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The Contribution Of The Whaling Industry To The Economic Development Of The Australian Colonies: 1770-1850

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Abstract

Many of the leaders in the colonial communities of New South Wales and Tasmania, and in British trade and commerce, were convinced that the colonies' economic future depended on the discovery and exploitation of "staples". In the original formulation of staple theory in economics, staples were export commodities which generate income in excess of meeting needs for local consumption, leaving a surplus available for reinvestment. They were also likely to have strong links to industries which supported them, and the development of which, at least in part, was catalysed by the staple's growth.

The very first staples in the Australian colonies were sealskins, seal oils and bay whales. By 1820, it had become clear that the level of their natural stocks put severe limits on product availability, and therefore they would not achieve the goal of becoming a staple. From the early 1820s, New South Wales began to export colonial-grown wool in increasingly significant quantities, and with marked improvements in quality. At the same time, well established whaling industries, principally the British, began to make substantial investment in deep-sea hunting for sperm whales in the Southern Whale Fishery, which encircled Australia. An Australian whaling fleet began to emerge.

As with wool, annual export revenue from whaling increased significantly from the start. Some thought that whaling had the potential to develop as the Australian colonies' primary staple. After ten years of jostling for export sales leadership, wool emerged as the primary staple by 1835. While exports of both commodities increased, wool's rate of increase was greater than that of whaling. By 1850 export values from "fisheries" had massively declined, while wool's were still increasing. Although the home-grown whaling fleet out-competed the British fleet, by 1850 both were outperformed by the American fleet.

Because of measurement difficulties it is hard to be precise about the extent to which the whaling industry catalysed the growth of ship-servicing industries – shipbuilding, repair and maintenance in particular. However available data enables the conclusion that at 1850 those industries were still organised on a cottage basis, largely because they lacked the volume needed to sustain bulk output. Technological change in markets also played a large part in the demise of the whaling industry, with the substitution of coal gas for whale oil in large-scale industrial lighting applications, and mineral oils for domestic lighting.

Whaling made a significant contribution to Australia's economic development in the period 1800 to 1850, and particularly in the period 1830 to 1845. Together with oil it generated almost all of Australia's surplus from external trade until 1850, By then its contribution had almost fallen from sight.

This thesis is distinctive for both its methodology and conclusions. As to the former, it is the first study of the history of the Australian whaling industry considered from a global perspective. Further, it analyses primary data which has been available in one case since 1963 and another since 1983, but which have not been rigorously mined until now. In doing so, it is also the first to estimate the dimensions of the relative sizes and economic contributions of the domestic whaling fleets, and the fleets of America, Britain and France. A simple mathematical model has been devised for this specific purpose.

On the latter, the conclusions leave little if any doubt that whaling was Australia's premier staple commodity but for a short time. This is in part because of a second finding: that the whaling industry had not developed to a point where it could be a significant catalyst to the growth of a local ship-building industry.

Declaration by Author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my research higher degree candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

I acknowledge that an electronic copy of my thesis must be lodged with the University Library and, subject to the policy and procedures of The University of Queensland, the thesis be made available for research and study in accordance with the Copyright Act 1968 unless a period of embargo has been approved by the Dean of the Graduate School.

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Publications during candidature

No publications

Publications included in this thesis

No publications included

Contributions by others to the thesis

No contributions by others

Statement of parts of the thesis submitted to qualify for the award of another degree

None

Acknowledgements

Post-graduate students are often told that the subject of their dissertation may ultimately differ from the student's original interests and intent, and indeed that this may be more often the rule rather than the exception. If so, my case is typical. I set out to demonstrate that the interface between the steel wheel and the steel rail was the point at which the greatest potential productivity gain became available in railway systems.

It became clear that progressing this issue required a higher level of mathematics and econometric expertise than I possessed and, at age 70, was ever likely to. Consistent with my interest in transportation in colonial economics, I searched for an alternative. I found one. I hypothesized that until reliance from wool became the largest single source of export revenue, the revenue from products derived from whales (including products derived from seals) would be the greatest single source of export revenue to the Australian colonies.

Putting the hypothesis was easy; demonstrating its validity quite another. It turned out that there were very large gaps in primary data sources, both in quantity and quality. This in turn meant that it became necessary to build a mathematical model which so far as reasonably possible replicated the way in which the Southern Whale "Fishery" worked – bearing in mind that the whaling industry was one of the first multi-national industries in the industrial era, and that it had been in operational dominance by European countries from as early as the twelfth century.

It now seems clear that the whaling industry in Australia in the nineteenth century worked on a significantly larger scale than might have been imagined, and perhaps for a shorter time. These realizations were painful.

The two anonymous external examiners of the first version of this dissertation were unforgiving in their criticism, but they were also constructive, so much so that they recommended I be given an opportunity to repair the dissertation's manifest short-comings. They both volunteered to enlist for a reappraisal of the revised work. They were just two of the many people who were unstinting in their support.

It would have been impossible for me to have produced this dissertation without the support of my wife, Margaret. She was both a financial and a production partner. She found the word-processing of uncountable drafts as tedious as I found their writing, but carried on. She was very seriously ill throughout the preparation of this thesis. I am deeply in her debt.

Emeritus Professor. Peter Spearritt was my Principal Adviser. He has been wonderfully stimulating in this role, forever goading for improved performance. It is to my great regret that I was never able to force him into argument, despite some healthy debate. Adjunct Prof Ruth Kerr, also an Adviser, has been consistently critical of content, and a meticulous provider of editorial comment and archival advice. I have learnt much from them both.

I am grateful to Bill Beach, then Senior Manager of the Social Science and Humanities Library, and to Alison Stewart, and her staff at the University of Queensland library. Mark Cryle and his team at the Fryer Research Library, have been unfailingly good humoured and helpful, as have been their counterparts in the National Library of Australia.

My research benefited greatly from help from Helen McMonagle and Robert Mills. I am very grateful for the additional sources they enabled me to uncover, as well as for the editorial expertise of the latter.

I held discussions and/or placed questions with a number of people regarding the availability and interpretation of Australian (and other nations) whaling records and other issues. These included Michael Dyer, Research Librarian at the New Bedford Whaling Museum, Elizabeth Oldham of the NHA Research Library Nantucket, author Glanville Allen Mawer, Mathew Stephens, the Research Librarian of Sydney Living Missions, and Dr. Stephen Gapps of the Australian National Maritime Museum. Judy King has been a helpful guide through the labyrinths of University administration.

I am also grateful to those contemporary authors/researchers who provided illuminating insights and who challenged my thinking including Dale Chatwin, Mark Howard, Michael Nash, and Michael Pearson.

Keywords

Australasian colonies, economic growth and development, whaling.

Australian and New Zealand Standard Research Classification (ANZSRC)

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FoR code: 2103, Historic Studies, 50%
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List of Abbreviations

The following abbreviations appear in this work:

Abbreviation	**Explanation**
HRA	Historical Records of Australia
HRNSW	Historical Records of New South Wales
HRNZ	Historical Records of New Zealand
NSW	New South Wales
SANSW	State Archives of New South Wales
SLNSW	State Library of New South Wales, Mitchell and Dixon Libraries
SLTas	State Library of Tasmania

1 Introduction

1.1 The Subject Matter

On 29 July 1852, just after the period of interest to this dissertation had ended, Congressman William H. Seward of Massachusetts addressed the United States Congress. His address was titled "The Whale Fishery and American commerce in the Pacific Ocean" and his objective was to put the case for opposing the introduction of tariffs on industrial goods imported into America.

> *We want… not bounties nor protection, nor even an accurate survey, but simply an exploration and reconnaissance of those seas, which have so recently become the theatre of profitable adventure and brave achievement of our whale hunters.* [1]

The congressman gave this background to his argument, referring back to the end of the Napoleonic wars around 37 years before:

> *At their close, the British had 146 vessels in the Northern Whaling ground; and 56 ships in the Southern Fishery… The Americans now re-entered the game and the tables were speedily.. turned in their favour.*
>
> *In 1824 the British became discouraged and withdrew their bounties; and in 1842 they had no more (than) 18 vessels in the North Fishery… so that in 1815, not one British whaler appeared in the South Seas.*
>
> *Since that time, all nations have virtually abandoned this handy form of perilous enterprise in favour of the Americans. The entire whaling fleet of the world in 1847 consisted of almost 900 vessels, 40 of which belonged to France, 20 to Bremen and other ports in Northern Europe, and all others, more than 800 in number, belonged to the United States.* [2]

In a few short sentences spoken 170 years ago, the Congressman referred to a number of features of the oil industry which are as relevant today as they were then. He made it clear that the whale oil industry was a global business, being fought in a world of war and technological upheaval. As he and his supporters saw it, the world was full of people who were winners or losers. Britain was already a loser, he argued, as was the rest of Europe and almost everybody else. With the wrong economic policies, he said, the United States could go the same way. He pleaded for government help, not to put industry in the thrall of government, but to "obtain the supply of infrastructure necessary to profitable management":

> *Commerce is the great agent of this movement. Whatever national shall put that commerce into full employment, and shall conduct it steadily with adequate expansion, will become necessarily the greatest of existing states.*[3]

Introduced into the Australian colonies early in the nineteenth century, whale products had by 1830 become the largest of the colonies' staple exports, in a world with an insatiable demand for whale oil.

One of the few authoritative dissections of the early history of the Australian economies is Butlin's aptly titled "Forming a Colonial Economy, Australia 1810-1850". [4] The section of this work most relevant to this dissertation is "Natural Resource Development, Consumption and Exports", where Butlin argued that the early development of the economies of the Australian colonies was a function of the export earnings derived principally from wool and whales, and from the rural-urban nexus founded chiefly to sustain the convict population. [5] He concluded that

> *(f)undamentally, a combination of artificially supported living standards, foreign private capital, the possession of urban skills, habits of urban living, the protection of isolation and the presence of tastes and incomes to permit effective demand for skilled products were basic ingredients in the strong incentive to the growth of urban activities side by side with the exploitation of the natural environment. There were undoubtedly linkages between both, but it would be false to propose that either strong expansive tendency drove the other. The form of the economy, stressing both, reflected a fundamental if implicit problem. The settlers chose both options. They continued to do so throughout and they persisted, even to today. Times changed and circumstances differed but many of the original ingredients hang over the rest of modern Australian history to the end of the 20th century.*[6]

Butlin added that:

> *The subsidence of sealing after 1812 left a major gap in fisheries activity as distinct from other maritime pursuits.* [7]

This proposition is debatable as it seems to overlook the fact that sealing continued at distinctive volume in and around the waters of New Zealand's South Island until near 1830.[8] In doing so, the sealing industry developed strong links with Australian suppliers of goods and services, particularly from those located in Sydney. Butlin, and many others, frequently assert that "until 1819, the East India Company restrained colonial deployment of ships of substance for whaling purposes", as if this proved a significant deterrent to the economic growth of the colonies.[9] The British East India Company, an institution which featured prominently in British and global commerce and diplomacy between 1775 and 1840, was known throughout most of its existence merely as "the Company". As I have adopted that practice for the sake of brevity throughout, all references to "the Company" can safely be taken to refer to the British East India Company unless specifically made clear otherwise.

This proposition seems to have gone untested, even at first sight. It fails to recognise that the Company was reluctant to service Australian ports because there was very little demand for freight to Europe until wool became a significant export commodity around 1840.[10] Moreover, the Company had no interest in investing in the whaling industry itself. Not only that, but hostilities between the United Kingdom and its former American colony were almost continuous between 1775 and 1815, and decimated the whaling fleets of both sides. There was much more to what many regard as unsatisfactory shipping services between Europe and the Antipodes than the Company's opposition to whaling.

How had the whaling industry grown from nothing to become Australia's prime exporter in only forty years, to disappear ten years later? Early research suggested that the following features of early whaling in the South Pacific could constitute useful starting points:

(a) Whaling activity in Australian waters involved whaleships which could have been built and/or based anywhere in the world (and were);

(b) The products generated by those whaling ships and the whales they caught could be marketed and sold anywhere in the world (and were);

(c) Cost considerations, including proximity to the supplier, were the over-riding concerns when a whaling ship owner/agent came to select a point at which to repair, refit and re-provision the ship.

(d) All the items involved in activities (a) to (c) in Australian waters were economic activities, i.e., for each of them there were supply and demand considerations, and those considerations made up a number of separate but connected markets.

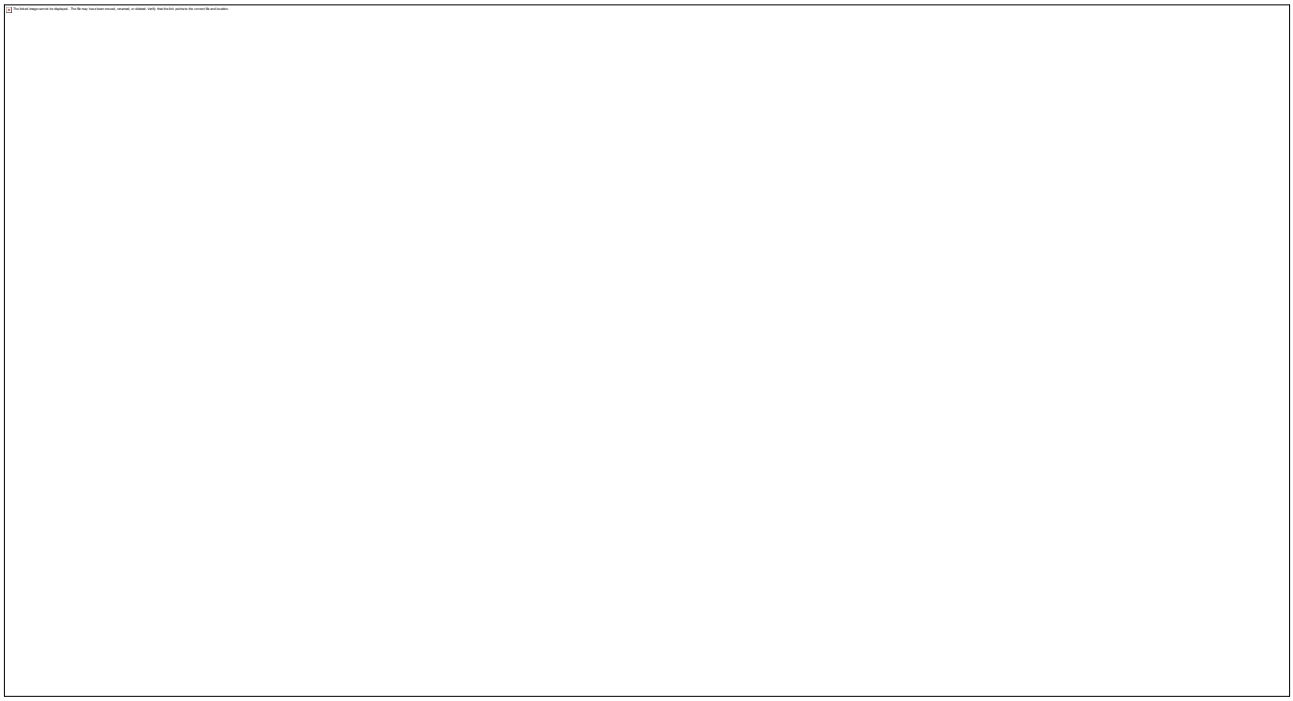
(e) The units and agents which generated the largest volumes of supply and demand were whaling ships themselves.

(f) Those nations which sponsored the largest fleets in world whaling, and in Southern whaling, in descending order of fleet size in 1850 were the United States, France, Australia and the United Kingdom.

(g) The national markets to which the whaling industry were connected were many, and produced a significant proportion of GNP. In particular, the GNP of nations which built ships and/or produced raw materials from which whaling ships were built had a robust base. These connections are usually referred to as "backward linkages"; the major ones were timber, cotton and copper.

(h) The major industries into which whale oil products were destined were also many. Their end uses are referred to as "forward linkages". In 1850, major products were oils for lighting, heating, and lubrication.

Figure 1: Indicative diagram of linkages to/from the whaling industry



In this dissertation, these features have been used to design a model of the Australian colonies' whaling industry in the time-frame 1841 to 1850. The model is built in particular around nationality of the ownership of participating ships and the ports at which ships sought the delivery of particular services. The services sought by those vessels are classified into the following categories:

- New ship construction
- Ship refitting and repairing
- Provisioning new vessels
- Annual (or otherwise regular) provisioning

The model is put to use in Chapter 10 (Investment in Australian whaling).

It may be useful at this juncture to introduce some unfamiliar terminology used throughout this dissertation and to make explicit some usages I have adopted. In referring to whales, and notwithstanding that we know that whales are mammals, not fish, much contemporary literature writes consistently of "whale fisheries", and of "fishing for whales". I have not changed contemporary usage occurring in sources.

Similarly, much of this work is concerned with the Southern Whale Fishery, which came to mean that area of the globe not covered by the Northern Whale Fisheries of the Atlantic.[11] The ships operating in the Southern Whale Fishery were whaling ships or whaleships. To avoid confusion, I have reserved the word "whaler" so as to refer to the people who crewed those ships, rather than as a reference to

the ships themselves. In the same way, I have kept the terminology of referring to ship's bottoms, as a reference to the registration of ship's hulls.

Whale oil volumes were reported inconsistently in the period covered by this dissertation. Prior to 1824, whale oil was measured in "barrels" (31.5 gallons or 119.2 litres) or "tuns" (252 gallons or 953.9 litres). The British adopted the imperial gallon as the unit of measurement in 1824, while American whalers continued to use "barrels" and "tuns".[12] The "tun" is to be distinguished from the "ton", the measure of a ship's volumetric carrying capacity, which up to the mid-nineteenth century was expressed as a "tons burden."[13]

Effective 1st January 1856, the colony of Van Diemen's Land became Tasmania. I have elected to refer to Tasmania throughout, except when quoting from a primary source using the older name.

In referring to Aboriginal Australians, I have adopted the terminology recommended by the University of Queensland's Cultural Diversity and Inclusive Practices folio.[14] For the sake of consistency in referring to centuries, decades and numbers, I have generally followed the recommendations of *Butcher's Copy-editing*.[15]

1.2 Structure of this Dissertation

Chapter 2 provides an historiography firstly of whaling activity at the global level. Its purpose is to describe the context in which Australasian whaling took place, especially to draw attention to the industry's archaeology. It is customary for modern commentators on the historical whaling industry to set the earliest boundary for analysis at around the eleventh century CE. It is unusual for a modern historian to acknowledge that whaling existed around 3,000 BCE. There is evidence of whaling in what is now the Basque areas of Spain, as well as evidence of a lively if small trade in whaling products along the north and north-western coastlines of Alaska and northern coastlines of Russia's Chuck Chi Peninsula.[17] The links between "old world" whaling and modern whaling largely disappeared before the Basques moved to Spitzbergen in the thirteenth century.[18]

Chapter 3 explores three theoretical issues which underpin this dissertation; the first argues that economic development connotes much more than economic growth, and that neither can be considered independent of the other. The second briefly outlines staple theory, and its present relevance. The third probes maritime historians' challenges in defining what 'profit' meant in the whaling industry, and stresses that a clear and appropriate definition – though absent in much of the scholarly literature - is vital to measuring the industry's contribution to capital, equipment and labour. Chapter 4 delivers an outline of the whaling industry's products, processes and markets, and in doing

so provides a framework for understanding how technologies impacted its cost structure, its rise and its demise.

Between 1775 and 1850 major and radical changes took place in world whaling and in the Southern Whale Fishery. The American Revolutionary war caused most whaling vessels to be seized as loot and/or turned to other purposes of more immediate utility to the respective sides.[19] Initially the largest fleet, the British was virtually non-existent by 1850. In contrast, the American fleet grew with truly astonishing rapidity, and as the British fleet disappeared, so the American fleet assumed a near monopoly position. In 1835 it reached its maximum size of 738 vessels. Two Australian fleets grew, one in New South Wales and one in Tasmania. Together they accounted for less than 10% of world whaling effort by 1850, after which they declined sharply following the loss of labour to the new goldfields, and by 1890 they were virtually extinguished.[20] A detailed account of this history and the forces acting through and upon it are set out at Section 5.1 from page 53.

The following four chapters look closely at the history of the Southern Whale Fishery and its relevance to Australian economic growth and development. Though organised data is scarce, the first of these chapters focuses on the period 1790 to 1830. Chapters 6 and 7 deal respectively with the whaling industry in the colonies of New South Wales and Tasmania respectively. Each provides a brief outline of the colonial economy's structural growth, and the origins from which whaling's demand for, and contribution of, capital, supplies and labour grew.

Chapters 8 and 9 briefly examine the late development of the whaling industry in South and Western Australia, and in New Zealand. The contributions of fleets not subject to the British Empire - principally French and American whaling – are described and discussed.

The penultimate chapter brings together data from the preceding chapters and models the scale and structure of the Australian whaling industry, and its contribution to the shipbuilding industries of New South Wales and Tasmania. The final chapter delivers the conclusions that may be drawn from this research and the model which the research drives.

1.3 Summary

From its very inception, the Australian whale fishery was an integral part of a worldwide production and marketing systems for products used chiefly in lighting, heating, lubrication and textile preparation. The barriers to entry differed with the nature of the hunting required: for sperm whale products, barriers were relatively high, while for the exploitation of seals and right whales the barriers were comparatively low.[21] The strong demand for the products of all forms of whaling potentially provided a useful means by which to make and retain surpluses for reinvestment. Such funds came

from British and Colonial entrepeneurs who were professional ship owners, and who would invest in any shipping venture provided it held out the prospect of high returns – "high" of course being a relative term often based on sentiment as much as on calculation.[22]

Port Jackson and Hobart were the main Australian colonial whaling ports for servicing (together with the Bay of Islands in New Zealand which, until 1840, was governed from Sydney), and they also housed shipyards for construction and refitting. As the size of the American whaling fleet began to grow in the late 1820s, those ports entered into competition with the ports of Tahiti and Honolulu for the servicing of those whaling vessels.

British and American whaling ships utilising the Pacific and eastern Australian colonial ports generally entered the Pacific around Cape Horn; a smaller number of ships entered into the Indian Ocean around the Cape of Good Hope and had the opportunity to use services in Western Australia. The whaling ships hunted from the Galapagos Islands to the Sandwich Islands, from the Sea of Japan and the Bering Strait to the islands of Indonesia, as well as the waters of eastern and western Australia and New Zealand. Consideration of the Australian whaling industry must be widened, therefore, from analysis of markets and events occurring only in Australian waters to this wider international context.

Notes to Chapter 1

[1] William Henry Seward, *The Whale Fishery, and American Commerce in the Pacific Ocean: Speech of William H. Seward, in the Senate of the United States, July 29, 1852* (Washington DC: Buell & Blanchard, 1852), 5.
[2] Ibid., 3.
[3] Ibid., 7.
[4] Noel George Butlin, *Forming a Colonial Economy, Australia 1810-1850* (Cambridge; Melbourne: Cambridge University Press, 1994).
[5] Ibid., 170ff.
[6] Ibid., 196.
[7] Ibid., 189.
[8] Harry Morton, *The Whale's Wake* (Hawaii: University of Hawaii Press, 1983), 118–20.
[9] Noel George Butlin, *Forming a Colonial Economy, Australia 1810-1850* (Cambridge; Melbourne: Cambridge University Press, 1994), 118. The British East India Company, an institution which featured prominently in British and global commerce and diplomacy between 1775 and 1840, was known throughout most of its existence merely as 'the Company'. As I have adopted that practice for the sake of brevity throughout, all references to 'the Company' can safely be taken to refer to the British East India Company unless specifically made clear otherwise.
[10] On the Company see page 66**.** and Section 5.1
[11] Strange as it may seem, this was the way the Southern Whale Fishery was described in the 19th century. Mawer held the view that the origin of this usage was political. See Granville Allen Mawer, *Ahab's Trade: The Saga of South Seas Whaling* (St Leonards: Allen & Unwin, 2000), chap. 2, pp.36-38; See also Charles Enderby, *Proposal for Re-Establishing the British Southern Whale Fishery, through the Medium of a Chartered Company, and in Combination with the Colonisation of the Auckland Islands, as the Site of the Company's Whaling Station*, 3rd ed. (London: Effingham Wilson, 1847).
[12] Henry H. Work, *Wood, Whiskey and Wine: A History of Barrels* (Reaktion Books, 2014).
[13] Otmar Schäuffelen, *Chapman Great Sailing Ships of the World* (Hearst Books, 2005), xix–xx.
[14] *Appropriate Terminology, Indigenous Australian Peoples*, General Information Folios 5 (University of Queensland, Teaching and Educational Development Institute, n.d.), http://www.uq.edu.au/teach/cdip/docs/folio_5.pdf.
[15] Judith Butcher, Caroline Drake, and Maureen Leach, *Butcher's Copy-Editing: The Cambridge Handbook for Editors, Copy-Editors and Proofreaders*, 4th ed. (Cambridge: Cambridge University Press, 2006), 130–132 (time) 142–147 (numbers). Numbers less than 100 are expressed in words (unless they are exact measurements).

[17] Allen P. McCartney, *Indigenous Ways to the Present: Native Whaling in the Western Arctic* (Canadian Circumpolar Institute Press, 2003).
[18] John C. Dixon, 'Environment and Environmental Change in the Western Arctic and Subarctic: Implications for Whaling', in *Indigenous Ways to the Present: Native Whaling in the Western Arctic*, 2003, 3–10.
[19] Neither side in the war could afford to have valuable vessels effectively out of service for the 2 or 3 years a whaling expedition required.
[20] Edouard A. Stackpole, *Whales & Destiny: The Rivalry between America, France and Britain for Control of the Southern Whale Fishery, 1785-1825* (University of Massachusetts Press, 1972), chap. 1.
[21] Edouard A. Stackpole, *Whales & Destiny: The Rivalry between America, France and Britain for Control of the Southern Whale Fishery, 1785-1825* (University of Massachusetts Press, 1972), chap. 1.
[22] Brian H. Fletcher, *Colonial Australia before 1850* (Melbourne: Nelson, 1976), chaps 3–5.

2 Methodology and Source Review

In 1997, a leading team of researchers observed that:

> *Unfortunately, there is no adequate series on the cost of building whaling vessels nor, in fact, a totally reliable, or even generally accepted series on the cost of building wooden sailing vessels in general.*[1]

The Australian whaling industry has a paucity of reliable data.[2] The availability of Australian data has not improved since 1997, according to personal discussions with leading scholars including Dale Chatwin, Martin Gibbs, Michael Nash and Michael Pearson.[3]

There are two consequences to these challenges of breadth and depth; one is that literature research, especially of documentation by governments and industry operators, has had to be comprehensive in the search for a sufficient number of fragments to form a useful database. In doing so, I have followed a methodology similar to that devised by Davis *et al* to deal with this problem. In Davis' case, he and his team developed an 'All Data' series,

> *(d)erived from estimates in a wide range of literary and quantitative sources ... to derive arithmetic averages of the costs of building 'a vessel' or 'an average vessel' as reported in those sources.*[4]

In the absence of comprehensive primary data, my method uses fragmentary data to build estimates of the size of Australian whaling fleets, and like Davis *et al*, uses arithmetic averaging to derive estimates of vessel capital costs. The search for 'fragments' has involved research of primary sources in the Australian National Library, the Mitchell library of New South Wales, and the State Library of Tasmania and in the government archives of those states. This has been allied with searches of the *Historical Records* series of Australian, New South Wales and New Zealand documents and of a number of newspapers. Enquiries were also made of archival sources in the British House of Commons, and of the contents of the British Museum, the (United Kingdom) National Maritime Museum in Greenwich, the (Australian) National Maritime Museum in Sydney and its Tasmanian counterpart, and the various whaling-related libraries in Massachusetts. A particular point has been made of finding and interpreting academic theses from both Australia and abroad. The sources accessed are set out in the Bibliography.

The second of the two consequences referred to above is that the dearth of consistent data from primary sources necessitated an extensive exploration of secondary sources.[5] Even so, I can be reasonably sure no significant source – primary or secondary - has been overlooked in addressing the question of the extent to which the whaling industry contributed to the economic growth and development of the Australian colonial economies in the period 1775 to 1850.

In summary, the research program consisted of the steps set out below.

1. Identify and analyse the size, structure and rate of growth of the national whaling fleets, chiefly of the Australian colonies, Britain and the United States of America.

2. Derive an understanding of the whaling industry's role in the world economy, in terms of product markets served, and technologies used in acquiring and processing raw materials - in this case, whales – and in distributing products to end-users.

3. Recognise that it would not suffice to confine the "whaling industry". In practice, carrying on whaling necessarily involved stimulating the development of associated or linked industries, such as shipbuilding and sail-making. In the case of the whaling industry, economic development takes place because whaling stimulates the development of industries linked to it, such as forestry (gathering timber), ship-building, *etc*.

4. For economy of research, analysis of linked industries in this dissertation is confined to a small group of key markets. These were:

   (a) The market(s) for the purchase of whaleships, new and used;

   (b) The market(s) for fitting out and re-fitting whaleships;

   (c) The market(s) for carrying out major repairs;

   (d) The market(s) for provisioning whaling vessels;

The analysis of whaling fleets and their associated linked industries focuses on those which developed around Port Jackson, the south and south east of Tasmania, and the south and south western parts of the Australian continent. It incorporates relevant activity in South Australia, Western Australia and New Zealand.

Research into the whaling fleets and their ancillary markets necessitated some research into the vessels themselves. Wind-driven whaling vessels largely shared a common design, wherever they were deployed. They were in use for too short a time, and in near-homogenous environments, for significant variant models to have emerged, with the arguable exception of whaling vessels dedicated to Arctic whaling, which required ice-breaking capabilities not relevant to the vast bulk of whaling fleets operating in the Pacific and Atlantic. Their architecture and ship-born technologies generally originated in the United Kingdom and Western Europe, and were transmitted to North America, before being brought to the South Seas. Although later American and French vessels tended to grow

to between 400 and 500 tons, the whalers of all nations tended to be around 300 to 350 tons on average with a length of around 100 feet and a breadth of around twenty feet.[6] They usually carried between three and six whaleboats. This commonality in design, materials and construction across the globe underpins the model developed in Chapter 10, as it allows comparisons of costs *per* ton in different shipyards. Market-driven variations in prices and costs were typically and consistently greater than variations in function or architecture.

It should be noted, however, that this segment of the research suffers from a lack of consistency throughout the industry in accounting and financial principles, practice and terminology, such that a number of unknowns remain. These are discussed in Section 4.4.

2.1 Printed and other sources to 1860

Documents created prior to 1860 are sorted into the following categories in the Bibliography:[7]

a) documents located in the archives of New South Wales, Tasmania and the United Kingdom;

b) works published more generally at the time, including memoirs written and published by whaling captains and other seamen, as well as government publications, and political works;

c) the Historical Records series of Australia, New South Wales and New Zealand; and

d) legislation and supporting documents enacted by the British Parliament regarding whaling, and the Southern whale fishery in particular.

Some sources could fall into either of two (or possibly more) categories. For example, the tables of E. Deas Thomson (discussed at page 76) appear to be unpublished, and are therefore included here as a manuscript primary source ((a) in the list above), rather than under the section for pre-1860 publications (b).

2.2 Modern Sources

The bibliography is further constructed around the research programme described above. The development of an Australian historiography for the whaling industry started with seeking an understanding of contemporary aspects of international geopolitics and commerce, providing a context within which the whaling industry operated. Of necessity, this required research beyond the whaling industry, narrowly defined. The most relevant topics, as well as some of the writers canvassed, are set out briefly below.

British rationales for the settlement and future of Australia as a colony were clearly relevant, and there are some Australian scholars who can be recognised immediately as fitting into this subject area. They include Shann, Ward, Shaw, Frost, and Steven. [8] Non-Australians who have important things to say from an international perspective include Harlow, Harlow and Madden, Eddy, Brookes and Jones.[9]

Beyond British geopolitics, much of British Imperial commerce was dominated by the commercial and political power of the British East India Company, the demands of which shaped the Australian whaling industry's prospects. The numerous writers about the history of the British East India Company include Phillips, Bayly, Bowen, Keay, Lawson, and Webster.[10] A British Commonwealth perspective is supplied by Fieldhouse. [11]

While the role and influence of British institutions and politics is clear, less so may be the need to understand Australian-American relations. However, there are a number of specialist texts focussing on such relations in the eighteenth and nineteenth centuries, with a significant emphasis on whaling. These include the works of Churchward, Dulles, Greenwood, Levi, Rydell and Caruthers.[12] This group connects closely with another group focussed more specifically on American whaling, with particular reference to the South Pacific. These include Tower, Jenkins, Davis *et al*, and Dolin.[13] Some of these are even more specific and narrow, covering whaling histories written around New England whaling operations; examples are the works of Macy and of Spears.[14] The most famous example of a work which fits this mold is Starbuck's *The History of the American Whale Fishery*.[15] Containing both essays and a compendium of ships' arrival and departure data, this remains a model for many writers of maritime history. Dolin's book is a disappointing attempt to produce a more modern Starbuck.

An Australian attempt to mirror Starbuck's *History*, is Cumpston's work, which was based on the movement of vessels in and out of Sydney in the period 1788 to 1825. Successors extended this time frame. Cumpston made much more use than did Starbuck of government documentation and public documents such as newspapers, and much less of ships' logbooks. He noted that his work had been compiled from contemporary sources, and that - in his view – no single source was comprehensive, and that all sources contained errors.[16]

Unfortunately, it is of limited use to this dissertation because it does not differentiate between whaling and other vessels. Where necessary, multiple sources have been consulted where Cumpston's clues were not definitive in order to identify vessels as whaleships.

Also seen as relevant were works on the British whaling industry and ship-building. These include principally those of Jackson, Stackpole, Anderson and Jones, together with a plethora of contemporary reports and correspondence between London's merchant adventurers, the British East India Company and the British government itself in government and private records.[17] To this must be added David and Ville's works about English ship-owning.[18]

An example of the importance to an understanding of the whaling industry of understanding geopolitics and commerce is provided by Stackpole's work, the ambit of which is the competition between the British, French and American fleets for domination of the industry between 1775 and 1850.[19] In that period fell the Anglo-American War of 1812-1815, the repercussions of which also helped shaped the Australian whaling industry.[20] Two relevant two works on the growth and conduct of the British Navy are by Herman and Hill.[21] The relationships between the British naval, merchant and industrial fleets, including, for example, the effect of press gangs and their impact upon the labour market, were also significant.[22]

Amongst the records searched to gain an understanding of the whaling industry as a commercial enterprise are a number of potentially relevant reports from north of England sources, including North East Scotland and the Northern Whale Fishing, the Hull Whale Fishing Company, the Exeter Whale Fishing Company, and the Newcastle Whaling Trade.[23] This search has yielded some fragments which are introduced into the dissertation later, chiefly in Chapters 5 to 7.

There is further a group of references originating from Canadian sources. They are concerned with three different sets of subject matter. The first is the whaling of native Americans, discussed in two works edited by McCartney together with research by Burch into the Iñupiaq nations. [24] The second is the development of whaling in the North West of Canada, and in particular of whale industry servicing from bases in the Hawaiian Islands, relevant here in part because such bases provided competition to some Australasian centres for ship repair, refitting and provisioning (e.g. New Zealand's Bay of Islands, and Hobart). [25] Finally, staple theory (discussed at Section 3.2) originated in Canada, and more theoretical work about it has generated there than anywhere else.[26] The relevance of staple theory to an understanding of the early Australian colonial economies was noted by Hainsworth:

> *(T)he founder-traders of Sydney had tried desperately to find effective staples over a period of fifteen years or more. Their struggle to obtain them, the problems they faced, the obstructions they scrambled over, all go to make the story of the sealing and sandalwood trades something of an epic. Although the traders, whatever their sporadic short-term success, failed to find long-lived staples, their efforts repay detailed study. Such a study tells us much about their problems, their skills, their entrepeneurship. It concerns a very vital part of the trading history of the early colony and helps to make explicable how that colony emerged at all. We know now that the future lay in whale oil, in wool and in*

> *minerals. But none of these staples, not even wool, created the colony of New South Wales. Rather it was the colony, or the commercial community which developed in it, which created the wool trade. In that development the first quest for staples played an important part and we must now consider it.*[27]

The largest single part of the relevant literature concerns the foundation, growth and development of colonial Australian economies and, later, the colonial whaling and related industries. Reference has already been made to Australia-focussed social and geopolitical histories which without exception cover a broader time span than the limited span of this dissertation. They rarely accord the whaling industry significant mention. When they do, most seem content to perpetuate broad and often inaccurate generalisations about it. For example, whaling's allegedly significant contribution to shipbuilding and servicing, and constraints on Australian trade, particularly whaling, by the British East India Company up to 1833 are both favourite subjects, both of which in my judgment are often treated with insufficient evidence.

The key primary observations which refer to the colonies' earliest days are Tench and Wentworth.[28] A later contributor (and certainly one of the most prolific) was Coghlan, one-time statistician to the government of New South Wales. His most important work is his four-volume *Labour and Industry in Australia,* published originally in 1918, based on his annuals *Wealth and Progress of New South Wales* (1886-7 to 1900-1) and *A Statistical Account of the Seven Colonies ... Australia & New Zealand* (1889-90 to 1903-4).[29] Despite the extensive statistical components in the two annual series, there are few statistical series reported in *Labour and Industry*. This detracts significantly from its utility.

Sinclair and Jackson are two important Australian works concerned with economic history methodology as well as data to 1900 but by far the most important work is Butlin's *Forming a Colonial Economy*, which not only substantially advances the theory of economic development in economies, it presents more data more analytically than any other like book.[30] It could not have been written without Butlin's having completed its classic predecessor, *Investment in Australian Economic Development 1861 – 1900,* and several journal articles, each a development of the 1964 work. [31] Other contributions to the development of Australian economic history are those by Abbott, Fogarty and McCarty, each of whom expounded on Staple Theory, which is reviewed herein in Section 3.2.[32]

Fletcher, Hainsworth and Hartwell have also produced highly relevant work. [33] In *Colonial Australia* Fletcher picks up on previous work focussing on the development of the wool industry. In addition, a number of biographies of outstanding individuals or families of the era have been produced, such as those by Steven on Campbell, Broeze on Brooks, Ville on rural entrepreneurs, Bassett and Peel on the Henty family and most recently Holcomb's work on early merchants of Sydney.[34] One lively work focussing entirely on the wool industry's years to 1900 is that of Garran and White.[35] These

works are important because they all reflect on whaling and wool as the first 'staples' of the Australian economy.

The local history of both the whaling industry and its major downstream linkages, shipbuilding and ship repair, have not been extensively treated in books, though journal contributions are extensive. Books specialising in the Australian whaling industry include those of Dakin, Colwell and Mawer; Nash's highly informative work on Tasmanian bay whaling is head and shoulders above others in its professionalism.[36]

Tasmanian sealing and whaling have accumulated considerable attention through the journal of the Tasmanian Historical Research Association[37]. See in particular the work of Reynolds which spurred a movement which re-examined the role and treatment of Aboriginal Australians in the nineteenth century. These works include particularly his own *Fate of a Free People*, and those of Ryan, Russell and Cameron.[38] The treatment of Tasmania's convicts is another subject which has excited a great deal of recent interest. Boyce's work of 2010 is concerned with this issue, as well as Aboriginal issues, while Alexander's *Tasmanian Convicts,* also of 2010, focuses on the relationships between convicts, their gaolers, and the ever increasing body of free settlers, subjects of tangential relevance here.[39]

The wave of work described above followed revived interest in conceptualising convict society as a labour market. Papers presenting opposing views appeared in the same issue – 2 September 1990 - of *Australian Economic History Review*, the first by Nicholas and the second by Shlomowitz.[40] They followed an earlier article by McQueen[41] and spurred discussion on new topics, such as, Aboriginal workers, the role of women at work and the relationship between convict workers and (emerging) labour markets.[42]

Stories about the contribution of capital and labour are important components of industry analysis. Ville's wide understanding of business development in Australia appeared first in March 1988, and together with Holder's work on the history of the Bank of New South Wales, constitute an informative clutch of essential reading.[43] Johns has worked with Ville in seeking to understand how whaling-relevant business networks developed in the colonies.[44]

Maritime activities in Tasmania have been the subject of a very large collection of volumes and papers which are most honourably described as folkloric. They vary from Norman's *Sea Wolves and Bandits* and *Pioneer Shipping* to Lawson and O'May's more focussed works.[45] They are research-based and fact-filled but they would have been far more useful if more editorial work had been undertaken. Philp's book is not dissimilar.[46] However, to do them justice, they have the inestimable

value of letting in drafts of sea air and exciting tales of crusty sailors with the same objective as more rigorous work, that of keeping alive the memory of a dirty and dangerous industry. Dallas' high calibre work on wider issues of Tasmanian history and economy, appearing largely in journals, is extremely thought provoking. [47]

Whalers' remuneration was determined in part by a unique payment-by-results system (discussed at Section 4.4.3). Reviews of the introduction and development of labour law, with a focus on whaling, its payment system, and other merchant shipping issues began to appear in 1986, with Quinlan's meticulous analyses.[48]

Finally, it appears as though a new and different field of expertise is emerging within the general field of maritime history. This is the use of mathematical modelling to define fishing and other marine activities in systems terms, now known as 'end-to-end ecosystem modelling'. A useful starting point in familiarising or refreshing on this new field is Charles' *Fishery socio-economics: A survey*.[49] An up-dated overview can be found in Gilbert, with more specific contributions contained in the works of Fulton and her collaborators.[50]

2.3 Summary

The whaling industry has never been exempt from whatever guidelines, rules or regulations govern commercial behaviour, wherever it operated. But in the nineteenth century there was a great deal of room for exploratory behaviour. The natural world was characteristically problematic, with much yet to be discovered. In the process, there was much to be learned about the unpredictable behaviour of nations, tribes and native peoples yet to be encountered, a world unpredictable and inherently unstable. It was the world in which whalemen set out to live and work. It could and did take them anywhere on the globe, working in nature, and seldom at peace with nature, if not with man.

The whaling industry in the oceans around Australia was a new component of an industry which was global in scope and hundreds of years in development. It grew at a critical time in the development of the Australian colonies. Even at its fullest extent, the Australian whaling industry was, in world terms, miniscule. Yet on the stage on which it was required to strut, it was significant, at least for a time. This chapter indicates the breadth and depth of the research needed to understand how it was born, briefly thrived, and died.

Notes for Chapter 2

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3 Economic Development Theory

The purpose of this dissertation is to expand knowledge and understanding of the extent to which the whaling industry contributed to the economic growth and development of the Australian colonies to 1850. Its conceptual underpinnings are:

1. It is conceived as a work about economic development, not merely economic growth;
2. It builds on the concepts of staple theory in economics;
3. It highlights difficulties arising from a lack of consensus on what constituted profit in the whaling industry.

These foundations are considered below.

3.1 Development Economics

"Development Economics" has been part of the Economics dictionary since well before the first publication of Adam Smith's work in the period 1723 – 1790. Chapter 1 of Book IV of an early edition of his "Wealth of Nations" is headed "Of the Principle of the Commercial and Mercantile System".[1] He was critical of this doctrine, and his work presaged the adoption of 'free trade' policy, the subscription to which had powerful effects on the structure of British industry from around 1820. In particular, it led to the demise of British whaling.

The definition and scope of Development Economics has undergone rapid and widespread changes since then, an account of which may be found in Bigsten's paper of 2016.[2] Todaro and Smith's work on economic development - now in its twelfth edition - is a widely used modern text which also traces the growth of 'Development Economics' as a subject.[3] The most succinct modern definition of 'Development Economics' is likely that used by Acemoglu to open his 2010 paper:

> *Development Economics investigates the causes of poverty and low incomes around the world and seeks to make progress in designing policies that could help individuals, regions and countries to achieve greater economic prosperity.*[4]

Originally concerned only with issues of inter-regional/international trade, the subject of Development Economics is now as much concerned with institutional development as it is with trade, as with non-economic variables as with the traditional doctrines of economics. It also embraces consideration of political psychological and social issues. Butlin's 'Forming a Colonial Economy' is an example of this approach; it is built in part on recognising, as does Acemoglu, the significance of 'political economy' to the study of Development Economics. It undertakes an analysis of the

relationship between trade in 'staple' products on the one hand, and the development of different technologies, skills and capabilities in large urban settings. [5]

This dissertation focuses heavily on the Australasian colonial development of the whaling industry, and in particular, seeks to understand its causes of growth and decline in the period 1775 to 1850. In fact, an understanding of its size and growth is fundamental to the research of this thesis, because without it, the connections between whaling and other industries cannot be properly understood, nor can the forces driving economic growth.

It is, therefore, largely empirical in its emphasis. Even so, it recognises and explores some of the theoretical developments of relevance to the dynamics of economic growth, such as staple theory, and the measurement of economic performance – see Chapters 3.2 and 3.3 below, as well as Chapter 4.4. The estimates of the size, location and transition patterns of whaling vessels set out in Chapter 10 open the door to further research on the whaling industry, and in particular to the valuation of linkages.

3.2 Staples and Accelerators

Staples and accelerators have a common history in that they exist only on the sidelines in the development of theories of economic growth and/or development. This does not mean that they are no longer of use. As Kindlberger has pointed out in a passage relevant directly to this dissertation:

> *Many economic models are plausible and will fit particular circumstances. The question is how general they are and how much one can rely on them to provide understanding in particular circumstances.*[6]

Staple "theory" has been selected as part of this dissertation's theoretical base partly because of its particular application to the earliest stages of economic development. It also admits the notion of non-economic variables as contributors to economic development even though in this context that feature is a matter of convenience rather than of major significance. Its structure enables the economic performance of different commodities to be analysed in a common framework by different authors. Accelerator theory is hardly used at all in this dissertation; it is not a theoretical constraint, but an observable (or not) empirically determined feature of particular situations which adds nothing to our power of analysis, or to our understanding of particular situations.

