems to pervade all
descriptions’, a situation that did not auger well for the creation of a productive

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10 Caley to Banks, 12 Jul. 1798. BP, Series 18.007: CY 3680/401.
12 Sutton to Banks, HMS *Porpoise*, 8 Nov. 1799. BP, Series 19.30: CY 3681/84.
agrarian society. After the departure of Governor Phillip, the civil and military officers had monopolised the incoming provisions for personal profit, and the trade in spirits had become a major concern for the government. According to Hunter, his inability to regulate this ‘wretched and disgracefull traffic’ was the chief cause of his premature demise.

The cultivation of hemp, or any other useful industry, required more than fertile soil and viable seeds. It needed a society that was capable of producing the raw material. In 1801 King found that out of nearly 11,000 acres cleared of timber, over 2,000 acres remained uncultivated. Farms had been abandoned, which he attributed to the ‘lure of spirits’, and out of the 400 settlers who remained on their farms ‘scarce one grew either a potato or cabbage’. Almost all they produced was wheat and maize, purchased by agents at the public store, and ‘it has often occurred that one night’s drinking at the house of some of those agents has eased them of all their labour had acquired the preceeding year.’ Once in power, King had taken immediate steps to assert his authority by restricting the import of spirits, authorising licensed retailers and prohibiting colonial distillation. But with the amount of alcohol already stockpiled in the colony, these measures took time to take effect.

During this period, George Caley became a useful source of information for his patron in England, not only in terms of the local flora and fauna, but through his

14 King to Banks, 3 May 1800, HRNSW 4: 82.
15 Hunter to Portland, 20 Apr. 1800, HRNSW 4: 73.
17 King to Portland, 10 Mar. 1801, HRNSW 4: 318; ‘Account of Spirits and Wine imported into His Majesty’s Colony in New South Wales’, 28 Sep. 1800 to 31 Dec. 1801, HRNSW 4: 651; Shaw, ‘King, Philip Gidley (1758–1808)’. 
impartial analysis of the colony’s social conditions and agricultural practices.\textsuperscript{18} From an anthropological perspective, he observed that ‘if we take a universal view of mankind, we find that something of an intoxicating quality is used more or less by all.’ European labourers used alcohol for their recreation, while Indian labourers tended to prefer hemp products. The problem was not the consumption of spirits, Caley argued, it was the trade that engendered misery on account of the high price.\textsuperscript{19}

On the whole, Banks agreed with this position except that beer was the customary beverage of the British agricultural worker. Unfortunately, though, the hop plants he supplied for the \textit{Porpoise} did not survive the voyage.\textsuperscript{20} More were soon acquired from the Cape, which King described as ‘the greatest blessing that can be bestowed on a colony’, and a small brewery was established in Parramatta in 1804. Yet the Governor lamented that it would take ‘some years’ before the crop was well established, and the distribution of cheap beer would have any effect on local consumption patterns.\textsuperscript{21}

Besides the trade in spirits, there were several other issues that hindered the introduction of European agriculture. Grain farming suffered from the unpredictable climate and the years of either drought or flood. Although interspersed with bountiful harvests, the colony produced so much grain in the good years that a great deal was wasted due to insufficient storage facilities.\textsuperscript{22} While some of the most useful species

\begin{itemize}
\item \textsuperscript{18} Banks to Caley, 30 Aug. 1804 in Caley, \textit{Reflections on the Colony}, 94.
\item \textsuperscript{19} Caley to Banks, ‘A Short Account Relative to the Proceedings in New South Wales, from the Year 1801-1803’ in Caley, \textit{Reflections on the Colony}, 78-9.
\item \textsuperscript{20} Suttor to Banks, 28 Dec. 1800, HRNSW 4: 277.
\item \textsuperscript{21} King to Lord Hobart, 20 Dec, 1804, HRNSW 5: 516-7.
\item \textsuperscript{22} C.J. King, ‘The First Fifty Years of Agriculture in New South Wales: 8. Problems of marketing and pricing in the early agriculture of New South Wales (circa 1803-1821)’, \textit{Review of Marketing and Agricultural Economics}, 16 (12) (1948), 669-84.
\end{itemize}
resisted transplantation, moreover, certain pests flourished in New South Wales. In
addition to weevils, an intoxicating weed known as drake – or darnel in England
(Lolium temulentum) – was accidentally shipped out amongst the grain. At harvest
time, the drake seeds were then inadvertently threshed with the wheat, which made
the consumer dizzy and affected their sight.23

Inevitably, the most contaminated flour was given to the convicts. ‘It may be said that
anything is good enough for convicts’, wrote Caley, ‘but if work is required from
them, such treatment will not answer.’24 All of these issues contributed to his most
damning indictment of the colony: ‘The method of farming is conducted upon a bad
principle, and is carried on in a slovenly manner.’ The botanist observed that
insufficient land had been cleared for the inhabitants, the remaining tree stumps
meant the hoe was still preferred to the plough, and the available manure was often
wasted or poorly applied.25

Certain historians have attempted to revise this rather dismal view of early Australian
agriculture. Angus McGillivery argues that, almost from the outset, the colonists
practised the most advanced techniques of European husbandry.26 On the other hand,
John Gascoigne, while accentuating the positives, presents a more nuanced
perspective that recognises the difference between contemporary theory and the
everyday practice of farmers.27 Even in England, the home of the so-called
agricultural revolution, increased productivity largely occurred through institutional

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23 Caley to Banks, 1 Nov. 1802, HRNSW 4: 882.
26 Angus R. McGillivery, ‘Convict Settlers, Seamen’s Greens, and Imperial Designs at Port Jackson: A
Maritime Perspective of British Settler Agriculture’ Agricultural History, 78 (3) (2004), 261-88.
7. Improvement and the Anglo World

changes – such as the more productive use of ‘waste land’ – rather than any radical alteration in techniques. Useful knowledge percolated slowly through the English countryside, let alone in Australia, before its widespread adoption on farms.\(^{28}\) By English standards, moreover, the colonists could afford to be wasteful in their husbandry of the land. In 1804 the Cumberland Plain contained more than 13,500 acres under grain, and nearly 120,000 acres of pasture, to support an invasive population of a little under 7,000 Europeans and their seafaring guests.\(^{29}\)

Despite the limited resources at his disposal, however, Governor King ensured the hemp and flax experiment remained a high priority during his administration. Under these circumstances, the rapid progress of colonial production appears all the more remarkable. Only ‘a small quantity’ of the flax seed survived the voyage on the *Porpoise*, but this was added to some acquired from an earlier experimental crop. To start the project, in the spring of 1800, the entire sum was sown on two acres in the Hawkesbury district. King was not overly concerned by the loss of the weaver at this stage, and thought it unnecessary to send for another. Instead, he found some ‘good workmen’ amongst the Irish convicts, including experienced flax-dressers and weavers, and appointed one to act as an overseer.\(^{30}\)

The small crop proved a great success. After the flax was harvested and prepared, every female convict that could spin was employed in the task, and the labourers

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\(^{30}\) King to Portland, 28 Sep. 1800, HRNSW 4: 183.
produced over 600 yards of fine and coarse linen. With plenty of seed now available, 30 acres of flax had been planted by 1803. The following year, nine looms provided 100 yards of linen per week, in addition to good-quality sailcloth. When Banks received his first sample of the textile he was fulsome in his praise, finding it far superior to the Norfolk Island equivalent. By this time, moreover, the colony had finally started to cultivate its own supply of hemp.

In 1802 King received ‘a pint of hemp seed from India’, the first viable shipment to arrive in Australia. Although its exact provenance is unknown, the package probably came on a Country vessel from Calcutta, the source of many of the colony’s provisions, and it seems likely that Dr William Roxburgh was involved in the transfer. When the Porpoise remained docked in Portsmouth, Banks informed Roxburgh of the necessity of sending hemp-seed to New South Wales, and how the ship’s delayed departure and the onset of winter had caused problems. Banks specified that he had taken trouble to select the finest possible seed for the project, and requested Roxburgh’s assistance should any of the ‘useful plants’ fail to arrive intact. The shorter voyage from the Bay of Bengal would have helped to ensure the safe arrival of the package, in addition to the extra care that Roxburgh took in such matters. Although the seed may have come from either the European or the Indian variety, it probably belonged to the former as a large and carefully packed shipment

33 Banks to King, 29 Aug. 1804, HRNSW 5: 459.
34 King to Hobart, 14 Aug. 1804, HRNSW 5: 426; King to Banks, 14 Aug. 1804, HRNSW 5: 449.
35 Banks to Dr W. Roxburgh, 7 Jan. 1799, HRNSW 3: 527.
had recently arrived in Calcutta. According to King, the plants grew anywhere from six to twelve feet high, which also suggests he received the textile strain.

For the first two years, the hemp was grown purely for breeding purposes, allowing the collection of ‘ten bushels’ of seed. In August 1804, when King shared the good news, he informed Banks that the plants grew with ‘the utmost luxuriance’ and proudly stated: ‘I have now sown ten acres for Government’. If the acreage continued to expand at this rate, the Governor was confident the supply of hemp would soon ‘entitle this colony to the attention of England.’ To demonstrate the quality of the fibre, he used a sample of cord to tie Caley’s dispatch box of Australian flora. On the same day, King also wrote to Lord Hobart – the Secretary of State for War and the Colonies – to inform him that ‘any quantity may be raised and manufactured’ in New South Wales. The warm climate allowed the harvest of two crops per year, and as the Hawkesbury farmers now produced enough grain for subsistence, King reported that greater attention would be paid to the cultivation of hemp.