Staple theory originated in the work of Innis and Mackintosh, two Canadian economists. Innis carried out empirical work using Canada's cod fisheries and fur trade as case studies; Mackintosh developed a theoretical cladding for Innis' empirically-derived conclusions.[7] Some of the Australian economists interested in staple theory are Abbott, Butlin, Fogarty, McCarty, and Schedvin. [8]

Staple theory assumes that staple commodities will usually be natural resource commodities. They will have a high ratio of land to labour utilisation (unless the resources come from the sea), and a high level of contribution from export revenue.[9] It is also assumed that such commodities will have a relatively low rate of transformation to finished product in the region of origin, although conceptually, manufactured goods are not excluded from treatment as staple commodities.[10] It is the potential for the stimulus and growth of linked industries which cements staple theory as a useful tool in analysis of economic growth and development, and not merely economic growth. This is because one or more of those linkages will lead to the development of a secondary or manufacturing component, or even institutional components.[11]

Staple theory is essentially a tool for explaining the growth – or lack of growth – in a young economy. It may involve inter-regional comparisons of growth and development, and it might also be used to assess the extent to which the growth potential of related industries has been achieved. Some see it as a useful tool in analysing the growth and development stimulated by the presence in the subject economy of one or more 'staple' commodities especially at that stage where it moves from a subsistence economy to one of breadth in sectoral development and in international trade participation.[12]

The staple commodity's export sales (and import replacement sales) generate a surplus which may be invested, and if it is, provides fuel for economic development. The staple commodity's value as a fuel is not only a function of export surplus/savings, but also and more importantly of the potential created to grow linkages, i.e., economic activities the demand for which is established and fuelled by sales of the staple commodity. In the case of whaling, for example, the demand for whale oil stimulates a demand for casks in which to store it, and vessels for chasing and procuring whales and whale oil. These two are examples of 'backward' linkages. The staple commodities demand also creates demand for 'forward' linkages in the gap between oil production and the finished products, for example candles, or oils for street lighting.

The theory is that the stronger and more diverse a particular commodity's linkages, the greater its potential for stimulating economic development as well as economic growth. It is the process of building up staples as they emerge to form linkages that moves the economy to one with a broader base. No predetermined conclusion concerning the relevance of the hypothesis for explaining growth in any area of recent settlement can be postulated, nor is one needed beyond an elementary understanding of how markets form and grow; the thesis must be tested for each particular region.

This dissertation focuses first of all on ensuring that there is a credible measure of export earnings for whale products and for wool, these being the two major staples in the Australasian economies to 1860

(See Chapters 5 and 6). In doing so, there are important deficiencies in prime data to overcome. These include the inability to separate some data measures between foreign, British and Australian whaling fleets. A second major difficulty lies in the attribution of shipping costs to whaling vessels as opposed to vessels employed in Australian waters for other purposes, e.g. coastal freight. More importantly, this dissertation focusses on defining and estimating staple commodities' linkages. In order to optimise data collection resources, the emphasis in this research is on the first of the four categories in North's framework, with one exception. This involves some limited research on the growth and developing in the institutional framework which may have accelerated or retarded growth stimulated by whale products and wool (for example, financial services).

McLean's book devotes five pages to staple theory.[13] Focussing on wool, wheat and gold, it neglects to mention that whale oil might have been seen legitimately as a potential staple as its export earnings were second only to wool in the thirty years to 1835, and were the colonies' leading export commodity for much of that time. That whaling likely made significant contributions to the linked industries of timber getting and processing, shipbuilding and ship repairs is not mentioned by McLean.[14] The significance of these contributions and associated issues are canvassed in later chapters.

3.3 Summary

The concept of "economic development", rather than the notion of "economic growth", lies behind the theoretical approach in this dissertation. This is because the former embraces the notion of the subject industry's linkages to others and also connotes the importance of recognising the contribution of economic factors to non-economic outputs. This allows for recognition of the vital contribution of economic factors to institutional growth and change.

Staple theory also underlies this dissertation. This is because it has the potential to explain the mechanics of economic development, particularly for emergent economies. It also provides a framework within which a particular industry's contribution to economic development can be assessed and compared to that of others.

Discussions about whaling industry performance, and particularly about profitability, require considerable care. Some theoretical issues still generate controversy. Some might argue that since the whaling industry is practically non-existent in modern times there is no point in pursuing such matters. But, while the whaling examples of the issues may be dead, the issues themselves are not. There are still arguments about how and where to draw the line between staple industries and linked industries, and these arguments are still relevant to live challenges in managing developing countries. Debate remains about the appropriate measures to be used in measuring economic growth and

economic development, particularly about how to value labour, and about measuring the economic contributions of institutions.

Fundamental issues remain about defining "profit" and how to measure it. There are for example those who regard "big" profits as unethical, as opposed to those who argue that the size of profits as such is irrelevant without reference to the size of the assets used to generate them.

The instances discussed above, though generated by considering an industry now dead are evidence that much still needs to be done to achieve consensus about fundamental theoretical issues.[15]

Notes for Chapter 3

[1] Adam Smith, *The Wealth of Nations*, ed. Edwin Cannan, Modern Library (Random House Publishing Group, 1776), bk. IV, Chapter 1.
[2] Arne Bigsten, 'The Development of Development Economics', Working Paper (Gothenburg: University of Gothenburg, Department of Economics, April 2016), http://EconPapers.repec.org/RePEc:hhs:gunwpe:0653.
[3] Michael P. Todaro and Stephen C. Smith, *Economic Development*, 12th ed. (Harlow, England: Pearson, 2015).
[4] Daron Acemoglu, 'Theory, General Equilibrium, and Political Economy in Development Economics', *The Journal of Economic Perspectives* 24, no. 3 (2010): 17.
[5] Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, 2–6.
[6] Kindleberger quoted at A. Dow and S. Dow, 'Economic History and Economic Theory: The Staples Approach to Economic Development', *Cambridge Journal of Economics* 38 (2014): 1340.
[7] Innis, *The Fur Trade in Canada*; W.A. Mackintosh, 'Economic Factors in Canadian History', *Canadian Historical Review* 4 (March 1923): 12–25; See also W. T. Easterbrook, 'Innis & Economics', *The Canadian Journal of Economics and Political Science* 19(3) (1953): 291–303; D. C. North, 'Location Theory and Regional Economic Growth', *Journal of Political Economy* 63(3) (1955): 243–58; M. J. Watkins, 'A Staple Theory of Economic Growth', *Canadian Journal of Economics and Political Science* 29(2) (1963): 141–48. . It was North's attempt to reconcile European-based theories of regional economic development with how economic development occurred in practice in American regional economies that gave a powerful push to the development of staple theory – see in particular.
[8] Abbott, 'Staple Theory and Australian Economic Growth 1788-1920'; Butlin, *Investment in Australian Economic Development, 1861-1900*; Fogarty, 'The Staple Approach and the Role of Government in Australian Economic Development: The Wheat Industry'; McCarty, 'The Staple Approach in Australian Economic History'; C. B. Schedvin, 'Midas and the Merino: A Perspective on Australian Economic Historiography', *Economic History Review*, New series, 32(4) (1972): 385–407.
[9] Ian W. McLean, *Why Australia Prospered : The Shifting Sources of Economic Growth*, Princeton Economic History of the Western World (Princeton, N.J: Princeton University Press, 2013), 102.
[10] North, 'Location Theory and Regional Economic Growth', 247. Note that North prefers use of the term 'exportable' commodity to that of 'staple'.
[11] Ibid., 253.
[12] Conventionally, staple theory analysis has been applied where it is assumed that there may be only one or two 'staple' commodities. However, it would be more inclusive if its scope were broadened to include commodities of relatively low volume, but persistent production over the long run, provided the criteria of land/labour ratio and export earnings are met.
[13] McLean, *Why Australia Prospered*, 50–51, 101–4.
[14] See the analysis by timber industry specialists P. Henningham and I. Hudson, 'Gift of God – Friend of Man: A Story of the Timber Industry in New South Wales 1738 – 1986', *Australian Forest Industries Journal*, 1986, chaps 1–4.
[15] None of Japan, Norway or Iceland, the modern whaling nations, hunt whales for the purposes of sourcing oil, ambergris or whalebone, and therefore are not actors in the whaling industry in the sense used in this dissertation.

4 Whaling Industry Structure

This dissertation analyses the whaling industry as operating on a global stage, and as being driven by geopolitical forces. That industry was not contained to a single locality, nor even a very few localities isolated from each other. Further, that any analysis of this industry which was so confined would be *de facto* deficient. Similarly, what happened in the industry depended to a very large extent on events and forces beyond the control of any particular national entity.

Some examples may help to clarify the significance of global operations and geo-political determinations. Whales did not and do not belong to any particular nation or location. They are free to roam the seas as they see fit in meeting their naturally determined needs for warmth, food and the survival of the species. They do not necessarily live within pre-determined annual cycles/locations. Their presence or absence may be unpredictable. The features of their biology caused those who hunted them to undergo risks in their pursuit, and the severity of those risks was largely unpredictable, particularly but not only when the wind was the only means of propulsion. A number of the risks faced by the hunters were a function of the whales' biology. For example, the sperm whale's use of the tail to smash the pursuing the small boat and their crews. Others were a function of the weather. Many whaling ships survived weather conditions at sea of frightening ferocity, others did not. Some ships ran the risk of being trapped for a year or more by the unseasonal and unpredicted movement of icebound seas. Other risks still were a function of human greed and/or incompetence. For example, the anti-scorbutic properties of certain fruits and vegetables were well known long before they became a routine component of diet at sea, but some masters were reluctant to supply them because of the cost, and seamen thereby suffered at the expense of the whaling ship masters lining their pockets.

National policies aimed at protecting and enhancing positions of power *vis a vis* those of other nations were also capable of shaping the structure of the whaling industry, as indeed they were in respect of other industries. For example, Spain took the side of France during the Napoleonic wars, and attacked British and American whaleships who sought to work off the Pacific coast of South America during the currency of those wars.[1] This meant that during those hostilities British and American vessels ran serious risks in trying to enter the Pacific around Cape Horn from the South Atlantic, and ran those same risks again in seeking to deliver their whale oil to American and European customers. The purpose of this chapter is to provide a framework within which to interpret and understand the market forces which shaped the structure of one of the earliest truly global industries; this is the geopolitical framework within which the Australian whaling industry perforce developed. It starts with a consideration of the industry's products, followed by a description of the processes used in preparing

those products. A key point made is that different production processes generate different gross margins. Lost in most of the literature, this fact has been significant in how the industry developed. The final section of this chapter describes the characteristics of the industry's main product markets. It includes references to competing products, and in particular to those technologies which made a major contribution to whale oil's product obsolescence.

4.1 Products

The sealing industry is regarded herein as an integral part of the whaling industry, consistent with the approach taken by most studies of the whaling industry.[2] In many parts of the world, including Australia, sealing acted as a precursor and adjunct to whaling.[3] The sealing industry also used the same wages mechanism as the whaling industry, used an overlapping labour supply, and used similar – often the same – equipment in catching and rendering.[4]

There were two chief species of whale targeted by the whaling industry of the early to mid-nineteenth century, the right whale and the sperm whale. Right whales were so-called because they became the preferred or right targets for early hunters. Also known as common whales, this individual whales of this species have thick coatings of blubber, and do not swim too fast for small whaleboats to maintain contact. [5] Most importantly, and unlike many other species of whales, right whales do not sink when dead or dying, but stay floating on the sea's surface. This makes them easier to tow to the whaleship, and thus avoid losing the valuable carcass to the ocean.

The right whale's main domicile was and is in cold water locations where its food is plentiful. In the warmer seasons of the year, they migrate to warmer and shallower waters. There they breed, and deliver their young. They tend to follow the north-south routes close to shore. The male right whale may reach 60 feet long, with a maximum weight of around 80 tons.[6]

The right whale was the preferred prey until the sperm whale was discovered off Nantucket in 1712, and the superior qualities of the new whale's oil and head matter were identified.[7] Sperm whales do not appear to follow regular pathways but roam freely from the poles to the tropics. They tend to congregate in the Antarctic in large numbers, and, like right whales, move to warmer waters to breed.

As raw materials, sperm whales differ from right whales in three important respects. The first is that their body oil is of higher (burning) quality than that of other species.[8] The second is that their head contains a large reservoir of a wax-like substance, spermaceti, which generates an even brighter and whiter light than its body oil. The third is that their digestive system can produce ambergris. The occurrence of ambergris is variable and is assumed to be somehow a by-product of the sperm whale's diet, consisting largely of squid.[9] Ambergris was very much more valuable per unit weight than the

sperm oil's other products, and was not used for burning. Rather, it was used in perfumery as a fixative, enabling longer lasting scents.[10] Revenue from ambergris sales traditionally went to the crew, and not to the owner of the ship, presumably because its appearance in any given hunt was entirely unpredictable.[11]

Whale and seal oil found use in making cloth, leather and soap.[12] The greatest and fastest growing demands arose from the need to light homes, factories and cities. With experience accumulating, end uses became more differentiated. Oil from right whales, known as black or train oil, declined in use in homes in favour of sperm oil, and candles made from the waxy head material in particular. Sperm oil was brighter, cleaner, almost devoid of smell, and lasted longer. As the Industrial Revolution proceeded, sperm oil was also found to be a highly efficient lubricant in the manufacture and operation of high speed metal machinery.[13] Elephant seal oil shared these characteristics with sperm oil.[14]

Other products included fur seal pelts and baleen. Widely admired by the Chinese, fur seal pelts were used in the manufacture of hats, gloves and shoes. Sheets of baleen are found in the mouths of the right whale, forming a sieve by which the whale separates out its food from the sweater. Baleen was used when a strong but flexible material was needed – in corset stays, whips and umbrellas, for example.[15] In the second half of the nineteenth century, baleen prices increased, and came to be more valuable to the whaler than whale oil.[16]

In summary, the six product groups produced by the whaling industry were sperm oil (substitutable in some cases by elephant seal oil), spermaceti, ambergris, whale oil (black oil or train oil), baleen, and seal furs. Note that while whale meat may have been found on the menu of (mainly) Arctic minority groups, and of some Japanese, it found little favour in European or American markets.

4.2 Processes

The main components of whale oil's production processes were those of locating whales, assaulting individual whales, killing them, rendering the blubber to produce oil, and the storage of transportation of whale oil. Other processes were used to transform by-products such as ambergris, baleen, tongues (for meat) and whalebone. Baleen aside, those processes are not considered here because they relate to collateral products of small value relative to oil or, as in the case of ambergris, because they did not figure in the profitability of any given vessel or voyage to the ship owner.

Pearson took the view that the technology used in processing whales was basically the same for shore-based and ship-based whaling.[17] In contrast, Little uses a finer classification, describing three branches of the industry, viz., sealing, shore whaling and deep sea whaling.[18] Her contribution is

amongst the first in the industry literature to make clear distinctions between the three in terms of their different methods of production, and the different potentials for contributing to the Australian colonies' economic growth and development. This is an important distinction because the three production technologies yielded different gross margins, and those differences played a part in determining which technology was adopted and where. For example, hunting for right whales commenced earlier than hunting for sperm whales because of its higher gross margin.

Seal hunting required little equipment and a low level of manual skills – seals were bludgeoned or stabbed to death, then skinned. Their flesh became a staple part of the sealers' diet only when necessary, and much of it was simply returned to the sea. Their pelts were salted or dried, and stacked one upon the other. Oil produced from the carcasses of elephant seals was extracted by boiling blubber and running off the cooled oil. It was then stored in casks.

Crews of 10 – 15 men were shipped to isolated seal colonies. They were left by the ship for contracted periods, together with a supply of provisions. This supply was often found insufficient to survive and crews needed to develop skills to live off the land, the sea and their produce. There are many stories of crews having been marooned for long periods, sometimes for years, perhaps forever, if their ferries were sunk or otherwise lost. If misfortune intervened, if the mother ship foundered or sprang a leak, or if for a variety of possible reasons, the gang was forgotten, it could be in a miserable condition indeed.[19] The crews usually consisted of men who had served their time as convicts, mostly unskilled and often unmarried. Some took up the work because it had an image of being well paid. Some enrolled because they were seeking isolation, or because they saw no attractive alternative in a community governed by the mores of the convict system.

Sealers were paid by a lay system; individual earnings were a function of the percentage of the total sales revenue earned (and collected) at the end of the season, determined by the individual's role in the sealing crew, just as in whaling proper. The return could, on occasion, be lucrative, but usually not. Sales realisations were unpredictable because markets, taking supplies from other places such as New Zealand or the Falklands, could become glutted, with massive drops in prices. Perhaps furs may have been poorly cured and stored, and could be sold only at a low price. Perhaps the vessels would disappear to pirates, barratry or the weather.[20] Even so, some men opted to live permanently on those Bass Strait islands or settlements on New Zealand's South Island, where the weather permitted the growth of crops and/or the herding of animals, and/or where it was possible to arrange for native women to partner white sealers, either temporarily or permanently.

Shore whaling, also known as bay whaling, differed technologically in how rendering was performed, either on shore or at sea. This was the earliest procedure used in the capture of live whales. It was

used extensively in Europe, and in and around Tasmania, Twofold Bay in New South Wales, Portland in Victoria, and in the south west of Western Australia, and New Zealand.[21] Open-boat catching and killing was the key method used, allied with rendering on either large boat or beach.

Whaleboats were the preferred platform in bay whaling. The whaleboats used were usually about 30 feet long. They could carry a crew as large as eight, but more usually carried a crew of five.[22] A whaleship might carry as many as five or six whaleboats, but more usually, carried three. Whaleboats were of standard design all over the world, except that not all carried a sail.[23]

The different technologies facilitated different catching strategies. More importantly, they facilitated different *financing* strategies, particularly at the point of industry entry. One might enter whaling initially by funding the purchasing of a whaleboat and the sustenance of its crew, on a weekly basis, a very much lower barrier to entry than purchase of a whaling vessel of 250 – 300 tons, and funding the subsistence of its crew for a year. The equipment required for a small shore base could consist of as little one or two whaleboats, and a boling down plant for rendering. A cree of sixteen to twenty men was required. An investment of £300 *per* boat could buy enough rough huts to accommodate the crew, and provide them with enough provisions (incluidng their rum ration) for three months.[24]

Where bay whaling was substantially available, there was potential to grow a whaling industry from scratch, and to do so rapidly. This is precisely what happened in Tasmania and in the south of New Zealand, as opposed to New South Wales, where industry development focussed on the off-shore technologies. Pearson reports that:

> *(b)y 1841, there were at least 35 shore-based whaling stations in Tasmania, and that by 1827, only 5 ships were owned and operated out of Sydney, but this grew to 17 ships by 1830, and perhaps reached 60 ships at the height of the trade. In Hobart the number of locally owned and operated ships had grown to 37 by 1848 ... By 1835, the total number of Australian whaleships had reached 76 ...*[25]

The comparison of 35 shore-based trying out stations with 76 Australian whalers overweights the contribution of bay whaling to Australian whaling very considerably. This is because fishing for whale in Australian waters was done not only by Australian vessels, but also by vessels of the American, British and French fleets. From 1820, their composition and total varied over time, but there are indications that together, they may have totalled the Australian fleet for much of the time between 1820 and 1850. The size of the various fleets is considered in detail in Chapter 10.

The whaleboat and its crew were the basic unit for all forms of whaling at sea. The leading oarsman was the harpooner, who left his oar to take up a position in the prow of the whaleboat. From this position, as the boat neared the whale he would launch his harpoon by hand. Stung, wounded, even if not mortally, the whale would usually flee and dive, until re-surfacing to breathe air again. Sperm

whales in particular have been known to dive for depths up to 2 miles; eventually, they need air and re-surface to get it.[26]

> *Sperm whales, and especially lone bulls, are not animals to be trifled with ... they will rush to protect wounded females or young and have often been known to attack boats ... They are deep-sea rovers and although normally slow cruisers proceeding at a steady four knots, they can put on spurts of up to twenty knows and sustain sixteen for long distances. Their strange tails form a highly efficient pair of sculls which with a double, semi rotary action, making figure-of-eight motions around the fore and aft axis which combined amount almost to the completely rotary action of a two bladed screw propeller.*[27]

When the whale attempted to flee its attacker, a rope, which had been coiled into a wooden tub in the whaleboat, ran out. The crew 'backed' the boat to create a weight against the whale's forward movement, aiming to get the boat close enough to enable the harpoon to get far enough into the body to annoy the whale, if not maim or kill it. The whale likely dived several times before it became sufficiently exhausted to permit a safe approach by the whaleboat. Even so, this part of the process was extremely dangerous for the crew and the boat. This behaviour was common to both of the hunted species.

Many were lost because they were swamped or smashed by the whale. It was no rare event for a crewman to get caught up in the line to the whale and to be drowned or lose a limb before he could be disentangled – and the rougher the sea, the more danger to crew and boat. With the whale dead, and the line secured to the floating carcass, the whaleboat's job was to tow the whale back to the shore, or to the whaleship.

Once unshipped from the whaleboat, the carcass was sliced around its girth, and the resulting 'peel' of blubber hung from the yard arm. The floating carcass was turned into the water to facilitate the release of the blanket piece, a long piece of blubber 15 – 20 inches in width and as deep as the blubber. This was then cut into smaller pieces of 15 inches x 4 inches to the depth of the blubber. They were then sliced into what resembled an open book lying on its back.[28] These were thrown into the 'trypot', an iron cauldron, of which there were usually two per vessel. The blubber was heated, boiled and stirred in the trypots to release its oil. Unwanted material of skin, flesh etc. was used as fuel for the fires beneath the trypots. The oil was then baled into wooden casks and stored on board, or if the trypots were on shore, then in dedicated storage space. Only then were the crew allowed rest.

> *A whaleman's life is one either of dull monotony, or of thrilling excitement, and of hard labour ... I have often felt so desirous of obtaining a whale that I have pulled at the oar until I could not see; and yet the moment after the whale was dead, I would have rejoiced to see him sink, that I might not be obliged to perform the labour of taking care of him ... I have left the ship at 10 0'clock in the morning; and then have worked at the windlass in cutting in the whale until three o'clock the next morning.*[29]

By 1775, the design of whaleships had become standardised, wherever they were built.[30] This is because by this time, the shipyards of Massachusetts had become the world's centre of excellence in whaleship design; indeed, most design features remained embedded in whaling vessels until at least the 1850s. The nationality of build of a whaleship had become delinked from its ownership. Many British-registered vessels began life as American but became British prizes during hostilities with America which extended from 1775 to 1815. Australian-owned vessels were often British-built, because it was more commercial to acquire ships of British registration.

French nautical design was the most significant aberration – the French fleet in the Pacific consisted of around 20 vessels in a relatively short period in the mid-nineteenth century. They produced vessels of up to 500 tons burden, 150 tons heavier than the larger American or British vessels doing the same job.

The most common types of vessel used in whaling were barques, brigs, brigantines and schooners. Strictly speaking, a "whaleship" was a vessel square-rigged on all masts. Schooners were two-masted vessels with a topsail and mainsail to each mast, and brigantines were two-masted square-rigged vessels. These two-masted vessels were used chiefly in coastal environments and/or on relatively short voyages. Barques (or barks) were three-masted vessels with sqaure-set sail and rigging on all three masts. Often, however, the mizzen mast (at the rear of the main deck) carried a gaff-rigged mail sail instead, favoured because it was considered to be relatively easily managed by a skeleton crew when the whaleboats were in operation.[31]

A typical layout of a medium to large whaleship, be it British, American or Australian, featured three whaleboats on high davits on the port side and one boat on the starboard quarter. A framework could be lowered amidships, usually, but not always on the starboard side to facilitate cutting in of whales tied alongside.

The tryworks were usually erected on deck forward of the fore hatch, consisting of a brick furnace containing two 250 gallon trypots. A wooden framework or 'goosepen' around the brick base of the tryworks was filled with water, which circulated around and beneath the base of the furnace guarding against accidental firing of the deck.

A cooling tank, often of copper, was to be found beside the tryworks, or in larger ships between decks beneath the tryworks. Once cooled, the oil was casked in wooden casks and stored below.[32]

Again more detailed descriptions of the components summarised above can be found in those works listed in the relevant part of Chapter 2. Additional gear is usually described in such sources, consisting of items such as harpoons, lances and flensing tools and so on.

4.3 Markets

Whale oil was the principal product derived from whales. Britain was a leading consumer of whale oil, including that produced in the Southern Fisheries, and was also the predominant distributor to Europe.[33] The following discusses the British market for oil, with an emphasis on its major end-use, market illumination.

Fouquet and Pearson argue that candles provided the main source of artificial illumination in Britain up to the nineteenth century, apart from that produced by the fireplace when it was in use for cooking and/or heating.[34] Candle technology embraced tallow (animal fat) from at least the 1st century BCE in Rome. Candles were produced commercially in towns, with wax and tallow candles being produced on an industrial scale from the fifteenth century. They further state that as a result of technical developments with vegetable oils, a product called 'stearine' was introduced. It burned brightly, with little smell. Lavoisier's experimentation with burning led to Argand's invention of a hollow circular wick and burner – 'more luminous and more efficient than previous oil lamps' according to DiLaura.[35] As a result of these and other improvements, the real price of candle light fell by 70% between 1760 and 1820. Candles continued as the main source of lighting up to the mid-nineteenth century, and even after, were used to complement other sources of lighting.[36]

The most common source of lighting from the sixteenth to the eighteenth century was the oil of the right whale. From about the middle of the eighteenth century sperm whale oil became preferred over the oil of the right whale, although it never occupied more than half the market (in volume) for whale oils. Spermaceti wax, found in the brain cavity of the sperm whale, was made into wax candles, and was preferred over other tallow products because of its superior illumination. [37]

By 1736, parts of London had lighting for 365 days a year, and elsewhere in England street lighting provided by local authorities became similarly expected as a basic amenity. Demand continued to increase but by 1820 candles provided less than 60% of lighting. About one third of lighting was provided by a new source of energy, gas from coal.[38]

The dramatic decline in the cost of gas-fired illumination caused the demand for gas lighting to increase tenfold between 1820 and 1850, driven by increased demand across all of the three major market segments – industrial, urban and domestic.[39] In 1821, no town in the United Kingdom with a population greater than 50,000 was without a gas company and by 1826 the industry had made such rapid strides that very few towns of more than 10,000 were not served.[40] By 1850, oil-fired illumination in Britain had dropped to 23% of the illumination market.[41] The demand for whale oil fell accordingly and even more rapidly after the introduction of mineral oils starting in the 1850s and

1860s. In addition, paraffin emerged as a replacement after 1860 following petroleum's earlier discovery.

In America, whale oil was used for the same purposes as in Europe. According to Hohman:

> *Sperm oil constituted the best standard illuminant and was used extensively in lighthouse beacons and wherever a bright, clean light was desired. Spermaceti, a spongy, oil-containing substance found in the head of the sperm whale, formed the basis for the better grades of candles. Whale oil was employed in the cheaper types of lamination and for a variety of lubrication purposes. Whalebone, utilized in the manufacture of stays, corset, riding and carriage whips, umbrellas, and other objects requiring both strength and flexibility, served a wide range of functions ... This lit of products gave whaling an economic and industrial position significant to the entire nation, and vital to the New England seaboard.*[42]

Hohman went on to say that the manufacture of whaling products was second in value only to the manufacture of 'shoes and of cottons' in the industrial output of the state of Massachusetts. Appendix J to his book (pp 333 – 4) is the clearest exposition yet encountered of the uses to which sperm oil/spermaceti were put, and of how sperm oil products were produced and is included here *verbatim* as Appendix 3.

4.4 Profit

4.4.1 Whaling Profitability

The challenges involved in defining and measuring profits and profitability have made interpretation of whaling's profitability demanding indeed. What is of particular concern to this dissertation is how infrequently the concept of profit appears in the discussions about industry performance of the eighteenth and nineteenth centuries, and the lack of precision when it does. This can make the validity of comparisons problematic.

Up until 1850 whaling was a multi-national, multi-product and multi-market business for which guidelines for profit calculation did not generally exist. In addition, the whaling industry had some peculiarities of its own to add to the general challenge of accounting in a mid-nineteenth century multi-national enterprise. For example, in most industries, profit is a measure of surplus revenue after deduction of costs over a time period, conventionally a year. However, in the whaling industry, profit was more usually managed in practice as a function of achievement per voyage sailed, *whatever its length in time, or distance from base, or its relation to an accounting year*. One implication of this was that costs which could not be allocated uniquely to a particular voyage were often subsumed into an item called 'return to owners'.

This kind of convention was in turn part of a complex of conventions which structured ways of measuring returns to shareholders, with a different set of conventions for calculating returns to labour,

or suppliers (such as insurers). Returns to shareholders, it was conventionally argued, were a function of the unique nature and extent of the risks routinely encountered in the conduct of whaling operations. These risks were not widely understood, particularly in relation to the calculation of costs for freight or insurance premiums.

Holcomb has made a modern contribution to the world's knowledge and understanding of shipping risks in general and risks to whaling in particular.[43] Her accounts of the profiteering of shipping investors, and *inter alia*, their preferences for part-ownership, are very informative accounts of the search for risk minimising ownership structures, in a volatile industry in which individual investments could be large and disproportionately significant, even in a diversified portfolio. Ship owning as a specific occupation was relatively late to emerge.[44] This was chiefly because earlier ships were built and owned by merchants, whose major investments were in the conduct of related trades, for example, coal mining and distribution.

In such circumstances, control of shipbuilding and shipping operations extended owners' capacity to the whole range of their operations, though the investment in individual ships could be disproportionately large in relation to the costs of coal mining and distribution as a whole.[45] Shipping risks could be minimised by part-ownership of a larger number of ships rather than of a few. She cites the risk minimising strategies adopted by the merchant Richard Jones of Sydney as an example:

> *During his absence in London, Jones invested heavily in British ships (as well as in a flock of fine Saxony sheep), probably taking advantage of post-war market prices (i.e. post Napoleonic war, and post British American war of 1812 – 15). By 1825 he had acquired 9 ships, with a tonnage of 2,518 tons, 5 for the purpose engaging in the pelagic sperm whaling trade, 1 for New Zealand bay-whaling and flax trades, and the remaining 3 for the Australia trade with Great Britain. The purchases coincided with the end of the bonus system that had artificially protected and encouraged the British Southern Whaling Industry. By registering his shipping in London, Jones was able to insure his ships at preferential rates.*
>
> *His investment represented a brilliant strategy for overcoming the problem of distance experienced by the English whaling industry. With whaling ships operating from Sydney, Jones was able to disperse his fleet almost directly into the fishery. His merchant ships could be utilised to transport the oil, wool and other cargo back to London, returning with British manufactured goods and passengers. This freed his whalers to continue their pursuit of whales. The strategy represented a significant timesaving and capital return measure, with his shipping, merchant and pastoral investments integrated in a seamless fashion designed to maximise emerging opportunities, while minimising risks. Jones' strategy represented risk management strategy at its finest.*[46]

Note however that it is not simply the opportunity to diversify ownership across differently-purposed vessels that provides strategic options; it is in addition, the possibility of investing in a particular voyage by a specified vessel; in modern terms, of minimising risk through vertical

integration. Shipping contracts focussed therefore not on potential returns per annum, but on the potential returns of particular investment per particular voyage, without time constraints.

Whilst this formulation carried with it the potential to minimise risk, it was offset by the need to take another step to convert the potential return per voyage into a return per annum equivalent – the so-called 'end of period' calculation. So long as the shipping markets were populated mainly by investing *individuals* – and Holcomb's work validates that this was certainly the case in Britain - there was not a great demand for a conversion tool. But as soon as it became possible for *corporations* to invest, and popular for them to do so, comparing the prospects of investment in *different industries*, one of which was whaling, made the need for the conversion tool critical.

Returning to the question of how contemporary actors judged acceptable performance, Starbuck's iconic contribution to the history of whaling devotes Chapters B to D to the period from 1600 to 1784.[47] The period up to 1775 spans the period when the British fleet consisted of an English component and an American component. The final 100 years is devoted to the American whale fishery alone. His sixth chapter is devoted to 'The dangers of the whale fishery', and the seventh is denoted, 'A miscellaneous chapter'.[48] The sixth chapter, focussing on American whaling, is a useful complement to Holcombe's work, but because it focuses on risk from the sailors' point of view, rather than the shipowners, it is of limited utility to this dissertation.

Starbuck's Chapter H is entitled 'Introductory to Returns'. Its principal constituent is a one-page description of three potential sources of error in the calculation of 'returns'. He notes that in early years, records of the returns from bone sales were sporadic, and that even in later years, records of oil and bone in foreign ports were not reliable. Finally, he notes that cask measurement protocols do not include allowances for leakage.[49] This is the forerunner to Chapter I 'Returns of Whaling Vessels Sailing from American Ports, since the year 1715'. Typical entries are extracted below in order to convey how language was used at this time to describe business performance:

1722 *(T)he sloop… of Nantucket, Elisha Coffin master was lost at sea with all aboard.*

1730 *Twenty-five vessels from 38 to 50 tons burden each, sailed from Nantucket and obtained 3700 barrels of oil, valued at £7 per ton, £3,200*

1748 *Sixty vessels, of from 50 to 75 tons burden each, sailed from Nantucket, returning with 11,250 barrels of oil, valued at £14 per ton, £19,684.*

1761 *Ten vessels, of from 70 tons to 90 tons burden each, cleared from Massachusetts for the St. Lawrence fishery (edited names of captains follow).*

1762 *Seventy-eight vessels cleared this year for the whaling grounds. Of these 50 went to the Gulf of St. Lawrence. The produce of the fishery was 9,440 barrels of oil, valued at £102,518.40. A schooner (name deleted) Bickford master was lost on Seal Islands. The scoop Polly from Martha's Vineyard was lost while whaling at the southward, and her*

crew of thirteen men perished with her. A sloop from Nantucket was taken by a privateer while whaling near the Gulf Stream. (Some captains' names set down). [50]

These accounts of performance are naive, measuring performance only in terms of collective revenue per voyage. Perhaps Starbuck's aim was to reinforce the notion that whaling is a volatile industry, and therefore that returns are *necessarily* volatile. It does that well enough but omits data on other variables that could influence profit, e.g., market prices achieved. As already stated, such an assessment of performance measures revenue per voyage. However, he supplies the calendar length of each of his selected vessel's voyages. It is therefore straightforward though tedious to derive a figure of average *revenue* achieved per year, but such a figure does not necessarily measure *profit* because it does not measure costs on the same basis.

Without revealing his criteria for selection, Starbuck reports that in the combined years of 1837 and 1858, 149 whalers were expected to arrive in New Bedford and Fairhaven, of which seventy-three (49%) are estimated to have made 'paying' voyages, eleven (7%) made 'saving' ones and sixty-four (43%) were estimated to have made losses. Converted from revenue per voyage to revenue per annum, the revenue of catches taken ranged from US$24,000 *per annum* to US$42,000 *per annum*. The mean revenue for the lowest yielding voyages in this group was US$26,000 and for the highest of the group US$38,000. Though the sample is small and the selection criteria not specified, this data confirms that American whaling operated at relatively high cost levels, and that once the operation had broken even, marginal returns would increase rapidly. The data also indicated that there could be a substantial variation in annual results. In 1837, 65% were reported to have 'made paying voyages', but in 1858, only 31% did so.

One rare occasion profitability was discussed in vaguely modern terms was Charles Enderby's proposal in the 1840s to float a whaling company to be based in the Auckland Islands, some 300 miles south of Invercargill in New Zealand's South Island. [51] But by the time this appeal appeared in print, it was 1847 and its form perhaps too heavily influenced by Enderby's need to raise funds in a competitive market. Embracing both sperm whaling and right whaling, it is set out as Table 1 below:

Table 1: Comparative estimates of profit[52]

VESSELS FROM ENGLAND OR AMERICA

Sperm Oil Fishery – Price, that of the English Market

Ship of 250 tons, at 26*l.* per ton, fitted for a four years' voyage		£9,100
Four years' interest at 5 per cent		1,820
		£10,920
Returns.		
150 Tuns of Sperm oil at 80*l*. per tun	£12,000	
Less the crew's shares	3,500	
	8,500	
Value of the ship	3,000	

VESSELS FROM ENGLAND OR AMERICA

Sperm Oil Fishery – Price, that of the English Market

	11,500	
Deduct cost of equipment	10,920	
Profit		£580

Common Oil Fishery- Price, that of the American market

Ship of 250 tons at 20*l*. per ton, fitted for a two year's voyage		5,000
Two years' interest at 5 per cent		500
		£5,500

Returns.

170 Tuns of Common Oil, at 18*l*. per tun	£3,060	
15 Tuns of Sperm ditto, at 60*l*. per tun	900	
7 Tons of Whalebone, at 180*l*. per ton	1,260	
	5,220	
Less the crews' shares	1,500	
	3,720	
Value of the ship	2,500	
	6,220	
Deduct cost of equipment	5,500	
Profit		£720

VESSELS FROM COLONIES IN THE PACIFIC

Sperm Oil Fishery – Price, that of the English Market

Ship of 250 tons, at 20*l*. per ton		£5,000
Extra outfits for 3 years	£1,650	
Less 2 years' interest on, say only 6,000*l*., the value of the oil remitted	600	
		£1,050
		£6,050
Four years' interest at 5 per cent		£1,210
		£7,260

Returns: - On four voyages of one year each

200 tuns of Sperm oil, at 80*l*. per tun	£16,000	
Less freight of oil, at 6*l*. per tun	1,200	
	14,800	
Less the crew's shares	4,000	
	10,800	
Value of the ship	2,125	
	12,925	
Deduct cost of equipment	7,260	
Profit		£5,665

Common Oil Fishery. – Price, that of the American Market.

Ship of 250 tons, at 20*l*. per ton		£5,000
Two years' interest at 5 per cent		500
		£5,500

Returns:- On two voyages of one year each

340 tuns of Common oil, at 18*l*. per tun	£6,120	
30 tuns of Sperm oil, at 60*l*. per tun	1,800	
14 tons of Whalebone, at 180*l*. per ton	2,520	
	10,440	
Less freight of 384 tons, at 6*l*. per ton	2,304	
	8,136	
Less the crew's shares	2,000	
	6,136	
Value of the ship	2,500	

VESSELS FROM COLONIES IN THE PACIFIC		
Sperm Oil Fishery – Price, that of the English Market		
	8,636	
Deduct cost of equipment	5,500	
Profit		£3,136

Source: Enderby (1847)[53]

Notwithstanding that a further step is needed to calculate *annual* rates of profit, and notwithstanding that there is room for debate as to the values which might be ascribed to individual line items, Enderby has provided a tool which separates capital, labour and material costs more clearly than was then conventional.

Nearly 200 years after Enderby precision in determining whaling's profitability has not improved. The work of Davis and his colleagues, published in 1997, is the most rigorously analytical and detailed of all research investment into the economics of whaling and represents the first major insinuation of econometrics into the study of whaling's profitability. After a review of contributions to the understanding of the notion of 'risk', Davis *et al* concluded that:

> *The profits earned in nineteenth century whaling were composed of… four types of profit…: payments for bearing uninsurable risks, rents on knowledge and managerial skill, disequilibrium profits (for example, profits arising out of a sudden increase in demand) and returns to innovation. Unfortunately, there is no entirely reliable way to separate the four … Nonetheless, the theoretical constructs can help in the analysis of change in the industry.*[54]

4.4.2 Capital Costs

The whaling vessel about which most research has been undertaken in order to foster an understanding of maritime cost structures is the American-built whaleship, the *Charles W. Morgan*. She was built in 1841 in New Bedford, Massachusetts, and had an operational career of 80 years; she is the archetype of almost 850 American and other whaleships built in her day.

In insuring the ship for her first voyage, her owner valued the ship and the outfitting at the same amount. In the currency of the day, and after some minor adjustments were made, the 'actual cash charge' against the owners totalled US$48.849.85, or the sterling equivalent of £9,790.[55] As will be seen this sum is probably close to the outer edge of British/Australian costs, but not so far away as to invalidate a comparison.

Construction and outfitting costs for a similar vessel are set out at Table 2 below, as recorded in 1844.

Table 2: Costs of Outfitting Whaling Vessels (1844)

	Sperm Whaler			Right Whaler		
Article	**Amount**	**Price**	**Cost**	**Amount**	**Price**	**Cost**
Oil Casks	2,800 bbls.	$ 1.25	$3,500.00	2,800 bbls.	$ 1.25	$3,500.00

Article	Sperm Whaler Amount	Price	Cost	Right Whaler Amount	Price	Cost
Beef & Pork	240 bbls.	$ 8.50	$2,040.00	163 bbls.	$ 8.50	$1,385.50
Flour	220 bbls.	$ 5.25	$1,155.00	155 bbls.	$ 5.25	$ 813.75
Corn	75 bus.	$ 0.55	$ 41.25	59 bus.	$ 0.55	$ 32.45
Beans & Peas	14 bus.	$ 1.25	$ 17.50	14 bus.	$ 1.25	$ 17.50
Corn Meal	5 bbls.	$ 3.50	$ 17.50	5 bbls.	$ 3.50	$ 17.50
Tobacco	2,500 lbs.	$ 0.11	$ 275.00	2,000 lbs.	$ 0.11	$ 220.00
Rice	1,200 lbs.	$ 0.035	$ 42.00	1,200 lbs.	$ 0.035	$ 42.00
Potatoes	150 bus.	$ 0.35	$ 52.50	130 bus.	$ 0.35	$ 45.50
Cheese	800 lbs.	$ 0.07	$ 56.00	600 lbs.	$ 0.07	$ 42.00
Butter	900 lbs.	$ 0.13	$ 117.00	800 lbs.	$ 0.13	$ 104.00
Dried Apples	600 lbs.	$ 0.04	$ 24.00	600 lbs.	$ 0.04	$ 24.00
Vinegar	10 bbls.	$ 3.50	$ 35.00	7 bbls.	$ 3.50	$ 24.50
Cod Fish	800 lbs.	$ 0.03	$ 24.00	800 lbs.	$ 0.03	$ 24.00
Molasses	1,600 gals.	$ 0.27	$ 432.00	1,200 gals.	$ 0.27	$ 324.00
Tea, Black	250 lbs.	$ 0.35	$ 87.50	200 lbs.	$ 0.35	$ 70.00
Tea, Hyson	20 lbs.	$ 0.60	$ 12.00	12 lbs.	$ 0.60	$ 7.20
Raisins	200 lbs.	$ 0.05	$ 10.00	100 lbs.	$ 0.05	$ 5.00
Sugar	1,000 lbs.	$ 0.075	$ 75.00	800 lbs.	$ 0.075	$ 60.00
Coffee	1,000 lbs.	$ 0.08	$ 80.00	800 lbs.	$ 0.08	$ 64.00
Duck, Heavy	60 pieces	$ 18.00	$1,080.00	40 pieces	$ 18.00	$ 720.00
Duck, Light	36 pieces	$ 8.00	$ 288.00	25 pieces	$ 8.00	$ 200.00
Tar	20 bbls.	$ 2.25	$ 45.00	10 bbls.	$ 2.25	$ 22.50
Whale Boats	6 boats	$ 60.00	$ 360.00	6 boats	$ 60.00	$ 360.00
Oars	7 sets	$ 8.50	$ 59.50	7 sets	$ 8.50	$ 59.50
Boards	4,000 ft	$ 0.02	$ 80.00	4,000 ft	$ 0.02	$ 80.00
Nails, Composition	700 lbs.	$ 0.22	$ 154.00	500 lbs.	$ 0.22	$ 110.00
Copper, Sheathing	8,500 lbs.	$ 0.21	$1,785.00	7,000 lbs.	$ 0.21	$1,470.00
Cordage	8,500 lbs.	$ 0.10	$ 850.00	7,000 lbs.	$ 0.10	$ 700.00
Tow Lines	3,000 lbs.	$ 0.12	$ 360.00	3,000 lbs.	$ 0.12	$ 360.00
Try Pots	3 pots	$ 60.00	$ 180.00	3 pots	$ 60.00	$ 180.00
Cloth	6,000 yds.	$ 0.09	$ 540.00	5,000 yds.	$ 0.09	$ 450.00
Iron Whaling Crafts	4,000 lbs.	$ 0.15	$ 600.00	4,000 lbs.	$ 0.15	$ 600.00
Clothing, Ready-made			$2,800.00			$2,700.00
Labor in Port			$2,500.00			$2,300.00
Total Cost of Outfits			$19,774.75			$17,134.90[56]
Cost of a Typical Vessel			$31,224.72			$31,224.72
			$50,999.47			$48,359.62

Source: Hohman (1928)[57]

One wonders how the owners would have used this information; it is unlikely to have been available by the time the shipyard signed off, prior to delivery of the vessel. It is a curious mix of capital and operating costs, and some costs in each column might have been more properly placed in the other.

The sources and cost of capital employed in the whaling industry, though generally considered relatively easy to identify, may produce substantial debate about the choices involved in treating those costs. But custom and practice in allocating some costs varies without obvious explanation. For

example, some line items may be regarded as 'outfitting', but be regarded by others as 'provisioning'. Thus the measurement of fixed versus variable costs is inconsistent.[58] Though distinctions such as these may appear to be trivial on occasion, the distinction between fixed and variable costs is vital for several purposes. One is to determine the optimum size of a whaling vessel chosen for a particular task. For example, consider vessels of different sizes used to operate a four-year absence in the Antarctic from London, and one selected to operate a one-year voyage to the same whaling ground from Hobart. In the former case, an allowance of a year may be required to move a vessel to and from the whaling ground, in contrast to the latter case, where the vessel is on the whaling ground as soon as it leaves the Derwent; the former incurs charges which the latter does not.

4.4.3 Labour Costs

Before considering issues in methods of reporting we should consider the "lay" system used as the basis for paying crews. Its role in profit maximisation is that in principle, total wage costs are a direct function of output, defined in this case as the value at sale of whale products captured on the voyage in question, less certain deductions. Total wage costs are in turn a function of the fraction of profit allotted to particular roles, as discussed below.

What constitutes direct *labour* costs at the highest level is ostensibly easy to discern, as is the extent to which various kinds of labour cost change with respect to changes in volume: for example, the volume of coal extracted from a mine, given the technology, is a direct function of the amount of labour used to extract it. It is considered a direct cost. On the other hand, the cost of supervising that labour is, within limits, a function of the number and diversity of work groups employed both to extract the coal and perform such other functions as transport, the washing of coal, inventory management, metallurgical analyses etc. These variables are not determined directly by the volume of coal produced but are regarded as 'fixed' or 'indirect' costs. In the whaling industry, all labour costs are regarded as variable costs: once the size of the crew for a given ship is decided, and the ship goes to sea, the unit cost of oil produced is a function of many factors over and above crew size. The whaling industry is unique in the system used to calculate its labour costs, and its return to labour.

Hohman is one of those who consider the determination of labour costs to be relatively straightforward:

> *Several independent sets of figures agree in showing that approximately seventy percent of the net proceeds of American whaling went to the entrepreneurs, leaving the remaining thirty per cent for officers and men. As early as 1834 a writer in the North American Review stated that on the average, whaling owners secured sixty-nine per cent of the next income of the whaling industry, and that officers and men were rewarded with the balance of thirty-one per cent. Similar estimates of seventy per cent and thirty per cent, respectively, were repeated in 1844 by an early whaling statistician.*[59].

This invariable outcome was the result of applying a system of 'lays'. A 'lay' was the proportion of net income to be allocated to standard whaling industry job classifications. Those classifications or roles, and their associated lays had been in operation for centuries. They had stabilised by the early nineteenth century, as set out below.[60]

Role	**Lay**
Captain	One twelfth
First Mate	One eighteenth
Second Mate	One twenty-fifth
Third Mate	One thirty-fifth
Fourth Mate	One forty-fifth
Fifth Mate	One fifty-fifth
Boatsteerers	One fifty-fifth
Steward	One sixtieth
Cook	One sixtieth
Seaman	One hundredth to one hundred and fiftieth

However, lays were negotiated by individual crewmen. Melville wrote of the practice:

> *I was already aware that in the whaling business they paid no wages; but all hands, including the captain, received certain shares of the profits called lays, and that these lays were proportioned to the degree of importance pertaining to the respective duties of the ship's company. I was also aware that being a green hand at whaling, my own lay would not be very large; but considering that I was used to the sea, could steer a ship, splice a rope, and all that, I made no doubt that from all I had heard I should be offered at least the 275th lay – that is, the 275th part of the clear net proceeds of the voyage, whatever that might eventually amount to. And though the 275th lay was what they call a rather long lay, yet it was better than nothing; and if we had a lucky voyage, might pretty nearly pay for the clothing I would wear out on it, not to speak of my three years' beef and board, for which I would not have to pay one stiver.*[61]

In a detailed description of the variables likely to affect the outcome of such negotiations, Davis *et al* noted that:

> *The flavour of such negotiations comes through in a letter from (shipowner) Charles W Morgan to his captain, Thomas A Norton, discussing the staffing of the Hector. After spelling out the range of lays that he was 'accustomed to give in a four boat ship' (third mate 1/70 to 1/75, boatsteerers 1/90, seamen 1/125 to 1/130, ordinary seamen 1/135 to 1/150, greenhands 1/150 to 1/180, boys green 1/85 to 1/200, and boys not green 1/150 to 1/175, he continues /Mr Hyles (a third mate) had 1/65 last voyage but that was higher than I have been given. I think 1/70 a fair lay for Mr. Wimfrenn but would give 1/67 rather than not have him'.* [62]

However, there could be a large difference between the net and gross calculations of the lay, and therein lay a number of sources by which an unscrupulous owner could 'negotiate' a reduction in the real value of the lay to the seaman. Consider the following account by Mawer:

> *In the Hobart of the 1820s and 1830s the crewing of whale ships and shore stations had been a haphazard affair. Articles of agreement, including the terms of employment, were sometimes oral and as such were open to abuse on both sides, but in northing so much as the seaman's reward for his labour. He signed on for a share, but a share of what? The sale of the oil and bone might take weeks or months to finalise if the owner decided to withhold them from the market waiting for the price to improve. The Tasmanian Act of*

1835 set out to regulate the lay. It required that agreements would include the price which the owner would pay the seaman for his bone and oil, irrespective of the state of the market at discharge or, if no figure was inscribed, fair market price. The negotiable figure meant that the seaman could try to offset a long lay by getting a good price, or only accept a poor price on a larger share. In reality, the price offered was usually at a hefty discount to both current and prospective markets. It was defined by the owners on the grounds that the market might have fallen by the time the ship returned. To an "American, with no price guarantee, it seemed that the law was of no material advantage to Tasmania whalemen. 'The crews receive a large proportion of the vessels' earnings; but they get only forty pounds sterling per ton for their oil, no matter what price it brings in the market; so that, although the lays are shorter, the actual remuneration is about equal to ours.' [63]

The Tasmanian agreements also specified the provisions to be supplied by the owner. They ameliorated some abuses but scarcely scratched the surface of the scope for exploitation, much of which was to be found on the debit side of the whaleman's account with his ship as opposed to the credit side, where his lay was usually the sole entry. Fayette Ringgold, the US consul at Paita in Peru, deplored what he saw as the loss to his country of thousands of young Americans who each year deserted from whaleships 'and either from shame or moral corruption never return'. He was convinced that low earnings were more to blame than bad treatment, and sent home the following calculation of average earnings from a *four-year* cruise.

	One hundred & eightieth lay of 1,200 barrels	$262.25
Less	Fitting shipping & medicine	10.00
	10% discount on leakage of oil	26.22
	3% insurance for oil	7.86
	Outfit	70.00
	Interest on outfit	16.80
	Cash advanced during voyage	30.00
	Interest on advance @ 1% per month	7.20
	Slops to make up deficiencies in outfit	40.00
	(sub-total)	$208.88
	Amount due	$54.14

Clearly the US Consul saw the whaling crew pay system as outright exploitation of the crew. [64]

Agreement on the appropriate lay was reached by negotiation before the voyage between the prospective crewman and skipper. The agreement specified, amongst other things, that the crewman would be paid at the end of the voyage when the proceeds from the sale of the products created during the voyage were known. This could well turn out to be four years or more, and in any case might not be known until late in the voyage – and the captain had the sole authority to determine when the ship would head for home, and when the crew would be advised.

In these conditions, it is not easy to argue that the negotiation between crewman and skipper was a negotiation of equals. In fact, it is this very imbalance, and the sole right of the skipper to vary the terms of agreement once at sea, that opened up considerable room for decisions aimed at maximising returns to the boat and its owners at the expense of the crew.

4.4.4 Insurance

A further element in building strategies to minimise risks associated with the whaling business was the management of marine insurance. According to Hohman, those risks could be categorised as labour risks, physical risks and business risks. Labour risks involved the possibility that illness, desertion or death might bring about the loss of sums which had been advanced to certain members of the crews. Physical risks were focussed upon the loss of equipment cargo or vessel through storm, fire, mutiny or the misfortunes of the chase. And business risks resulted largely from the extreme irregularity of the financial returns attendant upon the cargoes obtained

> *The heaviest financial burdens were those connected with business risk ... The full extent of entrepreneurial risk however, was reflected most clearly in the extraordinary variations in the size and value of individual cargoes.*[65]

Business risk could not be entirely covered by insurance, but nor could it be eliminated. It could however, be ameliorated by multiple ownership, the lay system and by limited insurances. Even so, contemporary estimates of profit projection, and even realisation, lacked both clarity and agreement. Whaling profits were perhaps the least predictable of all the varying elements in this uncertain industry.[66]

Hohman's own accounts of whalers' performance is wry testimony of the truth of this statement. Consider the following:

> *The year 1849 affords an excellent illustration of a most gratifying season; for the 154 whalers then in the Arctic returned with a huge catch which sold for $3,419,622, whereas the total value of both ships and outfit was only $4,650,000.*[67]

What does this statement tell us of why the season was gratifying? The answer is - not very much! The ratio of sales revenue to the total value of both ships and outfits is meaningless. It might be more meaningful if we knew what proportion of sales revenue was attributable to profit. It might be 30 to 33%, which both Hohman and Mawer suggest is 'about' industry average, but it might not.[68] And even if it were, we do not know if the total value of both ships and outfits represents the total investment – and in any case, we do not know what period of time was used to generate the result, so we cannot calculate the period return on funds employed. The literature of the industry is redolent with such precision.[69]

4.5 Summary

Whale oil was the preferred source of artificial illumination in Britain and the western world from as early as the fifteenth century to the first quarter of the nineteenth century. At no stage was the burning of whale oil the sole source of light, but its market share in Britain grew to such an extent that any substantial interruption in supply after 1815 (when America re-joined the international whale oil

market) came to be regarded as a potential catastrophe for both the populace and economic well-being.

Whale oil had other applications, particularly in industry, but these were never at a level of demand which would have sustained the whale oil industry on their own. The industry was unable to develop new products to make up for the shortfall in its loss of market share for lighting. Nor was it able to reduce production costs either as far or as fast as would have enabled it to compete more effectively with new technologies.

By 1860, it had changed from playing a major role in industrial and economic growth and development all over the western world to almost obsolescence. Australia's entry to this market, effectively around 1820, was too late in the apparent life of the industry to enjoy any new entrant advantages. In the meantime, whale oil in its various forms had illuminated and heated the industrial world until a more cost-effective substitute could be discovered and refined.

Notes for Chapter 4

[1] Raymond A. Rydell, *Cape Horn to the Pacific: The Rise and Decline of an Ocean Highway* (Berkeley: University of California Press, 1952).
[2] Mawer, *Ahab's Trade*, chap. 22, pp.86-87, 93-96, and the tangential allusions of Ivan Terence Sanderson, *A History of Whaling* (Barnes and Noble, 1993), 19,107,280,302.
[3] See for example the many direct references in Mawer, *Ahab's Trade*, chap. 22, pp.86-87, 93-6; Sanderson, *A History of Whaling*, 1993, 19,107,280,302. See also page 63 below
[4] I.e., the lay system. See page 48 below
[5] Richard Ellis, *Men and Whales*, 1st ed. (New York: Knopf, 1991), 4–8 for a more technical discussion of the 'Right' whale.
[6] Ibid., 4–8.
[7] Starbuck, *History of the American Whale Fishery*, 1878, 20.
[8] Karl Brandt, *Whale Oil: An Economic Analysis*, Fats & Oils Study 7 (Stanford University: Food Research Institute, 1940), 25–33.
[9] Christopher Kemp, *Floating Gold: A Natural (and Unnatural) History of Ambergris*, 1st ed. (Chicago ; London: University Of Chicago Press, 2012), 8–16; Ellis, *Men and Whales*, 29; R. Clarke, 'The Origin of Ambergris', *Latin American Journal of Aquatic Mammals* 5, no. 1 (2006): 7–21, doi:10.5597/lajam00087.
[10] L. E. Davis, R. E. Gallman, and T. D. Hutchins, 'Technology, Productivity and Profits: British – American Whaling Competition in the North Atlantic 1816 – 1842', *Oxford Economic Papers New Series* 39(4) (1987): 29–30.
[11] L. E. Davis, R. E. Gallman, and T. D. Hutchins, 'Technology, Productivity and Profits: British – American Whaling Competition in the North Atlantic 1816 – 1842', *Oxford Economic Papers New Series* 39(4) (1987): 29–30; Christopher Kemp, *Floating Gold: A Natural (and Unnatural) History of Ambergris*, 1st ed. (Chicago ; London: University Of Chicago Press, 2012).
[12] Davis, Gallman, and Hutchins, 'Technology, Productivity and Profits: British – American Whaling Competition in the North Atlantic 1816 – 1842', 1987, chap. 9.
[13] Ibid., 17. See Appendix 3, which describes Sperm oil varieties and production processes in more detail.
[14] Ellis, *Men and Whales*, 340.
[15] Davis, Gallman, and Hutchins, 'Technology, Productivity and Profits: British – American Whaling Competition in the North Atlantic 1816 – 1842', 1987, chap. 9.
[16] M Pearson, 'The Technology of Whaling in Australian Waters in the 19th Century', *Australian Journal of Historical Archaeology* 1 (1983): 40–54.
[17] Ibid., 43.
[18] B. Little, 'Sealing and Whaling in Australia before 1850', *Australian Economic History Review* 9(2) (1969): 110.
[19] S. Murray-Smith, 'Beyond the Pale: The Islander Community of Bass Strait in the Nineteenth Century', *Papers and Proceedings of the Tasmanian Historical Research Association* 20(4) (1973): 169.

[20] The definition of "barratry" embraces, in criminal law, the vexatious stirring up of quarrels or bringing of lawsuits and, in maritime law, a fraudulent practice committed by the master or crew of a ship to the prejudice of the owner or charterer.
[21] Colwell, *Whaling around Australia*, 62–66.
[22] Pearson, 'The Technology of Whaling in Australian Waters in the 19th Century', 43.
[23] Mawer, *Ahab's Trade*, chap. 7, 'Boats and barques', is an extended treatment of whaleboat design.
[24] Blainey, *Tyranny of Distance*, 2001, 113.
[25] Pearson, 'The Technology of Whaling in Australian Waters in the 19th Century', 41.
[26] Ellis, *Men and Whales*, 31.
[27] Sanderson, *A History of Whaling*, 1993, 209–10.
[28] The smaller pieces were variously called 'hors pieces', 'horse pieces' or 'bible leaves'. See New Bedford Whaling Museum, 'Whales and Hunting', *New Bedford Whaling Museum*, accessed 26 June 2016, https://www.whalingmuseum.org/learn/research-topics/overview-of-north-american-whaling/whales-hunting.
[29] Ben-Ezra Stiles Ely, *'There She Blows': A Narrative of a Whaling Voyage, in the Indian and South Atlantic Oceans. Edited, with an Introduction, Notes, and Appendices*, ed. Curtis Dahl, The American Maritime Library ; v. 3 (Middletown, Conn: Published for the Marine Historical Association, by Wesleyan University Press, 1849); Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, 49.
[30] Pearson, 'The Technology of Whaling in Australian Waters in the 19th Century', 27.
[31] K. Clayton, 'Australian Timbers: Their Significance in Early Australian Shipbuilding', *Bulletin of the Australian Institute for Marine Archaeology* 36 (2012): 22.
[32] Pearson, 'The Technology of Whaling in Australian Waters in the 19th Century', 42.
[33] Jackson, *The British Whaling Trade*, 1978, chap. 4.
[34] R. Fouquet and P. J. G. Pearson, 'Seven Centuries of Energy Service:: The Price & Use of Light in the United Kingdom (1300 – 2000)', *The Energy Journal* 27(1) (2006): 150–53.
[35] D. DiLaura, 'A Brief History of Lighting', *Optics & Photonic News* 2008, no. September (2008): 23–28.
[36] Fouquet and Pearson, 'Seven Centuries of Energy Service:: The Price & Use of Light in the United Kingdom (1300 – 2000)'.
[37] Ibid., 154.
[38] Ibid., 139–78.
[39] M. E. Falkus, 'The British Gas Industry before 1850', *Economic History Review*, New series, 20(3) (1967): 494–96.
[40] Ibid., 496–97.
[41] Fouquet and Pearson, 'Seven Centuries of Energy Service:: The Price & Use of Light in the United Kingdom (1300 – 2000)', 157–62.
[42] Elmo Paul Hohman, *The American Whaleman: A Study of Life and Labor in the Whaling Industry*, 1st ed., Reprints of Economic Classics (New York: Augustus M Kelley Publications, 1928), 4.
[43] J Holcomb, 'Opportunities and Risks in the Development of the NSW Shipping Industry, 1821-1850' (PhD, University of New England, School of Humanities, 2009), https://e-publications.une.edu.au/vital/access/manager/Repository/une:2446 It should be noted that Holcomb's work makes no reference to the previous work of Hohman or David and colleagues. To that extent, her work does not necessarily break new ground, except in its application in NSW.
[44] See Simon P. Ville, *English Shipowning during the Industrial Revolution: Michael Henley and Son, London Shipowners 1770-1830* (Manchester: Manchester Uni. Press, 1987).
[45] Holcomb, 'Opportunities and Risks in the Development of the NSW Shipping Industry, 1821-1850', chap. 9.
[46] Ibid., 142.
[47] Starbuck, *History of the American Whale Fishery*, 1878 See his Contents page.
[48] Ibid., chap. F and G.
[49] Ibid., 166.
[50] Ibid., 168–79.
[51] Enderby, *Proposal for Re-Establishing the British Southern Whale Fishery, through the Medium of a Chartered Company, and in Combination with the Colonisation of the Auckland Islands, as the Site of the Company's Whaling Station*.
[52] Table 1 is titled, formatted, spelt and punctuated as the original
[53] Samuel Enderby, 'Memorial Submitted by Samuel Enderby (and Others) to the Lords Commissioners of the Treasury' 2 August 1786, 35–38, National Archives, Kew.
[54] Davis, Gallman, and Hutchins, 'Technology, Productivity and Profits: British – American Whaling Competition in the North Atlantic 1816 – 1842', 1987, chap. 11, 'Profits'.
[55] Lawrence H. Officer, 'Dollar-Pound Exchange Rate From 1791', 2015, http://www.measuringworth.com/exchangepound.
[56] Note that the original table has small calculation errors, totalling the cost of outfitting a right whaling ship as $17,129.45 and thus a combined total of $48,354.17.

[57] Hohman, *The American Whaleman*, 1928, 325, Table IV. Original Title of Table: 'List of the Principal Articles Required to Outfit a Vessel for a Voyage in Sperm Whaling or Right Whaling, Together With the Amount of Each Article and the Cost According to the Prices Which Prevailed on January 1, 1844'.
[58] Given the selection of vessel type and crew size, the cost of equipping a vessel for a defined journey is chiefly a function of the expected duration of that journey. In this sense, it may be regarded as a variable cost, i.e. its level will vary in accordance with some function of production. On the other hand, the cost of re-fitting a vessel after it has been used at sea might be regarded as a fixed cost, i.e. a cost the level of which is determined by factors other than production volume.
[59] Elmo Paul Hohman, *The American Whaleman: A Study of Life and Labor in the Whaling Industry*, 1st ed. (New York: Longmans, Green, 1928), 285.
[60] Ibid., 285.
[61] Herman Melville, *Moby Dick: Or, the White Whale*, 1851, 69. Notwithstanding that *Moby Dick* is a work of fiction, Melville was experienced in and well aware of the vagaries of the Nantucket whaling industry.
[62] Letter dated 21 November 1834, from the Morgan Collection, cited by Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, 158–59.
[63] Mawer, *Ahab's Trade*, 109–10.
[64] F.M. Ringold, 'A Consular Report on Whales and the Whaling System', in *The American Whaleman: A Study of Life and Labor in the Whaling Industry* (New York: Longmans, Green, 1828), Appendix A.
[65] Hohman, *The American Whaleman*, 1928, chap. VII Entitled 'Profits and the counting-room'.
[66] Ibid., 280–81.
[67] Ibid., 281.
[68] Ibid., 283; Mawer, *Ahab's Trade*, 111.
[69] See for example Holcomb, 'Opportunities and Risks in the Development of the NSW Shipping Industry, 1821-1850'.

5 Early Development (1790 – 1830)

5.1 The Global Context

In 1775, Britain ruled America, and America was the home of the British whaling fleet, the largest such fleet in the world. Its centre was Nantucket Island in the Commonwealth of Massachusetts. The island was the initial base at which American whaling ships were designed and built, and from which they then operated. Located in the extreme east of Northern America, Nantucket was always liable to be caught between the anvil of Britain and the hammer of America. That much was clear to a number of leading members of the Nantucket colony even before the anvil was struck in the War of Independence.[1] Nantucket was positioned to control the disposition of the British whaling fleet. The core of Britain's whaling expertise had migrated there in the seventeenth century. The Quakers who came to New England were the cream of British whaling.

Historically based in the North Atlantic, whalers had begun to explore southern sources of whales – the Brazil Banks and the Falkland Islands in the South Atlantic - before the hostilities of the War of Independence commenced.[2] This exploration was partly urged by a consumer preference for sperm oil, which had been discovered in 1712. Hence a motive for exploring the potential of the Southern Whale Fishery was well established prior to the commencement of hostilities between Britain and America in 1775, the same year in which reconnaissance of the Southern Whale Fishery commenced (see Section 5.4, page 63 below).[3]

The need for more whale oil of both kinds became more immediate when war broke out. Samuel Enderby, a whaleship owner of British ancestry but Nantucket domicile, relocated to Britain. He came to lead the collection of whaleship owners located there in seeking British government support for whaling in the Southern Whale Fishery.[4]

Once war was declared, many Nantucketers sought to base themselves in British territory. A major initiative was undertaken by William Rotch.[5] His contribution was critical because it created an opportunity for Britain to acquire American technical excellence in whaling, and an opportunity for London to become *the* whaling centre of the world, and thereby to dominate world whaling. Britain's inept handling of this opportunity lost it this prize.

A prominent whaleman from Nantucket, Rotch enlisted the interest of some Quaker families in migrating to Britain as a group, thus forming a nucleus of skills/competence for the re-development of the British whaling fleet. The case which Rotch put to the British Government with regard to their migration proposed that 30 families would migrate from Nantucket, the male members of which

would consist of skilled crew, including masters, mates and boat crew leaders (harpooners). The British would be responsible for providing them with housing and transportation at British cost, and for ensuring that the whaling vessels in which they came would be supplied with British registration. The new British citizens would form a leadership cadre responsible for the further recruitment and training of British whaling crews. The proposed agreement also sought exemption for the Nantucket crews from impressment into the Royal Navy.[6]

Negotiations consumed several months. Exasperated by the apparent disinterest of the British, Rotch eventually took his migration proposal to the French government. Committed to developing their presence in the global whaling business, the French quickly came to agreement with Rotch to welcome the Nantucketers to a base established at Dunkirk, on the French coast of the English Channel. Hearing that this agreement may be imminent, the British government advised Rotch in September 1786 that it was now ready for final negotiation with Rotch concerning the Quakers' relocation to London.

Rotch told the British that it was too late, and that he had already come to terms with the French. Rotch's own words are reputed to have been

> *I told (the Secretary of the Treasury) it was too late. I made my very moderate proposals to you but could not obtain anything worth my notice. I went to France, sent forward my proposals, which were doubly advantageous to what I had offered your government. They considered them but a short time, and on my arrival in Paris were ready to act. I had a separate interview with all the Ministers of State necessary to the subject, who all agreed to and granted my demands. This was effected in five hours when I waited to be called by your Privy Council more than four months.*[7]

The loss of this prize was due in part to the difficulties which leading British politicians personally had in coming to terms with Rotch, but also to difficulties with British whaling industry leaders and others. According to Stackpole,

> *(The President of the Board of Trade) may have regretted losing the opportunity to acquire, through the Nantucket colony, a virtual centre which would ensure Britain's superiority in the Southern Whale Fishery.*[8]

There were, in between Enderby *et al* in London and Rotch in Dunkirk, attempts to establish other bases outside of Massachusetts for American whalers loyal to Britain. One was in Nova Scotia, Canada, and another in Milford Haven, South Wales. Nova Scotia was particularly important because it created an opportunity to confuse American oil with oil from British origins. Both Nova Scotia and Milford Haven were opposed by the merchant adventures in London. They had become a formidable lobby group with influential parliamentary representation.

Further, there were fundamental differences between the House of Commons and the Company. The Directors of the latter were opposed to the Quakers' migration to Britain, but the British failure to enlist the Rotch resources let the French into supplying the European market. France was already an historic if not significant supplier of whale oil to Europe in competition with the British. Its success in attracting some Nantucketers to settle in Dunkirk improved French operating standards and cost control. However, its effects were short lived, as the emigrants deserted the new colony to avoid fallout from the French Revolution. From Britain's point of view, the loss of these emigrants to France was more important than their bolstering of the French fleet. In sum, the failure of Britain to absorb the willing Nantucket whalers denied the British whaling industry of leadership until after 1815, and weakened the government's hand in on-going negotiations with the Company.

The whaling merchants, on the other hand, employed a significant number of Nantucket men in the crews of their British-registered whalers. Their first-hand knowledge of the Nantucketers' competences led them to believe that the migration of the Nantucketers would facilitate more and more efficient (and therefore more profitable) whaling by the British whalers, and thus raise significant revenue for Britain.

One of the oldest acts of British regulatory legislation was the monopoly conferred on the Company in 1599 in trading between the Cape of Good Hope in South Africa and Cape Horn in South America.[9] The consequence was that British vessels could not participate in trade in this area without the explicit approval (a licence from) the Company, as it came to be called. Merchant adventurers had little trouble in achieving licences to fish for whales, but the Company fiercely fought any applications by skippers of southbound whaling vessels to carry cargo, ostensibly in competition with the Company's own ships. Southbound whalers therefore travelled in ballast, squeezing their margins on the voyages to the Southern Whale Fishery. In theory, the effect was to be a reduced incentive for British vessels to go whaling in the Southern Fishery. We do not in fact know whether or not this was a significant deterrent, but we *do* know that a significant British whaling fleet was established in the Southern Fishery and we do know that well before 1820 the Southern Fishery was contributing 20% of the imports of whale oil to Britain.[10] We might therefore be cautious in concluding that any deterrent effect was significant. In any event the Company had given away on the imposition of this constraint by 1813, so the period of its imposition was very short.[11]

The Company's regulations prevented the carriage of exports from New Holland to Canton, China's prime *entrepôt*, in British ships without the Company's licence, and licences were rarely given. Although the related Navigation Acts could not prevent British trade being carried in non-British bottoms, the British put considerable pressure on British shippers and non-British carriers not

to do so. This did not prevent attempts to ship exports from the colonies to Canton. We do not know the extent to which such pressure prevented the development of Australian colonial export trade; however, it cannot have been significant because the Australian colonies had little to export before 1820. Analysis of shipping traffic reveals that 5 - 25% of ships leaving Port Jackson left in ballast in the period 1805 – 1820, evidence of a significant surplus in the supply of cargo space.[12]

Other geopolitical considerations involving the Company were in play at the same time. At a strategic level, Britain was becoming more interested and active in what became known as 'the swing to the east'.[13] The 'swing' was initially a reaction to Dutch and Portuguese attempts to control the spice trade emanating from India and what is now known as Indonesia. That strategic thrust was placed on hold while Britain managed affairs in its relations with the new United States of America – with which it went to war a second time in 1812 - and with a Napoleonic France.[14] By 1815, Britain emerged confident in its now settled relationships with France and the United States and attention swung back to the East; in particular, to re-establishing British government control over the Company.

Separate to its need to both support and discipline the Company, the British Government had since 1748 felt the need to protect the British whaling industry by imposing bounties on the import of British caught oil into Britain.[15] Bounties were payments to British importers to encourage imports and hopefully eventual local production. The government's objective was to provide protection to the British whaling industry from more cost-competitive foreigners, the American colonies in particular. It was also aimed at reducing the cost to Britain of maintaining a standing permanent navy by using the whaling industry as a training ground for British seamen, particularly in the period following the peace of 1783. For the Southern Whale Fishery, the prospect of bounties (as used in the Greenland Fishery) was replaced by a system of premiums based on competitive measures of whaling ship performance. The bounty system was abandoned in the early 1820s when Britain's new commitment to a policy of 'free trade' required it to reduce or eliminate protectionist policies. A measure of the British government's concern for maintaining a whale oil supply pipeline can be gathered by reviewing the frequency of legislation relating to bounties and premiums in the eighteenth century until their abandonment in 1824.

Direct British legislative intervention in the whaling industry began following the conclusion of British – American hostilities in 1783. Britain imposed a duty of £18.3.0 per ton on the import of foreign oil. Its purpose was to make the export of American oil to Britain (and through Britain to Europe) uneconomic. There were periods when colonial oil was treated as foreign oil, and to this extent, whaling from the Southern Whale Fishery became uncompetitive.

The penal colonies of New South Wales and Tasmania had become established by 1803. Norfolk Island, as part of New South Wales, was operating at its full capacity and was about to become a prime source of supply of convicts to Tasmania. Following the wreck of the *Sydney Cove*, in the Furneaux Group on 8 February 1797 a sealing industry was established in the islands of the Bass Strait.[16] Vessels carrying convicts were granted licences to 'fish' by the Company following discharge of their convict passengers. A substantial British presence of whalers on the Southern Whale Fishery was building up around bases in Sydney and Hobart. Neither the American nor the French whaling industries had yet shown serious interest in the Southern Whale Fishery, nor by 1820 had significant Australian capital been invested in whaling.[17] International sallies into the waters of the Southern Whale Fishery were taking place in a long-entrenched though constantly changing British legal framework. To this was attached a web of the rulings of the local bureaucracies of New South Wales and Tasmania.[18]

Governor Macquarie found that the lack of local revenue sources made the management of New South Wales finances a hindrance to economic development.[19] He therefore levied duties on NSW colonial exports including more particularly, re-exports; if an Australian vessel had produced 150 tons of oil in the Southern Fishery for export to Britain, and first sent it to Sydney for assembly with others into a ship load, it became subject to Macquarie's duties. This constraint was not removed until after the Bigge report.[20]

Wentworth notes that export duties levied by successive governors were:

> *(h)ighly injurious however as are the duties which are levied in the colony they are not nearly so oppressive as those which are levied in this country on spermaceti right whale and elephant oils procured in the colonial built vessels. The duties on the importation of such oil into this country are £24 18s 9d for the first sort and £8 6s 3d for the two last. If we add to these enormous duties those which are levied by the authority of the local government, it will be perceived that all the spermaceti oil procured by the colonial vessels has to pay a duty of £28 8s 9d and all the right whale and elephant oil a duty of £10 6s 3d before it can come into competition with the oil of the same description procured in vessels built in the United Kingdom. It has however been seen that ... (it) is now only resort4ed to in order to procure the trifling supply of oil that is requisite for the East India market and for internal consumption. All attempts to export oil to this country have been for many years abandoned since the trade could only be maintained at a dead loss as the ruinous experience of many of the colonial merchants has abundantly attested. The reason why these enormous duties were imposed on oil procured in the colonial vessels is not generally understood here but it is universally known in the colony and the knowledge has materially tended to increase the dissatisfaction which the imposition of such duties could of itself to a certain extent have naturally excited.*[21]

5.2 The Shipping Interest Develops

In providing a further governmental impediment to economic development in New South Wales, successive Governors did as directed by Whitehall and placed severe limits on boat-building in the

colony. It was generally forbidden to build boats capable of travel in the open sea on behalf of private sector clients, as such vessels could be used to compete with the Company and threaten its monopoly trading rights. Further, there was a practical concern not to facilitate the escapes of convicts by tolerating the existence of a large fleet of means of escape.[22] The directive to five successive Governors is set out *verbatim* below:

> *And whereas it is our royal intention that every sort of intercourse between the intended settlement at Botany Bay, or other place which may hereafter be established on the coast of New South Wales and its dependencies' and the settlements of our East India Company, as well as the coast of China and the islands situated in that part of the world, to which any intercourse has been established by any European nation should be prevented by every possible means (my italics) it is our royal will and pleasure that you do not on any account allow craft of any sort to be built for the use of private individuals which might enable them to effect such intercourse.*[23]

This injunction was more honoured in the breach than in the observance, especially by those associated with sealing. It was the sealers who initiated interest in the development of local shipbuilding, which in turn led to the formation of the 'shipping interest'.

> *The shipping interest were the men (and sometimes women) who owned and operated vessels from Sydney, usually colonial built, and also those who illegally and therefore clandestinely, owned larger vessels bought and registered abroad … At least fifteen emancipists engaged in Pacific or sealing ventures or both, operating eight or nine vessels of more than 50 tons and four of more than 100 tons.*[24]

Trading by colonists was even so rendered very difficult. Whalers and sealers from London which visited the colony in the first decade or two of settlement had to be licensed by the Company. Some of the convict transports were ships taken up by the Company to bring back tea from China. Thus all vessels visiting Sydney were either licensed to navigate to pass the Cape of Good Hope by the Company or were foreign bottoms, usually American but occasionally Dutch or Spanish prizes sent in for auctions by British privateers. These were loopholes, small but useful. British merchant-ship owners in Calcutta and Madras were allowed to operate vessels, known as 'country ships' in the eastern seas. They could navigate licensed in the monopoly area but could not pass beyond it. A master mariner with a country ship licence could ally himself with a Sydney trader and that trader could have access to Calcutta or even Canton. He would not, however, have access to London. For that he must ally himself with a London firm owning, at least nominally, a ship licensed to navigate to Sydney and back. The third possibility was an alliance with an alien firm, an option not easily pursued when non-British bottoms were prevented from sailing out of colonial ports, even though there were periods when this intervention was not strongly policed.

Local inhibitions on ship construction also provided trading opportunities for American vessels. A list of United States vessels entering and leaving Port Jackson between 1792 and 1830 is set out in Appendix 4 - Shipping Returns: North American Trade.

The first phase of whale industry development in Australia was the emergence of a sealing industry, initiated when reports reached Sydney of the wrecking of the *Sydney Cove*.[25] The second phase was the development of a bay whaling operation in and around the Derwent River, and forty years later, in Twofold Bay, south of Sydney.[26] The third and final phase was that of deep sea whaling, chiefly for the sperm whale. It opened to a stuttering start in 1775.

5.3 Sealing

The crew of the *Sydney Cove,* wrecked in the Bass Strait in 1797, reported at Port Jackson on the plentiful population of fur seals on the strait's islands. Charles Bishop, the roving master mariner experienced in sealing, and a friend of Matthew Flinders, was sufficiently attracted by the report of profit potential to make two voyages to the Bass Strait. They were successful enough. One of his sealing journeys yielded 5,200 sealskins and about 350 gallons of seal oil. [27]

Following Bishop, sealing increased quickly, with large catches made on King Island at the western end of the Strait, beginning around 1801, while sealers were also established on Kangaroo Island (South Australia) by 1802. The main Australian sealing grounds extended from the eastern island groups of Bass Strait to King George Sound in the south of Western Australia. Towards 1810, however, catches declined. Sealers had to move further afield to Macquarie Island and Heard Island in the Southern Ocean. Nevertheless, the industry carried on sporadically in the Bass Strait area until around 1850, and as reported above, around the South of New Zealand.

An assessment of sealing's contribution to economic development in this period requires reliable data on sales volume (number of skins) and prices over time. Recent studies have identified some such data for the period after 1820, but information on the period prior is very sketchy. [28] It consists chiefly of fragments found in Sydney court records, in sources such as Historical Records of Australia, and family/business records, such as those of the Grono Family Association.[29]

The most recent attempt to value the significance of the sealing industry in and around Tasmania appears to be that of Basberg and Hedland in 2008. The aim of their research was "to clarify sources and data available about nineteenth century Antarctic sealing to be able to analyse its economic significance'.[30] Notwithstanding the shortage of reliable data, which also applies to Tasmanian sealing, the major challenge to Bass Strait-focussed studies such as this one, is that the data sources that have been discovered or re-affirmed do not disaggregate data about the Australian sealing

industry from that about the global counterpart industry, including as it does the South Island of New Zealand and the disconnected ring of Antarctic and sub-Antarctic islands from the Falklands eastward to Kerguelen (or westwards).[31]

Richards' 2008 paper reassesses the depletion rate for southern fur seals, and gets us a little closer to a plausible number. Richards' new analysis is based on data recorded by the Company in Canton and London, those in Canton being the freshest to new scrutiny. Richards concludes that on the basis of a new skin count, the sealing industry accounted for the sale of almost 7m pelts to London/Canton, compared to the earlier estimate of 5.2m.[32] His recalculation of the hitherto respected estimate of 5.2m seal pelts suggests that the (Bass Strait plus New Zealand) shares of global sales were of the order of 3%. Richards considered this estimate to be low, but in any case argues that regional estimates of shares of production/sales need recalculation in the light of the data revealed by the new study. Even if a share of double this size is closer to the reality, the share of global production/sales from this area would have been quite small.

The Australian sealing industry performance seemingly peaked at about 1805 but Hainsworth's analysis of a portion of merchant Simeon Lord's correspondence with his London agents suggests that there was a further peak in prices in 1808/9, short lived though it may have been.[33] Certainly Captain JW Kelly's evidence to the Bigge inquiry suggests that the industry's performance had deteriorated to a shadow of its former self by 1820, although it continued to be carried on around the South Island of New Zealand and the sub-Antarctic Islands to the south.[34]

Hainsworth suggests that the large firms operating in the sealing industry were disproportionately vulnerable to large losses. In his view, the modest operations of the time produced modest performers, and which were on that account less vulnerable to industry risks. The earlier and larger operators from New South Wales in the industry had mostly abandoned it by 1815, or thereabouts.[35] These judgments imply that economies of scale may not have applied to early sealing. Given that they operated in international markets supplied by producers from a wide variety of weather patterns, this view is plausible.

Murray-Smith takes a broader but not dissimilar view of the industry's early performance:

> *But the period of say, 1800 – 1810 was the heyday of the organised sealing industry at least in Bass Strait, and the population in the islands was a transitory one, comprised of men who were hoping to make a modest stake to invest in the taverns of Sydney town or in a small business of their own.*[36]

However the merchants who had invested in the sealing industry had been handicapped by the lack of local liquidity. Governor Macquarie responded to this concern by promoting the formation of a

locally-owned bank, which was to become the Bank of New South Wales. A meeting of business and government leaders took place on 20 November 1816. It was attended by 14 people. The merchant traders were heavily represented by, amongst others, Alexander Riley, Simeon Lord, Robert Campbell senior, Richard Brooke, Richard Jones and others. The meeting resolved that a bank should be formed.[37] A Board of Directors was constituted on 7 February 1817 consisting of D'Arcy Wentworth, John Harris, Robert Jenkins, Thomas Wylde, Alexander Riley, William Redfern and John Thomas Campbell, all of whom had whaling interests, directly or indirectly.

There are many biographies of these and others who supported the Bank through its founding years, and indeed there are too many to consider here on an individual basis. Richard Jones is an exception (see below). But in any event, in the context of this thesis, it is the networks between merchants, traders and shipbuilders and whalers/sealers which are relevant.[38]

Of all of the Sydney/Hobart-based merchants who also invested in whaling, one of the highest achievers was Richard Jones. He is among the many who made and lost fortunes, but Jones selects himself for mention here because he was the first to invest a substantial proportion of his diverse assets (land, pastoral and other investments) in whaling in the 1820s. Holcomb states that her research led her to conclude that by the mid-1820s the Jones and Walker merchant house was probably in the soundest position of all Sydney's merchants, controlling seven ships working either as whaleships or in freighting oil and wool to England.[39]

Holcomb recognises that 'Jones also purchased a number of whalers'. She writes:

> *He acquired shares in the whaler* Woodlark *as well as* Harriet, Saracen, Mercury, Pocklington, Prince Regent *and* John Bull.[40]

As Holcomb argues, it was bold to intrude on the coveted British whaling interests and to steal an unprecedented advantage by transferring whaling ships to the colonies.[41] It would have been helpful if she could have distinguished between 'acquired shares' and 'purchased' number of whalers. The two terms are not necessarily co-extensive.

Richard Jones was made a director of the Bank of New South Wales in 1826 and was its president from 1827 to 1843.[42] He had been present at the initial meeting formed to elicit support for the formation of the Bank. He had planned to return to the United Kingdom to reside, and did so. He returned to Australia, but his appointment as president was terminated in 1827 because he became insolvent. He was for a time, a Member of the Legislative Council. According to Holder:

> *The Bank was regarded as the mercantile bank and many of the leading merchants and skippers were customers. The most important export industry at the time until wool ousted it in 1834 was the 'fisheries' namely sealskins, whale oil and whalebone which in turn were*

> *closely tied up in ownership with ships' chandlers and actual shipping. In this sphere of enterprise the Bank's interests were quite strong ... The prominent names of those associated with whaling ventures were ... William Walker, merchants, whaling on his own account; Aspinall Brown & Co; Cooper Levey & Street; Lamb & Parbury; Rapsey & Mitchell; Samuel Lyons; John Jones; Philip Cavanagh; Prosper de Mestre; JB Bettington & Robert Campbell jnr. were either customers and many of them actively pursued whaling as a part and often a substantial part of their mercantile interests.*[43]

The sealing industry of the Southern Ocean came to be controlled largely by merchants resident in Sydney. The main ones were Simeon Lord, Robert Campbell, James Underwood and Henry Kable, the latter pair working in concert, initially as shipbuilders.[44] They were the few who could fund operations. Though the costs of killing the animals and treating their pelts were low, significant costs were incurred in shipping sealing crews to the killing site, and pelts to their destination (London or Canton), and in funding inventories.

Sealing's viability as an industry was its vulnerability to volume and price volatility typical of commodity markets, and outside the control of the small producer. In a world inherently volatile, with investment dependent on small entrepreneurs, it is inevitable that the industry's labour force would come to bear the brunt of strategies aimed at absolutely minimising the costs over which those entrepreneurs had some control. There are many accounts of how the industry's labour force suffered under such conditions. Those strategies include the co-opting of largely unpaid females, and the under-resourcing of sealing gangs.[45]

Sealing's ultimate significance to the society and the economy of Tasmania lies not in how its economics supported a relatively small number making up what became a relatively large proportion of its population, at least for a time; it is about how the sealing industry underpinned the survival of Aboriginal Tasmanians as a people. Tasmania's historical research of the last thirty/forty years has focussed to a large extent on Aboriginal 'management', and more recently on Aboriginal and non-Aboriginal cross-cultural relations in the thirty-year period 1820 to 1850. It has become increasingly clear that the government's preferred strategy up to at least 1835 was to destroy the Aboriginal Tasmanians.[46] In Tasmania when it became apparent that this option had failed, and was probably not viable anyway, it opted for 'Protection' – the collection of the few remaining Aboriginal Tasmanians from their homelands into a single concentration on Flinders Island in the Bass Strait, and administered by a public servant named George Augustus Robinson. The outcome of this strategy was further destruction. Further destruction was found to be unviable also, because of the emergence of an Aboriginal grouping formed by (usually) white sealers and (usually) Aboriginal women, contracted for, or abducted from, the north western mainland and/or other Islands.[47]

The limited survival of Aboriginal Tasmanians had much to do with the choice of Flinders and associated islands on the East of the Strait and their constructive relationship of long standing with the Aboriginal Australians of the North West. The fact that they had been relatively immune from white settlement and bureaucratic interference (until Robinson) was much in their favour. But so was their capacity to develop relatively diversified economies from their natural resource endowments. These included plentiful fresh water supplies, sea creatures for food, pastures well fertilised by generations of mutton birds and the products of the mutton birds themselves – meat, fat, oil and feathers.

The fact that the incoming sealers and future residents did not seek to alienate Aboriginal land supports this position.[48] From the earliest days, land had been treated by all as if common property, and thus a potentially major source of conflict between sealers and Aboriginal Australians was avoided. Though sealing was no longer viable, the remaining populations were living in a diversified and diversifying economy with viable if tiny export industries. A formula for their survival had emerged.

When Robinson was appointed in 1826, an Aboriginal population estimated at 5,000 had been reduced to an estimated 300 for the whole of Tasmania. Robinson was greeted by 123 Aboriginal Australians when he arrived at Wybalenna in October 1835. When he departed three years later only sixty remained. There were similar large-scale reductions at other settlementg. For example, there were thirty-five Aboriginal Australians recorded on the roll when Robinson arrived at the Big River, Oyster Bay and the South East in 1835, but only fifteen remained in 1839; thirty were recorded as living at Ben Lomond in October 1835, and 21 remaining in April 1839. All the chiefs, bar one, had died, and the men who became leaders were in their twenties and thirties. The native population had survived to 1839, but only just. See Ryan's *Tasmanian Aborigines* for a detailed recent re-assessment of the population's changes.[49]

5.4 Bay Whaling

Bay whaling in Australia did not begin in the first colony settled. The first whales known to have been taken were in the waters of southern Tasmania, and were taken by vessels owned by the British whaling entrepreneur, the Enderby Company. The *Union, Neptune* and *Rockingham* operated there in concert in 1775 on what was a reconnaissance mission. They were followed by the *Albion* skippered by Ebor Bunker; the *Albion* was ferrying convicts and others from Norfolk Island to Tasmania. Bunker had Governor King's approval to 'fish' for 3 whales provided the diversion involved did not interfere with the objective of his mission and provided that convicts were chained and locked down while fishing was in progress.[50]

The volume of traffic in the Derwent grew. The first application to establish a shore-based whaling station was approved in 1805.[51] With that growth came the constant challenge to the local authorities determined to prevent escape from the River Derwent and environs by convicts. This was no mean task. Lieutenant Governor Collins issued general orders in 1806 aimed at controlling movement between the whaling station, the settlement and vessels anchored in the river. These orders stated, *inter alia*

> *(T)he Lt. Governor hereby directs that no person who has the charge of a boat belonging to any inhabitant of this settlement presumes or attempts to land at any place where the business of the Fishery may be carrying on, or have any communication with any ships or vessels which may be employed in the River or the adjacent bays, without written authority and the knowledge of the Lt. Governor on pain (if a Private Boat) of being forfeited to the Crown.*
>
> *The coxswains of the Government Boats employed in burning shells in Ralph's Bay are equally prohibited from hailing communications with the people employed in the Fishery…*[52]

Under additional regulations, all ships using the port were to be searched before leaving, and small craft anchoring in Sullivan's Cove were ordered to unbend their sails and ship their rudders upon docking for fear of seizure by escapees.

That the challenge involved in preventing convicts from visiting fishery vessels was a perennial one is evidenced by an earlier regulation issued in respect of shipping in Port Dalrymple (Launceston).