In addition to ten acres of hemp, by this time there were nearly fifty acres of flax on Australian soil. For manufacturing purposes, stone buildings – including covered rope-walks – were constructed in the Hawkesbury district, where in 1805 the colony produced nearly 6,000 yards of canvas, sacking and linen, and over 4,500 fathoms of

38 King to Hobart, 14 Aug. 1804, HRNSW 5: 426.
39 King to Banks, 14 Aug. 1804, HRNSW 5: 449.
40 King to Hobart, 14 Aug. 1804, HRNSW 5: 426.
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rope, log lines and twine. For the time being, the Governor asserted that providing for the local inhabitants represented the main priority. Together with the colony’s ship-timber, however, he continued to view New South Wales as a future exporter of naval stores. On account of the distance from England, he recognised that freighting the raw materials would be extremely costly, making the export of finished cordage and sailcloth more feasible. This would necessitate the import of tar from Europe, as a decent source was yet to be found in either Australia or India, but King viewed this as a minor hindrance for such an important scheme.

At this stage, the production of hemp and flax was predominantly seen as a government project, a way to ensure that convict labour remained a public resource. The Governor was concerned that large numbers of convicts had already been ‘alienated’ to work on private farms. Nevertheless, through the medium of the Sydney Gazette – founded in 1803 as an official mouthpiece for the government – there was an attempt to appeal to more public-minded individuals. To disseminate the seeds of useful knowledge, an article entitled ‘Culture of Hemp’ – reprinted from an anonymous ‘American Paper’ – was published in 1805. This provided a summary of the plant’s natural history, an account of its contemporary importance as a naval raw material, and practical instructions for the prospective farmer. But the article mainly

44 King to Banks, 14 Aug. 1804, HRNSW 5: 449.
45 ‘Culture of Hemp (From an American Paper)’, Sydney Gazette and New South Wales Advertiser, 28 Apr. 1805, 3.
served as a way to prepare the ground for private enterprise, as the physical seeds remained highly precious to the government.\footnote{King to Hobart, 20 Dec. 1804, HRNSW 5: 527.}

For the Reverend Samuel Marsden, however, a quantity of hemp and flax seed was spared for his estate at Parramatta. In London, Hunter described Marsden as ‘the best farmer in the country’ whose efforts served as a model for others. When Sir Charles Middleton asked the former governor about the prospects of an Australian hemp supply in 1805, he informed the naval administrator that Marsden’s correspondence provided significant grounds for optimism. The growth of the plant had exceeded the chaplain’s expectations, while the quality of the raw material was soon confirmed.\footnote{Ex-Governor Hunter to Sir Charles Middleton, London, 22 Feb. 1805, HRNSW 5: 560.}

The following year, Marsden dispatched samples of his hemp and flax to the Transport Board in London, which sent them for testing at Woolwich Rope Yard. Remarkably, the Master Attendant claimed the Australian products were ‘superior to those of Europe’. After receiving this report, the Board of Trade concluded that ‘if stronger Cables and stouter Canvas than those now in use can be manufactured there, a Trade in these Articles will be highly important to the Mother Country, and extremely advantageous to the Colony’. Following recent disappointments in Ireland and Canada, their lordships declined ‘to entertain any such hope’ for the near future, but viewed this as a promising development for Britain’s naval independence in the long term.\footnote{Board of Trade, ‘Hemp & Flax’, n.d. (c. Mar. to Dec. 1806). BT 5/16: 158-9.}

These and other recent developments led to a reassessment of the commercial status of New South Wales. On account of the navigational restrictions imposed by the East
India Company, the colonists were not supposed to build boats with a larger keel than fourteen feet, though King had overlooked this regulation to allow entrepreneurs to procure seal skins and oil from the Bass Strait.\(^4^9\) When a cargo was shipped to London, however, it was seized by the Company in 1805 due to the contravention of their monopoly. The Board of Trade then intervened in the dispute, seeking to clarify the purpose of the Australian incursions. Settlements now existed as far south as Van Diemen’s Land, and beside the Hunter River in the north where coal had been located. This raised an important question: were these sites merely prisons, or was it ‘the intention and policy of Government that these establishments shall be considered as colonies, with all the privileges of colonists?’\(^5^0\)

In order to lessen the financial burden on the British Treasury, Banks argued that a change in policy was necessary to ensure that ‘The whole benefit of the colony, either in consumption or its produce, should be secur’d, as far as possible to the mother country’. By removing the Company’s restrictions, and placing New South Wales under the conventional protection of the navigation laws, this would enable the inhabitants to become ‘honest traders’. Without a vent for their products, Banks anticipated they would either open trade with China or else turn to piracy, ‘the fear of which seems to haunt the Court of Directors so continually.’\(^5^1\) In 1807 the Board of Trade prepared a bill to allow New South Wales to engage in commerce, subject to licensing by the East India Company.\(^5^2\) Although this particular bill was never

\(^4^9\) King to Hobart, 1 Mar. 1804. BT 6/88: 190.
\(^5^1\) Banks, ‘Some Remarks on the Present State of the Colony of Sidney, in New South Wales, and on the means most likely to render it a productive, instead of an expensive, settlement’, 4 Jun. 1806, HRNSW 6: 86-90.
passed, five years later the colonists obtained this right when the Company’s monopoly was only renewed for trade with China.\(^53\)

During King’s administration, it seemed increasingly likely that hemp production would play a role in the commercial future of New South Wales. If not as an export commodity, then at least for local ship-building and repairs as a crucial aspect of Sydney’s development as a port of refreshment. Yet poor health continued to plague the Governor, whose personality had changed markedly since his time on Norfolk Island. Ridden with gout, King had become short tempered and pompous in his efforts to control the power of individual speculators. He requested another leave of absence to recover in England, but this was interpreted in London as a resignation.\(^54\)

To replace him, Banks recommended the notorious William Bligh, Fellow of the Royal Society, partly on account of his authoritarian reputation, and partly because of his important contribution to the imperial transfer of plants.\(^55\)

As naval officers, the first four governors of New South Wales recognised the strategic importance of locating a regional source of maritime raw materials, as well as nurturing the improvement of tillage agriculture. Following his arrival in August 1806, Governor Bligh announced in the *Sydney Gazette* that he had brought a quantity of hemp-seed for distribution amongst the settlers, and that anyone with ‘proper ground’ could apply to his secretary to adopt the culture.\(^56\) However, the

\(^53\) Frost, *Convicts and Empire*, 194-5.


\(^56\) ‘Notice’, *Sydney Gazette*, 21 Sep. 1806, 1.
government’s hemp farm appears to have fallen into neglect under Bligh’s short-lived administration, while the recent Hawkesbury flood made the colony’s subsistence a far more pressing issue. Ultimately, the selection of Bligh turned out to be a disastrous decision that effectively ended Banks’s influence in the colony’s development.57

When King returned to London, he continued to promote his pet project, raising unrealistic hopes that an Australian supply of naval stores might be imminent. Soon after the onset of the Baltic Blockade, the former governor reported that hemp was ‘a very superior staple’ for New South Wales. For his voyage to England, he had equipped the Buffalo with several sails made from the colonial product; these had ‘lasted most of the passage … and can now be produced as a sample of its goodness and strength.’58 On hearing this news, the Chancellor of the Exchequer declared that – together with food subsistence – the cultivation of hemp should be the colony’s first priority, considering the Navy’s problem in securing a dependable supply.59

On New Year’s Eve 1807, the Colonial Secretary composed a letter to Bligh to remind him that hemp cultivation was ‘an object of great consequence’ in New South Wales. Viscount Castlereagh requested a ‘full experiment and report’ with a view to the Navy ‘procuring a certain quantity at a fixed price annually.’60 But having been overthrown by the rebellion on 26 January 1808, Bligh never received this letter and it was answered instead by Lieutenant-Colonel Foveaux. The army officer’s courteous reply pointed out that very little hemp-seed remained in the colony as a

58 Ex-Governor King on Australian Timbers, &c., Dec. 1807, HRNSW 6: 398.
result of Bligh’s incompetence. The quantity he brought ‘proved to be entirely spoil’d’, and he then carelessly distributed the good seed ‘amongst people whose lands were not calculated for its growth, or who have paid no attention to its culture.’ In King’s absence, the nascent hemp industry had already been destroyed. All the care he had taken to preserve and multiply the pint of seed from India had come to naught.

On account of the circumstances in Europe, the production of hemp would have reflected well on the rebel administration, and there was an attempt to comply with Bligh’s orders. In May 1809, the merchants J.C. Burton and Thomas Kent requested a grant of 1,000 acres at Toongabbie, where they intended to cultivate hemp and produce cordage and cloth. The pair hoped to collect a team of around twenty Indian or Chinese artisans, in addition to a stock of seed from Calcutta, and insisted their proposal was motivated by a sense of public duty rather than any likelihood of immediate profit. To cover their costs, though, the merchants also hoped to return with 200 tons of Bengal wheat and 13,000 gallons of rum. When Colonel Paterson wrote to Lord Minto – the Governor-General of India – to obtain permission for the scheme, the army administrator stressed above all the importance of these supplies. Another Hawkesbury flood had raised the fear of famine, while he also claimed the colony was presently ‘in the greatest want’ of spirits. By comparison to these valuable articles, the hemp project seemed far less of a priority to Paterson and the merchants.

61 Lieutenant-Colonel Foveaux to Castlereagh, Sydney, 6 Sep. 1808, HRNSW 6: 741.
64 Colonel Paterson to Lord Minto, Sydney, 9 Jul. 1809, HRNSW 7: 193.
The Governor-General was initially uncertain whether he should recognise the illegitimate government. From his exile in Van Diemen’s Land, Bligh had already informed Minto that New South Wales was in a state of anarchy, but though he sympathised with the deposed governor’s plight, Minto decided the colony’s welfare needed to come first. Nevertheless, there is no evidence to suggest the hemp farm was ever established. The acquisition of such an enormous quantity of seed, together with experienced labourers from Calcutta, was probably more problematic than the merchants had ever imagined.

The administration of Governor Lachlan Macquarie (1810-1821) – a Scottish army officer – brought greater stability to the office, and coincided with a turning-point in the colony’s fortunes. In 1812 a Parliamentary Committee on the affairs of New South Wales reported that the export of whale oil, seal skins, coal and fine wool all appeared to be highly promising developments for the future. Unfortunately, ‘The culture of hemp has been less attended to than might have been expected’, yet no action was taken to redress this situation. By this time, the British and colonial governments believed that New Zealand flax would supersede the culture of hemp in Australia, while the colony’s agricultural staple had already been located from its growing flocks.

65 Lord Minto to Lieutenant-Colonel Foveaux, Fort William, 27 Mar. 1809, HRNSW 7: 97; Minto to Bligh, 29 Mar. 1809, HRNSW 7: 97-8; Bligh to Castlereagh, HMS Porpoise in the Derwent, New South Wales, 31 Jul. 1809, HRNSW 7: 200-1.
The yeoman ideal

As early as 1800, Philip Gidley King had noted the adaptive promise ‘of a breed of Spanish sheep’ that had been introduced into the flocks of the graziers. The fleeces were ’so much improved’ in such a short space of time that he believed ‘a great quantity of wool’ would be produced in the coming years.68 But though the Governor saw this as an excellent outcome in terms of clothing the local inhabitants, he doubted the product would ever become an export staple. Instead, King concentrated his efforts on developing the colony’s maritime potential, complemented by tillage agriculture and the closer form of settlement it entailed. To a certain extent, he encouraged the efforts of the wool speculators, but questioned how they expected to meet the cost of freighting the raw material, forgetting that the same problem existed for his own agricultural preferences.69

Others shared this prejudice towards the culture of pastoralism, claiming the speculators lacked a sense of public spirit. In 1807, for example, Surgeon Edward Luttrell argued that ‘Men whose view of settling in the colony as graziers only do little benefit to it, as they do not as graziers promote the clearing and cultivating of the country.’ Luttrell recommended the cultivation of hemp and flax for the development of an export economy, and thought that supplying raw cotton to China might become important to the colony’s future. With regards to wool, he informed the British government that its promise had been exaggerated by the interested party.70 A few years later, however, Surgeon Luttrell and even Reverend Marsden had ceased to promote the culture of European hemp and flax. After becoming more attuned to the

68 King to Portland, 28 Sep. 1800, HRNSW 4: 183-4.
commercial reality of their situation, they were now recognised as two of the most important producers of colonial wool.\textsuperscript{71}

Pastoralism required a greater initial investment to acquire good stock, but paid better returns to the speculator than tillage agriculture and required less labour. Grazing also prepared the frontiers for settlement, which became increasingly important as a flood of settlers and convicts started to arrive in the post-war period. The crossing of the Blue Mountains in 1813 opened more fertile pastures, and by 1825 the colony’s frontier extended fifty miles inland. For the majority of individuals, land was granted in relatively small plots, generally less than a hundred acres, on the condition it was cleared and improved. This conformed to the old Lockean ideal of legitimate settlement as opposed to invasive conquest, but the farms often proved unsustainable and were later consolidated into larger holdings. Meanwhile, the wealthiest graziers became the exception to the policy of small holdings marking the origins of an Australian landed elite.\textsuperscript{72}

In England, the improvement of wool was viewed as a virtuous practice, in conjunction with the husbandry of wheat, but this form of small-scale mixed husbandry was gradually being overtaken by the monocultures of agrarian capitalism.\textsuperscript{73} In the more expansive pastures of Australia, the yeoman tradition never set deep roots. In 1827 Peter Cunningham attempted to justify this state of affairs

through an environmental comparison between New South Wales and the United States. The grazier argued that farming was a very different proposition in these places: the landscape was ‘thinly wooded and grassy’ in New South Wales, making pastoralism the ‘natural’ use of the environment; in contrast, the denser forests of North America initially precluded grazing, so the forests had first been cleared for the purpose of tillage. American commerce had therefore evolved through ‘the cultivation of her soils’, whereas New South Wales found its staple in ‘the proceeds of her flocks.’ Cunningham still believed the Australian system assisted the moral improvement of the underclass, because their labour created ‘so valuable a legacy, good being produced from evil, and the native wilderness converted into an Eden.’ Yet others contested this view: James Atkinson, for example, expressed his distaste over the lifestyle of the ‘herdsmen’ who were afforded too much freedom to indulge ‘their vagrant and idle habits’. In his opinion, the shepherds regressed towards savagery as they indulged their ‘passion for the pleasures of the chace [sic] so common to human nature.’ Hunting became the chief occupation of the stockmen, which also brought them into conflict with the Aboriginal inhabitants. Tillage, on the other hand, would enable a greater degree of social control.

William Charles Wentworth was another who distinguished between grazing and tillage, though as an early proponent of ‘responsible’ government for New South

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75 Cunningham, *Two Years in New South Wales, Vol.II*, 68.
Wales, he saw the value in both systems. In 1819 Wentworth argued the export of raw materials to the imperial centre, together with the consumption of British imports, represented ‘the real purposes of colonization.’ The wealth generated by pastoralism gave the colonists a greater claim to direct their own affairs, and he therefore promoted the ‘extensive emigration of capitalists’ as wool speculators. Nevertheless, the fertility and expanse of the continent made it a suitable receptacle for ‘all the redundant population of Great Britain and Ireland.’ The convicts, he argued, should clear the land and prepare farms for poor immigrant settlers who would eventually form a respectable yeomanry. Ultimately, tillage agriculture was more appropriate for the social improvement of the continent, as the closer settlement and greater employment it generated would lead to the speedier inculcation of civilised values.

In order to ensure that New South Wales became more than a pastoral economy, Wentworth criticised the imposition of duties on colonial produce in Sydney and London. British import duties had been reduced on Australian wool to allow it to compete with the foreign product, and he wanted the same liberal policy applied to Australian crops. In particular, he viewed hemp, flax and tobacco as the most suitable export commodities on account of immense ‘demand in the British market’. With a reduction in the duties, Wentworth believed that New South Wales would soon become ‘the most valuable and important colony belonging to the crown.’ At present, he believed, colonial improvement was being sacrificed to the notion of the

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short-term pecuniary advantage of the British state, preventing New South Wales from developing a more diversified agricultural system.

According to the reports of Surveyor-General Oxley (1817-18), the Australian ecology – from Van Diemen’s Land to the Brisbane River – was ‘remarkably congenial’ for hemp and flax. Therefore, Wentworth expressed dismay that despite ‘the amazing quantities’ that Britain consumed ‘in her navy, her manufactures, and her commerce, no attempt has been made, since the establishment of the colony, to direct the attention of her inhabitants to their growth and exportation.’ It appears that Governor King’s efforts had already been forgotten, having been overshadowed by the progress of wool. Nevertheless, the British state continued to view the supply of hemp from the settler colonies as a desirable outcome, as evidenced by the Report of the Select Committee on Emigration in 1826, in which representatives from Australia and Canada competed for a share of Britain’s under-employed.

The representative for New South Wales, Edward Eager, informed the Committee that Australia’s eastern seaboard contained at least forty million acres of prime agricultural land. On account of proximity to the larger Indian market, he doubted that New South Wales would ever become a major grain-producing colony, but asserted that hemp, flax, tobacco, wine and vegetable oils were all well suited to the Australian soil and climate. Questioned further on the textiles, he admitted that ‘not much’ flax was presently grown in New South Wales; moreover, ‘There is no hemp cultivated, it has been tried, but not cultivated; in fact, hitherto, capital could be better

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employed.’ In order to encourage investment, Eager recommended the abolition of duties. Like Wentworth, he assumed that a free market in hemp and flax would inevitably lead to their widespread adoption by farmers, but neither appreciated the more practical difficulties that transplanting the culture entailed.\(^{84}\)

William Felton, an administrator from Lower Canada, showed a greater understanding of these issues. In his testimony to the Committee, he stated that ‘Small exports of hemp have been attempted, but they have not succeeded’, which he attributed to the ‘somewhat complex processes’ involved in preparing the raw material. If experienced hemp-dressers were first sent out to set an example, he believed the product certainly represented a viable export staple for the Canadian provinces. Britain would always need to import the commodity, Felton argued, especially while the price of grain remained so high. Ideally, then, the nation should take the opportunity to develop its North American possessions.\(^{85}\)

For those in the peripheries of empire, hemp cultivation retained its significance as a means to lobby for institutional support. Yet Britain’s relationship with Russia had been re-established on a strong footing, and the search for a colonial alternative had become a relatively minor consideration in London. Consequently, little action was taken besides an adjustment in the duties, which seemed increasingly anachronistic in what contemporaries called the ‘new system of trade’. In the past, the import duties on foreign hemp had been an important source of revenue for the Treasury, but these


\(^{85}\) Report from the Select Committee, 31, 59, 228-9.
had been halved by 1828 to help stimulate the manufacturing industry. In the same year, at no loss to the Treasury, the colonial product was rendered duty free.¹⁸⁶

Unsurprisingly, this passive form of encouragement created no upsurge of production in the settler colonies, though the cultivation of hemp continued its association with the Australian yeoman ideal. Whenever new land was opened for settlement, the process was attended by a familiar refrain. In 1831 Reverend J. Giles Powell journeyed to the Swan River Colony – founded two years earlier on the western coast of Australia – and declared: ‘The cultivation of hemp (and flax) might probably be introduced into the Colony to the greatest advantage’. On account of the region’s sandy soil and coarse grass, Powell pointed out that the pioneering settlers had encountered problems sowing grain. He believed that hemp cultivation would prepare the soil for wheat, while providing a rudimentary export economy in the meantime for the exchange of food.¹⁸⁷

Like others before him, Powell made the project sound so straightforward. Quoting from a tract on the improvement of Ireland, the clergyman asserted: ‘The spread of cultivation is no wild or impracticable plan’. Rather, the practice ‘is one fraught with all the blessings of Providence has to bestow; it is a pursuit in which Art and Nature go hand in hand to certain and unceasing triumphs; while the common mother, Earth, seems smiling upon the labours of her children’.¹⁸⁸ In theory, improvement conjoined the science of reason with faith in the almighty, but the reality of hemp cultivation was less salubrious by far.