> *II. When the vessel is secured, the master is to report her; to produce a Manifest of his cargo, specifying the different Articles in the vessel (if any) for sale; and to give Bond of Security in the penalty of two hundred pounds sterling, that neither himself or any other person whatever sends from that vessel, or opens the hatches for that purpose, any Article for sail (*sic.*) until permission is given; and not to send from the vessel any spirits, wine, beer or other strong drinks after that permission is granted; not to send from the vessel or to sell any arms or ammunition to any person without my written permit, on pain of the Bond being forfeited for a breach of any of the preceding conditions ...*
>
> *IV. Vessels leaving this Port or persons to go in them are to give a week's notice previous to sailing, unless I give written permission to the contrary.*
>
> *V. Masters of Ships, under a Penalty of Two Hundred Pounds, are not to take any person from this Colony, but by my written Permission; And if any Convict should be discovered on board after the Vessel has left this Port, the Master is enjoined to deliver him, her, and every such Convict to the Commanding Officer at the first Colonial or English Port he touches at, as having absconded from hence.*
>
> *VI. No Convict, either Male or Female, is at any time to be received on board any Vessels in the Harbour without a Pass from me or a Magistrate. No Boats are to remain on shore after Eight o'Clock at Night. No seamen are to go into the Country without a Pass; and if found on shore after dark without a Pass or Permission from a Magistrate, they will be confined. No Ship's Boat is to go up the Harbour without written Permission from me, or without a trusty person in command of her.*[53]

Right whales were in abundant supply in the Derwent, but even so the bay whaling leg of the industry was slow to develop. As suggested above, this was partly because of the difficulties in controlling the harbour/river to prevent convict escapes. The slow rate of development was also due to the impost of duties on colonial whale products mandated both by Britain and locally by Governor Macquarie. The heavy duties imposed in Hobart Town made it more profitable for the ships to carry their oil to England, unload there, refit then return.[54]

A few initiatives were undertaken locally. The earliest maritome commercial ventures in and around Hobart include the construction of the *Henrietta Packet* (40 tons), launched at the end of 1812. She was commissioned by Dr T.W. Birch. So too was the purchase of the brig *Sophie*, which Dr Birch put to work as a bay whaler in about 1814. A further major local investment in new shipping was made by Robert Loan, a merchant resident in Hobart, with the construction of the *Campbell Macquarie* (133 tons) around 1813.[55]

It was not until 1819 that bay whaling by shore parties became common in the Derwent. According to Lawson:

> *(T)he first station was at Drouthy Point. Other stations were set up at Tinderbox, Bull Bay, Trumpeter Bay, Adventure Bay, Bruni Island, Southport, Recherche Bay and other bays.*
>
> *On the east coast, there were stations at Blackman's Bay and Oyster Bay, Maria and Scheutein Islands, and Eddystone Point.*[56]

The decade to 1820 was a period in which exploration was still taking place to determine the extent of Tasmania and its resources. For example, in 1816 Captain James Kelly circumnavigated the island in an open whaleboat.[57] In the event, most of the investment in bay whaling occurred after 1820. This will be considered again in Chapter 7.

5.5 Deep Sea Whaling

The merchant adventurers of London spent much of the period from 1775 to 1786 lobbying. They pressed their cases to the British government both for bounties on catches by British ships[58] and for freedom to work without restriction in the area of the Company's monopoly, in large part, the Southern Whale Fishery.[59]

The result of their efforts was seen first in the Southern Whale Fishery Act, was passed by the Commons in June 1786 as an 'Act for the Encouragement of the Southern Whale Fishery'. [60] In the process of negotiating this bill, the Company agreed with the entrepreneurs on some constraints, including:

> *The ships proceeding to fish beyond Cape Horn shall be confined to and shall not proceed beyond the limits hereinafter mentioned, to wit, in Latitude as far as but not to the northward of the Line (equator) and in Longitude not exceeding 100 leagues from the coast of America.*
>
> *The ships proceeding beyond the Cape of Good Hope are not to go to the northward of 30^0 Latitude and not more than 15^0 of Longitude eastward from the Cape*[61]

This move opened the Southern Whale Fishery to the British whalers, after 25 years of negotiations between the entrepreneurs and the Company, mediated by the British government, so as to deliver a constraint-free fishery to British whalers in the Southern Whale Fishery.

The first British whalers to sail through the newly-opening doors were the two vessels contracted to sail to Port Jackson as part of the First Fleet, and licensed to 'fish', having disembarked their cargoes. Those vessels arrived in Port Jackson in January 1788. In the meantime, Samuel Enderby was planning to have one of his ships enter the Southern Pacific by way of Cape Horn. The *Emilia* did so in January 1789, and was back in London in March 1790, with a full ship of highly saleable product.[62] The word got around very quickly; a number of British vessels quickly organised to round the Horn and the American whaler, the *Beaver*, followed suit before the end of 1791.[63]

As news spread of the prospects for fishing off New Holland and elsewhere in the Pacific, Samuel Enderby continued lobbying and wrote to Prime Minister Pitt. He sought further removal of restrictions on whaling imposed by the Company. An Act "further encouraging and regulating the Newfoundland, Greenland and Southern Whale Fisheries" was passed in 1789 while Pitt was Prime Minister[64], and further legislation to "adjust the limits of the Southern Whale Fishery" was passed in 1802 under his successor.[65]

Between 1789 and 1819, the Company lost the battle. In 1809 the merchant adventurers secured a major bridgehead, having persuaded the British government to impose crippling duties on the importation of oil won by the fleets of British colonies. But in 1814 the government removed all of the Company's privileges except those in relation to trade with China. In 1819 British colonial vessels were granted the right to trade directly between the colonies and Britain. In 1823, following the Bigge Inquiry, duties on the import of colonial oils were lifted. Australian oil was now able to compete with American oil in sales to Britain on equal terms.[66]

Five whalers formed part of the 11 ships making up the Third Fleet, which arrived in Port Jackson on 13 October 1791. Immediately their passengers had disembarked, the whalers went searching for sperm whales, licensed as they were to travel widely in the Pacific across to the coast of Peru. Two of them - the *Britannia* (Captain Thomas Melville) and the *William & Ann* (Captain Ebor Bunker) - sailed close together out of Port Jackson to prospect for whales in the local seas. Captain Melville's

subsequent report to Enderby is one of the most quoted in the history of Australian whaling. So important was it to be for the future of the industry that the relevant part is quoted here in full.

> *The day before we made it (to the Island of Amsterdam) we saw two shoals of Sperm Whales. After we doubled the South West Cape of Van Diemens (*sic.*) Land we saw a large Sperm Whale off Maria's Islands but did not see any more being very thick and blowing hard till within 15 leagues of the latitude of Port Jackson. Within three leagues of the shore we saw Sperm Whales in great plenty. We sailed through different shoals of them from 12 o'clock in the day till sunset, all round the horizon, as far as I could see from the mast head. In fact, I saw very great prospects in making our fishery upon this coast and establishing a fishery here. Our people was in the highest spirits at so great a sight and I was determined as soon as I got in and got clear of my live lumber, to make all possible despatch on the Fishery on this Coast.*[67]

It was reports such as this which convinced Governor Phillip that whaling would have a major part to play in the colony's development, and which underpinned his flexible policy in respect of shipbuilding in the colony, considered in the following two chapters.

The first 'large' vessel built in Australia, the Sydney-built *King George* (185 tons) was launched in 1805. Hainsworth lists 113 vessels (and their owners) who worked out of Sydney in the period 1803 – 21. Of those, data on tonnage was available for 76. Two thirds of those vessels weighed less than 50 tons, and four weighed more than 150.[68] The *King George* was used as a whaler and sealer periodically, as well as carrying cargo between colonies, and from the Pacific Islands to Sydney/Hobart. These shifting roles make it difficult to describe her truly as a colonial whaler. There is no record of vessels designed *specifically* and *only* for whaling having been built in either New South Wales or Tasmania shipyards prior to 1820.

Stackpole listed the vessels known to have made up the early British Southern Whale Fishery Fleet in 1793. His summary was that 40 vessels sailed (from England) in that year, 18 vessels had sailed in 1792 and had not yet returned, and 10 vessels were preparing to sail after 1 January 1794. There were, hence 68 vessels in the fleet. Of considerable interest however, is the distribution of working regions amongst vessels. As to their whereabouts of the 40, 14 were somewhere unspecified in the Pacific Ocean, 10 were working off the coast of Africa, 10 were working off (Brazil and Cape Horn), and 5 were working off New South Wales. [69] Hence, after a development period of only 3 years, the New South Wales portion of the Fleet accounted for about 7 ½ % of the fleet's productive capacity – assuming no regional difference in vessel size/capacity.

The volume of whaler traffic in the Derwent between 1804 and 1820 can be gauged by the following extract from *Whales in the Derwent*.[70]

> *1804 Sunday 12 July – the English whaler* Alexander*, Captain Rhodes, caught two whales in the Derwent and another on 15 July.*

1805 Monday 10 June Richard & Mary *whaler, Captain Lucas, 18 months out from London.*

Tuesday 25 June: other vessels whale-fishing here are King George*, Captain Moody,* Sophia*, Captain Collins,* Sydney*, owned by Camel:* Recovery*, schooner, Captain Kelly, also owned by Camel.*

10 September Ocean*, 4 months out from England, in Adventure Bay where she has been for 28 days and has taken 60 tons of oil.*

21 September King George *landed her oil.*

....

1806 13 May King George *whaler, Captain Moody arrived from Sydney.*

9 June strange sail in Frederick Henry Bay – Carlton*, Captain Halcrow, Privateer, from Liverpool.*

24 June whaler Ocean*, Captain Bristow, anchored in Adventure Bay.* Carlton *proved to be a whaler also.*

21 July Ocean *sailed for England.*

22 September, Ferret*, a whaler Captain Skelton owned by Bennet & Co. London, also sailing under letter of marquee.*

1807 26 March whaler Ferret *arrived from New Zealand having had little success.*

20 April Aurora *whaler, came.*

19 May Elizabeth*, Captain Bunker, anchored in Frederick Henry Bay.*

31 May whaler Aurora*, Captain Merrick. Lost boat and 2 men following attack by whale.*

14 June Sunday, Albion *Captain Richardson.*

31 July, Rev. Knopwood counted 17 whales making a great noise opposite his house.

11 July Sunday, boats from Aurora, Elizabeth *and* Albion *chasing whales in river within sight of the town.*

30 July. Mutiny reported on Captain Bunker's Elizabeth *owned by Enderby of London.*

1 October. Five men deserted from Sarah*.*

3 October. American ship Topaz *anchored in the Bay…*

1808 4 May arrived ship Dubuck, *Captain Chase, twelve months out of London with 300 tons of sperm oil.* Dubuck *had obtained 180 tons of oil in the Derwent.* Ann*, Captain Williamson, secured 30 whales for 300 tons black oil. Another was* Seringapatain*….*

25 October – visit by HMS Porpoise*.*

The *Topaz* and the *Pilgrim* aside, these visiting vessels were all British. The visits averaged approximately 5 per year from 1804 to 1808.

The first American vessels to arrive in Port Jackson were the *Philadelphia* and the *Hope.* They both dropped anchor there in 1792. Sixteen further American vessels arrived before December

1800.[71] With arrivals running at the rate of only 2 per year, the new colonies were fairly isolated from the new America. In 1804, the rate of arrivals reached 11 per year, most carrying speculative cargoes to sell to the settlers. The American ships were usually sailing via Cape Horn and thence to Sydney before embarking for Canton, or returning to the USA. Those vessels not infrequently topped up their cargo holds with sealskins, sandalwood and *bêche de mer*. On occasion, they visited Port Jackson with the explicit purpose of carrying goods for trade; on other visits American vessels were requested by the Governor of New South Wales to find and return with food and other necessities for the colony, delivery from Britain having been deferred or otherwise delayed.[72]

Thereafter, British-American relations soured further. The naval war of 1812 – 1815 limited trade between America and New South Wales severely. The rate of visitation by American vessels dropped away to 1 – 2 per year.

In any event, it had taken 15 years from first settlements to appoint Port Jackson's first pilot. Serious efforts to install navigation aids were slow to appear. According to Bach:

> *A lookout station ... was established at South Head in 1790 ... The first lighthouse was not erected until 1818 ... (although) a patent slip was the first improvement on the practice of heaving ships down on the land when the underwater body needed attention, and both commercial and naval vessels used it in the thirties and forties.*[73]

5.6 Summary

Britain was the dominant whaling nation in the Southern Whale Fishery when it opened in 1775. At its peak production, the Southern Fishery contributed around 35 - 40% of Britain's oil imports and thus was important to the functioning of the colonial economies, including oil carried to London in British vessels, but not documented as exports of either colony.

America's participation was negligible until around 1830. The delay in its participation in the Pacific was primarily a function of the time required to recover from participation in wars, activity which, with few breaks, extended over the entire period from 1775 to 1815. After 1830, its participation in Pacific whaling increased almost exponentially. Even so, its participation in the waters around Australia was a fraction of its overall Pacific effort. Its contribution from this source to Australia's whaling industry output, and to national (American) economic development appears to have been significant, even though not identifiable or measurable.

The Australian fleet began to emerge as an entity in its own right around 1820. The evidence suggests that American demand from the whaling industry for Australian-built ships was unlikely to have been large enough to provide a volume of business which alone would justify the capital investment required for a major heavy ship servicing operation in Australia in the period in question. American

demand on Australian facilities was limited to repairs, refits and provisioning, and even then American captains preferred to have work done on the ships elsewhere whenever possible.[74] Further, the volume of demand did not grow beyond 1850 – it declined and by 1860 had almost disappeared. If the investment had not materialised by 1850, it is unlikely to have done so thereafter.

Notes for Chapter 5

[1] Spears, *The Story of the New England Whalers*, 68–72.
[2] Sanderson, *A History of Whaling*, 1993, 9.
[3] Ellis, *Men and Whales*, 150. Ellis quotes Beales' description of 1833, which includes reference to 1775 'as the first year the British made an attempt to establish a sperm whale fishery'.
[4] Gordon Jackson, *The British Whaling Trade* (London: A. and C. Black, 1978), 92. See also: ; Samuel Enderby, 'Memorial Submitted by Samuel Enderby (and Others) to the Lords Commissioners of the Treasury' 2 August 1786, National Archives, Kew; Charles Enderby, *Proposal for Re-Establishing the British Southern Whale Fishery: Through the Medium of a Chartered Company, and in Combination with the Colonisation of the Auckland Islands as the Site of the Company's Whaling Station* (London: Effingham Wilson, 1847).
[5] Stackpole, *Whales and Destiny*, 1972, 159–63.
[6] 'Impressment' was the legalised detention of British citizens for service in Britain's armed forces, the Navy in particular. Volunteers, willing and otherwise, could satisfy only a small fraction of what the Royal Navy needed during its rapid build-ups. By 1800, the 'Imprest Service' was a permanent institution, commanding the full-time services of one admiral, 47 captains, and 80 lieutenants whose job it was to make up the difference. See Stephen Budiansky, *Perilous Fight: America's Intrepid War with Britain on the High Seas, 1812-1815* (New York: Vintage Books, 2012), 52. For a British view of impressment, see ; J. R. Hill and Bryan Ranft, eds., *The Oxford Illustrated History of the Royal Navy* (Oxford; New York: Oxford University Press, 1995), 133–38.
[7] 9. The loss of the Quaker party to the French was significant, but it is important to keep it in proportion. Twenty-four Nantucket whalers flew French flags in 1792, but the London fleet had increased from forty-four ships in 1790 to ninety-five ships in 1792 ... The value of Britain's whaling industry was reckoned at £189,000 in 1792 and she easily led the world as a producer and a consumer in the industry. Starbuck, *History of the American Whale Fishery*, 1878, 80–81, footnote.
[8] Stackpole, *Whales and Destiny*, 1972, 63–70.
[9] Phillips, *The East India Company, 1784-1834*, chap. 1.
[10] Steven, *Trade, Tactics and Territory: Britain in the Pacific 1783-1823*, 128.
[11] Ibid., 128.
[12] John Stanley Cumpston, *Shipping Arrivals and Departures, Sydney, 1788-1825* (Canberra: J.S. Cumpston, 1963). Analysis suggests an endemic oversupply of freight capacity between Sydney and London of between 5% and 25%, depending on the year.
[13] Vincent T. Harlow, *The Founding of the Second British Empire, 1763-1793: New Continents and Changing Values*, vol. 2 (London: Longmans, Green, 1952), chap. 5, "Neo–mercantilism under Lord Hawkesbury".
[14] Budiansky, *Perilous Fight*, 2012, chap. 4.
[15] Sanderson, *A History of Whaling*, 1993, 213.
[16] David Roger Hainsworth, *Builders and Adventurers: The Traders and the Emergence of the Colony 1788-1821* (Cassell Australia, 1968), 81–82, 'The Refit of the Sydney Cove'.
[17] Sir Joseph Banks to Lord Liverpool, May 1806 quoted in ibid., 89.
[18] For example, see Mawer, *Ahab's Trade*, 90–91. Capt. Ebor Bunker skippered the *Albion* from Norfolk Island to the Derwent in 1803. He sought to go whaling if suitable targets presented themselves *en route*. He was authorised to take 3 whales, provided that while the chase was on his convicts were locked down and shackled.
[19] D Phillips, 'Development under Macquarie', in *Essays in Economic History of Australia*, 1967, Chapter 2.
[20] John Thomas Bigge, *Report of the Commissioner of Inquiry on the State of Agriculture and Trade in the Colony of New South Wales*, Facsimile edition 1966, Australiana Facsimile Editions 70 (Adelaide: Libraries Board of South Australia, 1822), vol. 1, p. 107.
[21] Wentworth, *Description of New South Wales*, 290.
[22] See the discussion at page 64 below
[23] See for example Bligh's instructions at HRNSW I, 5, pp.638-9. Bach was of the view that these '… are still the most dramatic indication of the restricted circumstances under which the shipping was to develop': John Bach, *A Maritime History of Australia* (Melbourne: Nelson, 1976), 71.
[24] Hainsworth, *Builders and Adventurers*, 74.

[25] Michael Roe, *The Journal and Letters of Captain Charles Bishop on the North-West Coast of America, in the Pacific, and in New South Wales, 1794-1799*, Works Issued by the Hakluyt Society ; No. 131 (Cambridge University Press for the Hakluyt Society, 1967).
[26] Frederick Watson, ed., *Historical Records of Australia*, Legal Papers, IV (Sydney: Library Committee of the Commonwealth Parliament, 1922), vol. 1, 305. King to Collins, 08 January 1805, acknowledging Collins' application to establish bay whaling stations in the Derwent; Frederick Watson, ed., *Historical Records of Australia*, Despatches and Papers Relating to the Settlement of the States, III (Sydney: Library Committee of the Commonwealth Parliament, 1921), vol. 1, p316, King to Collins, 20 February 1805, notifying of Collins' application of 8 January.
[27] Murray-Smith, 'Beyond the Pale: The Islander Community of Bass Strait in the Nineteenth Century', 1973, 16.
[28] See for example Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, chap. 9.
[29] Peter Procter, *John Grono, Sailor, Settler, Sealer, Ship Builder, and Celebrity : A New Evaluation* (Pitt Town, NSW: Grono Family Association, 2015).
[30] Bjørn Basberg and Robert K. Headland, 'The 19th Century Antarctic Sealing Industry: Sources, Data and Economic Significance', SSRN Scholarly Paper, Discussion Paper SAM (Rochester, NY: Norwegian School of Economics and Business Adminsitration, 1 September 2008).
[31] The Kerguelen Archipelago is a French possession, located approximately 3,300 kms south east of the southern tip of Africa. It consists of 300 islands, islets and reefs which lie between 480 – 500 S and 680 – 700 E, covering an area of more than 7000 km2. Kerguelen experiences rain, sleet or snow falling for more than 300 days on average each year. Winds blow continually from the west averaging 110 kph all year round. As Kerguelen lies on the Atlantic convergence, birdlife and marine mammals are abundant. Kerguelen may be approached from any direction but landfall is likely to be easier with an easterly approach.
[32] R. Richards, 'On Using Pacific Shipping Records to Gain New Insights into Culture Contact in Polynesia before 1840', *The Journal of Pacific History* 43, no. 3 (1 December 2008): 375–82, doi:10.1080/00223340802499641.
[33] Hainsworth, *The Sydney Traders*, 1981, 129.
[34] Ibid.
[35] Watson, *HRA III*, vol. 3, p.461, Evidence of J. Kelly, Bigge Enquiry.
[36] S. Murray-Smith, 'Beyond the Pale: The Islander Community of Bass Strait in the Nineteenth Century', *Papers and Proceedings of the Tasmanian Historical Research Association* 20(4) (1973): 169.
[37] Reginald Frank Holder, *Bank of New South Wales: A History*, vol. 1 (1817-1893) (Sydney: Angus and Robertson, 1970), 17.
[38] Frank Broeze, *Mr. Brooks and the Australian Trade: Imperial Business in the Nineteenth Century* (Melbourne: Melbourne University Press, 1993); Holder, *Bank of New South Wales*, 1970; Reginald Frank Holder, *Bank of New South Wales: A History*, vol. 2 (1894-1970), 2 vols (Sydney: Angus and Robertson, 1970); S. Ville, 'Business Development in Colonial Australia', *Australian Economic History Review* 38(1) (1998): 16–41; L. Johns and P. van der Eng, 'Networks & Business Development: Convict Business People in Australia 1817 – 1824', *Business History* 52(5) (2010): 812–33; Holcomb, *Early Merchant Families of Sydney*.
[39] Holcomb, *Early Merchant Families of Sydney*, 106.
[40] Ibid., 100.
[41] Ibid., 106.
[42] Holder, *Bank of New South Wales*, 1970, 1 (1817-1893):25.
[43] Ibid., 1 (1817-1893):107.
[44] Hainsworth, *The Sydney Traders*, 1981, 113–27.
[45] Murray-Smith, 'Beyond the Pale: The Islander Community of Bass Strait in the Nineteenth Century', 1973, 169–75.
[46] Lyndall Ryan, *Tasmanian Aborigines: A History since 1803* (Crows Nest, New South Wales: Allen & Unwin, 2012), chaps 5–9.
[47] Murray-Smith, 'Beyond the Pale: The Islander Community of Bass Strait in the Nineteenth Century', 1973, 169–75.
[48] This paragraph is not meant to convey that initial agreements about the disposition of land between Aboriginals and white men in Tasmania were achieved without angst. But disputatious views were usually resolved by negotiation even if it were extensively protracted. Disagreement persisted until legislation to resolve it was brought down by the Bacon government of Tasmania beginning in October 1998. Ibid., 172–80; Ryan, *Tasmanian Aborigines*, 2012, 344ff.
[49] Ryan, *Tasmanian Aborigines*, 2012, 239.
[50] Lawson, *Blue Gum Clippers and Whale Ships of Tasmania*, 22-23.
[51] O'May, *Wooden Hookers of Hobart Town*, 1978, 12.
[52] Frederick Watson, ed., *Historical Records of Australia*, Governors' Despatches to and from England, 1788-1848, I (Sydney: Library Committee of the Commonwealth Parliament, 1914), 539.
[53] Ibid., 733.
[54] Lawson, *Blue Gum Clippers and Whale Ships of Tasmania*, 1949, 36.
[55] O'May, *Whalers out of Van Diemen's Land*, 1978, 15.
[56] Lawson, *Blue Gum Clippers and Whale Ships of Tasmania*, 1949, 38.

[57] Ibid.; J. West, *The History of Tasmania* (Sydney: Angus and Robertson, 1852), 47; Dakin, *Whalemen Adventurers in Southern Waters*, 45–46; Harry Morton, *The Whale's Wake* (Hawaii: University of Hawaii Press, 1983), 97, 113, 138ff. Note the geographical spread which is implied by these authors of Kelly's maritime activities.
[58] Enderby, 'Southern Whale Fishery', 2 August 1786.
[59] Ibid.
[60] 'An Act for the Encouragement of the Southern Whale Fishery', Southern Whale Fishery Act 1786 (26 Geo. III Chap. 50) § (1786).
[61] 45. Resolution of the Directors of the United East India Company, 10th May, 1786, P.R.O., B.T.5/3, quoted at Stackpole, *Whales and Destiny*, 1972, 79.
[62] Ibid., 143–44.
[63] Mawer, *Ahab's Trade*, 83.
[64] 'An Act for Further Encouraging and Regulating the Newfoundland, Greenland and Southern Whale Fisheries', 29 Geo. III Chap. 53 Whale Fisheries Act 1789 (29 Geo. III Chap. 53) § (1789).
[65] 'An Act for Continuing the Premiums Allowed to Ships Employed In, and for Enlarging the Limits of the Southern Whale Fishery', 42 Geo. III Chap. 18 Southern Whale Fishery Act 1802 (42 Geo. III Chap. 18) § (1802).
[66] Chatwin, 'If the Government Think Proper to Support It! Issues of Relevance to Australian Whaling in the Demise of the British Southern Whale Fishery', 88–89.
[67] Thomas Melville to Samuel Enderby and sons, 22 Nov. 1791, quoted William John Dakin, *Whalemen Adventurers: The Story of Whaling in Australian Waters and Other Southern Seas Related Thereto from the Days of Sails to Modern Times*, 1st 1934, Revised 1938 (Sydney: Sirius Books, 1934), 9–10.
[68] Hainsworth, *The Sydney Traders*, 1981, 118–20.
[69] Stackpole, *Whales and Destiny*, 1972, 399.
[70] O'May, *Wooden Hookers of Hobart Town*, 1978, 6–13. This extract makes it clear how erratic was the pattern of individual ship visitation during the Napoleonic Wars.
[71] Greenwood, *Early American-Australian Relations*, sec. Appendix 1.
[72] Bach, *A Maritime History of Australia*, 29.
[73] Ibid.
[74] See Section 8.2 (Americans in South & Western Australia) from page 107

6 Whaling Industry Development in New South Wales (1830-1860)

More than one hundred and fifty years after the New South Wales whaling industry's demise, there remains uncertainty about its contribution to the development of the colony's economy. Some commentators simply ignore the issue,[1] while others await better data. According to Jackson:

> *Most historians have either ignored whaling or given it an essentially subordinate or ephemeral role in Australia's early economic development.*[2]

On the other hand, Jackson considers Blainey to be an exception, because in Jackson's view Blainey argued that whaling was more influential than wool in determining the pattern of economic change.[3] Jackson was concerned about the lack of data on whaling's place in the early economy:

> *The available statistics are inadequate to sustain confident assertions about the composition of exports in the 1820s.*[4]

Thus Jackson justifies his not expressing an opinion on the matter.

Jackson's eminent contemporary Warren Sinclair was dismissive of claims that the whaling industry may not have justified analysis:

> *Whaling gave a more sustained boost to income per head and was linked with the development of the shipbuilding industry in the 1830s.*[5]

Blainey's own view was that:

> *... if eventually a reliable series of export figures for the years 1788 – 1828 is compiled, it will be surprising if Australian-owned whaling and sealing vessels with their early start – are found to be less productive than sheep in those first 40 years.*[6]

Still others credit the industry with major contributions to linked industries such as shipbuilding, or limit their treatment of the whaling industry to the contribution of whaling to exports.[7]

Blainey, Jackson and Sinclair failed to consult sources of early economic data which were available at the time of their respective writing. Tasmania had carried out a census in 1847, which in part formed the basis of Barnard's *Observations on the Statistics of Van Diemen's Land for 1849*.[8] New South Wales published its *Statistics of New South Wales from 1837 to 1853* in 1854, and Deas Thomson, the Colonial Secretary, maintained his own data on shipping, exports and customs until at least 1887.[9] None of the economic historians seem to have consulted these sources, which are discussed further below at page 76.

Whaling competed with wool for the title of leading commodity exporter from New South Wales until the mid-1820s. Thereafter, wool took over and continued to grow in that role for the next 130

years.[10] New South Wales whaling was, in practical terms, defunct by 1850. Yet there are two reasons for treating these conventional observations with caution.

The first is the fact that the majority of the exports of whale products from the Southern Ocean were undertaken by British, American and French whaling ships and went unrecorded. In this period, deep-sea whaling was conducted by vessels from Tasmania, New South Wales, Britain, France and the USA. Vessels from the last three were organised to take voyages of three to five years' length from their home bases in Europe and North America. Their catches could be delivered to transports of compatible nationality in the interim, or transported direct to home base. In either case, the size and value of their catches went unrecorded in Australian colonial statistics. We can safely say however, that much more whale oil was exported from this region than was recorded as having been exported in Australian vessels, particularly in the 1840s, because there were more whaling ships owned by foreigners than by colonials.[11]

The second reason is that there is now emerging evidence that non-colonial (i.e. British, French and American) vessels contributed little to patronage of the shipping and related industries referred to above, albeit this contribution remains to be precisely quantified. Shipping and ship servicing markets were not homogeneous. The extent of their patronage in Australian waters depended heavily on nationally-derived markets. Take ship construction as an obvious case in point. New British vessels working in the Southern Whale Fishery were constructed in Britain, not in Sydney; investment in British new ship construction for those vessels in New South Wales was, therefore, zero.

At the same time, British investment in refitting British bottoms as whalers in the colonies was significant – American or French investment in either construction or refitting was not. The repair of American vessels fishing in the South Pacific waters might be thought of as having favoured Hobart and Port Jackson; this was, it appears, not the case at all.[12] Americans preferred to repair (and refit) in the Bay of Islands in New Zealand, or in Tahiti or Hawaii. The growth and size of national fleets in Australasian waters is considered in more detail in Chapters 8 and 9 below.

What national differences in patronage patterns mean is that it is not possible to derive reliable estimates of the size and growth of the New South Wales whaling fleet and related industries without being able to make separate estimates for at least the following categories of expenditure: ship construction, outfitting (or fitting out), provisioning, refitting and repairs, each analysed by nation of vessel ownership. The extant research base means that our capacity to do this at present is extremely limited.

6.1 The New South Wales whaling fleet

How is the 'New South Wales fleet' to be defined? One possibility is to track the nationality of whaling vessels using the port, i.e. shipping arrivals and departures. Another option is to confine the fleet to the number of vessels registering Port Jackson as their home port at a point in time, say a particular year. I opt for the latter as this avoids the complications caused by separating out single visits by one ship from multiple visits by the same ship, which could potentially result in double (or more) counting important variables such as crew numbers.

Blainey's overview is that:

> *The 1830s was the great decade of colonial whaling, whether in the bays or the deep sea. The Tasmanian industry hit its summit in 1837 and New South Wales in 1840.*
>
> *Hobart even surpassed Sydney as a whaling port. On Good Friday 1847 ... there were said to be 47 whaling ships anchored in the Derwent. Most of the ships were American, but Hobart's own fleet was expanding with new ships from Tasmanian shipyards. ... In the following years Hobart owned 37 whaling ships with more than 1000 men on board, and the combined tonnage of these ships exceeded that of the 135 other coastal vessels belonging to Hobart.*
>
> *Shipbuilding was probably the largest and most dynamic colonial manufacture in the first half of the nineteenth century ... Whaling was a mainstay of the shipyards, and scores of large whaling ships were launched in Hobart or Sydney.*[13]

Blainey did not specify his sources.

Bach's account begins:

> *From the 1820s the duties discriminating against colonial oil were removed and the great era of colonial whaling, both from sperm and bay whales, began; ... at the same time, while the colonial industry ... was flourishing, British whaling declined rapidly. ... By 1849, the year when duties, already cut by half in 1843, were completely abolished, only 21 British ships went out to the Southern Fisheries while America despatched 659. A decade later, the British disappeared altogether.*[14]
>
> *Twenty vessels appear to have operated from Sydney in 1848, and there are references to an earlier higher figure of 60 ships.*
>
> *In 1830 there were 17 ships from Sydney, where three years before there had been but 5 locally-owned whalers. In 1835, 76 ships said to have been deep-sea whaling from Sydney, while Hobart at this period in 1849 had 37 such vessels.*
>
> *The industry had made its presence felt in other ways besides the export figures, for it was responsible for the growth of a number of ancillary industries, including ships and boat building, chandlery and provisioning. During the years 1822 – 40, for example, there were built in New South Wales 139 vessels ... and in 1849 alone, nearly 40 ships were launched ... In both Hobart and Sydney, the presence of British, American and colonial whalers had left a clear mark.*[15]

Bach's references to fleet size are drawn from Blainey, and not from his own research of primary sources. Bach's and Blainey's episodic and unattributed material is typical of relatively recent contributions. Broeze's contributions are similar to Blainey's. For example, he notes that:

> *During the 1830s Sydney's fleet increased to 70 ships… From the early forties however, Australian whaling, and British whaling with it, went into sharp decline. (Furthermore) in 1846 the number of British ships had dropped from 60 in 1840 to twenty when the Americas still had over 600 at sea.*[16]

O'May presents a list of the vessels making up the whaling fleet working out of Sydney in 1836, listing them by name, and by size, value and number of crew members. [17] They total 40. O'May states that this data is drawn from Martin's *History of the British Colonies* (1834).[18]

Pearson has also contributed to research about the size of whaling fleets operating out of Australian ports.[19] The data which he reports is in general presented in five-year aggregates. It cannot therefore be directly used in this search for a time series based on one-year intervals. Further, he aggregates data in respect of Port Jackson and Hobart, which limits its usefulness for the purposes of this dissertation. Pearson does report, however, other data of interest. For example, his research suggests that a total of 42 whaling vessels were built in Hobart and Port Jackson for the Australian fleet in the period 1831 – 1850. Since no such vessels were built in Australia after 1849[20] this relatively low figure raises important questions about the contribution of whaleship building to their local economies. It would appear to be lower than that widely implied by other authors (see for example the above references to Blainey and Bach).

Scholars of this subject appear not to have consulted evidence available in the *Returns of the Colonial Secretary, 1841*[21] (unpublished) or *Statistics of New South Wales 1837 – 1853 (Colonial Secretary's Office)*[22] (published) and perhaps other sources as discussed below.

The former includes four handwritten tables, each signed and dated July 1841 by E. Deas Thomson, Colonial Secretary.[23] These tables, and their original numbering and titles are, set out below.

Original #	**Original Title**
15, page 3	Return of the Value of Exports from the Year 1826 to 1840 inclusively
17, page 5	Return of the Number and Tonnage of Vessels Inwards, from the Year 1826 to 1840 inclusively
19, page 6	Return of the Number and Tonnage of Vessels Outwards, To the Year 1826 to 1840 inclusively
21, page 7	Return of Vessels Built and Registered in the Colony of New South Wales from the Year 1822 to 1840 inclusively

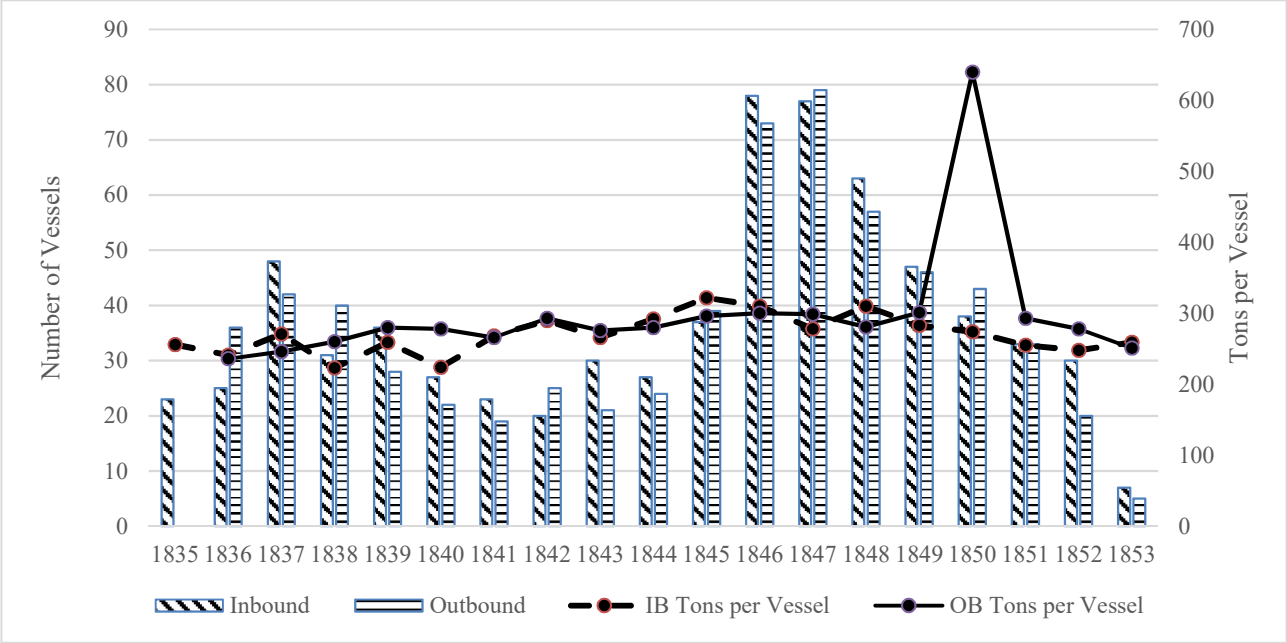
The latter includes:

Original #	**Table title**
27, page 20	Whale Fisheries (Port of Sydney): Return of the Ships and Vessels engaged in the Fisheries that have visited Port Jackson during the last eight years; distinguishing those that are Colonial, British, or Foreign, with the Tonnage of each description, and Estimated Value of

Original #	Table title
	the Cargoes disposed of by the last-mentioned class for payment for Repairs, Refitting and Refreshment
29, page 21	Return of the Value of Exports from the Colony of New South Wales, from the year 1837 to 1851, inclusive
46, page 30	Return of the Quantity and Value of Oil, &c., Exported from the Colony of New South Wales, from the Year 1837 to 1851, inclusive
48, page 31	Return of the Number and Tonnage of Vessels ENTERED INWARDS, in the Colony of New South Wales, from the Year 1837 to 1851, inclusive
49, page 32	Return of the Number and Tonnage of Vessels ENTERED OUTWARDS, in the Colony of New South Wales, from the Year 1837 to 1851, inclusive

Not all of these tables are as straight forward as their titles imply. Consider Figure 2 below, derived from original Tables 17, 19, 48 and 49.

Figure 2: Shipping to/from Fisheries and NSW (1835-1853)



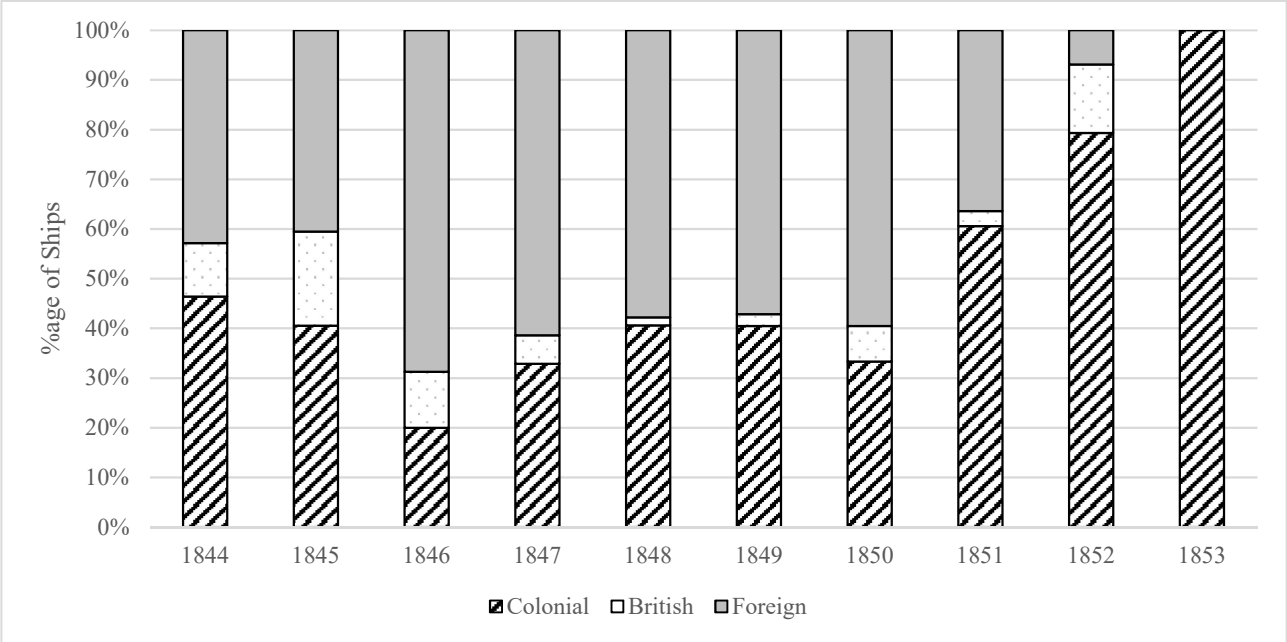
Source: Thomson (1887) and *Statistics of New South Wales* (1854)[24]

The 'number of vessels' from 1839–40 are likely to be mostly Australian, though not reported as such, with relatively few British. From 1845 onwards the number of vessels greater than 25 is likely to be American and French, but not reported as such. British vessels appear to have disappeared.

Information about region of vessel ownership is set out in Figure 3, illustrating the proportion of the fleet originating as British and foreign vessels (including prizes) and colonial vessels from Hobart and Sydney. The Collector of Customs described this data as referring to "Ships & Vessels *engaged in* the Fisheries that have visited Port Jackson" (my emphasis). [25] It is assumed that the Collector collected data from whaling vessels which made a customs declaration on entry to the port, whatever

their national ownership. Presumably this term is not coextensive with 'vessels registered in the port', or with vessels 'cleared for entry/exit to/from the port'.

Figure 3: Vessels in whale fisheries by region of ship ownership (1844-1853)



Source: Statistics of New South Wales (1854) [26]

Is it valid to assume that the *number* of *colonial* vessels in this table are vessels *registered* in the port of Sydney, or does this number include vessels which though 'colonial', are registered in Hobart, the Bay of Islands in the North Island of New Zealand, or at any other colonial port?

Assuming that colonial vessels are coextensive with 'vessels registered in Sydney', Figure 3 suggests that for the period 1844 - 1850, more than half of the Sydney-based whaling fleet was foreign-owned. In 1846, for example, foreign-owned vessels accounted for almost 70% of the vessels in the fleet. This data is congruent with data from other sources which show a rapid increase in the number of American vessels in the South Pacific from the eighteen thirties and the short but intensive period of French activity from the 1840s.[27]

As of 1820, New South Wales administrators and entrepreneurs had tested international markets for a wide range of locally-produced products. In the two-year period ending 1826, the volume of annual exports of wool began to exceed that of fisheries.[28] By 1835, wool and fisheries products, the top two earners of export revenue, could be properly regarded as staples, as Table 3, discussed below, illustrates.

Butlin's analysis of export performance is the most rigorous so far undertaken by historians. He reported that:

> *Maritime activity provided oil as the major product. This offshore enterprise had begun with sealing and continued with a miscellany of sea products including timber, shell, skins and seal oil during the 1810s. ... Investment in local ships and their operation paid off by the early 1820s for NSW as they participated in (mostly close) offshore whaling.*
>
> *One needs to avoid reading history backwards or focussing undue attention on wool. Whaling development in particular was led by foreign intervention in the Southern Fisheries. As local colonial populations expanded the ports of Sydney and Hobart became prime havens for revictualling and repairs.*[29]

In the circumstances, colonial catches and revenues from those visitors may well have significantly exceeded the export proceeds from the Australian pastoral industry throughout the whole period to 1840.[30]

Table 3 reports that exports of 'Pastoral' and 'Fisheries' products exceeded 80% of all export earnings for a large part of the period 1826–1850.

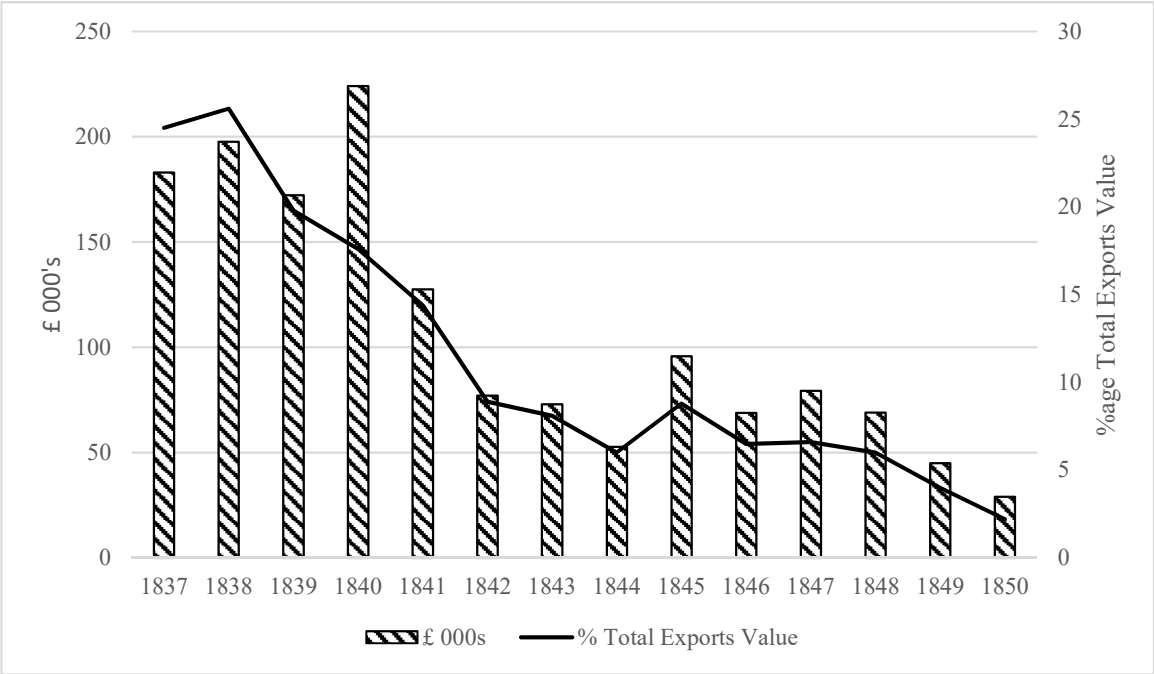
Table 3: Value of major exports - New South Wales and Tasmania (1826-1850)

	Pastoral		Fisheries		Other		Total
Year	**£000's**	**% Year**	**£000's**	**% Year**	**£000's**	**% Year**	**£000's**
1826	66	46	39	27	40	27	**144**
1831	162	46	119	34	73	21	**354**
1836	590	61	199	21	171	18	**960**
1841	916	62	280	19	281	19	**1,477**
1846	1,398	76	127	7	320	17	**1,846**
1850	2,316	87	87	3	254	10	**2,658**

Source: Butlin (1994) [31]

Although the value of Pastoral export earnings exceeded that of Fisheries from 1829, Fisheries contribution to New South Wales export earnings remained at around 20% or better to 1839 (see Figure 4). However, from 1841, it halved, and by 1849 was less than 5%. It never recovered.