¹⁸⁸ Sadler’s Ireland (1828) cited in Powell, The Narrative of a Voyage, title page.
The Presbyterian cleric, John Dunmore Lang, was another misguided individual who attempted to propagate this ideal in Australia. In 1847 he advanced a similar though much stronger position on the growing settlement at Port Phillip, in what later became the colony of Victoria. An outspoken critic of the economic culture of pastoralism, he argued ‘there is no other civilized country’ that dedicated such a large proportion of its land to grazing, while neglecting the tillage of the soil. In the long term, Lang thought it feasible that Australia could provide Britain’s entire need for hemp, flax, cotton and silk ‘without the assistance of slaves, or even of black men of any race’. According to his vision, poor Christian immigrants would improve the land and build a white Jerusalem through the cultivation of textiles, while undermining the hegemony of the pastoral squatters whom he so disdained.  

Unlike his predecessors, however, Lang had scientific evidence to support his claim that hemp was suited to the Australian ecology. To prove his point, he reproduced a passage from the work of Dr Francis Campbell, a colonial adherent of the physiocratic tradition. In *A Treatise on the Culture of Flax and Hemp* (1845), Campbell emphasised that the land was the true source of all prosperity, but ‘the country, collectively or individually, will never flourish permanently, until the farmer shall raise from his fields a variety of exports.’ With this in mind, he had made a fortuitous discovery in the Upper Hunter valley where, by the sandy banks of the river, he found an acre of hemp ‘growing wild in the greatest luxuriance’. Campbell was uncertain whether the species had been introduced ‘by some settler, or whether the plant be indigenous’, but it now seems apparent that *Cannabis sativa* had become
naturalised within its new environment, on the last inhabited continent formerly outside of its scope.\textsuperscript{90}

In his contribution to Australia’s natural history, Campbell recounted the events of the early eighteenth and early nineteenth centuries, when Britain experienced major problems in acquiring Baltic naval stores. After the seeds he collected from the Hunter valley grew into healthy and vigorous plants, he became convinced that his findings would have significant ramifications for the future independence of the British empire. The South Sea region, Campbell believed, would solve this cyclical issue once and for all.\textsuperscript{91} With the exception of Lang, however, the discovery of the weedy strain occurred too late to generate much excitement.

Australia’s economy was now firmly linked to the export of wool and whale oil, and British capital flowed towards the region in support of these ventures. By 1840 Britain imported twenty per cent of its wool from Australia; ten years later, the figure had risen to fifty per cent, an important contribution to the industrial world-system.\textsuperscript{92} The notion that cultivating the land provided an essential prerequisite for morality, property and law remained a potent ideal. But though critics continued to argue that pastoralism offered scant sustenance to the colony’s soul, economic pragmatism ultimately won the battle for the nation’s soil.\textsuperscript{93} In Australia, the cultivation of hemp was only ever significant in theory, leaving the United States as the only Anglo settler-society where the practice became well established. In reality, though, the means of production never conformed to the yeoman ideal.

\textsuperscript{90}Francis Campbell, \textit{A Treatise on the Culture of Flax and Hemp} 2\textsuperscript{nd} ed. (Sydney, 1845), 81-2.
\textsuperscript{91}Campbell, \textit{A Treatise}, 73-4.
\textsuperscript{93}Waterhouse, ‘The Yeoman Ideal’, 455-6.
The agrarian reality

In the immediate aftermath of the War of Independence, the English agriculturalist Charles Varlo conducted a twelve-month tour of the former colonies, where he inspected farms in the vicinity of Boston, New York and Philadelphia, in addition to observing the plantations of Virginia. Overall, he found American farmers extremely backward in their approach to agriculture and commerce, and thought the nation was far too reliant on tobacco and maize. He saw no crops of hemp and only a few patches of flax, which were managed ‘in a very bad manner’. In the post-revolutionary era, however, the United States soon developed a more diversified agrarian economy. In Virginia, for example, many tobacco farmers turned to wheat on account of soil exhaustion, while the nation as a whole started to export large quantities of grain to profit from the growing demands of the European market. The Early Republic also supplied the West Indian market with beef, pork, apples and dairy products. As the smaller farmers found an overseas market for their produce, Joyce Appleby argues that the old distinction between commercial agriculture in the South and subsistence farming in the North became more blurred.

On a commercial scale, hemp production was too labour intensive to become widely distributed on the smaller farms of the northern states. At the other extreme, the crop never became an important part of the traditional plantation system, which still endured in the Deep South. Instead, hemp found its own specific niche in Kentucky, formerly part of the colony of Virginia, which became the fifteenth state to join the Union in 1792. In the late eighteenth and early nineteenth centuries, the United States

95 Appleby, ‘Commercial Farming and the “Agrarian Myth”’, 841-2.
conducted an extensive trade with the Baltic region, with American cotton and tobacco exchanged for large quantities of Russian hemp, cordage and iron.

Yet Kentucky’s adoption of ‘the culture of hemp’ proved so successful that some observers believed the United States would soon become self-sufficient in the raw material. By 1810 contemporaries described the product as ‘the grand staple of Kentucky’, while the culture had also diffused outwards to western Missouri, upper Tennessee, northern Virginia, and the upcountry of South Carolina.96

Hemp proved especially suited to the Kentucky Bluegrass region in the vicinity of Lexington. Bluegrass (*Poa pratensis*) was an introduced species that gradually replaced the native buffalo grass of the upland prairies, and the region would become recognised as one of the most productive agricultural regions in the south. As well as providing rich pastures for grazing cattle, the ecosystem supported sheep, horses and mules, in addition to crops of wheat, maize, rye and oats. Because cotton, rice and sugar were considered less suitable for the local environment, slavery never became pervasive in Kentucky by comparison to the plantations in the Deep South. The smaller farmer might own around four or five slaves, who often worked alongside their master, though hemp production proved the exception to the general rule.97

White planters believed that African Americans had a special affinity for producing hemp, and said that one male slave could care for as much as ten acres of the crop.


Without bondsmen, the semi self-sufficient yeoman might grow small quantities for home manufacture and local commerce, but he was unlikely to adopt this back-breaking work on a large scale. Cutting and breaking hemp, according to one slave owner, was ‘the hardest work done on a Kentucky farm’. It was also a dirty and unhealthy activity: many slaves contracted ‘hemp pneumonia’ from inhaling noxious particles when separating the fibres from the stalk. These issues may well have been exacerbated by the local preparation methods. In England and Russia, for example, individual farming households produced smaller amounts of a high-quality material. In the southern states, however, the main objective was quantity rather than quality.

Most American hemp was a low-grade product, as it was usually manufactured by the dew-retting process. Rather than steeping the stems in water, the stalks were left rotting on the open ground and occasionally turned. This method still dissolved the plant’s inner gum, while preserving local water resources for the use of livestock. It produced more mould spores that affected the lungs, but was less labour intensive, which enabled individual slaves to prepare larger amounts of the raw material. Although the dew-processed fibres were weaker and blacker than the water-retted product, for most purposes this was not considered a problem. Upcountry hemp production was linked to the plantation economy of the Deep South, and the American product was perfectly suitable for the twine and sacking used to bag and tie the cotton bales for export. The material was also considered adequate to provide

100 Gerald L. Smith, ‘Slavery and Abolition in Kentucky’ in *Bluegrass Renaissance: The History and Culture of Central Kentucky 1792-1852* (Lexington: University Press of Kentucky, 2012), 84.
cheap clothing for slaves. For maritime purposes, however, American hemp proved far less useful.101

In the early nineteenth century, Kentucky hemp was sometimes used to equip vessels on the Ohio River system with rope and rigging. On account of a critical scarcity in the foreign supply, the United States Navy also reluctantly used a quantity of the domestic product during the Baltic Blockade and subsequent Anglo-American War (1812-1815). But the Navy rejected the product entirely in the post-war period. As a mariner testified to an inquiry in 1824: ‘I would not use cordage made of Kentucky hemp, even if I could procure it at half the price of cordage made from Russia.’102 Except as an emergency resource, American hemp was never considered sufficiently strong or durable to serve the nation’s fleets. In this respect, it could not compete with the Russian product.

Henry Clay, a Kentucky politician and planter, attempted to promote the practice of water-retting in the Lexington area. In 1825 the cost of imported Russian hemp in the United States was around $200 per ton, while the local ‘dew rotted’ product paid the farmer about $150. Clay hoped the difference would provide an incentive for planters to produce a higher-quality raw material, while he also recommended the maintenance of high-import tariffs in order to protect the American hemp industry. Although the tariff fluctuated over the years, Congress largely accepted the wisdom of this measure, but Clay never achieved his aim of acquiring lucrative naval

contracts for his Kentucky associates. Most planters were satisfied with the established southern market, while the excessive cost of freight to the northern shipyards acted as a further hindrance to the scheme.\textsuperscript{103} On account of the poor quality of the product, however, American improvers recognised that the hemp industry was only a partial success.

Throughout the antebellum period, scientifically-minded entrepreneurs tried to capture the naval market, but according to Kentucky historian James Hopkins only one individual ever came close. In 1841 David Myerle, a Philadelphia rope merchant, persuaded the Navy Commissioners that he had the necessary skills to produce a high-grade product in Kentucky, and convinced them that his success would lead other planters to improve their methods. His argument was so persuasive that the Charlestown Navy Yard, in Massachusetts, awarded Myerle a contract to supply 200 tons of water-retted hemp at the generous price of $300 per ton. This was $91 higher than the Russian product at the time, but considered a worthwhile premium to encourage the experiment. Nevertheless, the Navy reserved the right to reject the product if it was not deemed equal, in every respect, to the imported fibre. Myerle sunk everything he had into the project, but found himself unable to meet their exacting standards. Following a series of rejections, he declared himself bankrupt after five years of fruitless effort.\textsuperscript{104}

Natural knowledge, with regards to the culture of hemp, would remain unharnessed to international sea power in the Anglo-world. Russian serfs had long since perfected


\textsuperscript{104} Hopkins, \textit{A History of the Hemp Industry}, 160-8.
the production of maritime-grade hemp, as part of a mixed system of land husbandry, but in the Anglo settler-societies only slavery and monoculture brought even a modicum of success. More pragmatically, the demand for cotton ties and bagging ensured the continued growth of the American hemp industry. In 1859 the United States produced 75,000 tons of hemp, with three quarters of this amount coming from Kentucky and Missouri. In this year, environmental historian Donald Davis estimates that about 300,000 acres (450 square miles) of the upland country was planted with hemp.\textsuperscript{105} Yet the American Civil War (1861-1865) soon destroyed any hopes of further progress for the industry.