Figure 4: Value of Fisheries Exports (1837-1850)



Source: Statistics of New South Wales (1854)[32]

6.2 Overlooked Sources

Robert Martin's five volume work, *History of the British Colonies*, published in 1834 and 1835 contains a section on New Holland in Volume 4. In respect of New South Wales, he notes 'As the trade in wool has an important bearing on our staple manufactures, a few remarks upon the subject will be necessary.'[33] He reports wool imports into Great Britain at five-year intervals between 1810 and 1835. The first year in which he reports significant volume was 1815; in that year, Great Britain imported more than 73 thousand pounds weight of wool from New South Wales and Tasmania, or 0.5% of her imports of wool from all sources. In that year, Spain was the principal supplier. In 1833, the NSW and Tasmania portion of imports had risen to 9.2%, and Germany had become Britain's chief supplier, with a 67% share.[34] Of whaling, Martin said 'After wool, whale oil is the next chief staple of the colony.[35] Table 4 below summarises his statistical report.

Table 4: Fleet size and catch volume estimates (1828-1834)

		Tuns of oil...				
Year	**No. of Vessels**	**Sperm**	**Sea Elephant**	**Black**	**Total**	**Avge per vessel**
1828	13*	348	118	50	**516**	39.7
1829	27	885	84	n/a	**967**	35.8
1830	32	1,282	27	818	**1,827**	57.1
1831	31	1,914	n/a	1004	**2,918**	94.1
1832	29*	2,699*	n/a	n/a	**2,699**	93.1
1833	27	3,483	n/a	n/a	**3,483**	144.6
1834	40*	2,580	n/a	n/a	**2,580**	64.5

Source: Martin (1834) [36]

This data enables an assessment of commodities' rates of growth over the period 1828 – 1834, a period when wool was rapidly overtaking whale oil products as the staple of greatest export earnings.[37] For example, wool exports grew from 216.6 thousand pounds in 1828 to 1,734.2 thousand pounds in 1834, an 800% increase in six years. By way of contrast, the principal timber export grew by a factor of only 1.6 over the same period. Sperm oil exports grew very strongly, from 983 tons in 1831 to more than 3,000 tons in 1834. The export value of seal skins over the same period collapsed.

In 1893 New South Wales Fisheries published a *History of the Fisheries of New South Wales*, authorised by that colony's Commissioners for the World's Columbian Exposition to be held in Chicago in 1893. It was written by the colony's Chief Inspector of Fisheries, Mr. L. G. Thompson.[38]

The officially sanctioned purpose of its Chapter 7 was to promote the re-establishment at Sydney of a New South Wales whaling industry. The statistics providing a picture of the state's whaling industry are set out in two tables, consolidated in Table 5.

Table 5: The Colonial whaling fleet in Sydney (1828-1850)

Year	Number of Vessels	Tonnage of Fleet	Value of Catch (£000)
1831	31	5,391	95.6
1832	20	3,497	147.4
1833	27	6,922	146.9
1834	31	5,534	157.4
1835	22	5,162	180.4
1836	41	9,257	140.2
1837	n/a	n/a	183.1
1838	n/a	n/a	197.6
1839	n/a	n/a	172.3
1840	n/a	n/a	135.6
1845	20	n/a	84.4
1850	37	n/a	49.1

Source: Thompson (1893) [39]

Thompson does not reveal the source of his data. However, in the years 1828–1834 there is a useful comparison between Martin's figures and Thompson's. With data missing for the years between 1837 and 1843, the remainder in Table 5 are generally compatible, though still fragmentary.

Though lacking data in time series form, three other references are useful for their depth of whaling industry detail. This includes, for example, identification of the Sydney-based merchants with assets involved in sealing and whaling (both bay and deep-sea), and the constitution of their individual fleets. The author of both books was Robert McNab, a lawyer by profession who at one time held the position of Minister for Lands and Agriculture in the New Zealand Government. His books are

Murihiku and the Southern Islands and *The Old Whaling Days*.[40] The focus of the first is trade development in New Zealand up to 1830, while the second is more broadly-based, though distinctively maritime, and covers 1830–1849. Both were published early in the twentieth century.

First published in 1907, and commissioned by the Governor of New South Wales and the Lord Mayor of Sydney, the New South Wales' *Cyclopedia* includes an informative chapter entitled "Shipping and Shipbuilding", including an excellent summary of administrative and other institutional arrangements.[41] For example, it reports that, as early as 1797:

> *Governor Hunter received advice from the Duke of Portland that in consequence of the increasing and influential intercourse between Great Britain and other countries with the colony of New South Wales, it would be necessary to ascertain the number and description of all such vessels as might arrive in Port Jackson in the course of each year. On receipt of these instructions, a port regulation was issued providing that no vessel was allowed to land any article, or to break bulk, before the return of such ship and of her cargo had been filled in an only attested by the master. In addition, the Home Office appointed Richard Atkins, the Registrar of the Vice-Admiralty Court, to keep a correct register of all inward and outward shipping at Sydney. This was the first attempt to obtain officially, some definite knowledge regarding our shipping trade and commerce.*[42]

In the only summary of the colony's earliest shipping so far identified, the *Cyclopedia* reports that:

> *From the lists of shipping published three or four years after the return referred to above, it appears that from the landing of Governor Phillip in 1788 to the end of 1800, 124 vessels visited the port, classified as follows:*
>
> *Merchantmen 34; men-of-war 11; vessels to refit 16; and convict ships, stores and cattle transports 62.*
>
> *... Eighteen trading vessels that came to Sydney purely as a matter of speculation sailed under the American flag; ten belonged to the East India Company, who after the arrival of the first fleet, contracted for the conveyance of convicts in their own ships; one was a colonial vessel, and the remaining five were English.*[43]

The *Cyclopedia* further reports that:

> *The building of ships is very snail-like during the years 1806 – 1820 ... Owners (at the end of this period) number 27, owning 31 vessels, measuring in the gross 1594 tons.*[44]

These numbers refer to the colonial fleet. In respect to over-ocean shipping reports relating to the last three years of the period 1801–1820, these vessels entered Port Jackson at an average of 2 per week.[45]

> *Of the 595 ships which have brought their burdens to Port Jackson since the beginning of the century, 175 are overseas merchantmen, principally from India and America, and 166 are engaged in the fisheries, the South Sea Islands, and the inter-settlement trades. Of the remainder the British Government despatch 173 to dump their human freights and cargoes of stores on our shores – 9 are prizes; a similar number of men-at-war, and 63 visitors, vessels in ballast and ships refitting.*
>
> *From a return issued by the Government 139 vessels were constructed in the colony between the years 1822 and 1840, twelve being built in 1826, seventeen in 1827, twenty in 1828 and eleven in 1839 ... the average measurement for each boat was a little over 40*

> *tons ... in 1832 ... The vessels owned in Sydney and belonging to this port numbered no less than 99, ranging from 392 tons to 17 tons; seven measured over 300 tons; twenty-two were between 200 and 300 tons; and twenty-six between 100 and 200 tons.*[46]

The *Cyclopedia* records the size of the Sydney's fleets in 1800, 1805, 1820 and in 1839. [47] Although referring often to 'Government Sources', the *Cyclopedia* seldom refers precisely to sources of original documentation.

Finally, it should be noted that the *Sydney Morning Herald* of 11 August 1845 published a record of the number of whaling vessels entering and leaving Sydney Harbour each year for the years 1835 to 1844. Note that the data in the columns originally headed "Vessels Inwards" and "Vessels Outwards" in that table do not necessarily record the number of vessels in the whaling fleet. It does not include for example whaleships tied up in port, preparing for sea, unloading, or merely waiting. Even so, it may well be a useful starting point for further research. Its format, consistent with the tables produced by the Colonial Secretary's office in 1841 and 1852, suggests that the data was originally from that office.

6.3 Summary

There is no single authoritative source of information about the size and composition of the whaling fleet working out of Sydney in the period 1839-1840. On the other hand, there are a number of partial sources of varying reliability, some of which are reliable enough to serve as base points. For example, Martin provides a list of whaling vessels by name sailing out of the Port of Sydney in 1834. Since there are many ways of authenticating these individual sailings, and since it seems unlikely that so meticulous an analyst as Martin would deal less than thoroughly with his material, the assumption that his data is reliable seems rational. For all that, his estimate of a 40-member fleet in 1834 is some way from that of a senior public servant, the Chief Inspector of Fisheries, who estimated a fleet of 31.

The most reliable estimate for the size of the New South Wales whaling fleet appears to be that contained in Table 27 of *Statistics of New South Wales* set out as Table 6 below, although restricted in its period of coverage. It is however of considerable value because it exemplifies the range of multinational forces which directly shaped the size, structure and composition of the New South Wales whaling fleet in the middle of the nineteenth century.

Table 6: NSW whaling fleet by vessel origin (1844-1852)

	Origin			
Year	**Colonial**	**British**	**Foreign**	**Total**
1844	13	3	12	**28**
1845	15	7	15	**37**
1846	16	9	55	**80**
1847	23	4	43	**70**
1848	26	1	37	**64**
1849	17	1	24	**42**
1850	14	3	25	**42**
1851	20	1	12	**33**
1852	23	4	3	**29**
Total	**167**	**33**	**226**	**425**
Average	**19**	**4**	**25**	**48**

Source: Statistics of New South Wales (1854)[48]

The slow growth of the locally owned fleet to the mid-1840s reflects the reduction in the availability of British capital for investment in whaling globally – the Australian fleet's growth from then on was limited by its ability to raise capital locally. The decline of British interest in whaling was due to a number of factors, including increasing competition for whale oil from vegetable oils, and increased competition from the American whaling industry. It had been more efficient than the British, but Britain's switch to a free trade policy opened the door to Europe and the British markets for the Americans' lower cost operations. Table 6 highlights the rapid rate of growth of the American fleet using Sydney to the late 1840s. when it went into decline because of the lure of the goldfields.[49]

Notes for Chapter 6

[1] Seal skins were the first significant economic commodity, not wool. McLean, *Why Australia Prospered*, 51.
[2] Jackson, *Australian Economic Development in the Nineteenth Century*, 51.
[3] Ibid.
[4] Ibid., 52.
[5] William Angus Sinclair, *The Process of Economic Development in Australia* (Melbourne: Cheshire, 1976), 55.
[6] Blainey, *Tyranny of Distance*, 2001, 117.
[7] On shipbuilding, see Mawer, *Ahab's Trade*, 149; Bach, *A Maritime History of Australia*, 77. On exports, see Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, pt. IV chap. 13; Robert Montgomery Martin, *History of the British Colonies: Possessions in Africa and Austral-Asia*, vol. 4, Goldsmiths'-Kress Library of Economic Literature; No. 28535. (London: J. Cochrane, 1834), 363.
[8] James Barnard, *Observations on the Statistics of Van Diemen's Land for 1849, Compiled from Official Records in the Colonial Secretary's Office*, vol. 2, Royal Society of Tasmania Papers and Proceedings, 1852.
[9] *Statistics of New South Wales from 1837 to 1853*, 1837/1846-1848/1857 (Sydney: Colonial Secretary/Government Printing Office, 1837); E. Deas Thomson, 'Papers Re Shipping, Exports, Imports and Customs 1806-1887' (Handwritten tables, 1887), Microfilm CY1756, Manuscripts SLNSW.
[10] Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, pt. IV chap. 13.
[11] *Statistics of New South Wales from 1837 to 1853*, 1837, 20, Table 27.
[12] R. Richards, 'The Sad Truth about Bay of Islands Shipping 1803 – 1840', *The Great Circle* 15(1) (1993): 30–35; R. Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', *The Great Circle* 24(1) (2002): 25–39; R. Richards, 'On Using Pacific Shipping Records to Gain New Insights into Culture Contact in Polynesia before 1840', *The Journal of Pacific History* 43, no. 3 (1 December 2008): 375–82, doi:10.1080/00223340802499641.
[13] Blainey, *Tyranny of Distance*, 2001, 115–19.
[14] Bach, *A Maritime History of Australia*, 75–76.

[15] Ibid., 75–76.
[16] Frank Broeze, *Island Nation: A History of Australians and the Sea* (Sydney: Allen & Unwin, 1998), 183.
[17] O'May, *Whalers out of Van Diemen's Land*, 1978, 23.
[18] Martin 1834 is referred to extensively below. In quoting him O'May drily notes that 'Probably some of the above were English vessels', but gives no clue on their number. Ibid., 23–25.
[19] Michael Pearson, 'Interpreting the Shipping Data for Australian Whaling', in *The Archaeology of Whaling in Southern Australia and New Zealand*, 1998, 93–97.
[20] Susan Chamberlain, 'The Hobart Whaling Industry, 1830 to 1900' (PhD, La Trobe University, 1988).
[21] E. Deas Thomson, "Papers Re Shipping, Exports, Imports and Customs 1806-1887" (Handwritten tables), Microfilm CY1756, State Library NSW.
[22] *Statistics of New South Wales from 1837 to 1853*, 1837, 20, 21, 30, 31 & 32, 29, 46, 48 & 49.
[23] M. E. Osborne, 'Thomson, Sir Edward Deas (1800–1879)', in *Australian Dictionary of Biography* (Canberra: National Centre of Biography, Australian National University), accessed 13 August 2015, http://adb.anu.edu.au/biography/thomson-sir-edward-deas-2732.
[24] E. Deas Thomson, 'Papers Re Shipping, Exports, Imports and Customs 1806-1887' (Handwritten tables, 1887), 5,6 (Tables 17 and 19), Microfilm CY1756, Manuscripts SLNSW; *Statistics of New South Wales from 1837 to 1853* (Sydney: Colonial Secretary/Government Printing Office, 1854), 31,32 (Tables 58 and 49).
[25] My italics
[26] *Statistics of New South Wales from 1837 to 1853*, 1837, 20, Table 27.
[27] R. Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', *The Great Circle* 24(1) (2002): 26–30; O'May, *Whalers out of Van Diemen's Land*, 1978, 33ff; Lawson, *Blue Gum Clippers and Whale Ships of Tasmania*, 1949.
[28] Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, 192 (Table 13.12).
[29] Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, 184ff.
[30] Ibid., 189ff.
[31] Ibid., 192 (Table 13.12), except figures for 1836 calculated by me.
[32] *Statistics of New South Wales from 1837 to 1853*, 1837, 30 (Table 46).
[33] Martin, *History of the British Colonies*, 4:363.
[34] Ibid.
[35] Ibid.
[36] Ibid., except items marked with * calculated by me.
[37] Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, 192 Table 13.12.
[38] Lindsay G. Thompson, *History of the Fisheries of New South Wales, with a Sketch of the Laws by Which They Have Been Regulated* (C. Potter, Government Printer, 1893).
[39] Ibid., chap. 7, page 80.
[40] Robert McNab, *Murihiku and the Southern Islands: A History of the West Coast Sounds, Foveaux Strait, Stewart Island, the Snares, Bounty, Antipodes, Auckland, Campbell and Macquarie Islands, from 1770 to 1829* (Invercargill, New Zealand: W. Smith, 1907); Robert McNab, *The Old Whaling Days: A History of Southern New Zealand from 1830 to 1840*, Reprint 2012 (London: Forgotten books, 1913).
[41] *The Cyclopedia of N.S.W. (Illustrated): An Historical and Commercial Review, Descriptive and Biographical, Facts, Figures and Illustrations ; an Epitome of Progress.* (McCarron, Stewart & Co. Printers, 1907).
[42] Ibid., 610.
[43] Ibid., 614.
[44] *Cyclopedia of NSW*.
[45] Ibid., 614.
[46] Ibid., 619.
[47] Ibid., 614–18.
[48] *Statistics of New South Wales from 1837 to 1853*, 1837.
[49] Harlow, *The Founding of the Second British Empire, 1763-1793: Discovery and Revolution*; Caruthers, *American Pacific Ocean Trade*; Jackson, *The British Whaling Trade*, 1978; Sanderson, *A History of Whaling*, 1993.

7 Tasmania's Whaling Industry Development (1830-1860)

The period between 1830 and 1860 was a period of rapid growth, and of rapid and radical change in Tasmania's economic, political and social institutions. In these 30 years, the island's population grew from 5,400 to 68,870, supported and stimulated by the rapid growth of the wool and beef cattle industries.[1] Both were significant export earners. In the case of beef cattle, the major export markets were the other Australian colonies, particularly in New South Wales and what would become Victoria in 1851. Tasmania's economy was restricted by a shortage of large pastoral holdings, and the coming challenge of replacement pastoral and whaling facilities in the Port Phillip District, significantly under the Henty family, which was large, wealthy and dynamic.[2]

In Tasmania, convicts continued to form the majority of the workforce, and the policy of assigning convicts to work with particular employers remained in place. However, under Lieutenant-Governor Arthur's stewardship from 1824, the assignment system was made into a more codified system of rewards and penalties.[3]

Some Aboriginal Australians had entered the (maritime) workforce, largely as a function of unique individual circumstances rather than by any collective or institutional commitment. In Tasmania there was no attempt to organise their recruitment, training and deployment. However, a new strain arose in and around the islands of the Bass Strait, catalysed by a potential new labour source developed by relationships between sealers and Aboriginal women.[4]

The sealing industry, particularly that part of it focussed on the Bass Strait and the Sub-Antarctic Islands, declined slowly from its peak in the period 1805 to 1810, and by 1820 was insignificant.[5] On the other hand, both bay whaling of southern right whales, and off-shore fishing for sperm whales, increased to become substantial industries. They both declined substantially from around 1840 onwards, and by 1860 were almost obsolete.

Shipbuilding, which had been chiefly a publicly-owned activity until the early 1830s, grew very substantially as a private sector activity after 1835, in part a function of the growth in its whaling industry clientele. However, other factors were important too, such as self-government moves in the Port Phillip District of New South Wales, and growth in grain, wool and beef cattle exports to eastern mainland Australia.

7.1 The Economy of Tasmania

The purpose of this section is to provide a backdrop against which it is possible to interpret measures of size and growth in respect of whaling and its main linked industries, shipbuilding and ship repair. In less than 45 years from settlement the colony's population had grown to around 70,000. By then, 62% were free or had been emancipated and 35% were still bonded in some way.[6] Aboriginal Australians were said to make up 0.05% of the population.[7] Almost 80% of the population were males.

Imports into the colony amounted to almost £574,000, of which two thirds arrived through Hobart and one third *via* Launceston. Exports for 1849 amounted to nearly £560,000 of which 48% were despatched to Great Britain and 45% to British colonies, principally the other colonies of Australia, and New Zealand. Sperm oil exports, black oil exports and whalebone exports had declined by 27%, 24% and 49% respectively in 1849, although there was an expectation that an upturn in exports would take place in 1850.[8]

Shipping volumes in 1849 decreased too. Freight engaged by the Tasmanainan whaling stations appears to have declined by 5,000 tons in 1849. It seems that this decline was occasined by the increase of shipping to California of more than 3,200 tons. Thus there had been a serious decline in the freighting of whaling products, a major Tasmanain staple.[9]

Twelve vessels and 3,120 tons were added to the strength of the colonial marine during 1849: twenty-two vessels were built in the colony during the year, ranging from 20 to upwards of 300 tons. It also appears that 34 vessels were employed in the whale fisheries, their tonnage being 7,791 and the value of Fisheries produce £46,117: a decline in the value of returns of 55.6% is shown, having fallen from £104,000 in 1848.[10]

The average tonnage of Hobart-domiciled whaling vessels was 229, and that of the 27 vessels engaged in coastal trade almost 90. The decline in whaling and shipping is mirrored in short-term employment trends. Decreases were recorded in the following trades; general dealers 67, mast and block-makers 2, mills 5, pastry cooks 2, sail maker 1, sawmill 1, *shipwrights and boat-builders 16*, tanners 2 and wine merchants 4.[11]

Table 7 and Table 8 below display different features of the pattern of Tasmania's international trade as at 1855.[12] Table 7 illustrates the shipping movements in Tasmanian ports by country (or area) of voyage origin, while Table 8 illustrates the same by the nationality of the registration of the vessels.

Table 7: Vessels entered at ports in Tasmania by country of voyage origin (1855)

Country Whence Arrived	Vessels	With Cargoes Tons	Crew
British Possessions	621	4,380	7,793
U.K.	87	30,095	1,194
Southern Whale Fishery	19	4,601	419
Chile	8	1,386	82
Hamburg	3	1,928	73
China	2	619	46
Batavia	1	156	11
Callao	1	189	10
U.S.A.	1	310	12
Totals	**743**	**43,664**	**9,640**

Source: Colonial Secretary's Office (Tasmania) (1822-1855)[13]

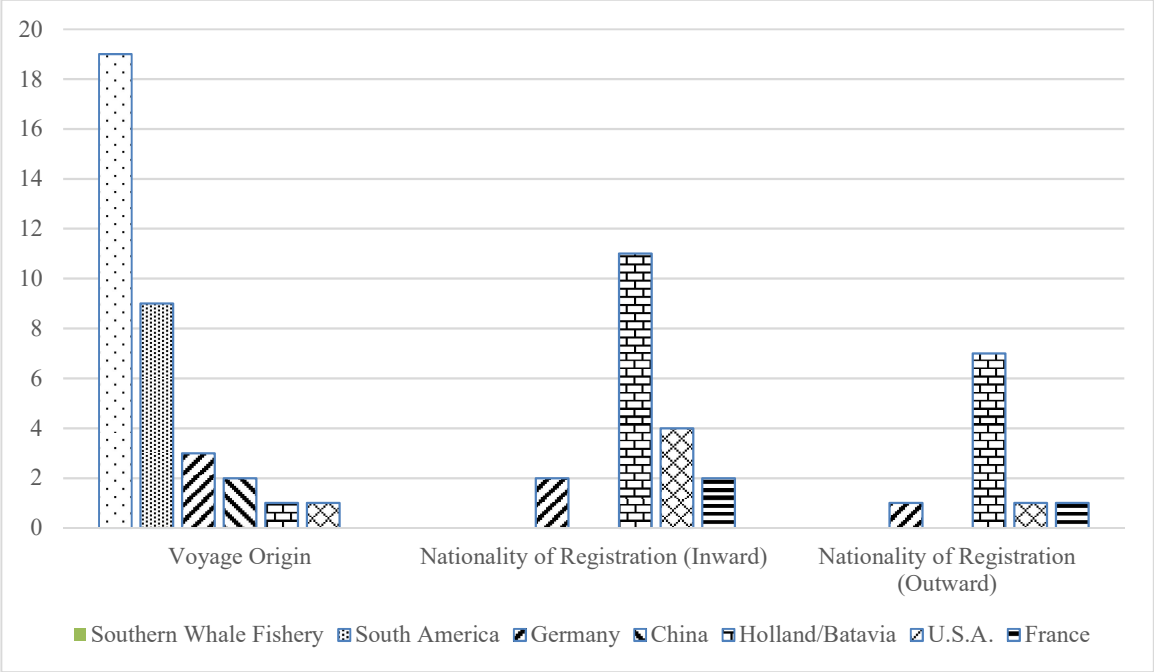
Table 8: Vessels arriving/departing Tasmanian ports by nationality of registration (1855)

Country	INWARDS Vessels	Tons	Crews	OUTWARDS Vessels	Tons	Crews
British Possessions[14]	570	95,726	7,027	629	98,042	7,472
U.K.	124	38,703	2,248	113	24,497	1,731
Holland	11	4963	203	7	1,947	76
U.S.A.	4	1,545	n/a	1	197	9
France	2	663	30	1	313	13
Germany	2	1,490	49	1	986	29
Total	**713**	**143,090**	**9,557**	**752**	**125,982**	**9,330**

Source: Colonial Secretary's Office (Tasmania) (1822-1855)[15]

A key feature is the extent to which Tasmania's exports were integrated into partner economies, made clear in Figure 5, which backs out the data for vessels originating or registered in the British Empire.

Figure 5: Nationality/Origin of vessels in Tasmania (1855)



Source: Table 7 and Table 8 above.

A further feature is the proportion of the paid workforce who were dependent on employment as ships' crew. In fact, almost 10,000 people were employed in maritime-related industry, or almost 25% of the paid workforce: of that 80%, 25% were engaged in local trading and commerce – 1.1% of the workforce was recorded as being employed as whaling ship crews.

7.2 Bay Whaling

Bay whaling in and around Tasmania post-1820, unusually for whaling research, has been the subject of extensive archaeological studies.[16] Bay whaling also benefits significantly from Chamberlain's and Nash's works.[17]

Nash reports that:

> *The boom period for Tasmanian whaling had peaked in 1838, when the value of oil and bone from both stations and ships was worth over £135,000, and constituted the second largest export item out of the colony after wool. Whaling exports averaged close to £100,000 per annum over the next three years, but the shore-based industry was entering a period of decline ... Catch numbers from shore and sea dropped from a peak of over one thousand right whales in 1839, when there were 21 shore stations in operation to less than 50 whales a decade later.*[18]

This outcome followed an expansion phase which began around 1827, when an on-shore bay whaling station was erected at Oyster Bay. By 1829 there were five whaling stations each with four/five boats each. Expansion accelerated and by 1833, stations were at work at Richerlie, Adventure, Trumpeter, Frederick Henry, and Oyster bays, and the workforce had reached 150 men, even at that level a significant employer for Tasmania. The workforce had reached 440 by 1836, including 50 working out of Launceston, and by 1839, the peak, 21 stations were in operation.

Bay whaling out of Twofold Bay in New South Wales had begun in the late 1820s under the initiative of one Thomas Reine of Sydney. In 1831 and 1832, two other adventurers, both master mariners by profession, made their first attempts at whaling in the area. Peter Imlay, the first of three brothers led his family's investment in the Bega/Twofold Bay area. Pearson points out that whaling was only one of the pursuits of the Imlay brothers. They had diverse investments across salt meat, wattle bark, and live cattle and horses, as well as in shipping. This pattern of diversification was not uncommon: the structure of the businesses built by Ben Boyd and by the Henty family in Portland, Victoria, were similar.[19]

Like the Henty family, the Imlays owned and operated their own whaling ships, and like the Hentys again, the Imlays imported bay whaling equipment from Tasmania, as it was the nearest source of industry expertise. [20] In turn they each found ready markets for livestock and pastoral products.

Pearson argues that that the Imlay's setting up four whaling stations in Tasmania points to the profitabiluity of the trade.[21]

There is some doubt about such a connection – correlation rather than causation might be indicated, or there may be no relation at all - especially when Tasmanian bay whaling petered out quickly from 1841 on, most likely from over-fishing in that locality.

Further investment was soon to be forthcoming in New South Wales. Ben Boyd arrived in Port Jackson from London in 1842 with established plans for pastoral activities in the Monaro/Riverina areas. Those plans included development of a port at Twofold Bay as a base for exporting his pastoral output and for the complementary output from whaling located there. There is no point in re-telling the well-worn tale of Boyd with such excellent precedents as Marion Diamond's work.[22] However, it should be added that the Imlay's whaling operations at Twofold Bay survived in parallel with Boyd's through to his acquisition of whaling at Twofold Bay in 1847/48.[23]

George and Alexander Imlay died in December 1846 and March 1847 respectively. Peter Imlay shifted their investments in whaling and other activities to New Zealand. A unique feature of the Imlay operation was in its success in selecting, training and developing Aboriginal Australian as whaleboat crews, of which they had three at the height of their operations. Even so, by 1850 bay whaling in New South Wales was extinct as it had become in Tasmania.

7.3 Off-Shore Whaling

From 1830 onwards the waters around Tasmania attracted whalers from America, Britain and France, as well as 'home-grown' whalers. Most whaling analysts have sought to specify the size of the Tasmanian whaling fleet, beginning with the *Colonial Times* of February 1849. This is a challenging task, for all of the reasons outlined in Chapter 6.1 regarding the New South Wales fleet.

Wide differences in reporting practices and terminologies have emerged, not all of which have been resolved. This dissertation aims to develop a clear statement about the size of the local fleets, and of the foreign fleets, even if this requires adopting some conventions which may appear to be arbitrary. However, a clear starting point is vital. This is in part because deriving an understanding of the forces driving economic development must distinguish between domestic and foreign sources of capital investment and other financial variables; domestic or foreign influences had different origins, and had differential effects on the whaling territories around Australia and New Zealand.

The *Colonial Times* clearly understood this.[24] Its edition of 20 February 1849 urged the parent Britain to reduce the 'red tape' involved in its management of Tasmania, thus realising its almost 'infinite

potential'. It instanced the whaling industry as one example. The article included a list of the vessels in this 'noble fleet of whalers' together with the specifics of vessel type, tonnage and owner's name. This list is included as Table 32 in the Appendices. It reports thirty-eight vessels, and is an excellent point at which to start the search for a picture of the fleet's growth. This is because it is specific about the identity of the vessels involved, and because it is one of the earliest to estimate the capital value of the fleet, in this case at £148,000, and the fleet's labour force at 1,100 (average crew 29).

Even so, it has a number of weaknesses: it contains data at one point of time, rather than trends over time. It is not explicit about how it has handled anomalies, such as the vessel which is a part-time whaler and a part-time freighter of colonial goods to say, China. It makes no reference to the surrounding foreign whalers who made Hobart their base. It does not specify how it has managed vessels with multi-national shareholdings. It clearly contains no explanation of factors underlying the growth trends in fleet size and composition. It provides no information about the source of its data and finally, it does not specify how a vessel qualifies as a member of the fleet. For all that, it is a step forward and it provides a framework for the development of a time series of fleet size. There are at least five of these extant, published individually by Philp, Norman, Lawson, O'May and Chamberlain.[25] The first of these is embedded in Table 9 below. The foundation of this table is Norman's *Pioneer Shipping of Tasmania*. It carries the following curious introduction:

> *The following statement of the whale fisheries of the whole of Tasmania – hitherto unpublished in any book of this kind, is taken from RM Johnston's record of 1892. It was evidently his office copy of the book, for in it are additions or corrections.*[26]

Norman notes that R.M. Johnston was, around 1852, Tasmania's eminent statistician, economist and geologist. Table 9 overcomes some of the deficiencies, but by no means all, described above. In doing so, it introduces its own anomalies. For example, it does not distinguish between British and colonial vessels, nor does it specify the original source of its data. It does not distinguish between the weight of bay whaling and sperm whaling catches, although it introduces the number of longboats used in bay whaling.

Table 9: Structure of the whale fishing fleet of Tasmania (1828-1856)

	"Anglo" Vessels (*sic.*)				Foreign Vessels			Bay Whaling
Year	**Ships**	**Tonnage**	**Tons/ Ship**	**£/Ship**	**Ships**	**Tonnage**	**Tons/ Ship**	**Longboats**
1836	14	1,187	85	4,119				48
1837	18	2,739	152	7,512				75
1838	19	1,999	105	3,453				79
1839	26	3,146	121	2,523				
1840	27	3,224	114	2,475				
1841	22	3,170	144	3,255				
1842	18	2,842	158	4,856				

Year	"Anglo" Vessels (*sic.*) Ships	Tonnage	Tons/ Ship	£/Ship	Foreign Vessels Ships	Tonnage	Tons/ Ship	Bay Whaling Longboats
1843	21	3,307	158	3,528				
1844	24	4,264	177	2,077	12	3,838	320	
1845	28	4,460	159	2,618	16	5,518	345	
1846	28	4,057	145	2,327	13	4,823	371	
1847	27	4,729	175	2,592	21	6,890	327	
1848	29	6,081	210	3,586	26	8,497	327	
1849	34	7,791	229	1,356	11	3,803	345	
1850	40	9,724	244		9	2,779	309	

Source: Norman (1938) [27]

Philp, Lawson and O'May's narrative material can be analysed and presented in time series format, but none specify the source of their material. All analysts represent their data as Tasmanian data except for Philp's; it is not possible to separate it into whaling out of Hobart and other ports.

Other authors have chosen distinctive, if not unique, ways of presenting whaling fleet data. For example, Hartwell's Table 10 'Fisheries and Shipping', describes 'Vessels built in the Colony', 'Vessels Employed in Colonial Fishing' and 'Total Value of Fisheries'. One assumes that the 'Vessels Built in the Colony' is subsumed into 'Vessels Employed in Colonial Fishing' although there is nothing in the text to support the assumption. If the assumption is valid, a re-arrangement of his table would produce Table 10.

Table 10: Fisheries and shipping, Tasmania (1828-1849)

	Number of vessels… employed in colonial fishing	built in the colony	built elsewhere
1836	14	3	11
1837	18	7	11
1838	10	10	1
1839	26	13	13
1840	27	11	16
1841	22	14	18
1842	18	5	13
1843	21	5	16
1844	24	11	13
1845	28	8	20
1846	28	10	18
1847	27	12	15
1848	29	29	0
1849	34	22	12
Total	**326**	**160**	**177**
Average	**20**	**10**	**11**

Source: Hartwell (1954) [28]

Hartwell's 'Vessels employed in Colonial Fishing' appears identical (for the period 1828 – 1849) to the 'Anglo Vessels' of Norman from Table 9 – though neither specify the source of their data, so one

cannot be sure. If so however, Hartwell's measure of the size of the fleet probably excludes foreign vessels, and is thus highly misleading. In particular, it conveys a highly misleading impression of the proportion of the Tasmanian whaling fleet actually built in Tasmania shipyards. Note also that the entries 1828, 1829 and 1831 are incomprehensible unless it refers to vessels built elsewhere which moved out from the Tasmanian fleet in the subject years.

Pearson's 1998 study is based on the 'so far identified 238 Australian-based and 424 visiting foreign ships identified to date' as having participated in Australian whaling, and he proceeds to confirm the earlier point regarding the need to produce a definition of what constitutes a locally-based whaler. He points out that:

> *(T)he* Elizabeth*, a London merchant ship of 363 tons ... operated out of Sydney from 1829 to 1837 as a whaler, making five whaling voyages before returning to London. At least 34 foreign-owned whalers operated out of Australian ports in the period 1820 – 1850, and more vessels may have been involved, but are not yet able to be distinguished as such in the shipping records yet studied.*[29]

Private correspondence with Pearson confirms that this research has not been completed, and given the difficulties with records as highlighted above, and reinforced by the findings of this research, it may never be. He has however developed some time series of interest. He has used 10-year intervals perhaps to blunt the effect such difficulties might have for an annual series. In a series extending from 1821 to 30 to 1861 to 70, he estimates that the number of Australian-based whalers working out of Sydney and Hobart ranges from 29 in the first ten-year period to 118 and 117 respectively in 1831 to 40, and 1841 to 50.

Pearson's figure for those two decades is more than twice as large as that for any other decade, leaving little doubt that the period 1831 to 51 was the most prolific for the entire nineteenth century for Australian whaling. Table 11 below summarises his findings regarding foreign-vessel ownership.

Table 11: Foreign-based whalers visiting Sydney or Hobart

	UK	US	French	Other	Total
1788-1800	15	3			**18**
1801-1820	61	13		2	**76**
1821-1830	21	4		1	**26**
1831-1840	45	28	22	6	**101**
1841-1850	22	121	36	7	**186**
1851-1860	7	38	2	2	**49**
1861-1870	1	13			
1871+	1	21		1	**2**

Source: Pearson (1998)[30]

There are two other compendia of interest but they have such severe deficiencies that they have not been able to be used in this research. The earlier is Parsons' *Tasmanian Ships Registered 1826 – 1850*

(ships enrolled in Hobart Town and Launceston) published in 1980.[31] Parsons describes it as 'Full details of every ship enrolled by the Registrar of British Ships at the Ports of Hobart Town and Launceston'. It does not differentiate between whaling and non-whaling vessels and is therefore near to useless for the purpose of this research.

The more recent analysis is Dickson's *The History of the Whalers on the South Coast of New Holland*.[32] The author reports very broadly on individual vessels. Yet it is far from clear in many cases whether a vessel was a whaling ship, and if so, over what time-frame. The contents are not tabulated. The risk of selecting a vessel which turns out to be a 'ring-in' is probably bearable, but the uncertainty attaching to which part of the South Pacific Fleet ships belonged to means that the book is of no utility to this project.

However, this is only part of the whaling industry's demand for shipyard facilities and skills – other demands on shipyards came from carrying out repairs and refits in the same local whaling fleet but also refits and repairs for foreign vessels. Moreover, the production of Launceston's yards needs to be taken into account in painting a picture of the industry in Tasmania as a whole. Launceston's shipyards were few and focussed chiefly on inter-colonial trade until the early 1840s. This was followed by a spectacular burst of shipbuilding in the period 1843 to 1851.[33]

This was a very volatile period for investment in Launceston. Affected by economic downturns in the United Kingdom and in Tasmania, a significant number of local investors formed and reformed business alliances. A number of them went to the wall nonetheless. Launceston was a particularly difficult site for the shipbuilding industry. It was 60 miles from the sea, access from the Bass Strait was difficult and the Tamar was a major challenge for navigators.[34] Even so, some of the largest wooden vessels ever built in Australia were built there in the 1840s. For example, the *Harpley* (545 tons) was built in Whirlpool Reach and launched in 1849. She was destined for the emigrant trade, not whaling. The *Jane Francis* (391 tons) took fourteen days to sail from the wharf in Launceston to the open sea. Despite its proximity to sources of prime blue gum timber, it was never to become a site either for the construction of ocean-going whaling vessels or as a base for their on-going operation.

Launceston was not - and never became - a major whaling port, nor a preferred site for building whaling vessels for deep-sea operations, even though it played a central role in Bass Strait shipping, connecting Tasmania with Sydney, Melbourne, Portland, Kangaroo Island and Adelaide.[35]

A review of the number of vessels entering Tasmanian ports at five yearly intervals between 1820 and 1840 suggest that the number of vessels was 72, or 7.1% of the total traffic, and that those vessels

accounted for nearly 9% of the number of vessel/visits – that is whaling/sealing vessels on average made more than one visit to port each year. Visits by whalers to those of sealers were 1.8:1. Visits by UK vessels dried up after 1820. American and French vessels began to visit in numbers after 1835.[36] These assessments need to be treated with caution because of the challenges involved in interpreting Nicholson's raw data. The challenges include:

1. Some vessels are described as being engaged in whaling, local and off-shore and sealing in the one voyage. They have been entered into the column which appears to describe best the most dominant of these functions, but there is of course room for debate about this allocation;

2. The region of ownership is based on the domicile of owners where this information has been given. Where not, the region of ownership has been inferred from available data, again some allocations are debatable;

3. Colonial ('Col') vessels are defined as vessels owned by an agent domiciled anywhere in the Australasian colonies, irrespective of where the vessel was built or how it was acquired;

4. French and vessels of other nationalities (e.g. Danish, German, Russian) are considered as coming from one region.

5. Intra-state traffic in both New South Wales and Tasmania has been excluded but interstate traffic between the two is included in the analysis.

6. This table excludes entries in respect of –

6.1 Vessels which are recorded as having visited the waters of the Southern Whale Fishery without entering a Tasmanian port.

6.2 Un-named vessels.

6.3 Towed whaleboats used in bay/river fishing.

7. Military vessels carrying out a civilian function have been placed in the one category.

8. Vessels ferrying troops to/from Tasmania are classified as though they were part of the function of running the colonies, i.e. Administration.

9. 'United Kingdom' incorporates vessels of registration in India.

Table 12: Estimated Composition Domestic & Foreign Whaleships, Tasmania (1838-1849)

Year	Tasmania	Foreign				Total
		USA	France	Other	All Foreign	
1838	19	1	5		6	**31**
1839	16	3	5	1	9	**34**
1840	27	12	7		19	**65**
1841	22	12	7		19	**60**
1842	18	20	5		25	**68**
1843	21	22	13		35	**91**
1844	24	11			11	**46**
1845	28	8	4		12	**52**
1846	28	13	3	2	18	**64**
1847	27	14			14	**55**
1848	29	20			20	**69**
1849	34	9	3		12	**58**
Total	**293**	**145**	**52**	**3**	**200**	**693**
Average	**24**	**12**	**4**	**0**	**17**	**58**

Sources: Norman (1938), O'May (1978) [37]

To derive an understanding of traffic patterns this dissertation constructs a model of the Tasmanian whaling fleet. Some data on exports is already available, so a reasonable check on the model's reality is available. The model is then used in Chapter 10 together with other assumptions, to seek ways to synthesise income flows from the whaling industry to the chief linked industry, i.e. construction, ship re-fitting and repairs.

Firstly, the model focuses on the period 1840 to 1850. This is the period of the highest whaling activity level in the period 1805 to 1850. The values selected for 1830 to 1850 can be used as a basis for selecting values for 1810 to 1830, the remaining period of concern. 'Tasmanian' whalers are vessels registered for operation out of Tasmanian ports, irrespective of owners' domicile, specialising in production from open seas. American, French and other vessels will be those designated by name as such in O'May 1978, except as modified in the light of preferred evidence.

Chamberlain's contribution consists of a time series starting in 1828 and finishing in 1838.

Table 13: Tasmania's whale fishery (1828-1838)

Year	Number of..		No. of Whales killed		Value (£)
	Ships employed	Boats employed	Black	Sperm	
1828	5	23	109	-	11,268
1829	7	26	131	-	12,313
1830	10	42	233	6	22,065
1831	9	55	207	84	33,549
1832	12	75	246	No return	37,176
1833	15	105	346	35	30,620
1834	23	84	356	No return	56,450
1835	35	155	409	56	64,858
1836	14	48	382	7	57,660
1837	18	75	730	36	135,210

Year	Number of.. Ships employed	Boats employed	No. of Whales killed Black	Sperm	Value (£)
1838	19	79	673	5	98,600
Total	**167**	**767**	**3,822**	**229**	**559,769**
Average	**15**	**70**	**347**	**33**	**50,888**

Source: Chamberlain (1988) [38]

This table is less reliable than it seems at first glance. The notes to the table state that it is derived from 'Statistical Return(s) – Van Diemen's Land Whale Fishery 1828 – 1838', but not where these returns may be found. 'The Number of Ships Employed' does not specify whether it refers only to locally registered vessels, or if it includes vessels registered elsewhere. Though it presents kills separately for black whales and sperm whales separately, it does not distinguish vessel numbers by type of catch – hence international comparison of whaleship performance cannot be reasonably undertaken with this data.

Though earlier in this dissertation, sealing was defined as a sub-set of the whaling industry, the structure of the whaling industry being designed herein is confined to whaling vessels as such. Vessels designated as whale ships by an accredited source are treated as full-time whaling industry participants irrespective of their part-time use for other pursuits.

Estimates of Tasmanian whaling fleet size are set out in Table 14 below.

Table 14: Estimated Tasmanian annual whaling fleet (1838-1850)

Year	Nationality of Registration Tasmania	USA	Non-British European	Total
1838	19	3	1	**23**
1839	26	6	6	**38**
1840	27	12	15	**54**
1841	22	18	1	**41**
1842	18	32	6	**56**
1843	21	47	14	**82**
1844	24	50	9	**83**
1845	28	38	5	**71**
1846	28	27	6	**61**
1847	27	28	3	**58**
1848	29	33	1	**62**
1849	34	33	2	**69**
1850	40	31	2	**73**
Total	**343**	**358**	**71**	**771**
Average	**26**	**28**	**5**	**59**

Source: Various.[39]

The estimate set out in this table incorporates Norman and Hartwell as the basis for the number of whaling vessels registered in Tasmania. A tally produced from O'May yields estimates of vessel

numbers which are significantly lower.[40] This is because O'May is counting a different thing. He consistently refers to vessels 'Out of Hobart Town'; that is, his count is of vessels having left port, and does not include those remaining in port to load/unload, re-fit and/or repair, whereas the Norman/Hartwell estimates are presumed to do so.[41]

The estimates of United States vessels are based on O'May's tallies, extended for two years from the year in which they are recorded as reaching Hobart. This assumption provides for average voyages of four years, and an average of one-year voyaging to and from home. This could prove excessive, but it provides for time spent voyaging to include time spent fishing in the Southern Whale Fishery apart from that spent in Tasmanian waters.

For French vessels, an allowance of one year additional to year of arrival has been made. A year less than the American vessels, this reflects the time French vessels spent getting to and from preferred fishing grounds anywhere *within* the Southern Whale Fishery as well as for voyaging to and from the home port. It also reflects that they were used by the French government in support of non-whaling activities, such as trade support, and the supply and support of religious missions. There is no record of the proportion of their time spent in these activities, hence these assumptions are arbitrary.

It has been further assumed that British activity in the Southern Whale Fishery around Tasmania was in effect non-existent from the late 1820s. This is chiefly because of Britain's adoption of a free trade policy in the early 1820s, and thus the removal of duties hitherto payable by non-British whalers on the importation of whale products into Britain. Those few British vessels which did appear are incorporated with locally registered vessels to produce the Tasmania figures for 1845 – 1850.

Overall, the estimates above appear to produce a reasonable congruence with fragments of contemporary data. There is one report to the effect that the volume of whaling traffic through Hobart overtook traffic through Sydney in 1847. Apparently there were 47 whaling vessels anchored in the Derwent. The same source reports that in 1849 Hobart owners controlled 37 whaling ships, the combined tonnage of which exceeded that of the 135 other (coastal) vessels registered in Hobart.[42]

To put this in perspective, it was further reported that there were 649 American whalers in the Pacific Ocean, to which could be added smaller numbers of British, French, Chilean and Peruvian vessels; the American fleet was bigger than their total. This source also reports that in the same year, there was a total of 37 Hobart-registered whaling ships, with a total tonnage of more than 8,600, and enmploying 1,046 men.[43]

This information strongly suggests that the rapid rate of increase in the whaling industry to 1855 was over. Indeed, the 5-year period of 1855 – 1859 was the start of whaling's decline from a significant

industry world-wide, not just in the South Pacific. Hence, whatever the whaling industry's influence on colonial economic growth had been by 1850, its era of influence was almost over by then.

Some caution is however warranted, because this tentative conclusion leaves the use of imported vessels from a Tasmanian base out of calculation. It appears that the first whaling vessel built in Tasmanian shipyards was the Caroline built in 1829. As previously indicated, Chamberlain states it also appears that no such vessel was built there after 1849.[44] Given that all Tasmanian vessels of 100 tons or greater were potential whaleships, then 30 potential whaleships were built in those yards between 1829 and 1849. According to Report No. 58 to Tasmania's House of Assembly, the number built of all types of vessel was 124. Thus the whaling industry's share of demand for shipbuilding on the Tasmanian yards was 24%.[45]

According to Nash, bay whaling activity was in serious decline by 1840. Assuming that all vessels engaged in sperm whaling were at least 150 tons, then the maximum number of new vessels built in the period 1840 to 1849 was 18. Not all of these, however, were whaleships. Note that the average number of vessels constructed *per annum* over this period – 1.8 – is not far from the estimate of 2.2 *per annum* derived from the Norman/Hartwell data in Table 14. There is room here for that difference between the two, and for the inclusion of non-whaleships in the estimate to be made up of additions to the fleet having come from refits rather than new vessels, even though hard evidence for Tasmanian refits is lacking.

A more appropriate way of looking at this is to compare the proportion by mass ('tonnage') of potential whalers to the total mass of material put through the shipyards in the subject period. The data suggests that the mass of whaleships throughput in the period concerned was 3,841 tons, or 42% of the total mass put through. This further suggests that the widespread view of the whaling industry as a principal source of demand for shipbuilding was justified, at least for the period 1830 to 1849. It was not justified in the period from 1805 to 1829, or after 1855 to 1860. In that latter period, whaleships appear to have accounted for 4 only whaleships out of a total of 94 ships built or 4%. The throughput of just over 3,000 tons is around 50%, and to this extent supports the judgment of the whale industry as a, if not the, principal customer of Tasmania's shipyards.

Nash notes that at the end of 1830, fifty-two small boats (i.e. smaller than 20 tons) had been completed, as well as upwards of 1,500 oars.[46]

> *Following the completion of the* Cyprus *and the* Tamar *(132 tons), the output of the dockyard rapidly increased ... the completion of a further five vessels of over 20 tons, including the 124-ton brig* Isabella*. By February 1832 a total of seventy-nine small boats had been built and over 2,400 oars had been made. Two brigs,* Adelaide *and* William the

> Fourth, *had also been completed, and a further four schooners and cutters were launched during the year.*

It was estimated that in 1831, the Sarah Island dockyard workforce consisted of 36 – 38 men, or around 14% of the settlement's complement. Sarah Island was fully abandoned in November 1833 and relocated to Port Arthur on the Tasman Peninsula, south of Hobart. The dockyard workforce was run down in the relocation process, but the administration made a recommitment to it, and engaged a free man, Mr. John Watson as Master Shipwright in April 1834. Watson began to re-plan for the establishment's future. Amongst other things, he proposed an establishment of 52 men per day as well as two charcoal burners and two convict servants. Watson left government employ in August 1836 and established his own shipyard.

In evidence given to a Parliamentary Committee on Prison Labour in 1863, Watson detailed the work he had performed at the dockyard during his employment of a little more than two years. This was a major milestone, accompanied as it was by construction of nearly 100 whaleboats and small vessels, and maintenance of the government vessels *Isabella*, *Tamar*, *Charlotte*, *Shamrock*, *Kangaroo* and *Shannon*. The *Wallaby* at 284 tons was the largest vessel built in the colony to the end 1837.[47]

Whilst Chamberlain had noted that 1849 was the last year in which a whaleship had been constructed in Hobart, two other large vessels were built. These were *Isabella Brown* (279 tons) built in 1861, and the Launceston-built *Sydney Griffiths* (368 tons) in 1850. The *Janet Griffith* (201 tons) in 1865, and the *Charles and Arthur* (169 tons) in 1870 were built in Launceston.[48]

7.4 Summary

What amounted to the gradual privatisation of shipbuilding in Hobart followed the expression of concerns about the construction of vessels at a government establishment for the benefit of the private sector. Nevertheless, it is unquestionable that the government ships provided an essential service for this island colony when the private sector was unable to provide it on its own. There is also no doubt that it played an invaluable role in training a skilled workforce and thus in creating employment opportunities. Part of this support included establishing and maintaining construction and maintenance standards for all maritime vessels, but whaling vessels in particular.

It is to be regretted that there appears to be no prime source of relevant data, despite the modern spate of writings about Tasmanian history.[49]

Notes for Chapter 7

[1] Australian Bureau of Statistics, 'History of Tasmania's Population 1803-2000', Government, *Australian Bureau of Statistics*, (8 December 2006), http://www.abs.gov.au/ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/e743fe07252b0081ca256c3200241879!OpenDocument.
[2] Bassett, *The Hentys*; Henty, Henty, and Henty, *The Henty Journals*.
[3] Boyce, *Van Diemen's Land*, 2008, 145–86.
[4] Ryan, *Tasmanian Aborigines*, 2012.
[5] Murray-Smith, 'Beyond the Pale: The Islander Community of Bass Strait in the Nineteenth Century', 1973, 175–81.
[6] Barnard, *Observations on the Statistics of Van Diemen's Land for 1849, Compiled from Official Records in the Colonial Secretary's Office*. The material from this point down to the description of changes in employment levels is attributable to this work.
[7] Ibid., 2:1.
[8] Murray-Smith, 'Beyond the Pale: The Islander Community of Bass Strait in the Nineteenth Century', 1973, 169.
[9] Barnard, *Observations on the Statistics of Van Diemen's Land for 1849, Compiled from Official Records in the Colonial Secretary's Office*, 2:1.
[10] Ibid., 2:14.
[11] Ibid., 2:13.
[12] Colonial Secretary's Office (Tasmania), 'Annual Official and Other Statistical Report', 1855 1822, Archives of Tasmania.
[13] Ibid. Original title 'Tonnage and crew of Vessels entered at Ports in the Colony of Tasmania from each country'. I have omitted vessels 'in ballast', i.e., empty of commercial cargo, of which there were 173, totalling 18,122 tons and crewed by 1,307.
[14] British possessions in both tables include Australian colonies as well as India, New Zealand and some of the various Pacific Ocean ports,
[15] Colonial Secretary's Office (Tasmania), 'Annual Official and Other Statistical Report' Original title 'Nationality of vessels arriving/departing Tasmanian ports'. As with the preceding table, I have omitted vessels in ballast.
[16] Susan Lawrence and Mark Staniforth, *The Archaeology of Whaling in Southern Australia and New Zealand*, Special Publication 10 (Gundaroo: Brolga Press for the Australasian Society for Historical Archaeology and the Australian Institute for Maritime Archaeology, 1998).
[17] Chamberlain, 'The Hobart Whaling Industry, 1830 to 1900', 1988; Nash, *The Bay Whalers*.
[18] Nash, *The Bay Whalers*, 111–12.
[19] Pearson, 'Shore-Based Whaling at Twofold Bay'.
[20] Bassett, *The Hentys*.
[21] Pearson, 'Shore-Based Whaling at Twofold Bay', 7.
[22] Marion Diamond, *The Sea Horse and the Wanderer: Ben Boyd in Australia* (Carlton, Vic: Melbourne University Press, 1988); See also G. P. Walsh, 'Boyd, Benjamin (Ben) (1801–1851)', in *Australian Dictionary of Biography* (Canberra: National Centre of Biography, Australian National University), accessed 20 July 2016, http://adb.anu.edu.au/biography/boyd-benjamin-ben-1815.
[23] Pearson, 'Shore-Based Whaling at Twofold Bay', 13.
[24] 'Editorial', *Colonial Times and Tasmanian*, 20 February 1849, sec. Editorial.
[25] Philp, *Whaling Ways of Hobart Town*; Norman, *Sea Wolves and Bandits*; Lawson, *Blue Gum Clippers and Whale Ships of Tasmania*, 1949; O'May, *Wooden Hookers of Hobart Town*, 1978; O'May, *Whalers out of Van Diemen's Land*, 1978; Chamberlain, 'The Hobart Whaling Industry, 1830 to 1900', 1988.
[26] Norman, *Pioneer Shipping of Tasmania*, 1938, 27–28.
[27] Adapted from ibid., 28 Tons per ship and Revenue per ship calculated by me.
[28] Hartwell, *The Economic Development of Van Diemen's Land*, 1954, 140.
[29] Pearson, 'Interpreting the Shipping Data for Australian Whaling', 94.
[30] Ibid.
[31] Ronald Parsons, *Tasmanian Ships Registered 1826-1850: Full Details of Every Ship Enrolled by the Registrar of British Ships at the Ports of Hobart Town and Launceston* (Magill, S.Aust: R.H. Parsons, 1980).
[32] Rod Dickson, *The History of the Whalers on the South Coast of New Holland from 1800 - 1888* (Carlisle, WA: Hesperian Press, 2007).
[33] Ian Hawkins Nicholson, *Shipping Arrivals and Departures, Tasmania*, vol. 1 (1803-1833), 3 vols, Roebuck Society 30 (Canberra : Woden, A.C.T: Roebuck Society ; Navarine Publishing, 1983); Ian Hawkins Nicholson, *Shipping Arrivals and Departures, Tasmania*, vol. 2 (1834-1842), 3 vols, Roebuck Society 33 (Canberra : Woden, A.C.T: Roebuck Society ; Navarine Publishing, 1983); Graeme Broxam, *Shipping Arrivals and Departures, Tasmania*, vol. 3 (1843-1850), 3 vols, Roebuck Society 45 (Canberra : Woden, A.C.T: Roebuck Society ; Navarine Publishing, 1983).
[34] Chamberlain, 'The Hobart Whaling Industry, 1830 to 1900', 1988.
[35] Blainey, *Tyranny of Distance*, 2001, 116.
[36] Nicholson, *Shipping Arrivals and Departures, Tasmania*, 1983; Nicholson, *Shipping Arrivals and Departures, Tasmania*, 1983; Broxam, *Shipping Arrivals and Departures, Tasmania*.

[37] All other data extracted from Norman, *Pioneer Shipping of Tasmania*, 1938, 28; Harry O'May, 'Whalers out of Van Diemen's Land', in *Wooden Hookers of Hobart Town : Whalers out of Van Diemen's Land* (Hobart: Government Printer, Tasmania, 1978), 40.
[38] Chamberlain, 'The Hobart Whaling Industry, 1830 to 1900', 1988, 3.
[39] 'Colonial Times and Tasmanian Editorial, 1849'; Norman, *Pioneer Shipping of Tasmania*, 1938, 19; Hartwell, *The Economic Development of Van Diemen's Land*, 1954, 140; O'May, *Whalers out of Van Diemen's Land*, 1978, 34–51; Pearson, 'Interpreting the Shipping Data for Australian Whaling', 94–95.
[40] O'May, 'Whalers out of Van Diemen's Land', 1978, 34–51.
[41] Leslie Norman, *Pioneer Shipping of Tasmania: Whaling, Sealing, Piracy, Shipwrecks, Etc. in Early Tasmania*, Facsimile Reprint (Sandy Bay, Tas: Shearwater Press, 1938), 19; R. M. Hartwell, *The Economic Development of Van Diemen's Land: 1820-1850* (Carlton: Melbourne University Press, 1954), 140.
[42] Blainey, *Tyranny of Distance*, 2001, 116.
[43] Lawson, *Blue Gum Clippers and Whale Ships of Tasmania*, 1949, 61.
[44] Susan Chamberlain, 'The Hobart Whaling Industry, 1830 to 1900' (PhD, La Trobe University, 1988).
[45] House of Assembly, Tasmania, *Ships Built in the Ports of Tasmania: Laid upon the Table by the Colonial Treasurer, and Ordered by the House to Be Printed, July 24, 1872*, No. 58 (Hobart: Government Printer, Tasmania, 1872).
[46] M. Nash, 'Major Vessels Built at the Tasmanian Government Dockyards', in *Convict Shipbuilding and the Port Arthur Dockyard* (Port Arthur: Port Arthur Historic Site Management Authority, 2001).
[47] 'Report of the Parliamentary Committee on Prison Labour' (Hobart: Parliament of Tasmania, 1863). See also; Harry O'May, 'Wooden Hookers of Hobart Town', in *Wooden Hookers of Hobart Town : Whalers out of Van Diemen's Land* (Hobart: Government Printer, Tasmania, 1978), 59–60; E. Robin, 'John Watson (1801 – 1887) Pioneer Shipbuilder & "Father of the Wharves"', *Papers and Proceedings of the Tasmanian Historical Research Association* 58(2) (2011): 140.
[48] Chamberlain, 'The Hobart Whaling Industry, 1830 to 1900', 1988.
[49] See for example James Boyce, *Van Diemen's Land* (Melbourne: Black Inc., 2008); Lynette Russell, *Roving Mariners Australian Aboriginal Whalers and Sealers in the Southern Oceans, 1790-1870* (Albany: State University of New York Press, 2012).

8 South and Western Australia

This dissertation's account of economic development has so far been focussed on the colonies of New South Wales and Tasmania. The rationale for doing so is that those colonies were the first to keep records relevant to this analysis from their date of self-government, if not before. Those regions which eventually became colonies did not do so until the late 1820s, at the earliest South Australia, and in the case of the latest Western Australia, in 1890. It has also become clear that New Zealand's waters and facilities played a significant role in the Australian whaling industry, a role which needs to be explored and explicated so that its proper significance is understood.[1]

From the second decade of the 1800s, until gold was discovered, the only potential staple commodities for the Australian colonies were wool, and whale products. The export earnings of both grew rapidly from the early twenties, and wool overtook whaling as the chief staple late in the 1820s.[2] NSW and Tasmania had their twenty years of economic development available to them before colony-based whaling activities were recorded as such. This does not mean that whaling did not generate export revenue from activities around Victoria, South and Western Australia – it simply means that whatever revenue was generated there was subsumed as revenue to whichever of New South Wales and Tasmania or foreign land was home to the vessel that caught the whales which provided the products which earned the export revenue. The structure of the relevant official statistics does not permit extraction of their international and inter-colonial components. This means that their contribution to the colonies' economic development cannot be measured. However, it does not mean that it should be ignored.

The purpose of this and the next chapter is to record the whaling activities which took place in the waters surrounding South Australia and Western Australia, and to clarify the inter-relationships of those activities with those of New South Wales, Tasmania, and the foreign whalers – chiefly the Americans, British, and French. This chapter focuses on South and Western Australia; the following chapter concerns the whaling activities of the Americans and the French, with a particular reference to Australian and New Zealand waters.

8.1 Whaling in South Australia

Leadbeater reported that:

> *As early as 1803, Captain Isaac Pendleton in the brig* Union *used Kangaroo Island as a base for his operations. He wintered there for four months and his men built the schooner* Independence *from island timber. Kangaroo Island was only one of the places where men were left to gather seal skins and salt. Months later, the ship would return to bring provisions and collect the results of their work. Whaling ships arrived from America,*

> *France, Tasmania (Tasmania) and Sydney. By the 1830s, the whalers* Socrates, Henry *and* Elizabeth *were regular visitors from Hobart.*
>
> *Enthusiastic reports of profits to be made encouraged the South Australian Company to send its ships carrying South Australia's first colonists early on the company was anxious to join the whaling industry. After leaving their pioneer passengers on Kangaroo Island the* Duke of York *and* Lady Mary Pelham *went on to Hobart to refit as whalers in the Pacific.*[3]

Kangaroo Island became the main base for bay whaling around the island itself, and for stations on the mainland at Encounter Bay and environs. It seems that most of the oil caught in this region was from right whales caught in the bay, although those bases served sperm whalers as well. The hunt for the fur seal in the nearby Bass Strait had begun early in the previous decade, and Kangaroo Island had been identified as a prime source of the salt needed to cure the skin (fur) of the seals slaughtered in the Foveaux Strait to the east of King Island in the west, and even further west to the waters of South Australia. The New South Wales-based sealers were at work there before settlement began in Tasmania in 1803, and well before South Australia was proclaimed as a colony in its own right.

However, whaling activity in this region was slow to take off. Colwell reports that:

> *Although Encounter Bay was known to whalers and sealers as early as 1802, it was not until March 1837 that permanent whalers arrived at the Bay. In that month a party from Sydney in the Hind, under Captain Blenkinsop, and a double party of sea boats from the South Australian Company under Samuel Stephens, arrived within a few days of each other...*
>
> *The South Australian Company has given vessels employed in the black and sperm whaling trade besides small craft in the neighbourhood. We are withdrawing from the sperm whale fishery.*
>
> *In an effort to beat the deep-sea men at their own game, bay whalers often put out with enough supplies for two or three days. But if no whales were sighted one night in a cramped whaleboat was usually enough, and the deep-sea men lounging on the decks of their ships would cheer them back to land and await the arrival of the fish.*[4]

Though the visiting whaleships were diverting from their main task of collecting sperm oil from whales killed off-shore, many still had a quota of 'black oil' to meet; and the most convenient area from which to capture 'black oil' was from the 15 or so whaling stations which had come to be settled on South Australia's shores. Of these, Encounter Bay became the most well-known. It was not long before a comfortable annual cycle emerged for the American whalers.[5]

Four hundred and eighteen men have been identified as having been engaged in 524 person/seasons of work in that area in the peak period of activity between 1844 and 1851. Bay whaling in this area was an ill-favoured area for work: only 20% of the documented participants over the period 1844 to 1851 sought work for more than one season.[6] Only six persons of those 418 thought of bay whaling in South Australia as the location for a long career, having served out five seasons or more.

Shore-based whaling in South Australia was abandoned in 1855. Records, especially of financial activity, are sparse to the point of invisibility chiefly because transactions involving sale of product took place mostly off-shore, and did not enter the financial recording and reporting systems of the colonies, such as they were.

However, a hint of the industry's significance can be gained by the employment records referred to above. According to Leadbeater,

> *About thirty men were employed at each station. Besides the headsman, boatsteerers and pulling hands operating in each boat, there was a cook, a cooper to make the casks, and perhaps a steward and bullock driver. Often a boat builder was employed. Each man received a pre-agreed share, a lay, of the value of the whale and the whalebone, depending on his rank and skill. In the off season the whalers went up country to help on farms shearing sheep, fencing, sawing and helping with the harvest.*[7]

This data implies that a full year workforce of around 450 people was supported by the cycle of whaling/farming around the South Australian coasts. There appears to be no data which separates employment in the five industries listed in the quotation above. It may well be that those 450 people shared 225 jobs.

Philip Clarke's comprehensive paper, though focussed only on the area of Southern South Australia, described a mutually productive relationship having developed between whalemen and Aborigines at Encounter Bay from the late 1830s. As to Aboriginal employment, he noted that:

> *the* Southern Australian *newspaper of 1 August 1839 had reported that it appears that a boat is employed in the fishery which is entirely manned by the natives. They take their part in the occupation equally with the white men, and are found to be not less expert than they. If the Aboriginal inhabitants are competent to this laborious species of employment, what could prevent them being rendered efficient in many other paths of industry.*[8]

The whaling station at Encounter Bay appears to have attracted many Aboriginal people as soon as it was erected. It appears to have been the subject of comment by a number of chroniclers.[9] One of those chroniclers suggests that whalers encouraged local Aboriginal people to camp around the whaling station by distributing whalemeat and rum, so that the men had access to Aboriginal women.[10] Clarke suggests that sealers and their Aboriginal wives were engaged in various enterprises that were reliant on passing vessels, such as gathering salt, growing vegetables, and the hunting of wallabies, kangaroos and seals for their skins.[11]

By 1840, the invasion of the foreign whalers was well and truly in train. The land-based whalers were not generally competitive with the whaleboats from abroad. Captain Hart, manager of the Company's whale fishery, wrote that not infrequently, boats from shore-based parties got close to the targeted whales when the boats, now built in Tasmania, would shoot past them and fasten first to the garget.

The competition became fierce over a wide area. Captain Hart said 'It is well known that upwards of thirty vessels are engaged between Kangaroo Island and Cape Lewin (*sic*)'.[12]

With Hobart as the base for most of them, the whalers scoured the area from New Zealand to Portland in Victoria to south of Tasmania to Encounter Bay and across the Bight to Cape Leeuwin in Western Australia.

Ever since Charles Bishop's visits to the wreck site of the *Sydney Cove*, and Flinders' subsequent exploration of the Bass Strait, governors of New South Wales were keenly aware of the potential for sealing there.[13] It was this realisation, and the concern that other nations might seek to colonise this seemingly vacant area, that led the Collins expedition of 1803 to establish a settlement in Port Phillip Bay.[14] When Collins left there for the Derwent, Governor King had expressed a preference for the north coast of Tasmania as a base of operations in Bass Strait. He was concerned about the difficulty of landing on the south coast of 'Victoria' in the teeth of the prevailing winds from the Arctic. However, in Collins' view:

> *(I)t seemed likely that the seal colonies on King Island, Phillip Island off Western Port and Seale's Island of Wilsons Promontory would attract the fishing boats (based in Tasmania: my insertion) to the 'Victorian' coast. They had already proved capable of attracting sealers from New South Wales.*[15]

From the arrival of the *Union* at Kangaroo Island and the construction which she organised there of the schooner *Independence*, conflict developed between settlers and their administration and visiting American whalers and sealers. This in turn developed into an antagonism which lasted for fifty years. There were a number of grounds for the conflict.

Firstly, British settlers regarded American sealing and whaling as theft of resources which were theirs by right. Secondly, American operations were accelerating the seals' rate of disappearance. Thirdly, American vessels visiting Australian shores usually brought contraband goods, and in particular, spirits. They were landed without duty having been paid, and thus government was defrauded of revenue. Illicit imports also ate into the market share of the local importers. Fourthly, Americans were widely suspected of facilitating flight from the colonies by runaway convicts.

These were not simply problems of routine administration; they raised delicate problems of diplomacy which affected the colonies, and through them, the relations between the parent and two major and powerful antagonists, the British East India Company and the government of the new nation of America. Neither the British Government nor the colonists wanted to be seen as facilitating American trade in the area in which Britain had granted the Company a monopoly.[16]

The British and Americans had just recently fought a war, one of the consequences of which was a depletion of each nation's whaling fleets; the supply of oil to Britain and Europe was severely disrupted. Successive governors of New South Wales sought guidance from Whitehall about how to manage its diplomatic relations with the American visitors, and such appeals were routinely ignored for reasons which are not clear, except that perhaps Whitehall felt itself too far from realities to deal with such issues with appropriate subtlety. The text of one of Governor King's memorials to the British government is set out below to convey how the issues were perceived and presented by him and his successors and supporters:

> *Previous to the* Union's *return, accounts were received of the improper conduct of crews belonging to the* Perseverance *and the* Pilgrim*, American ships to some of the colonial sealing gangs in Bass's straits, this communication being made by the master of one of the gangs to his employers, desiring it to be laid before me, a copy of which I have the honour to enclose ... I must respectfully submit a communication thereof to your lordship's wisdom and humbly suggest the necessity for the governor of this territory being provided with particular instructions respecting American vessels being allowed to lay and continue among the islands of Bass's Straits for the purpose of sealing, to the annoyance and prejudice of His Majesty's subjects in this quarter; and how far the governor would be justifiable in seizing or otherwise proceeding against any vessel purchased in American on a co-partnership between any resident here and an American for the purpose of navigating in these seas, and having intercourse with the Honourable East India Company's possessions under the American flag.*[17]

This was not a simple issue, because although the Americans were patently adversaries, the British government was dealing with two constituencies at home – the merchant adventurers – who invested in whaling vessels of their own, and who fought to prevent the development of a colonial whaling industry in competition with them. On the other side loomed the British East India Company.

In between 1788 and 1819, the Company lost the battle. In 1809 the merchant adventurers secured a major bridgehead, having persuaded the British government to impose crippling duties on the importation of oil won by the fleets of British colonies. But in 1814 the government removed all of the Company's privileges except those in relation to trade with China. In 1819 British colonial vessels were granted the right to trade directly between the colonies and Britain. In 1823, following the Bigge Inquiry, duties on the import of colonial oils were lifted, and Australian oil was thereafter able to compete with American oil in sales to Britain on equal terms.

8.2 Americans in South & Western Australia

American and British whaling interest penetrated the Pacific Ocean for the first time beginning in 1788.[18] In that year, Samuel Enderby and Sons had commissioned their whaler *Emilia* to find a way into the Pacific from around Cape Horn. By 1790 she had done so, and had returned to London with her holds full of sperm oil. The American whaling ship *Beaver* rounded the Horn in December of the same year.[19]

Had the interests of both not been disrupted by the antagonisms between Britain and her American colonies they would both have launched major whaling initiatives in the South Pacific before the turn of the nineteenth century, and have sought to develop them rapidly thereafter. However, war did intervene, and from the 1770s to the 1820s, the visits of both British and American vessels to Port Jackson, Hobart and elsewhere in the South Pacific were few and irregular.[20] American visits did not resume until the mid-1830s.

In Britain's case, changes in international trade policy dating from the early 1820s were considered by most of the merchant adventurers to make whaling in the South Pacific uneconomic relative to whaling elsewhere; their South Pacific fleet began to decline until by 1850, it had virtually disappeared. Precisely the opposite outcome was achieved by the American whalers. Their South Pacific fleet increased the number of American whalers there from virtually nil prior to 1820 to 735 in 1846, achieving an astounding rate of growth in the process, and brushing all competition aside.[21]

The first American whalers known to have visited Australia did so in 1792. These were the Nantucket-based vessels *Asia* and *Alliance*. The first American vessel known to have reached Port Jackson was the *Philadelphia*; she arrived in November 1792. The last American ship to sail out of Port Jackson before the 1812–15 British-American Naval War was the *Eliza*. Sixty-two American ships had visited between 1792 and 1812.[22] The south west coast of Australia was another region favoured by American whalers in the late 1830s. The first recorded American whaleship in this area was the *Virginia* which arrived at Gage's Roads in February 1837. The *Perth Gazette and Western Australian Journal* welcomed the vessel with considerable reservations:

> *We welcome any and every stranger on our coasts, but it is painful for us to see strangers sweeping from us one of our richest harvests, - the whale fishery, - while we are indolent spectators.*[23]

According to Churchward, a very few of the American merchantmen which went to Canton via the south of Tasmania stayed to take part in sealing along the route. Perhaps because there were few, they were prominent for clashing with their fellow Americans as well as foreigners. As reported earlier[24], Governor King was particularly irked by the fact that the American whaling ship *Union* had built a schooner of local timber on Kangaroo Island. King had not brought any diplomatic *diktats* on this with him to New South Wales, and, as described above, he wrote to London seeking policy advice on how Americans should be treated by the Colonial government.[25]

The many American whalers working in the waters around Australia made only very limited use of Australian ports, because it was not until 1835 that they began to offer the full range of repair and supply facilities required by whaleships.

> *Only eighteen American whalers came to Sydney over the twelve years 1831 -1842. Rather more American whalers visited Hobart which was in advance of Sydney in removing restrictions on foreign whalers. ... At least 20 American whalers called at Hobart in 1842 and twelve in 1843. Numbers slackened off over the next three years but twenty-one came in 1847 and twenty-eight in 1848. ... Twelve American whalers called at Sydney in 1844, nine in 1845, forty-six in 1846 and a similar number in 1847. Numbers fell off to thirty-six in 1848, to twenty in 1850 and to only ten in 1851.*[26]

O'May began his report of annual visits to Hobart by foreign vessels, particularly by American and French whaling ships with 1839.[27] He does not specify the source of his data, so there is some concern that it may not always be accurate. His reports are sparse; this comment in the 1840 report is typical:

> *This year brought many French and American vessels into the port to refit and provision.*[28]

This was followed by a list of the American and French vessels which visited the port, the names of their Masters, and the tonnage of maritime goods being carried. This data suggests that the average annual number of American visiting vessels was of the order of 16 to 20, and of the French, 4 to 6. Churchward's data also delivers an annual average of 20 American visitors to Hobart.[29]

One way in which Western Australian whaling differed from its eastern counterparts was the role of Aboriginal Australians in the industry's workforce. Although it may only be a trick of incomplete records, it appears that more Aboriginal Australians played more significant roles in Western Australian whaling than they did elsewhere in the colonies.

> *(B)y 1850 there were at least nine aboriginal men employed in the Aboriginal whaling parties. In that season, with the two stations requiring a total complement of between 24 and 28 men the Aboriginal labourers comprised more than 30% of the workforce on the south coast.*[30]

The *Western Australian Government Gazette* regularly published crew lists, supplied by ships' owners/masters. It appears that they did this to inhibit disobedience or desertion by their Aboriginal crewmen. Such a list is set out in Table 15 (below, page 109)

Table 15: Registered Aboriginal Whalers

Name (alternatives)	First/Last known years	Stations	Position
West Coast			
Bungor	1858	Pt Gregory & Castle Rock	Boat hand
Bunyart	1856	Fremantle	Boat hand
Jack Crow	1850	Bunbury	Boat hand
Thomas Jincup	1862	Bunbury	Boat hand
South Coast			
Bobby Candyup	1875	'East coast'	-
Cockellet	1863	Barker Bay	Boat hand
Jack Hansome (alt Ansum, Hansom, Handson, Hanson)	1861-1878	Torbay, Middle Island, Doubtful Island Bay, Cheynes Beach, 'East Coast'	Boat steerer
Jack Hardy	1861-1877	Barker Bay, Cheynes Beach, Doubtful Island Bay, 'East Coast'	Boat hand

Name (alternatives)	First/Last known years	Stations	Position
Tommy King (alt Jimmy King)	1867-1872	Cheynes Beach, Cape Riche, 'East Coast'	Boat hand
Mullipert	1878	'East Coast'	Boat hand
Billy Nadingbert	1861	Cheynes Beach	Boat steerer
Nebinyan (alt Nepenyan, Nebin, Boney, Bonaparte)	1862-1877	Middle Island, Doubtful Island Bay, Cheynes Beach, 'East Coast'	Boat hand
Bobby Noneran (alt Nornaran)	1861-1863	Torbay, Barker Bay	Boat hand
Rattler Nuterwert, (alt Rattler, Nutermut)	1861-1875	Torbay, Middle Island, Doubtful Island Bay, Cheynes Beach, 'East Coast'	Boat hand
Dicky Taylor (alt Dickey)	1861-1875	Torbay, Middle Island, Cheynes Beach, Doubtful Island Bay, 'East Coast'	Boat hand

Source: Gibbs (2003) [31]

The most outstanding features of the Western Australian whaling industry was its persistent domination from the late 1820s to the late 1880s by a mobile workforce which was foreign (chiefly American), and which made no attempt to settle in Western Australian territory.[32] In the first 6 to 7 years of the American presence, the population of visiting whaleships reached to between 60 and 80 per year. However, it quickly fell away, and following a short peak of about 35 vessels per year over the years 1855 to 1861, it settled at an average at or below 10 vessels per year for the remainder of American participation in this particular part of the global whaling grounds. There were a number of reasons why settlement was an unattractive proposition to the Americans. One was the very low population density of a western Australian coastline which roughly spread from present day Broome, south to Albany and east along on the Great Australian Bight. The invading population did not begin to settle before the late 1820s, and when it did, it settled in small coastal villages. None of them were developed long enough or were big enough to establish and/or maintain the services required by a modern fleet of sailing ships. Conversely, it seems also that the level of the demand from the foreign whaling fleets was not high enough or stable enough to justify investment in ship servicing facilities.

Most of these features derived from the location of the Western Australian settlements in relation to the rest of the world, and the industrialised world in particular. In the middle of the nineteenth century, most of the world's industrial activities took place north of the equator. The epicentre of Western Australian economic activities was its south west corner, the furthest possible distance from the factories of Europe and North America: and moreover, a region where the host culture was nomadic. The most sophisticated shipping-related activity which took place there was the reprovisioning of water, wood, and perishable provisions. There was no shipbuilding activity of any significance there, nor any capability of carrying out anything but the most mundane of repairs to ships and whaling gear, and which could have been carried out anywhere. The most significant commercial activity was

the bartering of ship and whaling equipment for locally grown food, or perhaps temporary berthing facilities.

Residents as well as governments resented some foreign behaviours, as had South Australian settlers before them:

> *American and French whaleships were starting to cruise along the Western Australian coast, enraging the colonists by taking what the latter felt were rightly a British resource.*
>
> *Although various proposals were made by Perth and Albany-based colonists to start a shore-based whaling industry, the financial situation of the western settlements was so dire that it took nearly seven years before local merchants could scrape together sufficient funds to equip even a small whaling station.*[33]

Other issues of concern to the settlers were noted in Chapter 5 above. They created some of the drive for whalers to work in New Zealand.

According to Churchward:

> *American whaling activity along the southern Australian coast was closely linked with whaling around New Zealand. Most of those American ships were taking an eastward approach to the Pacific. Rounding the Cape of Good Hope, they took the route along the southern coast of Australia because this gave them additional opportunities to engage in bay whaling. Eventually they worked their way across the Bight and then turned south to clear the southern point of Tasmania before moving on to further bay whaling or sperm whaling around New Zealand during the southern winter.*[34]

There was room here for conflict to emerge between visitors and 'local' populations both non-Aboriginal and Aboriginal in origin, and so it proved. Americans who sought to beach a vessel in order to clean its copper bottom did not understand the need to negotiate use of the land with local owners of either ethnicity, and so they did not. This attitude was not welcomed by the locals who had other uses for the land, and priority rights to exercise. As unsettling as such conflicts may have been, they rarely if ever resulted in aggression, much less warfare. Indeed, they seem to have been offset by the room opened up by the presence of maritime activities for locals, especially Aboriginal Australians, to learn new skills.

The avenues with the greatest potential for investment to flow into the colonies were shipbuilding and refitting, and ship repair. However, no such investments were made in Western Australia. Vessels working in those waters which needed facilities for significant refits/repairs went eastward to get them, generally to Hobart, the Bay of Islands in New Zealand or American facilities even further east. Given that the horizon for this research is 1860 and relatively early in the time frame of whaling's development in Western Australia, given the lack of records of foreigners' whaling activities there, and given Western Australia's disconnect with the east coast colonies, whaling's contribution to the development of the Western and South Australian colonies is relatively insignificant.

Nobody seems to have penetrated the subtleties of the Aboriginal/non-Aboriginal interface in the Western Australian whaling industry more than Dr Martin Gibbs. One of his particular interests is the relationship between the Mineng people and the Europeans around Two People's Bay, 25 kilometres to the east of Albany on the south western coast of Western Australia. Gibbs further observed that:

> *The eventual integration of Aboriginal men (and possibly women) into the whaling crews might be seen from the perspective of the European industrialists as addressing labour shortages by exploiting indigenous people' skills. However, the reverse is to consider that it provided for the Aboriginal youths who decided to participate. There has long been recognition by historians and anthropologists that in contact situations young Aboriginal men and women were quick to grasp opportunities to exploit new skills and economic resources to gain advantage with, and in some cases to side-step traditional hierarchies.*
>
> *For young Aboriginal whalers, such as Nebinyam, there were several potential rewards. First there was the kudos of returning to shore after a successful hunt combined with providing the mass of whale meat that would facilitate a feast. Second, the 'lay' payment would allow the purchase and distribution of considerable largesse to the community ... Third ... promotion to a role such as 'boat steerer' created further seniority by potentially placing the Aboriginal whaler in command over both Aboriginal and white workers. Fourthly ... success as a whaler created an avenue for acknowledgement, respect and economic standing within the European community.*[35]

These three quotations imply two other developments of interest. The practice of Aboriginal Australians working in whale crews was not confined to the Mineng people – the gathering of native tribes for a whale feast is nothing if not creative advertising; and secondly, the practice of Aboriginal Australians working in whaleboats seems to have developed and been sustained over a relatively long period of time, at least until around 1890. However, their number is not known, and whatever it was it does not appear to have left a significant impact.

8.3 Summary

There are few relics of foreign whalers' presence in South Australia and Western Australia, and almost certainly there is little evidence of any industrial activity to deliver services. In Western Australia, in particular, there is documentary evidence that quite large American fleets were sustained along the Western Australian coast for a long period of time, of the order of 50 years.

Those ships – and the few French who worked there – came either *via* the Cape of Good Hope, or from the Pacific. They and other foreigners combined to form a significant segment of the market for maritime services in Hobart, Sydney and the Bay of Islands.

Notes for Chapter 8

[1] Morton, *The Whale's Wake*, 1983; McNab, *Murihiku and the Southern Islands*; McNab, *The Old Whaling Days*.
[2] Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, chap. 12.
[3] Maureen M. Leadbetter, 'Whaling: South Australia's Early Days', 21 September 2013, http://www.familyhistorysa.info/sahistory/whaling.html.

[4] Colwell, *Whaling around Australia*, 54–65.
[5] S. Newland, 'Address of the President', in *Proceedings of the Royal Geographical Society of South Australia*, 34th Session (Royal Geographical Society of Australasia, 1921), 13–34.
[6] Maureen M. Leadbetter, 'Whaling: South Australia's Early Days', 21 September 2013, 3, http://www.familyhistorysa.info/sahistory/whaling.html.
[7] Leadbetter, 'Whaling: South Australia's Early Days', 21 September 2013, 3.
[8] P.A. Clarke, 'The Significance of Whales to the Aboriginal People of Southern South Australia', *Records of the South Australian Museum* 34, no. 1 (2001): 29.
[9] See for example Robert Gouger, *South Australia in 1837 : In a Series of Letters ; with a Postscript as to 1838*, South Australian Facsimile Editions 15 (Adelaide: Public Library of South Australia, 1962); W.H. Leigh, *Reconnoitering Voyages and Travels : With Adventures in the New Colonies of South Australia, a Particular Description of the Town of Adelaide, and Kangaroo Island, and an Account of the Present State of Sydney and Parts Adjacent, Including Visits to the Nicobar and Other Islands of the Indian Seas, Calcutta, the Cape of Good Hope, and St. Helena, during the Years 1836, 1837, 1838* (London: Smith, Elder, 1839); John Alexander (Rev.) Cameron, *Yilki, a Place by the Sea* (Adelaide: Central Times, 1979).
[10] Cameron, *Yilki, a Place by the Sea*, 4.
[11] Clarke, 'The Significance of Whales to the Aboriginal People of Southern South Australia', 29.
[12] Colwell, *Whaling around Australia*, 65.
[13] Alan George Lewers Shaw, *A History of the Port Phillip District : Victoria before Separation / A.G.L. Shaw* (Carlton., Victoria: Melbourne University Press :, Carlton., Victoria. : Melbourne University Press : c2003), 14f; Watson, *HRA III*, vol. 1, pp583-586 King to Collins.
[14] Leadbetter, 'Whaling: South Australia's Early Days', 21 September 2013, 3.
[15] Shaw, *A History of the Port Phillip District*, 15.
[16] See page 66 above
[17] Frank Murcott Bladen, *Historical Records of New South Wales: Vol 5 (King, 1803, 1804, 1805)*, vol. 5 (Mona Vale, N.S.W: Lansdown Slattery & Co, 1979), 515, King to Hobart 20 December 1804.
[18] Mawer, *Ahab's Trade*, 80.
[19] The *Beaver* rounded the Horn at the end of 1791, followed by three other American ships
[20] Mawer, *Ahab's Trade*, chap. 6 and 7. Chapter 6 describes the decline and demise of British whaling in the South Pacific; Chapter 7 describes how the USA used technological innovation to give it cost superiority from the 1830s onwards.
[21] Sanderson, *A History of Whaling*, 1993, 250.
[22] Churchward, *Australia & America, 1788-1972*, 1979, 17.
[23] 'The Visit of the whaler "Virginia"..', *The Perth Gazette and Western Australian Journal*, 18 February 1837, 852.
[24] See page 106. The text of one of Governor King's memorials
[25] *Historical Records of New South Wales (King, 1803, 1804, 1805)*, vol. 5 (Mona Vale, N.S.W: Lansdown Slattery & Co, 1979), n. King to Hobart 20 Dec. 1804.
[26] Churchward, *Australia & America, 1788-1972*, 1979, 26f.
[27] O'May, 'Wooden Hookers of Hobart Town', 1978, 31–35.
[28] O'May, *Whalers out of Van Diemen's Land*, 1978, 34.
[29] Churchward, *Australia & America, 1788-1972*, 1979, 27.
[30] M. Gibbs, 'Nebinyan's Songs: An Aboriginal Whaler of South-West Western Australia', *Aboriginal History* 22(2) (2003): 5.
[31] Ibid., 6.
[32] Gibbs, 'Conflict and Commerce: American Whalers and the Western Australian Colonies 1826 – 1888', 49.
[33] Gibbs, 'Nebinyan's Songs: An Aboriginal Whaler of South-West Western Australia', 3.
[34] Churchward, *Australia & America, 1788-1972*, 1979, 25.
[35] Gibbs, 'Nebinyan's Songs: An Aboriginal Whaler of South-West Western Australia', 12f.

9 The American, New Zealand and French Interests

The geographical dynamics of the market segments for newly constructed vessels (including outfitting) resulted from the confluence of the location of where the vessel's keel was laid down, and the home of the money for its purchase. For refits and repairs, the key factors determining where the work was done were technical capability, and cost, where cost was a function not only of refitting as such, but of getting the subject vessel to the repair point, and back into service. Up to about 1830, the demand in the refit/repair segment was generated primarily by the British fleet. This meant that the key delivery points in the Southern Whale Fishery were the Bay of Islands in the North Island of New Zealand, Port Jackson and Hobart, as well as the more distant Tahiti and Hawaii.[1]

The rapid growth of the American fleet brought with it radical changes to port patronage. According to Dunbabin (who did not specify his sources) a very large fleet of American whalsehips came to dominate the whaling industry in the South Pacific over the 1840s. There were large concentrations of Amercian whalesips in the waters from the Australian coast of the Indian Ocean to the Great Australian Bight, and smaller but still significant numbers around Hobart, each of New Zealand's main islands, and around Port Jackson. Dunbabin reported that, in all, about 300 American vessels were in Australian and South Pacifc waters in 1841.[2]

The British, French and Australian fleets were largely gone from the South Pacific by 1850 (though some American and Australian vessels undertook mercantile activities – and later a few even returned to whaling.) But the field had been vacated for the Americans, who, it is widely acknowledged, had a fleet of 735 vessels engaged in whaling by 1846 – a fleet ten times (approximately) the size of the eastern Australian whaling fleets at their peak.[3]

Richards' earliest analysis of vessel visitation patterns for Honolulu, Lahaina, Tahiti, Bay of Islands, Sydney and Hobart cover the period 1820 to 1840. His first conclusion was that by 1840, these five ports between them received more than 300 vessel visits per year. His second was that neither Hobart nor Port Jackson shared in the rate of increase over this period. But this conclusion reveals a major difficulty with Richards' analyses and with them Dunbabin's. Richards' 2002 paper opens:

> *There were far fewer whaleships in the Pacific than the contemporary literature suggests. Honolulu, Lahaina and the Bay of Islands were the only Pacific ports whose provisioning and servicing of whaleships proved sufficient to generate enduring port facilities. For most of the other Pacific places that whaleships visited, the number was small, and again, much smaller than some contemporary popular literature implies. This ... he argues ... has profound implications for studies of the culture contact, and early post-contact periods, periods in each of the South Pacific Islands.*[4]

It is not clear what Richards is measuring when he talks about whaleship 'provisioning and service visits' - the following context suggests that he is talking about only, or mainly about 'provisioning'. Yet whalers visited ports for a number of different reasons, all to be accomplished on the one visit if possible, e.g. repairs and refits as well as for provisioning. Those different purposes entailed visits of different duration, and the consumption of different 'linked' goods. For example, a repair, or a refit may take two months or more and involve the purchase of considerable timber, and rigging, as well as re-sheathing. The linkages are of different value, and the different value is a function of the different commodities they consume. If it is to be argued, as Richards does, that this technique of ship arrivals and departures analyses is adequate, and provides appropriate measures of linkage value, it will be necessary for it to differentiate between the different values of the different linkages.

Richards' third conclusion was that Honolulu and the Bay of Islands grew fastest of the Pacific ports. He instances the number of occasions that the number of visits to these ports exceeded 100 *per* year.[5] Regrettably, the records of whaler visits to ports are paltry in respect of both length of visit and their purpose. However, the evidence that does exist suggests that the cost of refits might vary from £300 up to £5,000 and beyond, a range vastly in excess of the days and weeks needed to fill up with wood, water, grog and other consumables.

The rationale for the size and growth of the American fleet in the South Pacific is set out in Chapter 8. However, it needs to be clarified that the waters around Australia represented the south-western limits for the American fleet's operation apart from its desultory work in the Indian Ocean. Indeed, it was only the American fleet which operated in and around the waters of south-west Western Australia in significant numbers. This issue is important in assessing the demand for refits and repairs for Australian and foreign whaling vessels.

This dissertation's account of economic development has so far been focussed on the colonies of New South Wales and Tasmania. However, it has been established that the American whaling interests were significantly involved in an area extending from Western Australia to the Bay of Islands in New Zealand. It is therefore now appropriate to examine its contribution, and that of other nations, to the Australian whaling industry.

9.1 American whaling in the South Pacific

The first American whalers known to have visited Australia did so in 1792. These were the Nantucket-based vessels *Asia* and *Alliance*.[6] The first American vessel known to have reached Port Jackson was the *Philadelphia*; she arrived in November 1792. The last American ship to sail out of

Port Jackson before the 1812–15 British-American Naval War was the *Eliza*. Sixty-two American ships had visited between 1792 and 1812.[7]

According to Churchward, the destination of many of the American vessels was Canton.[8] Very few of the American merchantmen which went to China *via* the south of Tasmania stayed to take part in sealing along the route.

Conflict developed between settlers, the colonial administration and visiting American whalers and sealers which evolved into antagonisms which lasted for fifty years. There were a number of grounds for the conflict. Firstly, British settlers regarded American sealing and whaling as theft of resources which were not only British by right. To this insult was added the injury of the rapid decline in stock from American depredations. Thirdly, American vessels visiting Australian shores usually brought contraband goods, and in particular, spirits. They were landed without duty having been paid, and thus the government was defrauded of revenue. Illicit imports also ate into the market share of the local importers. Fourthly, Americans were widely suspected of facilitating flight from the colonies by runaway convicts.

As described earlier, these were not simply problems of routine administration; they raised delicate issues of diplomacy which affected the colonies, and through them, the relations between the parent and two major and powerful antagonists, the Company and the government of the new nation of America.