Following the arrival of the Union Army, slaves began to desert the farms in large numbers and the region’s agriculture suffered as a result. In Kentucky, wheat and tobacco production fell by more than 50 per cent, while hemp production dropped by about 80 per cent. Intense battles were fought on formerly productive arable fields, where troops on both sides of the conflict formed trenches, tunnels and compacted paths. In the aftermath, local farmers – whether slaveholders or not – experienced the hardship of depression, while it took many years to restore the eroded landscape to agricultural health.\textsuperscript{106} Without slave labour, the American hemp industry was never likely to recover, but though some Kentucky planters might have blamed the war for the loss of an important cash crop, the industry was probably doomed anyway in the long run.

According to the United States Census of 1860, the cultivation of hemp had already started to decline, with many former planters turning to wheat and cattle instead. As a

\textsuperscript{105} Davis, \textit{Southern United States}, 147; Gray and Thompson, \textit{History of Agriculture}, 821.

\textsuperscript{106} Ramage and Watkins, \textit{Kentucky Rising}, 276; Davis, \textit{Southern United States}, 149.
cheaper alternative, the cotton-producing states had begun importing Indian jute to wrap their bales. Although tariffs still protected American hemp producers to a certain extent, there was little left to protect in the reconstruction era. By this time, moreover, there was a new competitor in the global market for cordage raw materials. Whether for maritime or terrestrial purposes, the nation’s rope-walks now consumed much larger quantities of Manila hemp than either the Russian or domestic products.\textsuperscript{107} Throughout the Anglo-world, the Baltic monopoly on naval fibre had finally been breached.

\textsuperscript{107} United States Census Office, Manufactures of the United States in 1860: Compiled from the Original Returns of the Eighth Census, Under the Direction of the Secretary of the Interior (Washington, 1865), cx-i-iii
Chapter 8: The Nature of Progress

During the first half of the nineteenth century, the colony of New South Wales not only expanded its inland frontier, but extended its reach throughout the South Pacific region. Besides the exploitation of whales and seals, colonial merchants opened a trade in Tahitian pork and collected sandalwood from Tonga and Fiji. The Pacific frontier also offered a raw material for cordage production, the topic of the first part of this chapter. Despite the failure of the Norfolk Island experiment, *Phormium tenax* continued to inspire the European imagination, leading to greater engagement with the natural resources and human communities of New Zealand.

In economic terms, the New Zealand flax trade was only important to Europeans for a short period of the nineteenth century, leading most historians to gloss over its significance. Yet it had a profound influence on cross-cultural interactions in the Australasian region prior to the formal colonisation of New Zealand. The Maori flax trade helps to explain why the cultivation of hemp never became well established on the Australian mainland, and illustrates larger-scale processes occurring throughout the wider region and the world. Ultimately, however, the natural resources of the Philippines made a greater contribution to the formation of the capitalist world-system, closely followed by the development of mineral-based alternatives to Russian hemp. To conclude this chapter, I examine the transformation of the international shipping industry in the mid to late nineteenth century, which finally rendered the search for hemp irrelevant to the mechanisms of world power.

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The New Zealand flax trade

In January 1810, Governor Macquarie received a proposal from a group of Sydney merchants headed by Simeon Lord, an emancipated convict who had since become a wealthy entrepreneur. Lord’s interests included the candle, soap, hat-making, and leather and textile industries. On this occasion, he intended to establish a rope-making factory in Sydney, and had teamed up with Thomas Kent whose earlier proposal to establish a hemp farm in Toongabbie had never occurred. The merchants restated their desire to acquire Indian labourers and hemp-seed from Calcutta, but also had a contingency plan in case of any difficulties. They hoped to establish a trading post in New Zealand in order to acquire the native flax, and finally render it an ‘an object of considerable National Importance’ to Britain and New South Wales.²

Lord was one of the merchants whose cargo of seal-products had earlier been seized in London.³ To protect his New Zealand investment, he asked Macquarie to inquire about any potential infractions of the Company’s monopoly, while the merchants also requested their own monopoly to develop the trade in flax. On account of the Baltic Blockade, in addition to the local demand for cordage, Macquarie decided this was an excellent scheme and was confident of the British government’s support.⁴ By this time, moreover, New Zealand’s seal population was already depleted from excessive exploitation, so the flax trade offered another means to expand the region’s economy on behalf of the empire.⁵

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³ For Lord and the sealing industry, see Hainsworth, *The Sydney Traders*, 148-56.
Unfortunately, over the previous decade, the increased interaction between Maori and Europeans had created tension in New Zealand, exacerbated by the dishonest trading activities of certain whalers and sealers. In order to keep these activities in check, Macquarie appointed Kent to serve as Justice of the Peace at the projected settlement. However, he immediately withdrew from the expedition when word reached Sydney about the fate of the Boyd. The convict transport was returning to England, via New Zealand, with a cargo of seal products and timber. Yet at Whangaroa, in November 1809, Maori boarded the vessel with seemingly peaceful intentions, and then massacred the crew and passengers – sparing only one woman, her baby and two other children – before setting fire to the ship and destroying its valuable cargo. The survivors were later picked up by another vessel in search of timber. Although this crew also came under attack, they managed to ward off their assailants with cannon and musket fire, and made a safe return to Sydney.⁶

On hearing about this ‘melancholy event’, Macquarie’s former sympathies for the Maori completely evaporated. After three months in Sydney, he decided that the inhabitants of all the South Sea Islands were ‘a very treacherous race of people, and not to be trusted.’ In particular, he described the inhabitants of New Zealand as ‘merciless savages’. But though Europeans would have to be more vigilant in future, business would proceed as usual as far as Macquarie was concerned. He advised the Colonial Secretary that Simeon Lord and most of his partners still intended to press ahead with their scheme. Unintimidated, a party would sail on the Experiment in

order to establish a trading-post in the Bay of Islands, and acquire samples of flax for inspection in London.\footnote{Macquarie to Castlereagh, 12 Mar. 1810, HRNSW 7: 312-3.}

This first expedition, blighted by extremely poor timing, was a complete failure. In April 1810, the commander William Leith reported the presence of six other vessels in the Bay of Islands, whose crews were carrying out punitive reprisals for the loss of the \textit{Boyd}. He estimated they had murdered about sixty Maori so far – ‘which I find to be correct’ – but unfortunately this had limited the opportunity to conduct any trade.

In his opinion, the Bay of Islands was too unsafe for the establishment of a trading-post, and he only managed to obtain a paltry four pounds of dressed flax.\footnote{William Leith to Messrs Lord, Williams and Thompson, Bay of Islands, New Zealand, 15 Apr. 1810, HRNSW 7: 331-4.} Lord and his associates, who lost £2,000 on the venture, accused Leith of being cowardly and incompetent. Under the circumstances, though, his reluctance to settle at the site seems like a wise decision.\footnote{Hainsworth, \textit{The Sydney Traders}, 194; Wigglesworth, ‘The New Zealand Timber and Flax Trade’, 30.}

In November 1812, Macquarie finally received official approval from Britain’s Prime Minister, the Earl of Liverpool, to allow the establishment of a commercial settlement in New Zealand. The merchants were permitted to manufacture cordage for shipping to either New South Wales or England, though the Board of Trade declined to grant them a monopoly in order to encourage further speculation.\footnote{Earl of Liverpool to Macquarie, London, 15 May 1812 (acknowledged: 17 Nov. 1812), HRA 1 (7): 485-6. This was the second Earl of Liverpool, son of the Hawkesbury/Liverpool referred to in earlier chapters. He was President of the Board of Trade, before becoming Prime Minister in Jun. 1812.} Undeterred by either his earlier losses, or the lack of economic protection, Simeon Lord remained determined to pioneer this potentially profitable industry. In 1814 he formed the joint-stock New
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South Wales-New Zealand Company with Garnham Blaxcell and a group of other optimistic investors. Their hopes had been boosted by the recent success of the convict rope-maker Robert Williams, who had conducted experiments with the flax, and invented a mechanical means of production.11

Following his transportation in 1810, Williams was encouraged to ply his valuable skills in Sydney, and the rope-walk he established with financial backing soon became a thriving local business. According to his testimony, he had been ‘bred from my infancy to the manufacturing of hemp and flax’, which he amply demonstrated through his work with the imported raw materials. The mysterious individual also claimed to have worked as a flax-dresser and rope-maker ‘in several parts of the globe and made use of materials unknown in England’. To prove this vague assertion, Williams was given samples of the New Zealand substitute. On account of the strong cordage he made from the product, he insisted the proper term for the material was New Zealand hemp. Given a ticket-of-leave in 1813, he then travelled to the north island on the Perseverance, owned by the merchant James Birnie. After deciding that Otago Harbour was an ideal site for a rope factory, Williams volunteered to settle in New Zealand and supervise the operation.12

On his return to Sydney, the rope-maker argued that his expertise would undoubtedly benefit the British empire. Seeing an opportunity to acquire freedom, wealth and prestige, he claimed his production method was so speedy and efficient that New Zealand cordage would soon become the cheapest and strongest on the London

market. Anticipating the support of the government, Williams provided a
demonstration of his invention for Macquarie, ‘but the Governor did not pay much
attention to it, telling me he did not understand it.’ Meanwhile, Lord and Blaxcell saw
their own opportunity to profit from the situation, and intervened by offering to
petition the Governor for the rope-maker’s emancipation. But after protracted
negotiations over wages and conditions, Williams declined their offer. His valuable
discovery, he believed, was worth a great deal more to the merchants, who then
decided to press ahead without him.13

In May 1815, two vessels set out for Port William on Stewart Island, with a party that
included flax-dressers, sawyers, shipbuilders and a blacksmith. They were instructed
to treat the Maori with courtesy and kindness, as well as inviting them to take part in
the operations, in order to promote goodwill and improve the region’s race relations.
Six months later, however, the vessels returned following the loss of four dead, with
another four crewmen badly wounded. After the attack, the Maori assailants had fled
under fire, leading to untold carnage on their side, before the sailors destroyed the
local village, canoes and food supplies. On this occasion, there was a little more
cultural self-reflection in Sydney regarding the principles of honour and trade. One of
the merchants involved in the project believed the Europeans should accept the blame
for this tragic incident, since a captain had defrauded the local ‘chief’ in an exchange
for flax and potatoes. Williams, on the other hand, was pleased to learn that the
expedition had proved so disastrous in his absence.14

14 Wigglesworth, ‘The New Zealand Timber and Flax Trade’, 36-8; Robert McNab cited in D.R.
Hainsworth, Builders and Adventurers: The Traders and the Emergence of the Colony 1788-1821
(Melbourne: Casssell, 1968), 139; Williams cited in Hainsworth, The Sydney Traders, 196.
At this point, the New South Wales-New Zealand Company abandoned its interest in the flax trade, having only acquired a few tons of the raw material, while the Reverend Samuel Marsden sided firmly with the Maori over the dispute. On behalf of the Church Missionary Society, Marsden had already persuaded Macquarie to bring the New Zealanders and other South Sea Islanders under the protection of the crown, and was now in the process of establishing a mission on the northern island. He believed that honest labour, such as felling timber and preparing flax, would expose the local inhabitants to European civilisation and provide the key to their salvation. Unscrupulous traders set a bad example and were therefore a threat to his mission’s cause. Over the coming years, the missionaries attempted to prevent such abuses and repair the damaged relations, while Marsden’s vessel the Active ensured that relatively small quantities of flax continued to arrive in Sydney.\(^{15}\)

In 1819 Commissioner John Thomas Bigge arrived in New South Wales, in order to conduct an extensive survey for the House of Commons on the colony’s agriculture and trade. Bigge noted that in the first year of Macquarie’s administration, the Governor was alerted that European flax seed was very scarce in the colony, and had offered premiums for the plant’s cultivation: the first prize was ‘a cow, with a calf by its side’ for the production of three acres. The Commissioner praised the wisdom of this measure, though he also noted that only enough presently was grown ‘for the supply of the shoemakers’.\(^ {16}\) No such encouragement had been offered for the cultivation of hemp, presumably because the government was unaware of any seed remaining in the colony. Indeed, Bigge never mentioned the plant in his report, which


now seemed irrelevant to the colony’s fortunes. His inquiry also included the New Zealand flax trade, and he was highly impressed by the work of Robert Williams, the recently emancipated rope-maker.\textsuperscript{17}

After returning to London, Bigge had the New Zealand product tested at Deptford Rope Yard, which demonstrated the rope was ‘particularly useful for naval purposes’ and probably superior ‘to the hemp of the Baltic’. On account of the difficulty of acquiring the raw material, he reported that New Zealand flax manufacture had not been extensive in New South Wales. Nevertheless, a few healthy specimens of \textit{Phormium tenax} grew in the government gardens in Sydney and Parramatta, which persuaded Bigge that the plant was ‘one of the most valuable productions’ that the colony might develop. He proposed that convicts should grow large acreages on government farms, and that Williams’s invention should be purchased by the government. In the meantime, the rope-maker deserved ‘every encouragement’ in his labour to equip the colonial vessels.\textsuperscript{18}

The Colonial Secretary, Earl Bathurst, had another proposal to consider in 1821, when Robert Sugden, of the East India Company, submitted a scheme to establish a permanent British colony in New Zealand. In certain respects, this was similar to the commercial schemes that predated the Botany Bay decision. For example, the petitioner argued that ‘The supply of hemp (of the finest quality) that could be sent to England would render her independent of Russia for that valuable article’. However, the humanitarian influence of the Church Missionary Society was also apparent. According to Sugden, the increase of European settlement would serve ‘the cause of

\textsuperscript{17} Commissioner Bigge to Earl Bathurst, 27 Feb. 1823, HRNZ 1: 587-96.
humanity’ in two significant ways: on the one hand, ‘provision would be made to a class of enlightened persons’; on the other, it would accelerate ‘the civilization of a fine race who are now sunk in utter ignorance’.  

In support of this scheme, Bigge suggested that a factory should be established in New Zealand, with European flax-dressers protected by a detachment of British troops.

Neither of these proposals appealed to Bathurst, however, as both had been outmoded by the greater level of economic pragmatism being exercised by the British state. In New Zealand, the missionaries were already cultivating Christendom and more peaceful relations with the Maori, while the merchants (often one and the same) already obtained the flax without the expense of an imperial defence force. In New South Wales, moreover, convict labourers increasingly worked on private rather than government farms, a more cost-effective method for maintaining the penal colony. Bathurst believed that private interests would develop the region’s commerce without incurring any additional expense to the Treasury. This proved to be the case: though Williams sold his rope-making business in 1824 due to financial difficulties, this was only a temporary setback for what would soon become a booming trade.

By this time, the revival of interest in the plant had attracted the attention of London’s Society of Arts, which aimed to encourage the trade with as little disruption to New Zealand as possible. To achieve this outcome, they applied their usual method for promoting the acquisition of useful knowledge. In 1823 a Gold Medal (or fifty guineas) was offered for the cultivation of ‘a substitute for hemp’ in either New South

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20 Bigge to Bathurst, 27 Feb. 1823, HRNZ 1: 596.
Wales or the Cape of Good Hope. To claim the award, the grower needed to produce a minimum of two tons of the raw material, ‘equally cheap, durable, and applicable to all the purposes for which hemp is now used’. In particular, the Society directed ‘the attention of the Public to the Phormium tenax or New Zealand flax.’\(^{23}\) It was certainly an adaptable plant, and following its introduction to southern Ireland in 1798, the Society also learned that New Zealand flax thrived in more local climes. Inspired by Bigge’s report, in 1824 the botanist William Salisbury suggested that the poor inhabitants of Munster might benefit from this discovery, in the same way as the colonists in New South Wales.\(^{24}\)

New Zealand flax became established as a garden ornamental in Wales and Ireland, and is now classified as an ‘invasive weed’ in Australia, but commercial production was never established outside of New Zealand.\(^{25}\) Although prestigious, the Society’s award failed to induce anyone to undertake such a labour-intensive experiment, which held no guarantee of success. During the 1820s, moreover, the missionaries succeeded in developing a more conducive atmosphere for Australasian commerce. The Maori became more familiar with Europeans, who received reassurances regarding their safety, and it appeared that the majority of the local inhabitants now welcomed the expansion of trade.\(^{26}\) Rather than attempting scientific improvement elsewhere in the world, it seemed more convenient to exploit Maori labour, who had long since perfected the means of production.


By 1830 about 150 Europeans – mostly attached to the missions – had settled in New Zealand, and acted as intermediaries in the flax trade. Between January and August, in this year alone, Governor Darling reported that Sydney imported 550 tons of flax, of which about 300 tons was re-exported to Britain. The merchants exchanged axes, fish hooks, blankets and tobacco for the dressed flax, but the articles in chief demand were muskets, powder and ball. Two thousand muskets entered New Zealand in the first half of 1830, with one of the weapons valued at about a quarter of a ton of flax.

In order to acquire arms and ammunition to fight local disputes, Maori flax manufacturing became ever more extensive. In the New Zealand arms race, however, the coastal communities had a distinct advantage over their inland neighbours, on account of better access to the flax-growing regions and the passing merchant ships.\(^\text{27}\)

In London, the merchant-mariner Captain Harris conducted experiments with the fibre in the hope of securing a contract with the Navy Board. New Zealand hemp, as naval officers referred to the raw material, retailed on the British market for £40 per ton. This was slightly more than the Russian product, due to the expense of freight, though Harris claimed the substitute was superior.\(^\text{28}\) Unfortunately for him, the naval experiments failed to back this assertion. Captain Talbot tested the product on the high seas and reported: ‘Harris’s Rope is a total failure, having become perfectly rotten, it is ordered to be sent home.’\(^\text{29}\) Large quantities of the raw material continued

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\(^{29}\) Captain Talbot to Navy Board, 5 Aug. 1830. NLA: ADM 106/1362.
to arrive in Britain, peaking at nearly 800 tons in 1832. Five years later, however, the bubble had already burst. By 1840, British imports had come to a complete standstill.\textsuperscript{30}

Quality control was the major problem as the markets in London and Sydney became glutted with inferior grades. Before the arms race, Maori traditionally selected the best possible leaves for manufacturing flax. To supply the European demand, though, they produced anything that came to hand as a matter of survival. Communities relocated themselves to the vicinity of unhealthy swamps, in the process neglecting their food crops, while the flax was often harvested out of season. Increased speculation also led to the entry of inexperienced merchants in the trade, who were unable to recognise the quality of the fibre. If they packed it green, the fibre deteriorated prior to delivery in London, where the material soon acquired a poor reputation.\textsuperscript{31}

Since 1770, the New Zealand hemp or flax plant had been viewed as a potential source of naval rope and canvas. By 1840, however, Europeans mostly used the fibre to stuff mattresses, fill sofa upholstery and make cheap bonnets. In New South Wales, the flax had an additional function, providing a useful material to bind the bales of wool for export. Eventually, though, large-scale production petered out in New Zealand as Maori traded a wider range of commodities, such as pigs, potatoes, wheat and maize. These articles required far less labour to produce, while the value of muskets had also plummeted in the local economy due to oversupply. By the mid-nineteenth century, the scarcity of flax caused the price of the wool-bands to double

in Sydney from £25 to £50 per ton. At this point, iron hoops started to replace the flax bindings.  