Lovett's and Wace's data reveals that for the period 1791 to 1830, 63 American whalers visited the eastern colonies. This represents an average annual visitation rate of 1.5 vessels per year. Their data suggests that the annual visitation rate of whalers to eastern Australian ports in the period 1831 to 1850 averaged twenty. With visitation spread equally between Hobart, Launceston and Sydney, the annual average visitation rate per port was about seven vessels.[9]

The growth of the American whaling fleet accelerated following the discovery of a 'cruising ground' off the coast of Japan. In 1835, the first whale from the Kodiak coast was taken. According to Starbuck, this event signalled what came to be called the 'Golden Age' of American whaling starting in 1835, for it heralded the discovery of a new fishery on the northwest coast of the Pacific. Lever seems to be largely in agreement with Starbuck's assessment of the 'Golden Age':

> *The period of intensive whaling in the Western Pacific lasted about 70 years, from 1790 till 1860, with a brief golden age from 1830 (to 1840).*[10]

The period of intensive whaling in the Western Pacific lasted about 70 years, from 1790 to 1860, with a brief golden age from 1830 to 1843.[11] Dudden's different view is that "(t)he American Pacific

Empire commenced at the moment of the Oregon Treaty's ratification" in 1848.[12] Dudden's view seems to be that whaling's pathway to this commencement was slow to start:

> *By 1790, twenty-eight United States vessels had cleared from Canton, and by 1800 more than one hundred ... Forty-six whaling expeditions to the Pacific before 1800 are listed ... by Starbuck.*[13]

As Dudden perceives the fleet's later growth, the American whaling industry peaked between 1835 and 1855 with 722 of the world's 900 whalers being American flagged in the Pacific.

The many American whalers working in the waters around Australia made only very limited use of Australian ports, because it was not until 1835 that they began to offer the full range of repair and supply facilities required by whaleships – even then American whalers were slow to use them.[14]

> *Only eighteen American whalers came to Sydney over the twelve years 1831 -1842. Rather more American whalers visited Hobart which was in advance of Sydney in removing restrictions on foreign whalers. ... At least 20 American whalers called at Hobart in 1842 and twelve in 1843. Numbers slackened off over the next three years but twenty-one came in 1847 and twenty-eight in 1848. ... Twelve American whalers called at Sydney in 1844, nine in 1845, forty-six in 1846 and a similar number in 1847. Numbers fell off to thirty-six in 1848, to twenty in 1850 and to only ten in 1851.*[15]

Tower gives a more detailed account of the rate of growth of the American Pacific whaling fleet. After recounting a range of developments, he states that:

> *By 1835 the number of ports had increased to nearly thirty, with fleets varying from two or three sails to nearly two hundred ... In 1829 the combined total fleet was 203 sail, including ships, brigs and schooners. During the next five years the number more than doubled there being 421 sail in the whaling fleet of 1834 ... From 1835 to 1860 the whaling fleet averaged about 620 vessels annually ... In 1846, the fleet numbered 680 ships and barks, 34 brigs and 22 schooners ... (that is, 736 vessels – my interpolation).*[16]

Kushner has taken a more analytical approach in order to determine what proportion of American whaling resources in the Pacific were devoted to north and northwest fisheries. The key point which Kushner makes is that a significant proportion of the American whaling effort began to gravitate to the north and northwest Pacific, beginning as early as 1835. He argues that by 1835 almost 80% of the American whaleships headed for those waters.[17]

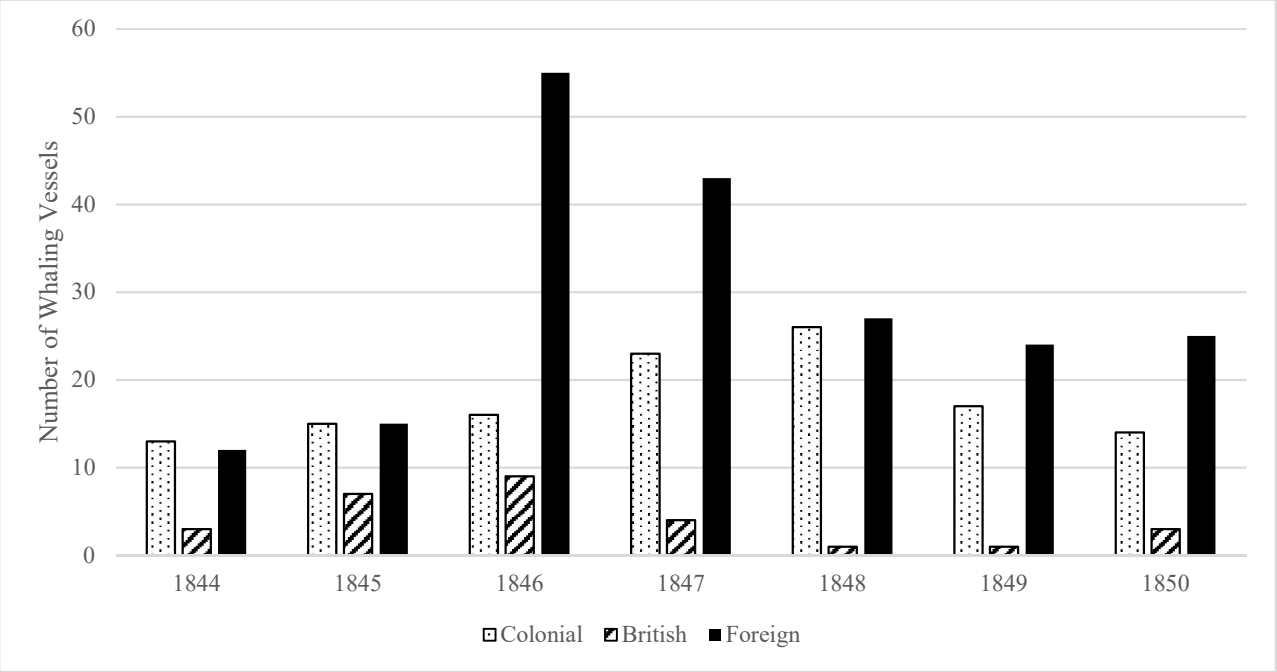
Richards' analysis of the frequency and pattern of visits to Pacific ports delivers some new and perhaps surprising perspectives.[18] Richards analysed shipping arrivals and departures and port visits to scores of locations in the Pacific. These ports all had a reputation for playing host to the whaling community and for delivery of a wide range of services extending from engineering assistance to the provision of fresh food and water. The analysis of shipping arrivals and departures in the period 1820 to 1840 enabled Richards to advance conclusions referred to at pages 114f.

Richard's own perspective on whaling development in this segment is:

> *The overall predominance of Honolulu is very striking. After 1824, Honolulu was always the most important port until 1835. In 1840 and thereafter Honolulu resumed its pre-eminence, with a huge increase of up to 167 visits in 1846 and again in 1847, ... as the whalers flocked to exploit new grounds on the north west coast, at Kamchatka, and in Bering, Okhorsk and Arctic areas. ... Sydney never was a major provisioning port for whalers, except that after 1833, Sydney averaged almost forty visits a year until 1840. This arose however because Sydney then began to act as the 'colonial' home port for many formerly British whaleships that had re-registered there. This strategy ... could not be sustained as the whales of the 'neighbouring' whaling grounds were reduced so thoroughly that the remaining whaleships shifted to new grounds far off the North Pacific.*
>
> *Similarly, Hobart never ranked among the most important ports provisioning the whalers with its total visits exceeding twenty only in 1837, 1839 and 1840. In those years, visits by British and colonial whaleships were supplemented by French vessels.*[19]

The low rate of visitation of Port Jackson by American vessels suggests that this port was regarded as non-competitive. Its position appears to have improved after 1830, but by that time, satisfactory trading conditions in respect of repairs and maintenance had developed elsewhere, especially in the eastern Pacific.

Figure 6: Visits to Port Jackson from whale fisheries (1844-1850)



Source: Richards (2002)[20]

Figure 6 illustrates the decline in British participation in the Southern Whale Fishery, and that by about 1847, an Australian fleet of respectable proportions had been built up. "Foreign" is assumed to be predominantly, if not entirely, American and French vessels, so at no time in this period did the

Australian fleet exceed 10% of the size of the American Pacific fleet. By the end of the first half of the century, the American fleet had come to dominate exploitation of the Southern Whale Fishery.

The volumes stated for Honolulu (and other ports not quoted above) say nothing about how profitable the activities of provisioning, repair and maintenance were, nor where its breakeven point may have been. However, these comparisons seem to suggest that the volume of vessel visitation to Sydney/Hobart were likely to have been close to breakeven for the owners of shipyards there, as a whole. If so, and if the breakeven position were maintained for any length of time, whaling was not well-positioned to offer long life as a substantial contribution to the colonies' economic growth. This is an important consideration, because visits by American vessels were supplementary to those of British, Australian and French whalers. If the Americans had broken even on the work done on their ships in Sydney and Hobart, they may, at least for the 'Golden' years, have reduced the break even for this kind of work on *all* ships in Sydney and Hobart. Richards' data above suggests that this is unlikely to have happened because the Australian industry's prices made patronage of Australian ports too costly for the Americans.

Sanderson's measured summary of the growth and decline of American whaling in the Pacific is:

> *(T)he build-up began ... in 1818, and then it continued progressively to a high point in the year 1846 when the fleet consisted of no less than 736 vessels ... From then on, the numbers declined by ten-year intervals as follows: to 635, 263, 169, 124, 77 and then to 46 in 1906. The first real drop occurred in 1857 when a serious financial slump hit the country as a whole. Four years later, the Civil War broke out and the number of whalers took a plunge from 514 vessels ... to 263 vessels. By the end of the Civil War, the 'golden age' was over ... Thus the whole period concerned lasted just fifty years, and the golden age for thirty, that is, from 1835 to 1865.*[21]

9.2 New Zealand whaling

New Zealand ports in general, and the Bay of Islands in particular, are germane to any account of whaling's history in Australia because they constituted major competitors to Hobart and Port Jackson in the provisioning, refitting and repair market segments. This was particularly true in the period 1830 to 1845. Between 1830 and 1840 the growth of maritime – including whaling – traffic through the Bay of Islands was very rapid indeed; its fall off after 1840 was equally dramatic. In both cases, traffic volume was almost entirely due to the growth and then decline of American involvement in whaling.[22]

The most comprehensive analysis of American whalers' patronage of the Bay of Islands is found in Canham's 1959 Master of Arts thesis.[23] Canham argued that:

> *To a long-range whaler, a place of refit must fulfil four requirements; it must have a good, safe harbour; it must be free from restrictions and imposts; it must have abundant and chief provisions; and it must be located near the areas of whaling operations.*[24]

The American whaling industry began to revive after the American-British Naval War of 1812-15, and American whaleships began to infiltrate the South Pacific. In 1818, twenty-seven American whaling ships rounded the Horn. In 1821, fifty-six had done so. Hawaii received its first tranche of American whaling vessels in 1819, and in 1829, 173 American whaling vessels visited the ports of Honolulu and Lahaina.[25]

The Bay of Islands continued to flourish as an American-dominated whaling port. From the 1820s the American whaling fleet grew to be larger than that of the English, French and New South Wales fleets combined.[26]

Kenny quotes an unsigned letter from the *Times of London* of 9 June 1846 as follows:

> *(T)he object and purport of my addressing you is to give you as near as I can calculate the number of foreigners employed in the American whale trade.*
>
> *A whale ship manning four boats carries thirty-two hands, and most of the are now fitted out for lowering that number of boats. Out of these (as an average) one-fifth are English, Irish or Scotch, one-fifth Western or Cape Verde Islands (Portugese), and three-fifths American seamen. The fleet will not employ quite 20,000 men… (T)here are upwards of 11,000 American seamen in that service.*[27]

This anonymous gentleman – who says himself that "I am particularly acquainted with the subject for I have made it a study" – may have exaggerated his estimate of total employment. It is equivalent to 625 vessels, but given that in the year 1846 the American whaling fleet in all is reliably estimated to have consisted of 736 vessels, he may not have been far distant. [28]

Set up to market itself to a fleet of around 600, the port of the Bay of Islands was a very substantial competitor with Australian ports indeed, even though the share of the American South Pacific whaling fleet's port visitations was only about a quarter of those of Honolulu.

New Zealand-based whaling is also relevant to this dissertation because its prime beneficiaries were eventually to be New South Wales-based ship-owners and builders. Revenues from whaling in New Zealand were thus already counted in the value of catches imported into and exported from Port Jackson. Captain John Grono of Newcastle, for example, was heavily involved in both building and sailing vessels for use predominantly in New Zealand waters[29]. Other major participants were Simeon Lord, Robert Campbell, James Underwood and Henry Kable, as described in Chapter 6.

The geographical extremes of New Zealand played a critical role in whaling industry development in that country, beginning around 1790 and ending by around 1880, declining as the whaling industry itself declined. The first contacts with the South Island were stimulated by a pre-settlement determination by Whitehall to investigate the suitability of New Zealand flax, and New Zealand

timber, for use in building and equipping British ships. This determination had been generated by reports from Captain James Cook and Captain George Vancouver in their voyage of 1792. The reports were favourable and by 1802, Enderby and Champion as agents for the merchant adventurers had received approval from the British East India Company to trade freely in New Zealand, following around fifteen years of negotiation via the British government.[30]

Of the north, Captain Cook had written that the Bay of Islands was one of the finest and safest harbours on the New Zealand coast. [31] The first whaling vessel known to have entered the harbour was led by Captain Robert Rhodes and Jorgen Jorgenson of the *Alexander* where they found wholesome fresh produce plentiful and affordable. That voyage is said to have taken place in 1804.[32]

The quarry of the whaleships working out of the Bay of Islands was the sperm whale. The prime targets for whaleships operating out of the South Island were seals and right whales. By 1820, the South Island had become the base from which sealing and open sea whaling were carried out, not only around the coast of the South Island of New Zealand, but also of the sub-Antarctic islands such as Macquarie Island, Campbell Island, Auckland Islands and the Penantipodes.[33]

Writing particularly of the way in which the North Island developed, Morton observed that:

> *As the whaling fleets built up and exerted themselves, developments in New Zealand agriculture coincided with the need for whale products, and made her a favoured base. But there were special problems, the chief being the need for an accepted and settled government.*[34]

The table below is extracted from Morton's text and adapted. Note that the text naming the ships which visited in each year is not comprehensive, nor does it tell us when the ships left, or the size of each year's whaling fleet.

Table 16: Whaleship visits, Bay of Islands (1805-1820)

Year	Number of Vessels			Vessel Names & Nationality		
	British	USA	Total	American	British	Unknown
1805	1	6	7	*Ann, Harriet, Elizabeth* and *Mary*, *John Sebastian, Brothers, Hannah* & *Eliza*	*Elizabeth* & *Mary*	
1806	6		6		*Aurora*, *Atlantic*, *Betsey, Vulture, Elizabeth*	
1807			9		*Seringapatam*	
1808			11		*Grand Sachem, Sarah*	
1809			2			*Speke*
1810			12			*Santa Anna*
1811			6			
1812			7			
1813			3			

Year	Number of Vessels			Vessel Names & Nationality		
	British	USA	Total	American	British	Unknown
1814			1			
1815-1819			3	*Jefferson, Phoenix, Cretan*		
1820			11	*Martha, Independence, Echo, Indian, Saracen, Vans, Hart, Janus*		

Source: Morton (1983)[35]

Both Britain and America were hampered by difficulties in procuring ships. Both were husbanding and/or building vessels a-new during and after the Napoleonic War and the American-British War of 1812 – 15. But it is the fate of Boyd, well and widely known as it is, that founded the reputation for aggression and barbarity that is said to have acted as a significant deterrent to New Zealand's international trade following 1809.[36] William Swain, who reported on the incident to Governor Bligh concluded his account with the statement; 'but let no man (after this) trust a New Zealander', which implies significant ill-feeling.

Governor Macquarie signed a 'Government and General Order' on 1 December 1813 setting out changes in regulations affecting ships working in New Zealand waters. This memorandum set out how the government expected all of those under New South Wales jurisdiction to behave in relations with New Zealand Maoris, and concluded:

> *All persons whatsoever charged by the oath of credible weaknesses with any acts of rapine, plunder, robbery, piracy, murder or other offences against the law of nature and of nations, against the persons and the properties of any of the natives of any of the said islands, will upon due conviction be further punished with the utmost rigour of the Law. (Signed by) Lachlan Macquarie*[37]

These passages highlight the challenges involved in achieving 'an accepted and settled government' in New Zealand. It will be noted that four years elapsed between the Boyd incident, and the Macquarie response to a report originally addressed to Governor Bligh. Of course, the incident report arrived after Bligh's deposition and well before Macquarie had become sufficiently informed to understand the priorities involved in addressing the very serious issues with which he was faced in territory bounded by Hobart, Kangaroo Island, Newcastle, Norfolk Island, the Bay of Islands and Dusky Bay, not to mention Macquarie Island's settlement. The resources available to Macquarie to manage the New Zealand territory were in practice, non-existent, as were his capacity to police the admonition of this order. It is not to be wondered that relations between Maori and *pakeha* took a very long while to improve.

It is clear from subsequent events that William Swain's injunction was taken to heart by some people engaged in trading with New Zealand. In his *Observations on the Introduction of the Gospel into the South Seas Islands: Being my First Visit to New Zealand*, Rev. Samuel Marsden averred in 1814:

> *At length I purchased a brig called the* Active *... and applied to the then Governor Macquarie for permission to go with the brig myself ... but His Excellency refused my request. At the same time, he promised that if sent the* Active *and she returned safe I should then have permission to go ... I ... felt at a loss to find a suitable person to navigate the brig, because of the risk of being murdered and eaten by the New Zealanders prevented several shipmasters from accepting the office.*[38]

The relationships between the British, especially British whalers and the Maori, were uncomfortable for a very long time – from the Boyd *contretemps* in 1809 to the assumption of British hegemony in 1840. Against that background Morton reports that:

> *The 1820s saw both the climax and the beginning of the decline of British whaling in the Pacific with British whaling at its peak in the early 1820s (about 160 ships in the Southern Fishery in 1821) fewer British whaleships visited New Zealand than in 1820 in 1830 when the total in the Fishery was down by almost half ... no more than twenty- five British whaleships even called in one year at the peak of British activity here.*[39]

Sealing dominated early fishing activities in New Zealand. It was initiated there by the explorations of George Bass in the south of that country.[40] They in turn had been provoked by the increasing scarcity of Bass Strait seals. As indicated previously, it was not uncommon for sealing crews to have been left marooned by a 'mother' ship.

During these early years marooning established itself as a real risk, just as it had for sealers out of Hobart and Port Jackson.[41] Sealing remained profitable in New Zealand until the late 1820s. Shore whaling began to take over as the main line activity, though often sealing continued as a worthwhile adjunct activity. However, earnings from sealing gradually reduced as the raw material was exterminated. In sealing the slaughter had been immense. Especially when the price per skin dropped, the sealing companies maintain revenue by increasing the number killed.[42]

Two other features of New Zealand and Tasmania sealing and whaling should be contrasted. They concern whalers' relations with native-born locals on the one hand, and with American whalers on the other. Both developed further and faster after 1820 than before it. The impact upon Tasmania's indigenous population was outlined above at page 62.

Sealing was easier and less perilous than whaling even though in the far south of New Zealand as elsewhere the Maoris when provoked were even more dangerous than sperm whales. But rumours – and confirmation – of cannibalism produced an almost primeval repulsion among the Europeans. James Kelly, a notable sealing captain from Hobart and successful skipper of an open boat

circumnavigation of Tasmania, could not help but be involved. Kelly anchored his ship the *Sophia* in Otago Harbour in 1816. Kelly and a sailor called Tucker, unarmed gave the local chief a present – according to Lawson, Maoris received the party with expressions of friendship. Kelly and his crew, bar one, took the next step in the exchange of friendly relations. However, 60 Maori collected together and rushed the white men, surrounding Kelly and his crew on the deck of their own boat. Skirmishes followed – two days later, the Kelly crew raided the shore and sawed the forty-two canoes beached there into two. They then set fire to the town which consisted of around 600 houses and razed it.[43]

Kelly was not by any means the only skipper to have become involved with the Maori in this way. The relations between the Maori and the white men were antagonistic for the next thirty years. Somehow a *modus vivendi* emerged and relations were more harmonious by the time New Zealand achieved independence in 1840. This, said Morton, was the most important outcome of all and stands in bleak contrast to the indigenous outcomes in Tasmania and the Bass Strait.

A further contrast in the Australian and New Zealand's whaling industry lies in relations between British and American whalers. British and American whalers were used to competing with each other, as they had done since the start of American Revolution in 1775: they had been at war until 1815. In the process, the American whaling fleet had been decimated and it did not begin to regain its strength pre-1775 until after 1815. In the meantime, there had been sporadic sallies by American whalers into waters around New South Wales, Tasmania and New Zealand. New South Welshmen and Tasmania whalers had come to regard them as pests. It was very early in the nineteenth century when Governor King realised that in dealing with American whalers he was also dealing with a potentially explosive diplomatic issue, brought to a head early by the Americans from the *Union* on Kangaroo Island.[44]

9.3 French whaling

French interest in the South Pacific vacillated over the period of 1810 to 1850. Despite its natural priority being given to re-establishing a workable national government from 1815 onwards, the French government none the less maintained a significant maritime survey reconnaissance programme in the Pacific from the 1780s to the 1850s. The French government eventually decided to fund whaling fleets which incorporated naval vessels. These fleets would seek to earn revenue from whaling, but also act as facilitators of trade between the French and the South Pacific nations, and as a support for the Roman Catholic Church's expansion in opposition to the (chiefly) British protestant churches. [45] In 1816, the French government published a set of ordinances giving substantial exemptions and bounties to its national whaling industry. The purpose was not only to increase the number of whaling vessels under French registry but also, by a system of preferential payments, to

encourage the use of all-French crews and the undertaking of longer voyages into the Pacific grounds which the British and Americans were finding so profitable.[46]

Hobart was the French base in the South Pacific. It was expected that its whaling vessels would be absent from France, and at work in the South Pacific for periods of four to five years. It built vessels specifically designed to accommodate this requirement. Their tonnage varied between 200 and 600 with a mean of around 420 tons. They were very much larger than the British and American vessels which were also built to accommodate long voyages.

The size of European and American vessels in the Southern Whale Fishery was dictated by the distance they operated from their home ports and the duration of their stay on the whaling grounds. In Jones' view:

> *There was a tendency to an optimum size for whalers. Ships had to be big enough to carry whaleboats (or on davits or knocked down), and take a big enough crew with provisions and stores ... only the South Seas owner from those days could explain the exact reasons for the size of his ships.* [47]

The last point in this quotation is probably valid. The first requires more explanation about the 'tendency for optimum size' when in practice vessel tonnages varied between 50 and 800 tons, thus suggesting that there was no such thing as 'an optimum size'.[48]

One of the lesser-known whale harbours in the Southern Whale Fishery was located at the village of Akaroa, 86 kilometres south of Christchurch, on the Banks Peninsula. Akaroa became a base for French whaling. By the 1830s French whaling around New Zealand had greatly increased. For example, fourteen French whaling ships visited the Bay of Islands in 1838, several more than previously. In the years 1840 to 1843, seventy of eighty-one French whaling voyages included New Zealand waters.[49]

In 1828, Captain Langlois, a French whaling ship captain, determined that Akaroa was a prime site for a whaling station, and "bought" it from the local Maori.[50] Langlois, with some associates, formed the Nanto-Bordelaise Company. After 1815, the French ambition to establish a presence in the Pacific – an ambition well-known to the British – was revitalised, and a Langlois proposal to establish Akaroa as a destination for a French colony was strongly supported by the French government. It funded migrants, and provided a vessel, a whaling ship named the *Comte de Paris*, to transport the migrants to Akaroa. The French government created the role of King's Commissioner for New Zealand, and appointed Captain Charles F. Lavaud to it. The Commissioner's role was simply to represent the King of France in New Zealand:

> *You will equally see to it that possession be taken in the name of France of all the settlements which will be established in the South Island of New Zealand and that the National Flag will be hoisted over them.*[51]

Britain despatched *HMS Britomart* to reinforce its understanding that British possession of Akaroa was embraced by the Treaty of Waitangi. That Treaty, recognising possession of New Zealand by Britain, had been signed on 6 February 1840, and was accepted by all, including the French, as the proper basis for British possession.[52] The arrival of the *Comte de Paris* meant that a French colony had been established on British soil, which made Akaroa's status unclear. However, careful management and diplomacy on the ground in New Zealand averted the position of Akaroa becoming a cause of conflict. The *Comte de Paris* went whaling, and returned with 900 barrels of oil. Nevertheless, Akaroa was a fact on the ground, and once established became a normal port of call for French whaling ships, as well as French warships.[53]

Conceivably, French traffic through the new port in 1841 could have had a small effect in diverting traffic from the Bay of Islands but the commissioning of Akaroa seems actually to have had little or no effect on the rapid growth of traffic through the older port. The Bay still received a (diminishing) number of British vessels, but British merchant and whaling vessels did not use Akaroa at all. Consistent with data from other sources, American whaling traffic through the Bay of Islands had begun to grow rapidly from 1831 to 1840, to the point of accounting for 60 vessels in 1840, more than half of the growth through that port. In 1841, American vessels were only just beginning to patronise Akaroa. It was Australian traffic which accounted for the remainder of the growth through the Bay.[54]

As Table 17 illustrates, the period 1841 to 1847 saw the peak of activity at Akaroa. French activity peaked in 1843, and activity extended beyond that year was chiefly due to continued patronage by American whaling ships. Even American patronage had largely ceased by 1847. In any event, Akaroa's period of prime utility started late, and finished early, and was therefore relatively short.

Table 17: American and French whaling ship visits, Akaroa (1841-1847)

	French	American	Other	Total
1841	20	5	1	**26**
1842	32	11	1	**44**
1843	20	10	1	**31**
1844	8	10		**18**
1845	14	12		**26**
1846	5	5		**10**
1847	1	7		**8**

Source: Tremewan (1990) [55]

Table 18 is a summary of a table presented by Richards and Chisholm, which in its original form extends from 1803. It shows clearly that even before Akaroa was established, the Bay of Islands in the North Island was heavily trafficked with ships registered in Britain and NSW. USA-registered vessels had grown to 68 by 1840, and French 22 by a year prior. Colonial vessels, i.e., those registered in NSW, Tasmania and New Zealand, reached 97 in 1840, and were continuing to grow.[56]

Table 18: Shipping arrivals and departures, Bay of Islands (1831-1840)[57]

Year	Great Britain	NSW	Tasmania	New Zealand	USA	France	Others	Totals
1835	26	42	8		28		13	**117**
1836	31	50	5	1	57	2		**146**
1837	26	31	3		58	3	4	**125**
1838	22	23	2	3	52	19	7	**128**
1839	16	64	1	2	63	22	9	**177**
1840	26	77	3	17	68	15	6	**212**

Source: Richards and Chisholm (1993)[58]

Akaroa survived as a community because of its agricultural base. But by 1850 its whaling customers had all but disappeared.[59] It is interesting to note that France annexed New Caledonia without notice in 1853, perhaps in part because Akaroa under British rule had lost its promise as a French base in the South Pacific.[60]

9.4 Summary

From 1835 until 1850, the combination of American and French whaling in the region from Albany in the West via Hobart to Port Jackson and the Bay of Islands consisted of around three times the number of ships of their colonial equivalents, the combined fleets of Port Jackson and Hobart. This does not mean that the foreigners required three times as much servicing by the colonial service ports. For example, the Americans and the French did not require ship construction from the Australian colonies. On the other hand, the relative sizes of the fleets does suggest that the foreigners demanded around three times as much operational provisioning as their local counterparts. It is clear, albeit not entirely quantifiable, that Port Jackson and the Derwent competed strongly with the Bay of Islands for the re-provisioning business, and more particularly for the more valuable business of refit and repair. Its competition was not so aggressive that it promoted the construction of a drydock.[62]

By 1855 American and French whaling was booming, the British trade was dying, and the Australian fleets had reached their greatest extent. By 1875, almost all whaling vessels had disappeared; perhaps the period between 1835 and 1855 was too short a time for colonial businesses to have recovered the required cost of capital investment in whaling ship construction and servicing.

Whether or not the years 1835 to 1850 represented a period of opportunity lost to Australian whaling is a wider question than the connection to the whaling industry alone. However, it represents a significant area for further research, starting perhaps with the whaling connection, and extending to other sectors of shipping demand as illustrated by progressive research findings.

Much of the above might be regarded as speculative, but Godfrey Linge's work could be a useful starting point for further research.[63] A study of the history of the various docks could open the door to analysis of waterfront workplace relations.

The most important conclusion, however, is that the oft-purported role of the whaling industry in Australian shipyard development is overblown.

Notes for Chapter 9

[1] Richards, 'On Using Pacific Shipping Records to Gain New Insights into Culture Contact in Polynesia before 1840', 1 December 2008, 26.
[2] T. Dunbabin, 'Some American Actions and Reactions in Australian History', *Report to the Australian Association for Advancement of Science* 19 (1928): 252.
[3] Ivan Terence Sanderson, *A History of Whaling* (Barnes and Noble, 1993), 250.
[4] Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', 2002, 25.
[5] Ibid., 27.
[6] Lloyd Gordon Churchward, *Australia & America, 1788-1972: An Alternative History* (Sydney: Alternative Publishing Cooperative Ltd, 1979), 9.
[7] Churchward, *Australia & America, 1788-1972*, 1979, 17. About 3 American vessels per year visited Port Jackson between 1792 and 1812.
[8] Churchward, *Australia & America, 1788-1972*, 1979, 11–14.
[9] Bessie Lovett and Nigel Morritt Wace, *Yankee Maritime Activities and the Early History of Australia*, Aids to Research, A/2 (Canberra: Australian National University, Research School of Pacific Studies, 1973).
[10] R. J. A. W. Lever, 'Whales and Whaling in the Western Pacific', *South Pacific Bulletin*, no. April (1964): 33–36.
[11] Ibid., 33–36.
[12] The Oregon Treaty between the United Kingdom and the United States set the US and British North American border at the 49th parallel, with the exception of Vancouver Island which remained British.
[13] Arthur Power Dudden, *The American Pacific: From the Old China Trade to the Present* (New York: Oxford University Press, 1992), 4.
[14] Churchward, *Australia & America, 1788-1972*, 1979, 27. See also Chapter 8 above.
[15] Churchward, *Australia & America, 1788-1972*, 1979, 26–27.
[16] Tower, *A History of the American Whale Fishery*, 1907, 50.
[17] Howard I. Kushner, '"Hellships": Yankee Whaling along the Coasts of Russian-America, 1835-1852', *The New England Quarterly* 45, no. 1 (1972): 82, doi:10.2307/364224.
[18] Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', 2002, 25–39.
[19] Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', 2002, 25–39.
[20] Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', 2002.
[21] Sanderson, *A History of Whaling*, 1993, 250.
[22] See Peter Tremewan, *French Akaroa : An Attempt to Colonise Southern New Zealand*, 2nd ed. (Christchurch: Canterbury University Press, 2010), pt. 1, http://trove.nla.gov.au/work/6625885?selectedversion=NBD46068080 for comments on the influence of French whaling.
[23] P. G. Canham, 'New England Whalers in New Zealand Waters, 1800-1850' 1959, http://ir.canterbury.ac.nz:80/handle/10092/9880; See also Richards, 'The Sad Truth about Bay of Islands Shipping 1803 – 1840', 1993. Morton's treatment is disappointing. ; Morton, *The Whale's Wake*, 1983.
[24] Canham, 'New England Whalers in New Zealand Waters, 1800-1850', 7.

[25] Ibid., 12.
[26] R.W. Kenny, 'Yankee Whalers at the Bay of Islands', *The American Neptune* 12 (1952): 32.
[27] Ibid., 32–33.
[28] Walter Sheldon Tower, *A History of the American Whale Fishery* (Philadelphia: Pub. for the University, 1907), 67. This is an account of the decline of the American whaling fleet.
[29] Robert George Taylor, *John Grono 1767-1847 : Our Old Colonial Neptune*, 1st ed. (Pitt Town, NSW: Grono Family Association, 2007); Peter Procter, *John Grono, Sailor, Settler, Sealer, Ship Builder, and Celebrity: A New Evaluation* (Pitt Town, NSW: Grono Family Association, 2015).
[30] The role of Enderby and Champion in these developments is assumed as extension of the role they normally played as owner-skippers negotiating with government and the Company.
[31] Morton, *The Whale's Wake*, 1983, 129–33.
[32] Ibid.
[33] The Penantipodes are today known as the Antipodes: Department of Conservation (New Zealand), 'Antipodes Islands: Places to Go in the Subantarctic Islands, Southland', accessed 11 December 2015, http://www.doc.govt.nz/parks-and-recreation/places-to-go/southland/places/subantarctic-islands/antipodes-islands/.
[34] Morton, *The Whale's Wake*, 1983, 130.
[35] Ibid., 130–34.
[36] See page 90 and the citations therein.
[37] Robert McNab, *Historical Records of New Zealand*, vol. 2 (J. Mackay, Government printer, 1914), vol. 1, pp316f. Macquarie, L., Government and General Order, 1st December 1813.
[38] Ibid., vol. 2, vol. 1, p.331-399. Marsden, Rev. S 1814, 'Observations on the Introduction of the Gospel into the South Sea Islands: Being my first visit to New Zealand'.
[39] Morton, *The Whale's Wake*, 1983, 140.
[40] Ibid., 110.
[41] 'Ships occasionally disappeared completely after setting down whaling gangs, and the gangs, without knowing, were at the mercy of chance. ... one group of men ... lived for over three years in Solander Island, eating seal meat and fish, dressing in, and sleeping on and under seal skins.' -ibid., 111–12.
[42] Ibid., chap. 7.
[43] Lawson, *Blue Gum Clippers and Whale Ships of Tasmania*, 1949, 46–48.
[44] See Section 8.1 (Whaling in South Australia)
[45] Brookes, *International Rivalry in the Pacific Islands, 1800-1875* French interest in the South Pacific waxed and waned throughout th 19th century.
[46] John Gascoigne, 'From Science to Religion: Justifying French Pacific Voyaging and Expansion in the Period of the Restoration and the July Monarchy', *Journal of Pacific History* 50, no. 2 (n.d.): 109–27, doi:10.1080/00223344.2015.1042566.
[47] Jones, 'The British Southern Whale & Seal Fisheries (Part I)', 1981, 25.
[48] See also Enderby's discussion of tonnages in his proposal at Enderby, *Proposal for Re-Establishing the British Southern Whale Fishery, through the Medium of a Chartered Company, and in Combination with the Colonisation of the Auckland Islands, as the Site of the Company's Whaling Station*.
[49] Tremewan, *French Akaroa : An Attempt to Colonise Southern New Zealand*, 2010.
[50] Morton, *The Whale's Wake*, 1983, 286.
[51] Minister of Foreign Affairs to Captain CF Lavaud, Akaroa Papers, pp53-54, Minister of Marine to Foreign Minister, 29 December 1839, quoted in ibid., 286.
[52] Peter Tremewan, *French Akaroa : An Attempt to Colonise Southern New Zealand*, 2nd ed. (Christchurch: Canterbury University Press, 2010), chap. 6, http://trove.nla.gov.au/work/6625885?selectedversion=NBD46068080.
[53] T. Lindsay Buick, *The French at Akaroa: An Adventure in Colonisation* (Wellington: New Zealand Book Depot, under the auspices of the Board of Maori Ethnological Research, 1928), chap. 4.
[54] Tremewan, *French Akaroa : An Attempt to Colonise Southern New Zealand*, 2010, chap. 11.
[55] Ibid., 185, Table 7.
[56] See e.g. *Statistics of New South Wales from 1837 to 1853*, 1854, 32, Table 50.
[57] Note that the record is of number of visits, not number of vessels, and it records only vessels entering the Bay of Islands.
[58] R. Richards, 'The Sad Truth about Bay of Islands Shipping 1803 – 1840', *The Great Circle* 15(1) (1993): 30–35.
[59] Tremewan, *French Akaroa : An Attempt to Colonise Southern New Zealand*, 2010, 204.
[60] To underline the geopolitical significance of European competition in the South Pacific is underlined by Alexandro Malaspina, *The Secret History of the Convict Colony : Alexandro Malaspina's Report on the British Settlement of New South Wales*, trans. Robert J. King (Sydney: Allen & Unwin, 1990) This is an account of Spanish interest in the settlement of New Suuth Wales.
[62] Office of Environment & Heritage, NSW, 'Mort's Dock | NSW Environment & Heritage (Database Number 50612214; File No. s90/04325-014)', *Office of Environment & Heritage*, accessed 23 August 2016, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5061224.
[63] G. J. R. Linge, *Industrial Awakening: A Geography of Australian Manufacturing, 1788 to 1890* (Canberra ; Norwalk, Conn: Australian National University Press, 1979).

10 Investment in Australian whaling

This chapter presents a model for assessing the structure and scale of investment in the Australian whaling industry. Its starting point is one that is made in the Introduction to this dissertation, viz., that it is not possible to understand the economic impacts of the whaling industry in this part of the world without also understanding how the Australian industry fits into what was already a long established industry of global scope. Understanding the economics of the whaling industry cannot be limited to competition in the industry *within* national fleets operating in one area; it must also include competition *between* national fleets operating around the globe contemporaneously.[1]

Previous studies of sealing and whaling in Australia have confined themselves largely to Port Jackson and the two main Tasmanian ports as the centres of economic activity and influence.[2] The prime resource location for Australian whaling has been seen as the shore and bays of the Australian and New Zealand coasts. This dissertation makes it clear that this is too narrow a view of the whaling industry. South Pacific whaling vessels may have headquartered chiefly in Port Jackson and Hobart, but they fished in waters far from there, and they sought and bought servicing from many intervening points, from Albany to Honolulu. British-owned whalers established the whaling industry in both Hobart and Port Jackson, sailing half way around the world to do so, while Australian whaleships could be found working as far away as the Gilbert Islands and the Arctic.[3] Competition for services was not just between Port Jackson, Launceston and Hobart, and competition for whales was not just between other actors in the Australian industry. Competition for buyers was also complex, as some whale oil was bought and consumed locally, while much was bought locally and resold far from Australian waters.[4]

As of the mid 1830s, a fleet of American whaleships working off the south-west coast of Western Australia was reported to have consisted of more than 80 vessels.[5] For a time, this fleet was twice as large as the number of colonial vessels which worked out of Sydney and Hobart combined. As discussed in Chapter 9, they made little impact on the economy of Western Australia because - short term provisioning aside - Western Australia had nothing to sell them except some relatively unskilled labour. But those same foreign vessels traded in substantial numbers in Hobart and Sydney, and in the Bay of Islands in New Zealand, with whom Sydney and Hobart were competitors.[6]

This chapter seeks to quantify the relative size of key components of the whaling industry in Australian waters, the first to attempt to do so on these industrial and geographical scales.

10.1 Introduction to the Proposed Model

The findings regarding vessel nationality, region of operation and range of services demanded, led to the design of a model of the Australasian whale fishing industry which related those vessels to the location of ports/shipyards patronised by the whaling fleets.

This model reflects the reality that the structure of the whaling industry in and around Australia was, by 1840, unlike that in any other region of the world. Critically, in the northern regions there was little foreign fishing for whales by other nations in the waters of either the United States or of Britain. This implies that in those regions the only demands made by the whaling industry for the supply of goods and services from linked industries were domestically generated. In Britain, the whaling industry centred initially on one city – London - where the shipbuilding and the final processing took place. The centre of whaling industry activities gradually shifted from the Thames to the ports of the north-east and of Scotland.[7] In the United States the whaling industry conducted its global activities, including its shipbuilding, chiefly from Massachusetts in the north-east of the country.[8]

The Australian colonial situation was very different. Certainly locally-owned whaleships and their crews created demands for shipbuilding in local shipyards, provisioning and the like, but the Australian waters were fished for whales by large fleets of American, British and French vessels, as well as small numbers of visitors from Germany, Denmark, the Netherlands and Russia. The demands on linked local industries were therefore very different, and depended on the strategies adopted by each nation in its search for sperm oil. For example, foreign-registered vessels were usually constructed in the home countries of their owners and thus created no demand for construction in Australasian shipyards. It is likely that it was only in their home countries that ship owners could depend on supervision as the shipyards were close enough for them to physically inspect.

At the same time as the American and French fleets were expanding, the British whaling fleet was in decline, evidenced by its supply of surplus vessels to shipyards in both Sydney and Hobart for refitting as whaling vessels.[9] Refitting vessels is not construction *per se*, but refitting often required the fitting out facilities commonly found in shipyards, especially for work below the waterline. Some owners spent almost as much on refitting as they did on the construction of new vessels.[10] The refitting market had the potential for generating considerable demand for shipbuilding facilities in Australian ports and, of course, for other linked goods and services. By contrast, the American market for additional vessels, repeatedly decimated by wars, was dominated by the demand for new vessels.[11]

Analysis of the impact of the whaling industry on the economic development of the Australian colonies would be signally deficient if it did not take expenditures, such as repairs and refits, into

account. The analysis herein attempts to do so by focussing on the period 1841 to 1850, when whaling activity was just over its peak in the colonies and when foreign participation reached record levels. Note that this decade also encompasses the effects of the California gold rushes of the 1840s and the French abandonment of the pursuit of dominion in the South Pacific as well as the British fleet's final decline.

The next part of this chapter outlines the basic structure of the model. In Section 10.2 (Services included in the Model) evidence is presented on how the variables in the model behave; citations are provided to guide the reader to the source of the evidence and assumptions upon which the model is based. For example, it will be found that the model assigns a value of zero to the cost of constructing foreign whaling vessels in their homeland because no money was spent on constructing foreign vessels in Sydney and Hobart. This part of Chapter 10 also introduces the notion of "standard" costs, i.e., the cost in pounds sterling of carrying out a particular operation on an Australian whaling vessel in Australian facilities.

Section 10.3 (Scaling the Model) describes how the "standard" costs need to be viewed when considering expenditures on foreign vessels and crew, calculated by reference to the standard. For example, the number of men making up a French whaling vessel's crew is expressed as a ratio to the crew on a standard Australian whaling vessel, based on the relative tonnage of each nation's standard vessel.

In Section 10.4 (Populating the Model) the values derived for each variable are inserted into the model and calculations made as to expenditures. This leads to a discussion of a number of findings arising out of the model.

The model is set out at Table 19, the purpose of which is to provide a means by which to estimate total revenue generated in the Australasian whaling industry and its components for the relevant period, including contributions from foreign vessels. Total revenue is the sum of the revenue generated by each shipyard for the provision of a given service (S) plus the revenue earned from the sale of whaling products by whaling vessel owners (R).[12]

The model has two dimensions, and is intended to be populated by two sets of data.

The first dimension is "Shipyard Location", delineating the location within the Australasian colonies in which a service was provided to whaling vessels. The second dimension is "Ship National Registration" i.e., the jurisdiction with which the vessel was registered. As with "Shipyard Location", the nationality of a vessel's registration greatly influenced the prices its master was charged for services as varied as insurance and port access costs.

The data with which the model will be populated includes then number of vessels (*N*), and the cost of the service provided (*C*). In principle, the total expenses incurred are calculable as follows, where the sum is across the New South Wales and Tasmanian shipping yards.:

$$\sum (N^S * C) = Total\ Expenditure$$

The number of vessels (*N*) is not straight forward however. As will be seen in the following discussion, N is more accurately described as the number of times a given vessel requires service (*S)* in the relevant period. The frequency of servicing required by a given vessel was a function of (chiefly) its nationality (e.g., distance from home-base), its tonnage (larger vessels required less frequent provisioning and discharging of oil), and the size of the fleet in Australian waters (e.g., the French could favour New Zealand as they sought to make a base there with the build of their fleet, rather than seek refits for individual vessels in Tasmania or at Port Jackson) .Also, the cost of a service was a function of the size of the vessel: larger vessels required more provisions (though less frequently), and took longer to refit, thereby incurring steeper charges from the shipyards.

Table 19: Demand model for shipyard services of whaling vessels in Australasian colonies (1841-1850)

			Shipyard Location					
		Service	**NSW**	**Tasmania**	**WA & SA**	**Australian Colonies**	**New Zealand**	**Australasian Colonies**
Ship National Registration		**New Vessel Construction Costs *per annum***						
	S1.1	Colonial						
	S1.2	British						
	S1.3	American						
	S1.4	French						
		Sub-Total						
		Refitting and Repairs Costs *per annum*						
	S2.1	Colonial						
	S2.2	British						
	S2.3	American						
	S2.4	French						
		Sub-Total						
		Annual Provisioning Costs *per annum*						
	S3.1	Colonial						
	S3.2	British						
	S3.3	American						
	S3.4	French						
		Sub-Total						
		Whaling Revenue *per annum*						
	R1	Colonial						
	R2	British						
	R3	American						
	R4	French						
		Sub-Total						

Notes:

Australian Colonies = New South Wales + Tasmania + Western Australia & South Australia
Australasian Colonies = Australian Colonies + New Zealand
Per annum figures are annualised from data for the decade 1841 to 1850

The model excludes products/services delivered out of New Zealand ports (Akaroa, Bay of Islands, and Cloudy Bay), even though those ports were substantial delivery ports for Australian and British vessels bay whaling and for American sperm whaling. Such activity is not within scope of this dissertation and, in any case, there is insufficient data from which to build a time series of vessel activity.

10.2 Services included in the Model

The services included in the model are those main heads of expenses incurred by the owners of whaling vessels; they may also be viewed as heads of revenue for shipyard owners. The services are ship construction (including initial outfitting), refitting and repairs, and operational provisioning.

10.2.1 Construction and Initial Outfitting

Ship construction was the largest single item of capital expenditure made by investors in the whaling industry. Such costs often included the cost of provisioning the new vessels for the first voyage, and so are included here rather than at operational provisioning. As ship construction was not a brief activity, and as the useful life of a vessel was many years, the data used in the model is drawn from constructions made over a decade, and divided by the number of years to obtain an average number of vessels constructed annually over that decade.