Following the formal colonisation of New Zealand in 1840, there were renewed calls to promote the flax industry. Two years later, it was argued that ‘the Flax may become, eventually, the staple of the colony, as wool is of New South Wales.’ Later that decade, however, war broke out between British troops and Maori who refused to accept colonial authority, which hindered the exploitation of the local labour force. Nevertheless, ongoing conflict during the 1860s stimulated the development of an improved means of mechanical production. In order to promote international sales to cordage manufacturers, the European-produced fibre was commercially branded as New Zealand hemp.  

In the history of the Australasian region, *Phormium tenax* certainly acted as a significant agent of cultural and environmental change. Yet despite the devastation that accompanied this research, the plant never fulfilled the expectations of its early European proponents. Although the fibre continued to supply the New Zealand cordage industry into the twentieth century, and made a useful contribution to the nation’s export economy, it made a relatively minor contribution to the mechanisms of world trade. In this respect, other materials would have a much greater effect on displacing the naval monopoly of Russian hemp.

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33 F. Dillon Bell and Frederick Young, *Reasons for Promoting the Cultivation of the New Zealand Flax* (London, 1842), 22.
8. The Nature of Progress

Technological improvements

In the 1790s, the Franco-Spanish botanist Luis Neé first classified *Musa textilis*, commonly known in the Philippines as abaca and to the world as Manila hemp. An inedible species of banana, its fibrous stalk had long since provided the Filipinos with a source of textiles, and the plant was widely cultivated on the eastern, volcanic slopes of the Kabikolan region. For experimental purposes, the first shipment of fourteen tons reached a rope-walk in Salem, Massachusetts in 1820. Over the next fifty years, Manila hemp gradually superseded the Russian product on the global market, driven by the enormous demands of Britain and her newest commercial rival, the United States. Eventually, rope-makers and mariners alike viewed abaca as lighter, more flexible and more durable than the Russian product, especially for use as running rigging. This cheaper and cleaner alternative was also naturally resistant to salt water and thus required no tar.\(^{35}\)

Manila hemp was commonly used on American vessels by the 1840s, and was the preferred fibre for rigging by the time of the Civil War. Initially, Britain’s fleets lagged behind in their adoption of the material, due to conservatism and closer access to the traditional supply. In 1851 Britain still imported thirty times more Russian hemp than the Manila product. When Russian trade was interrupted again during the Crimean War (1853-1856), however, any lingering prejudice was soon overcome. On this occasion, barely a murmur was raised in London about the inconvenience. From this point, British and American merchants competed for the Manila supply, while Australia also claimed a smaller share for the large rope-factories established in

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Melbourne (1852), Sydney (1865) and Brisbane (1874). To meet the rising demand, the Filipinos rapidly expanded their labour-intensive abaca production to the neglect of other crops. According to historian Norman Owen, the process brought short-term prosperity to the Philippines rather than long-term material progress. By comparison to similar events in New Zealand, however, the region’s incorporation into the world-system progressed more smoothly for both core and periphery.\(^{(36)}\)

During the age of industrialisation, other alternatives also emerged on the world market. In the late eighteenth century, the Spanish first used sisal hemp or henequen (*Agave sisalana*) as a supplementary material for maritime cordage. One hundred years later, following the development of an improved means of mechanical processing, Mexico’s Yucatan Peninsula began to export large quantities of the raw material, while Kenya and Tanzania later became important sisal producers. Manila was still recognised as the superior fibre for most types of cordage, but greater choice led to increased competition and reduced prices. By the 1890s, an Australian rope manufacturer, for example, could select raw materials from the Philippines, Mexico, Russia or New Zealand. Manufacturers sometimes sacrificed quality for quantity, or compromised by blending different fibres together. Russian hemp now competed in a diversified global market, and its merchants no longer held their customers in thrall.\(^{(37)}\)

From the perspective of nineteenth-century British naturalists, this process had unfolded in unexpected ways. Manila hemp was not included in William Roxburgh’s


experiments at the Calcutta Botanic Garden, and he appears to have been unaware of the plant’s existence. Neither did he encounter sisal, though he was familiar with its close relation the American aloe or century plant (*Agave americana*), now grown in many parts of the world as an ornamental.\(^{38}\) But the fibre he esteemed above all for cordage production – the Sumatran nettle or calooee (*Urtica tenacissima*) – failed to garner hardly any attention outside of Asia.

Following Roxburgh’s death in 1815, the British botanist Dr John Forbes Royle built upon this research, mostly referring to the plant as either the rheea fibre of Assam or China grass. As these names attest, the plant was widely distributed in Asia and researchers also discovered the Burmese and Malaysians were familiar with the fibre. Like his predecessor, Royle contended that the fibre made stronger cordage than Russian hemp, and he was bemused that the substitute had never been adopted by the cordage industry. In 1853 he planned to start exporting small quantities of rheea from Calcutta, believing that greater familiarity would encourage its use by British manufacturers, but the plant was destined to remain relatively unknown to Europeans.\(^{39}\)

Unbeknown to earlier researchers, Royle also found that some of the inhabitants of northern India were familiar with *Cannabis* fibre after all. He suggested the Himalayan districts of Kumaon and Garhwal (in the modern state of Uttarakhand) might make an important contribution to British sea power. According to Royle, the


region abounded in ‘true Hemp of the finest quality’, where it was cultivated by local farmers ‘both on account of its fibre, and for the different preparations of Bhang’. He estimated the textile could be delivered in Calcutta for something between £7 and £16 per ton, which would undercut the Manila trade while furthering the improvement of imperial commerce.\textsuperscript{40}

When a colonial administrator investigated the issue in 1854, however, he claimed the idea was utterly delusory. According to his estimates, there were only 250 acres of hemp in Garhwal, and he doubted the production of hemp fibre exceeded 50 tons per annum. In his opinion, it would ‘take a very long time to fulfil the magnificent anticipations that are not infrequently put forth.’\textsuperscript{41} A resident botanist at Gorakhpur, near the Nepal border, was also asked for his opinion on the potential supply of Himalayan hemp. He pointed out that ‘the farmer of the drug mehal keeps a jealous eye on Ganja’, and if the plant was grown without his authorisation, he ‘denounces it, and gets an order for its destruction.’ The botanist suggested the same fate was likely to befall any local farmers who attempted to grow the fibre under British encouragement.\textsuperscript{42}

On account of the Manila alternative, this was no longer seen as an important hindrance to British commerce. Meanwhile, researchers had found a way to profit from the Indian hemp variety. In Calcutta, during the late 1830s, Dr William Brooke O’Shaughnessy conducted a series of experiments with the plant, which suggested it might become a valuable remedy in Europe for range of common ailments. Following

\textsuperscript{40} Royle, ‘On the Rheea Fibres’, 7.
\textsuperscript{41} J.H. Strachey, Senior Assistant Commissioner, Gurwhal, to J.H. Batten, Commissioner of Kumaon, 28 Jul. 1854, Papers Regarding the Cultivation of Hemp in India, 27.
\textsuperscript{42} C. Chester, Collector of Gorukpore, to H.C. Tucker, Commissioner of the 5th Division, Benares, 17 Aug. 1854, Papers Regarding the Cultivation of Hemp in India, 14.
subsequent tests in Britain, the tincture known as ‘Indian hemp’ or ‘Cannabis Indica’ entered the nation’s official pharmacopoeia in the early 1860s. Pharmacists described the medicine as a useful alternative to opium, with less problematic side-effects. Of all the plants that British scientists examined as cordage substitutes, only jute made a truly significant contribution to imperial commerce. During the 1850s, Indian exports of sunn hemp totalled around 3,000 tons per annum, though the fibre’s chief contribution involved the production of binding in Bombay for the shipment of raw cotton. A method of mechanical production had not been developed for sunn, which hindered its adoption by modern industry. On the other hand, the mechanisation of jute production in the 1830s accelerated the growth of the trade, which expanded exponentially during the Crimean War. By the 1860s, Calcutta exported about 50,000 tons of jute per annum. The bulk of the fibre was manufactured in Britain, particularly in Dundee, which specialised in the production of coarse linen and sacking. The exploitation of Bengali labour provided a cheap raw material, and jute rapidly superseded the use of Baltic flax and hemp for the production of coarse textiles. Despite proving useless for maritime purposes, jute represented the accidental success story of Britain’s global search for hemp.

44 J. Forbes Royle, The Fibrous Plants of India (London, 1855), 271; Warden, The Linen Trade, 93.
45 Sugata Bose, Peasant Labour and Colonial Capital: Rural Bengal Since 1770 (Cambridge: Cambridge University Press, 1993), 52-3; Warden, The Linen Trade, supp. 18, 66-84.
Although British botanists experienced mixed results in their search for a substitute, the Baltic Blockade also provided the initial stimulus to develop a mineral alternative to Russian hemp. Ultimately, the nation’s engineers made a more lasting contribution to displacing the product in the shipping industry. In 1808 Sir Samuel Brown initiated the first experiments with chain cables made from iron; four years later, the Admiralty issued these cables for securing anchors on all naval vessels. Brown also conducted experiments with wire rope, though technical difficulties still hindered the adoption of iron rigging. Until 1860, moreover, cables of chain and hemp worked in tandem on naval vessels, which needed to be capable of handling both.\textsuperscript{46}

The transformation of the international shipping industry turned out to be a protracted process that covered most of the nineteenth century.\textsuperscript{47} By 1815 steam-powered tugboats – driven by wooden paddles – began to appear on the Thames, and passenger ferries soon adopted this technology for crossing the Irish Sea and English Channel. On the other side of the Atlantic, similar vessels plied the rivers and coastal waters of New York, and the wooden paddle-steamer would soon become a familiar sight on the Mississippi River. Steam boats even appeared in Australian waters by the 1830s, though for another thirty years these relied more on their auxiliary sails than their low-powered, unreliable engines.\textsuperscript{48} Throughout this period, the new maritime technologies co-existed with their ancient forebears.

\textsuperscript{47} Robert C. Allen, \textit{The British Industrial Revolution in Global Perspective} (Cambridge: Cambridge University Press, 2009), 178.
This transitionary period is illustrated by the design of the trans-Atlantic passenger liner, the *SS Great Britain*. In 1843 this ‘splendid iron ship’ was launched at Bristol in front of thousands of astonished spectators. The largest vessel in the world, sceptics had previously questioned whether the ship would even float, but her successful maiden voyage proved the superiority of iron over timber beyond doubt. In addition to a steam engine, the *Great Britain* featured the more recent innovation, the propeller screw. Despite the marvels of modern technology, however, the ship’s appearance was still dominated by the six giant masts that dwarfed her single funnel. The sails provided extra propulsion if the winds were favourable, while insuring the vessel against the possibility of mechanical breakdown. Nevertheless, the modern ship could now be rigged with iron. Engineers had recently found that wire-rope offered ‘two-thirds less resistance than hemp, a great point going head to wind.’

The following decade, the British Navy started to equip its steam-powered frigates with cables and standing rigging made from steel.

While Britain initially held the advantage of producing large steamships from iron, and later from steel, the United States exploited their better access to timber resources in an attempt to compete on the high seas. During the mid-nineteenth century, American shipbuilders mostly concentrated on the production of speedy, clipper ships for overseas commerce, rigged with Manila cordage and another recent innovation,

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cotton sails.\textsuperscript{51} But the American fleet was decimated by the Civil War, and the nation’s sea power declined during the insular era of reconstruction. Even in Britain, though, the transformation of the shipping industry remained incomplete. Despite the success of the passenger liner, on long-distance trade routes – particularly to Asia – the displacement of sail by steam took longer than might be expected. In 1880 about forty per cent of large British vessels were powered by steam, with the majority still dependent on the wind. Twenty years later, though, this figure had risen to eighty per cent.\textsuperscript{52}

Britain’s advantage over its commercial rivals was not long lived, however, for the iron steamship was a global technology. Improvements in ocean transportation – like the railways overland – represented an international phenomenon. At the turn of the twentieth century, the United States shipping industry was showing signs of recovery, together with the nation’s ambitions as a world power. Yet the age of sail had reached its conclusion, and the culture of hemp no longer possessed a meaningful part in this equation. In its wake, the species \textit{Cannabis sativa} would enter a new chapter of its cultural history.


\textsuperscript{52} Garrison and Levinson, \textit{The Transportation Experience}, 212-3; Allen, \textit{The British Industrial Revolution}, 178.
Conclusion

This thesis has argued that the British search for hemp represented a significant aspect of the nation’s pursuit of natural knowledge, and an important means to improve the imperial economy. Despite the pattern of repeated failure, the project tested the limits of the possible regarding the governance of social ecologies, and therefore contributed to what Joel Mokyr has termed ‘the British Industrial Enlightenment’. Industrial progress is more visible to historians in terms of the mechanisation of cotton production, for example, or the invention of the steam engine. This thesis has shown how historical change may also be examined through the causes of a material non-occurrence and its unintended consequences.

Ultimately, hemp and flax proved incompatible with the structures of agrarian capitalism. In Britain, the high-wage economy of the urban centres drew agricultural labourers away from rural industry, while the high-cost of land initiated the more productive use of farms. In the late eighteenth century, the transition from an organic to an extractive economy was already underway, yet the classical economists still believed the productivity of the land represented a ceiling to growth. They did not foresee how mechanisation would revolutionise the technologies of industry and transportation, and therefore remove the agrarian constraint.

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Conclusion

Meanwhile, London’s policy makers assumed that naval technology would continue to depend on timber and hemp. Understanding that the traditional sources of timber were depleted, and that large-scale hemp production was unviable in the British Isles, they looked to North America and the Asia-Pacific region for a long-term solution to the problem. But though Canadian pine and Indian teak made an important contribution to British sea power, a colonial supply of hemp never materialised. Nonetheless, useful knowledge was acquired about natural resources and human communities, which contributed to the rise of the British world-system in unexpected ways. The success stories of Australian wool and Bengal jute, for example, arose in the aftermath of the unsuccessful experiments with hemp.

By the middle of the nineteenth century, the agricultural revolution may have provided Britain with a comparative advantage over its continental neighbours. The rise in output per head meant that fewer hands produced more food, yet the national market sacrificed this advantage, and increasingly relied upon imported food. Sustained growth was no longer associated with the protection of the domestic rural economy, but with the unfettered expansion of urban manufacturing and overseas trade. In the so-called laissez-faire era – imposed if necessary with ‘gunboat diplomacy’ – it became more efficient to exploit the power of unequal exchange.

By this time, moreover, Britain’s advantage on the high seas was further bolstered by the nation’s engineers, who finally succeeded in removing the agrarian constraint on

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maritime technology. Between 1650 and 1850, the design of the wooden sailing ship showed remarkable continuity in comparison to other sectors of British industry. The technological revolution of the shipping industry occurred relatively late, but over the next half century the mechanisms of ocean transportation were transformed once and for all. Timber and hemp provided the material foundations of the global economy, yet iron and steam consolidated the international division of labour with greater speed and efficiency. Robert C. Allen argues the British industrial revolution can largely be attributed to an accident of geology: the proximity of iron and coal deposits in the north of England. But the diffusion of coal-based technologies soon contributed to rising living standards throughout the developed world. As a result, Britain’s exceptional rise to power became translated into western exceptionalism. In Europe, and to a lesser extent the United States, this led to renewed competition for colonial resources.

Since the First World War, however, this notion of western progress has been steadily undermined. In the present era, the discontents of global capitalism have reconfigured the theory of economic ‘improvement’ as the practice of social exploitation and environmental ‘disturbance’. The disjuncture of industrialisation caused the conceptual dislocation of economy and ecology, but there can be no return to some mythic, Arcadian ideal. In order to sustain life on this planet, though, we must recover the understanding that the divisive categories of nature and culture are essentially indivisible. As Raymond Williams once remarked, ‘The idea of nature contains,

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though often unnoticed, an extraordinary amount of human history.’ The stories we tell about nature may therefore enhance our understanding of the human condition.\(^{9}\)

Plants seldom figure as active agents in the ‘grand’ narrative of history, though Londa Schiebinger has told the story of the Caribbean peacock flower (*Poinciana pulcherrima*) as a means to explore the non-transfer of useful knowledge. Unlike tea, coffee, chocolate or quinine, Schiebinger asserts that this little-known flower was never considered a ‘heroic’ plant in eighteenth-century Europe. The indigenous abortifacient was merely viewed as a ‘natural curiosity’ or an attractive ornamental.\(^{10}\) By comparison, hemp certainly possessed a heroic stature in the age of sail, though it was also considered rather common and humble in relation to the noble oak or stately pine. In recent times, however, this perception has changed in ways unthinkable to the protagonists of this thesis.

European hemp production was never effectively mechanised, and the fibre proved superfluous in the industrialised economy. In the latter half of the twentieth century, *Cannabis sativa* became better known throughout the world as the source of an illicit drug. This situation has tended to overshadow other aspects of the plant’s cultural and historical significance. Although the intoxicant and fibre cultivars are different varieties of the same species, this classification confuses lawmakers and the general public alike.\(^{11}\) Despite collecting reams of evidence on the topic, even the United

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Nations concedes that ‘Like most things about cannabis, its history is obscure and diffuse.’\(^{12}\)

In relation to European knowledge of the peacock flower, Schiebinger refers to the notion of ‘agnotology’, defined as the study of culturally-induced ignorance, or the opposite of epistemology.\(^{13}\) In the present era, this hypothesis certainly applies to the representation of hemp. Unfortunately, both sides of the prohibition agenda have distorted popular history and science in the service of polemics. The human species possesses a long and complex relationship with this multi-purpose economic plant.\(^{14}\) Like any other cultural artefact, the meaning of hemp is subject to change. But in order to understand this process, contextual analysis is required rather than simplistic misrepresentations from those who either support or oppose the ‘War on Drugs’.

This thesis has shed light on one aspect of the plant’s extensive and often misunderstood history – the cultivation of hemp as a naval raw material in the British imperial world. Historian James H. Mills has examined British research in colonial India on the use of hemp as a medicine and intoxicant, but further research is required to reconstruct other aspects of this cross-cultural encounter, particularly in Africa and the Middle East.\(^{15}\) With regards to textile history, flax (*Linum usitatissimum*), remains neglected in relation to its historical significance. Like hemp, the plant symbolises the agrarian past, but became far less important in the post-industrial economy.


\(^{13}\) Schiebinger, *Plants and Empire*, 3, 226-41.


Yet this thesis ultimately has a larger purpose than telling the story of a plant. Its thread has enabled me to connect universal processes to local experiences, while traversing the various subdisciplines of history. I have compared material life in a diverse range of social ecologies, in order to investigate the accidental consequences of an imperial design. This model could be applied to many other artefacts to explore the origins of a timeless predicament – what unites and divides us as a common people. According to C.A. Bayly, world history should not elide difference or seek to homogenise the past. At certain times, nations such as Britain have exerted exceptional power, while others have arisen from inauspicious beginnings like Australia. Historical analysis can explain why change occurs without resorting to old-school triumphalism, or retreating into a debilitating cultural relativism.16

Perhaps our stories of the past may change our actions in the future. Globalisation has raised the spectre of environmental catastrophe, yet the potential now exists to envision new forms of progress based on mutual understanding, empathy and respect. No individual is capable of grasping the whole picture, but history is a cooperative endeavour. In a small way, I hope that my experiment in writing history may contribute to a deeper understanding of the modern world.

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