The costs involved in outfitting a whaling ship were substantial, affordable only by those owners already wealthy. According to Davis and his co-authors, Obed Macy put the cost of building a 300 ton whaleship in 1835 at USD 22,000, and the cost of outfitting it an *additional* USD 18,000.[13]

The mean cost of outfitting 40 vessels launched in the quarter century 1860 to 1885 was calculated to be USD 19,320, equivalent to £3,864.[14] Davis *et al* concluded that the typical cost *per* new vessel amounted to around USD 50,000 (in 1880 prices) or £10,000.[15]

10.2.2 Refitting and Repairs

The role of the refit in whaling ship operations has rarely been disturbed by much disciplined research. Refitting could be a major cost, presenting a major challenge in establishing the actual expenditure. This is in large part because in many cases, first-use materials (e.g., copper sheathing) may have been disposed of before the actual task of re-fitting began. It is not certain that the proceeds of such sales found their way into the vessel's account books.[16]

Davis and his colleagues treat re-fitting as a small component of their treatment of "Agents as Organisers of Voyages". Davis *et al* did, however, devote some analysis to an account of a number of line items purchased in 1858 by sixty-five New Bedford vessels, under the headings of "Materials", "Food and Provision", "Whalecraft and Whale-rendering Equipment," and "Re-fitting and Miscellaneous Expenses".[17]

Given that many vessels suffered extensive damage, particularly to masts and rigging, as a result of storms at sea, particularly where vessels were beached, the material costs of refitting at sea could be large indeed.[18] The authors cite the example of the *Benjamin Tucker*, caught in a typhoon in 1856. The damage was so extensive that it took the repair yard more than two months and US$14,000 (or £2,500).[19]

At this point in their analysis, their subject morphs without explanation from re-fitting to original outfitting. They contend that the initial shipment of provisions (food and drink) required replacement, preferably before they ran out. However, given the unstructured nature of a whaling voyage, there could be no guarantee that the ship would be near a suitable port when they did. Fish and fresh fruit caught along the way served as supplements; water, timber and coal also required replacement.

10.2.3 Operational provisioning

Operational provisioning embraced recruiting crew, purchase and storage of provisions, and naval stores in quantities sufficient to sustain the ship and crew for two years continually at sea. It included chiefly the purchase of water, timber (for fuel and as replacements), coal (if used to fire try-pots), provisions for the crew, and fresh food (meat, and vegetables in particular) including live animals stored on deck, e.g. pigs, goats and chickens, together with alcoholic and spirituous liquors.

For Australian vessels, operational provisioning is assumed to have taken place once per year. For the purpose of this model, it is assumed that re-provisioning takes place on average once every two years for 'foreign' vessels, and that their second refit will take place closer to and en route for home, i.e. not in Australian waters.

10.3 Scaling the Model

Just as "oils ain't oils", "ships ain't (necessarily) ships", as there were significant differences between the size of Australian whaling vessels and that of American, British and French vessels, as indeed there were between each of these three. In proposing the model, I acknowledge that standardisation is problematic, and that there were potentially significant differences between whaling ships having an impact on reprovisioning and/or refitting. For example, differences in ship designs generate different levels of activity, and therefore differences in cost. However, it seems reasonable to assume

that the most significant driver of cost was the size of the vessel, as the size had an impact on all cost elements, from construction cost to the number of whalers in the crew to the space available for provisioning that crew.

Whaling vessels ranged in size from less than 100 tons to around 800 tons (as a rare extreme). Those around 100 tons or less, were, by the early to mid-nineteenth century, used chiefly for bay whaling tasks.[20] The medium (300 to 350 tons) to very large (800 tons) were used on voyages which may have lasted up to four or more years, generally in the hunt for sperm whales.[21] In general terms, the size of a vessel correlated with the rig – the setting out of masts, spars and sails. Larger vessels tended to be ships or barks (barques) and smaller vessels schooners, cutters and ketches.[22]

The Australian standard off shore whaling vessel was generally rigged as barque, the mean size of which in the period 1830 to 1850 was around 225 tons.[23] The American, British and French equivalents were larger and heavier in order to accommodate larger crews, and provisions for a long period away from home base which could have been between two and four years' duration. The American and French vessels which worked in South Pacific waters were in the period 1841 – 1852 of 310 and 360-tons displacement respectively on average. According to Jenkins, the average British whaler in the South Pacific was 390 tons.[24] Hence the ratios of these nationalities to the size of the standard Australian sperm whaling vessel were 1.38 (American), 1.60 (French) and 1.73 (British). These ratios have been applied in assessing the comparative volume of work done and its cost to those measures of Australian vessels in Australian ports in Table 27.

For example, the cost of building the *Charles W Morgan* constructed in a Nantucket shipyard in 1841, is first expressed in the American dollars used by original sources (USD) per ton of 282 tons displacement. The dollars are then exchanged for sterling at the contemporary exchange rate. In 1842, the year of the *Charles W Morgan's* launching, and therefore delivery of the builder's final invoice, the exchange rate used here in this calculation was one pound sterling equals five US dollars.[25]

Assume that the cost to construct a whaleship of equivalent displacement in Australia was proportionate to that in the United States. Assume further that the US vessel displaced 350 tons and cost US$50,000 in 1845,[26] and the Australian's displacement was 225 tons: then the equivalent cost of the Australian vessel can be estimated as follows:

$$\frac{225\ tons\ (Australian\ vessel)}{350\ tons\ (US\ vessel)} = 64.3\%\ scaling$$

$$64.3\%\ of\ US\$50{,}000 = US\$32{,}142\ est.cost\ of\ building\ 225\ ton\ vessel$$

At a 1 to 5 exchange rate, the pound sterling equivalent would be £6,428, fully fitted out, ready for sea.

If a refit costs £2,580 to be done in the UK as *per* Enderby in the mid-1840s, and if the Australian yards could do it for a third of that cost, then the equivalent cost of having the refit done in Australia was £860.[27] This is consistent with the costs claimed by the Tasmanian master shipbuilder John Watson building in the period 1830 to 1850, who stated that "whale ships could be fitted at Hobart Town for £6 per ton against 18 in England". [28]

Adjustments are also necessary as a function of differences in crew sizes. In this model, the standard Australian crew size is 28.[29] The American and British equivalents were 28 and 36.[30] The average crew for a French vessel of around 400 tons was also 36.[31]. The ratios to the Australian standard whaleship were thus 1.00 (American vessels), 1.29 (British) and 1.29 (French).

10.4 Populating the Model

Table 20 sets out the number of vessels built in the period 1826 to 1840 that were registered in Australia ("the Australian Merchant Fleet" *per* Parsons). [32] Not all such vessels where whaling ships, but a demarcation of 100 tons has been selected to allow an estimate of the number of whaling ships. This cut-off point was chosen in order to include bay whaling and sealing vessels in the count of vessels of 100 tons or above. Builders of whaleships were not specialists in such vessels.[33]

10.4.1 Fleet size

The pattern of the colonial fleet's growth in Sydney was very different to that in Hobart. The Sydney fleet fluctuated slightly from year to year between 1840 and 1846, but appears to have been in down trend. There was a sharp up-take, amounting to around 65% of the 1846 fleet up to 1846, but an even sharper fall off over the two years 1849 and 1850. The number of vessels in the period 1841 to 1843 was derived from Thompson 1893 and his data was provided by the New South Wales Government late in the nineteenth century from unidentified sources. [34]

The Tasmanian Government's Paper No. 58 reveals that 16 vessels, which may all have been whaleships, were built in the decade ending in 1850. However, this conflicts slightly with Norman's estimate that 13 whaleships were added to the fleet.[35] It may well be that the outstanding three vessels were exported to owners in New South Wales and/or New Zealand, or were not whaleships but built new for some other calling.

To be conservative it is assumed here that 13 whaleships were built in Tasmanian shipyards in the period 1841 to 1850, which implies that all of the vessels added to the fleet in that period were new,

and therefore that only 1.3 vessels per annum, of the additions to the fleet were refitted vessels, as unlikely as this may seem.

Looking more closely at the record of ship construction in Sydney and around the New South Wales coast in the period 1826 to 1849, we see that in the period 1840 to 1844, 133 ships over 100 tons were built, and in the following 5 years 143 were built, a total of 276 in the decade 1840 to 1849. This represents substantially more than half (64%) of all vessels of that size built in New South Wales in the quarter century ending in 1849. Similarly, the 276 vessels built in this decade were more than half of the 441 vessels greater than 100 tons built in the world, implying that the New South Wales shipbuilding workforce's capacity to produce larger vessels grew more rapidly than its competitors in the last 10 years of the period 1826 to 1849. Figure 7 graphically illustrates the contribution of New South Wales over the 25-year period.

Table 20: Vessels constructed by Global Region - Australian Merchant Fleet (1826-1849)

Vessels under 100 tons					
	NSW	Tas.	*Aust.*	Foreign	***Global***
1835 – 1839	82	36	*118*	7	***125***
1840 – 1844	114	52	*166*	53	***229***
1845 – 1849	126	44	*170*	91	***261***
Sub-Total < 100	**391**	**183**	***574***	**170**	***754***
Vessels over 100 tons					
	NSW	Tas.	*Aust.*	Foreign	***Global***
1835 – 1839	85	40	*125*	33	***158***
1840 – 1844	133	58	*191*	16	***217***
1845 – 1849	143	67	*210*	14	***224***
Sub- Total 100 <	**434**	**217**	***651***	**155**	***816***
All vessels					
	NSW	Tas.	*Aust.*	Foreign	***Global***
1835 – 1839	167	76	*243*	40	***283***
1840 – 1844	247	110	*357*	69	***426***
1845 – 1849	269	111	*380*	105	***485***
Total	**825**	**400**	***1,225***	**325**	***1,550***

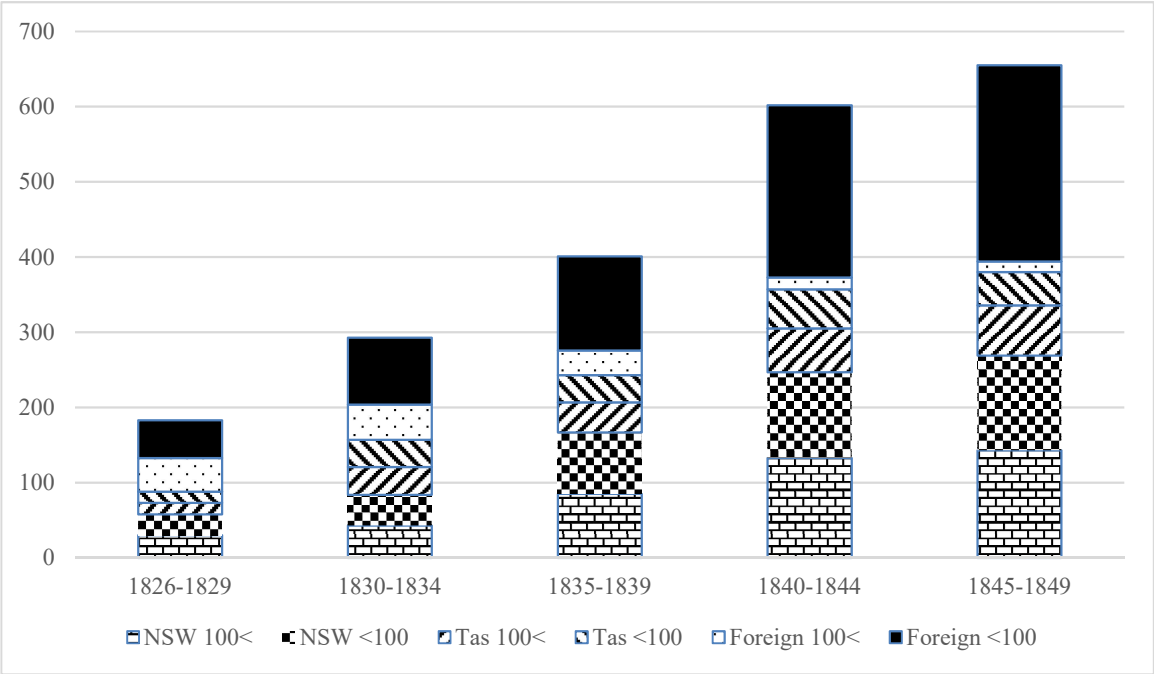
Source: Calculations are my own, based on Parsons (1983)[36]

Notes on Table 20

1. 'Australia' consists of New South Wales and Tasmania only, i.e. South and Western Australia are excluded
2. 'Foreign' production is production in British Empire yards, other than Australia
3. 'Global' production consists of 'Australia' and 'Foreign' production

In all 1,550 vessels were constructed for registration in Australia, of which New South Wales constructed 825 (53%). Of that cohort 434 displaced 100 tons or more. Those 434 vessels accounted for 28% of Global production.

Figure 7: Vessels registered in Australia by Size and Region of Construction



The average size of the New South Wales whaling fleet in the period 1830 to 1839 was 32. Year to year fluctuations – see Table 21 and Table 22 below – occurred as vessels were added to or discarded from the fleet. In that period, analysis of Townsend's data suggests that forty-four vessels were lost from the fleet [37]In the same period, 30 vessels were added to the fleet at an annual average rate of construction of between 1 and 3 per year. This total consisted of both new vessels and refitted vessels. However, there is no data available to enable the balance between the two to be identified.

Table 21: Performance of the New South Wales Whaling Fleet (1830-1839)

Year	Vessels			Oil (Tuns)			
	No.	Gross Tonnage	Tonnage per Vessel	Sperm	Black	Sperm + Black	Per vessel
1830	32	3,687	115	983	98	1,081	34
1831	31	5,391	176	1,571	505	2,076	67
1832	20	3,497	175	2,491	695	3,186	159
1833	27	6,922	256	3,049	418	3,467	128
1834	34	5,534	163	2,760	976	2,736	110
1835	22	5,162	235	3,904	1,159	4,063	185
1836	41	9,257	226	1,682	1,149	2,831	69
1837	*39*	*7,488*	*183*	2,559	1,565	4,124	*106*
1838	*46*	*8,832*	*185*	1,891	3,005	4,896	*106*
1839	*26*	*4,992*	*185*	1,578	1,229	2,809	*108*
Total	**318**	**60,762**	**1,899**	**21,468**	**10,799**	**31,269**	**1,072**

Source: Calculations are my own, based on Thompson (1893)[38]

Notes on Table 21

1. Tuns is a measurement of whale oil volume solely; whalebone, sealskins and ambergris are not included
2. Figures enclosed in dots are extrapolated by me

Table 22: Performance of the New South Wales Whaling Fleet (1840-1850)

		Oil (Tuns)			Revenue £ 000			
Year	**No. of Vessels**	**Sperm**	**Black**	**Total**	**Sperm**	**Black**	**Total**	**All Vessels**
1840	*30*	1,304	1,589	2,891	102	26	169	*59*
1845	20	1,166	476	1,642	15	8	83	82
1850	37	958	382	1,340	45	4	49	36
Total	**87**	**3,428**	**2,447**	**5,873**	**162**	**38**	**301**	**177**

Source: Calculations are my own, based on Thompson (1893)[39]
Notes on Table 22

1. As with Table 21, revenue excludes revenue from whalebone, etc.
2. Figures enclosed in dots are extrapolated by me

Table 23: Whale Fisheries, Port of Sydney: Vessels by Region of Registration (1837-1850)

	Colonial			British			Foreign			Total		
Year	**Num. Ships**	**Tons**	**Avge Tons**	**Num. Ships**	**Tons**	**Avge Tons**	**Num. Ships**	**Tons**	**Avge Tons**	**Num. Ships**	**Tons**	**Avge Tons**
1837										**39**		
1838										**46**		
1839										**26**		
1840										**30**		
1841	18	4,234	235.2	4	1,282	320.5	30	9,531	317.7	**52**	**15,047**	**289.4**
1842	18	4,234	235.2	4	1,282	320.5	30	9,531	317.7	**52**	**15,047**	**289.4**
1843	18	4,234	235.2	4	1,282	320.5	30	9,531	317.7	**52**	**15,047**	**289.4**
1844	13	3,052	234.8	3	1,219	406.3	12	3,617	301.4	**28**	**7,888**	**281.7**
1845	15	3,444	229.6	7	2,685	383.6	15	5,345	356.3	**37**	**11,474**	**301.9**
1846	16	3,894	243.4	9	2,287	254.1	55	18,147	329.9	**80**	**24,328**	**304.1**
1847	23	5,345	232.4	4	1,137	284.3	43	13,866	322.5	**70**	**19,348**	**276.4**
1848	26	6,103	234.7	1	267	267.0	37	11,203	302.8	**64**	**17,573**	**274.6**
1849	17	4,023	236.6	1	430	430.0	24	7,417	309.0	**42**	**11,870**	**282.6**
1850	14	3,313	236.6	3	952	317.3	25	7,434	297.4	**42**	**11,699**	**278.5**
Total	**124**	**29,174**	**235.3**	**28**	**8,977**	**284.9**	**211**	**67,029**	**317.7**	**363**	**104,180**	**287.0**

Sources:
Data for 1837 – 1840 from Thompson (1893).[40]
Data from 1841 onward is extracted and calculated from *Statistics of New South Wales 1837 – 1853.*[41]

According to Table 23 there were 13 vessels added to the colonial fleet in the period 1844 – 1850, or almost 2 per year. This is the maximum possible number of newly constructed vessels: in round numbers it is equivalent to 19 vessels for the full ten-year period 1841 – 1850.

10.4.2 Refits: Frequency and Costs

In the period in which comparable 5 years' worth of data appears to be available (1840 to 1846), American vessels are estimated to have made more than 70 visits to Hobart, and French around 30. As O'May puts it in describing their visits on a number of occasions: 'The … visiting whalers arrived in the Derwent this year to *provision and refit*' (italics mine).[42] There is a distinct difference in the patterns of visitation of these two nations. It appears that only one of the American visiting vessels paid more than one visit and that a single additional visit only. One implication is that American

whaleships' visit to Hobart for 'provision and refit' took place as they were chiefly *en route* from South and Western Australia fishing grounds to their home base in north eastern America.

The French fleet's behaviour was very different. Bearing in mind that their preferred fishing grounds were in the South West Pacific, including the west coast of the South Island of New Zealand, one of their vessels made three visits to Hobart in the period 1840 to 1846, and five vessels visited Hobart on two occasions. In three of those cases, visits are recorded in successive years – one possible inference is that those pairs of visits may have been one visit spread over two years of recording. [43] Data about the timing of their visits is not sufficiently precise to be confident about the extent to which this was the case.

Table 24: Whale Fisheries, Port of Sydney: Costs of Services to Foreign Vessels (1844-1850)

Year	Number of Foreign Vessels	Charges (£)	Charges per vessel
1844	12	4,993	£ 416.08
1845	14	4,269	£ 304.93
1846	55	6,981	£ 126.93
1847	43	15,804	£ 367.53
1848	37	4,340	£ 117.30
1849	24	10,417	£ 434.04
1850	25	2,208	£ 88.32
Total	***210***	***49,012***	***£ 233.39***

Source: *Statistics of New South Wales*[44]

Assume all local (re)–provisioning takes place in Hobart or Port Jackson, except for 30 *per annum* undertaken by American vessels in Western and South Western Australia. Assume that the standard cost (for provision and refit) is £300 per vessel and with a crew of 27.[45] Note that Table 27 from the 1837 – 1853 Blue Book records that foreign vessels spent £280 in kind (oil and/or whalebone) in paying for their refits.[46] O'May does not give the sources for his £300, so we cannot be sure that this is coincidental or not, but at least these 2 figures are of the same order.

Then, adjusted for differences in crew size, (re)–provisioning costs for Australian ports become:

Australian	£280 x 1.00	=	£280
American	£280 x 1.00	=	£280
French	£280 x 1.29	=	£361 (say £360)
Other	£280 x 1.29	=	£361 (say £360)

However, it should be noted that the author's introduction to Table 27 referred to above states specifically that 'the Estimated Value for the cargoes disposed of by the last-mentioned class' is for 'payment of Repairs, Refitting and Refreshment'. His treatment of the cost of Repairs is quite inconsistent with mine. The data available is sporadic, often incidental, and unsourced on the cost of both repairs and fitouts.

Consider, for example, the whaling ship *Sisters*.[47] Owned by Robert Duke, *Sisters* (282 tons) underwent three bouts of repair/refit in the period. Arriving in Sydney in July 1823 after a fierce storm *en route* from the Cape of Good Hope a rebuild was undertaken, the cost of which was not specified by Holcomb. [48] Her next refit was undertaken at Gravesend in July 1825, and cost £9,000. Holcomb comments that the increase was due, at least in part, to the fact that the cost of salt provisions in England had risen sharply from £2 10s per ton to £6.[49] *Sisters* left New Zealand for Port Jackson in January 1827. Duke and *Sisters* returned to England in July 1829. The price of sperm oil had risen to £74, while whalebone had soared to between £185 and £190. Duke remained in England long enough to discharge his cargo and to refit, before leaving Portsmouth on 17 September 1829 for the sperm whale fishery.[50]

This six-year period was a lucrative one for *Sisters* and her owner. With four extensive refits undertaken in that period. Averaging apparently between £9,000 and £10,000, she would have been driven hard. There is no evidence which would help to determine the extent that these costs were typical, other than Hohman's figures for American vessels.[51]

An additional concern arises from consideration of the information supplied by Davis *et al*. They state that:

> *Almost one-half of the variance (in their calculations – this author's interpolation) is explained by three independent variables, tons squared, expected voyage length and year. Given an average cost of outfits of USD 75.55 per ton, the implied difference between the smallest vessel and the largest vessel is USD 45.48, between the shortest and the longest expected voyage USD 15.98.*[52]

Moreover, at a cost of USD 75.55 *per* ton, the pound sterling cost of outfitting a 300 tons whaling ship (at the 1 to 5 exchange rate I have assumed) would be

$$\frac{75.55\ x\ 300}{5}$$

or £4,533 *per* occasion, or £2,267 *per* annum, a figure which sits more comfortably with the cost of both refits and repairs as those items are randomly portrayed in the industry literature.

It may not be entirely coincidental that Watson's estimated cost of re-fitting in Hobart at 6 pounds sterling *per* ton and in the UK at 18 pounds sterling *per* ton quoted earlier, is of a similar order to the average initial outfitting cost quoted above for New Bedford, i.e. USD 75.55 per ton, or approximately £15.11 sterling per ton. However, inconsistencies such as this are not possible to resolve given the limits of available data.

If vessels already in the colonial fleet are assumed to have received a significant repair/refit once every two years, then in an average year 9 vessels were eligible but only 4.5 refits were undertaken in the port (i.e. mean number of vessels in the fleet from 1841 – 50, (25) less the number of new vessels in the fleet (16), divided by 2, to allow for 2-year intervals between refits.

Table 25 sets out the results of these assumptions as regards refits.

Table 25: Estimated costs of refitting in Australia per refit (£)

Vessel Nationality	Average Tonnage	Cost of Refit in Australia	Tonnage Ratio	Adjusted Refit Cost	Rounded Refit Cost
American	310	860	1.38	1,187	1,190
British	390	860	1.73	1,488	1,490
French	360	860	1.60	1,376	1,380
Australian	225	860	1.00	860	860

Assume that in each case, foreign vessels are on a voyage of between four and five years' duration and were expected to refit twice in that time, generating a minimum and maximum number of refits *per annum* from a 48 or 60-month period. Assume then also they exercised their preference for Honolulu/Tahiti/London for one refit, and the other refit took place in Hobart or Port Jackson. The range of revenue generated by all Australian shipyards *per annum* can be estimated as between £32,022 and £40,028, made up as follows:

Table 26: Estimated annual costs of refitting in Australia

Vessel Nationality	Average Tonnage	Rounded Refit Cost (£)	Fleet Size	No. of Refits over Voyage	% Refits in Australia	Refits per year in Australia		Cost per year (£)	
						4 year voyages	5 year voyages	4 year	5 year
American	310	1,190	42	84	50%	10.50	8.40	12,495	9,996
British	390	1,490	9	18	50%	2.25	1.80	3,353	2,682
French	360	1,380	14	28	50%	3.50	2.80	4,830	3,864
Australian	225	860	45	90	100%	22.50	18.00	19,350	15,480
Total								**40,028**	**32,022**

Source: Table 26 is derived from Table 25

Table 27 (*Populated Model: Demand for whaling ships (1841-1850)*) brings together all basic data after adjustments based on the assumptions described above.

Table 27: Populated Model: Demand for whaling ships (1841-1850)

	Facility Location			
	NSW	**Tas.**	**SA/WA**	**Australia**
New Vessel Construction (1841-1850)				
Australian	19[53]	16[54]	nil	35
American			nil	
French			nil	
Other[55]			nil	
Total New Vessels	*19*	*16*		*35*
Refits/Repairs per annum[56]				
Australian	19[57]	26[58]	nil	45
American[59]	21	21	nil	42
French[60]	9	5	nil	14
Other	4	5	nil	9
Total Refits/Repairs per annum	*53*	*57*		*110*
Provisioning Post Refit/Repair				
Australian	19	26	nil	45
American	21	21	nil	42
French	9	5	nil	14
Other	4	5	nil	
Total Provisioning Post Refit/Repair	*53*	*57*		*110*
Routine re-provisioning				
Australian	29	22	nil	51
American	29	29	39	88
French	14	10	nil	24
Other	7	7		14
Total Routine Re-Provisioning	*79*	*68*	*39*	*186*

Table 28 translates the figures for numbers of vessels calculated by country of origin into the cost of particular investments/expenditures as uncovered by research into actual transactions of the time. The text below specifies the sources from which the various figures used have been derived, and, where appropriate, defines the item concerned.

Table 28: Populated Model: Total Expenditure on Servicing Whaling Ships

		Costs per year (£)	
	No. of Vessels	**Standard**	**Total**
New Vessel Construction			
Australian			
New South Wales	19	5,000	95,000
Tasmania	16	5,000	80,000
Total	*35*		*175,000*
Refits/Repairs			
New South Wales Shipyards			
Australian vessels	19	860	16,340
American vessels	21	1,190	24,990
French vessels	9	1,380	12,420
Other vessels	4	1,490	5,960
Total vessels	*53*	*1,127*	*59,710*
Tasmanian Shipyards			
Australian vessels	26	860	22,360
American vessels	21	1,190	24,990
French vessels	5	1,380	6,900
Other vessels	5	1,490	7,450
Total vessels	*57*	*1,082*	*61,700*

	No. of Vessels	Costs per year (£) Standard	Total
Australian (NSW + Tas.) Shipyards			
Australian vessels	45	860	38,700
American vessels	42	1,190	49,980
French vessels	14	1,380	19,320
Other vessels	8	1,490	11,920
Total vessels	*109*	*1,100*	*119,920*
Re-provisioning			
New South Wales Shipyards			
Australia vessels	29	240	6,960
America vessels	29	240	6,960
French vessels	14	310	4,340
Other vessels	7	310	2,170
Total vessels	*79*	*292*	*20,430*
Tasmanian Shipyards			
Australian vessels	22	240	5,280
American vessels	29	240	6,960
French vessels	10	310	3,100
Other vessels	17	310	5,270
Total vessels	*78*	*264*	*20,610*
South and Western Australian Shipyards			
American vessels	30	n/a[61]	

Table 29: Populated Model: Distribution of Annual Expenditure by Whaling Fleet Nationality

	Location of Expenditure (£000s) NSW	Tas.	SA/WA	Australia
Australian Fleet				
New vessels	95.00	80.00	nil	175.00
Refits/Repairs	16.34	22.36	nil	38.70
Re-Provisioning	6.96	5.28	nil	12.24
Total	*118.30*	*107.64*	*nil*	*225.94*
American Fleet				
New vessels	nil	nil	nil	nil
Refits/Repairs	24.99	24.99	nil	49.98
Re-Provisioning	6.96	6.96	nil	13.92
Total	*31.95*	*31.95*	*nil*	*63.90*
French Fleet				
New vessels	nil	nil	nil	nil
Refits/Repairs	12.42	6.90	nil	19.32
Re-Provisioning	4.34	3.10	nil	7.44
Total	*16.76*	*10.00*	*nil*	*26.76*
Other Fleets[62]				
New vessels	nil	nil	nil	nil
Refits/Repairs	8.05	2.80	nil	10.43
Re-Provisioning	2.88	7.12	nil	10.42
Total	*10.93*	*9.92*	*nil*	*20.85*
GRAND TOTAL	**177.94**	**159.51**	**nil**	**337.45**

It is clear that the utility of the model designed and tested above depends on the collective validity of its numerous assumptions. The story it tells of this typical year is that the industry required an investment of around £340,000 to service the needs of both Australian colonial and foreign whaling vessels. This appears to be the first such estimate available. It implies that there was a foreign-origin

demand for investment in the downstream ship construction, refit and repair industry amounting to about a third of the total demand. This likely under-estimates foreign demand for repairs, because the model assumes expenditure on this item to have been zero, a plainly unrealistic assumption made only for lack of hard evidence. There has been no previous suggestion that shipyard construction was a significant export industry for the colonies, although this research suggests that this may well have been the case.

Table 30: Populated Model: Summary

		Total Cost £ per year
New Vessel Construction		
Australian		
New South Wales		95.000
Tasmania		80,000
	Total	*175,000*
Refits/Repairs		
New South Wales Shipyards		
Australian vessels		16,340
American vessels		24,990
French vessels		12,420
Other vessels		5,960
	Total all vessels	*59,710*
Tasmanian Shipyards		
Australian vessels		22,360
American vessels		24,990
French vessels		6,900
Other vessels		7450
	Total all vessels	*61,700*
Australian (NSW + Tas.) Shipyards		
Australian vessels		38,700
American vessels		49,980
French vessels		19,320
Other vessels		11,920
	Total vessels	*119,920*
Re-provisioning		
New South Wales Shipyards		
Australia vessels		6,960
America vessels		6,960
French vessels		4,340
Other vessels		2,170
	Total all vessels	*20,430*
Tasmanian Shipyards		
Australian vessels		5,280
American vessels		6,960
French vessels		3,100
Other vessels		5,270
	Total all vessels	*20,610*
South and Western Australian Shipyards		
American vessels		
Australian (NSW + Tas. + SA/WA) Shipyards		

	Total Cost £ per year
Australian vessels	20.540
American vessels	17,680
French vessels	9,120
Other vessels	2,660
Total all vessels	*50,000*
Australian vessels	**225,940**
American vessels	**63,900**
French vessels	**26,760**
Other vessels	**20,850**
GRAND TOTAL	***337,450***

10.5 Summary

As described previously, British participation in the South West Pacific was close to zero at the opening of the 1840s. American participation slowed in 1841 following British annexation of New Zealand, and decelerated very quickly, especially in the last half of the decade. The French, the late starters of the 1830s, had almost completely withdrawn their participation by the end of the decade. All of those trends were overtaken by the effects of gold discoveries in California in the forties and New South Wales in the 1850s.

It was suggested earlier that the choice of 1841 to 1850 as the preferred time-frame for this dissertation was because of the confluence of events which took Australasian whaling activity from its high around 1840 to its low at 1850. This tended to make it more representative of the period of 1830 to 1850, the period in which sperm whaling became significant and bay whaling declined. In a loose sense, this makes 1845 a representative year of the period – it will be recalled that although some sperm whaling took place out of New South Wales in the 1820s, colonial-based sperm whaling out of Tasmania did not begin until 1829 with the commissioning of the *Caroline.*[63]

Notes for Chapter 10

[1] For a contrasting traditional view, see Stackpole, *Whales and Destiny*, 1972.
[2] Blainey, *Tyranny of Distance*, 2001, chap. 5; Bach, *A Maritime History of Australia*, chaps 2–4; Broeze, *Island Nation*, 179–84.
[3] H. E. Maude and Edwin Jr. Doran, 'The Precedence of Tarawa Atoll', *Annals of the Association of American Geographers* 56, no. 2 (1 June 1966): 269–89, doi:10.1111/j.1467-8306.1966.tb00558.x.
[4] Since there are no records of such transactions, these views are based on widespread hearsay.
[5] Gibbs, 'Conflict and Commerce: American Whalers and the Western Australian Colonies 1826 – 1888', 5.
[6] Richards, 'The Sad Truth about Bay of Islands Shipping 1803 – 1840', 1993; Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', 2002; Richards, 'On Using Pacific Shipping Records to Gain New Insights into Culture Contact in Polynesia before 1840', 1 December 2008.
[7] Ville, *English Shipowning During the Industrial Revolution*, 1987; Tony Barrow, 'The Newcastle Whaling Trade 1752-1849', *The Mariner's Mirror* 75(3) (1989): 231–40; C. Dixon, 'The Exeter Whale Fishing Company 1754 – 81', *The Mariner's Mirror* 62(3) (1974): 225–31; S. Pollard, 'The Decline of Shipbuilding on the Thames', *The Economic History Review* 3, no. 1 (1950): 72–89, doi:10.2307/2589943.
[8] Alexander Starbuck, *History of the American Whale Fishery*, Republished 1989 (Secaucus, New Jersey: Castle, 1878).
[9] Morton, *The Whale's Wake*, 1983, 149.

[10] 'Hohman, EP 1928, The American Whaleman: A Study in the Life & Labour in the Whaling Industry, Longmans Green, NY.', n.d., 323 Appendix D (Tables III and IV).
[11] Hohman, *The American Whaleman*, 1928, 5.
[12] Services are enumerated in the model by broad category and by nationality, with the prefix S.
[13] Lance E. Davis, Robert E. Gallman, and Karin Gleiter, *In Pursuit of Leviathan: Technology, Institutions, Productivity, and Profits in American Whaling, 1816-1906* (University of Chicago Press, 1997), 252.
[14] Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, 253–254, Table 6.11 "Cost of Outfits, New Bedford Whaling Voyages").
[15] Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, 259.
[16] Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, 394.
[17] Ibid., 246–59.
[18] Ibid., 250.
[19] Ibid.
[20] Tower, *A History of the American Whale Fishery*, 1907, chap. IV and Appendices I & VI.
[21] Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, chap. 6.
[22] See page 203
[23] See Table 23 page 141
[24] Jenkins, *A History of the Whale Fisheries*, 1921, 307.
[25] See L. E. Davis and J. R. T. Hughes, 'A Dollar-Sterling Exchange, 1803–1895', *The Economic History Review* 13, no. 1 (1 August 1960): 52–78, doi:10.1111/j.1468-0289.1960.tb00028.x. The authors' calculations suggest an approximate exchange rate of 1 pound sterling to 4.8865 US dollars from 1874, and 4.444 for the period 1822-1834. I have used 5.0 for simplicity and convenience. See also Lawrence H. Officer, 'Dollar-Pound Exchange Rate From 1791', 2015, http://www.measuringworth.com/exchangepound.
[26] Stackpole, *The Charles W. Morgan: The Last Wooden Whaleship*, 25 & 32.
[27] Enderby, *Proposal for Re-Establishing the British Southern Whale Fishery, through the Medium of a Chartered Company, and in Combination with the Colonisation of the Auckland Islands, as the Site of the Company's Whaling Station*, 43.
[28] O'May, *Whalers out of Van Diemen's Land*, 1978, 24. See more on Watson at page 100.
[29] Ibid., 40.
[30] For the American crews see: Davis, Gallman, and Hutchins, 'Technology, Productivity and Profits: British – American Whaling Competition in the North Atlantic 1816 – 1842', 1987, 348; Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, 155; For the British crews see: James Travis Jenkins, *A History of the Whale Fisheries: From the Basque Fisheries of the Tenth Century to the Hunting of the Finner Whale at the Present Date* (London: H.F. & G. Witherby, 1921), 307, http://archive.org/details/historyofwhalefi00jenkrich.
[31] Based on data for French vessels utlising Akaroa: Tremewan, *French Akaroa : An Attempt to Colonise Southern New Zealand*, 2010, 319.
[32] Ronald Parsons, *Ships of Australia and New Zealand before 1850: Book 1 (A-J)*, Pre-1850 Registers 1 (Murray Bridge, South Australia: Ronald Parsons, 1983); Ronald Parsons, *Ships of Australia and New Zealand before 1850: Book 2 (K-Z)*, Pre-1850 Registers 2 (Murray Bridge, South Australia: Ronald Parsons, 1983).
[33] For example, the highly regarded shipbuilder, skipper, whaler and sealer John Grono built twelve ships at a yard at Pitt Town on the Hawkesbury River in between 1804 and 1833. Two of those were for the sperm fishery – the *Australian* (1827), a barque of 264 tons, and the *Governor Bourke* (1833) 240 tons. Three were around the 100-ton mark: the *Governor Bligh* (1807), 100 tons; the *Elizabeth* (1821), a brig of 107 tons; and *Industry* (1826), a brig of 87 tons. The other boats which he built were around 20 tons.
[34] Thompson, *Fisheries of New South Wales*.
[35] See pages 91f above
[36] Parsons, *Ships of Australia and New Zealand Before 1850 (1)*, 1983; Parsons, *Ships of Australia and New Zealand Before 1850 (1)*, 1983.
[37] 'Lost' in this context means 'became unregistered in Sydney' and does not necessarily imply that this many vessels were wrecked or foundered; some may well have merely moved jurisdiction.
[38] Thompson, *Fisheries of New South Wales*, 80.
[39] Ibid.
[40] Ibid.
[41] *Statistics of New South Wales from 1837 to 1853*, 1837 Table 27.
[42] See for example O'May, *Whalers out of Van Diemen's Land*, 1978, 34,35,37,44.
[43] Tremewan, *French Akaroa : An Attempt to Colonise Southern New Zealand*, 2010.
[44] *Statistics of New South Wales from 1837 to 1853*, 1854, fig. 27 (Table: Whale Fisheries-Port of Sydney).
[45] O'May, *Whalers out of Van Diemen's Land*, 1978, 29.
[46] *Statistics of New South Wales from 1837 to 1853*, 1854, Table 27.
[47] See Janette Holcomb, 'Captain Robert Duke, (1796-1845): A Biographical Case Study of Investment in the Colonial Whaling Industry', *The Great Circle* 32, no. 2 (2010): 9–30.

[48] Ibid., 10.
[49] Ibid., 11.
[50] Ibid., 14.
[51] Hohman, *The American Whaleman*, 1928, 324 Appendix D Table IV.
[52] This quotation is best understood read in the context of Davis' Davis, Gallman, and Gleiter, *In Pursuit of Leviathan*, 1997, chap. 6 'Capital'.
[53] See Table 6 on page 84, original data from the Colonial Secretary of NSW.
[54] House of Assembly, Tasmania, *Ships Built in the Ports of Tasmania* The estimate of 16 vessels consists of 18 derived from the House of Assembly's paper, less two large vessels know not to have been whalers (the Harpley and the Tasman). See Lawson (1949); See Will Lawson, *Blue Gum Clippers and Whale Ships of Tasmania* (Melbourne: Georgian House, 1949), 114, 139 and 151.
[55] "Other" includes British, as well as whaling ships from other European countries (Denmark, Germany, the Netherlands, Russia) where there were fewer than 5 vessels in any one year
[56] The number of repairs – as distinct from refits – undertaken in port by all whaling fleets is assumed here to be zero. Although unlikely to be correct, hard data on repairs is lacking. Further research, in logbooks in particular, may be fruitful, but logbooks do not generally record events taking place in port. Thus the data presented here is restricted to refits, and will be conservative.
[57] See Table 6 on page 84 and Martin
[58] See Table 9 on page 91 and Table 12 on page 96
[59] See Table 6 on page 84. The proportions of American, French and Other vessels are drawn from Canham (1959), and applied to the data in that table. Notwithstanding my comment that there is little data from New Zealand for the relevant period, Canham (1959) provides two fragments of data concerning the number of American vessels in the Bay of Islands for the periods 1839-1841 and 1846-1850: 1839 (134), 1840 (108), 1841 (35), 1846 (132), 1847 (102), 1848 (91), 1849 (65), 1850 (50). The very rapid decline in the number of vessels in the Bay of Islands is likely a result of Britain's introduction of regulations, tariffs, duties and port fees following its annexation of New Zealand in 1840, combined with the loss of labour to the goldfields. See also Carruthers (1973).
60 See Table 12 on page 96. See Section 9.3 (French whaling) on page 124 for the history of French whaling in the South Pacific.
[61] This value is not available because it resides in bartered transactions for which there is no hard data.
[62] Figures for "Other Fleets" are interpolated by subtracting the calculated figures above from the reported size of the total fleet.
[63] O'May, 'Whalers out of Van Diemen's Land', 1978, 18.

11 Conclusion

Broadly speaking, the Australian whaling industry was a living enterprise over a period of just 50 years. While a little sealing and whaling activity took place before 1800, and some vessels continued in the hunt for sperm whales after 1850, the industry's contributions to significant national revenue in those pre- and post- years were miniscule.

Sealing was the first producer of significant revenue in that key fifty-year period. However, it had dwindled to insignificance by 1810 in the major producing segments of Bass Strait and Tasmania, and by 1830 in the South Island of New Zealand. Bay whaling, in search of the right whales' oil, had also dwindled by 1840, but the loss of that output was more than compensated for by the revenue from hunting the sperm whale, and from the baleen of the right whale.

The majority of the research summarised in the body of this thesis reveals an industry shifting widely in size and structure around the south east and south west corners of Australia in the period between 1800 and 1850. For example, American vessels did not appear in and around Western Australia until after 1830, although they had been more populous in New Zealand waters before that.

By dint of research of both primary and secondary sources, and of the design and application of a simple arithmetical model of the whaling industry in a chosen decade, it has been confirmed that the serious shortage of primary data noted by industry analysts persists. However, it also confirms that there were more sources of primary data available than were used by most of those who have written about the subject. By using some relatively unexplored sources more productively, it has become possible to provide rational and defensible estimates of the size, scope and expenditures of the whaling industry in Australian waters in the period 1841 – 1850 for the first time. That is the major contribution of this dissertation to Australian colonial history.

11.1 The Size and Scope of the Whaling Industry in Australian Waters 1841 – 1850

Almost all of the historians who have chosen to examine the whaling industry in and around the Australian colonies to 1850 have made the assumption that the scale of the industry can be measured accurately by counting the number of whaleships involved which are registered as working out of Port Jackson, Hobart and minor local ports on the Australian mainland such as Portland in Victoria. This thesis challenges that assumption.

This research has highlighted that there were many vessels of other nations which were working in Australian seas with no coordinated multi-national system in place to document their arrival and

departure from Australasian ports, nor their catches and deliveries. In 1841–1850, the decade of study, there were on average almost twice as many whaling vessels working in Australasian waters than were registered as whaling vessels in Port Jackson and Hobart combined.[1]

Americans provided the largest number of foreign whaleships working in Australian waters. On average in the subject decade, British vessels having almost disappeared from the Australian component of the Southern Whale Fisheries, there were likely to be around 40 American vessels docked in each of Sydney and Hobart. There is one (twentieth century) report stating that there were 47 vessels, mostly American, awaiting refit/reprovisioning in Hobart in 1847.[2] Again, on average 35 to 40 American vessels could be found fishing off the West Australian coast. Ten to twenty others were likely to be *en route* between the Bay of Islands and Sydney and/or not yet having spent a cent in the Australian colonial economy (recall that Britain annexed New Zealand from New South Wales in 1840).

As of 1840, the French were the second largest national fleet operating in the South Pacific whale fishery, but only for a short time. They appear to have made Hobart their home, though no more than 10 of them visited Hobart in any year of the subject decade. Their impact however could have been twice as great as the Australian vessels registered there, because they were of the order of twice as large in tonnage and crew. Their expenditures on refits were likely proportionately greater, being related in part to vessel volume rather than mere lateral dimension – but their expenditure on an annual basis may have been only marginally more than for Australian vessels.

This thesis assumes that they visited an Australian port for repairs/refits only once every two years, seeking other anchorages considered less expensive (like the Bay of Islands) or more culturally compatible (such as Tahiti). On the other hand, they needed to reprovision no less frequently than their colonial counterparts. [3]

11.2 Export Revenue from 'Pastoral' v 'Fisheries' – the 'Staples'?

The most reliable data available on the export earnings of products potentially available as 'staple' products is that provided by Butlin and a summary of which is supplied in Chapter 6.[4] He states that this data, beginning in 1822 for Tasmania and in 1826 for New South Wales, is derived from various issues of "Returns of the Colony", an annual publication on which the 'Blue Books' came to be based. His table presents the data for the entire period 1822 to 1850. In interpreting this data, it is necessary to recall that it is data collected only from colonial vessels. As pointed out earlier, oil collected by foreign vessels and sailed back to foreign ports in foreign bottoms without travelling *via* an Australian

port is not included in Butlin's tally of exports. This research however suggests that it may well have been of the order of two to four times that of exports derived from colonial vessels.

In New South Wales, the export revenue generated by the international sales of wool and whaling products was more than 90% of all exports in the fifteen-year period 1831 to 1845, and more than 80% for the period 1826 to 1845. Despite the very significant drop in value received for wool in the final five years of the period, the two commodities combined share of New South Wales export earnings for the entire period of 1826 to 1850 was in excess of 90%. Wool contributed 70% of their combined earnings. It can be seen that the 'Fisheries' contribution to their combined share was of the same order as that of wool for the first 10 years, but began to fall significantly in the period 1836 to 1840.

The situation in Tasmania was different to the extent that from as early as 1826, Tasmania generated relatively substantial earnings from the export of beef, as well as from wool and whale products. But wool and whale products combined contributed 60% of Tasmanian export earnings for the period 1826 to 1850, amounting to close to £1 million *per* year.

New South Wales contributed around 65% of all exports, and Tasmania 35%. Wool contributed around 84% of the two commodities combined total, and 'Fisheries' products 16%. The peak earnings from whale product exports occurred in the fifteen-year period of 1831 to 1845. However, it was only in the middle five years of that period that the earnings from the combined "fisheries" exceeded £1,000,000. In the 15 years in which fisheries' earnings peaked, the total earnings from fisheries amounted to £3.3 million; but the earnings from wool reached about £11 million. The earnings from fisheries began to decline both absolutely and in proportion to that from wool from 1841. Its decline accelerated from 1846, both relatively and absolutely. In the period 1846 to 1850 the export earnings from fisheries amounted to almost £600,000, but the export earnings from wool exceeded £8 million. By 1850, Tasmanian agricultural exports were earning more than that from fisheries.[5]

Table 31 below tracks the export earnings of the two staples, wool ("Pastoral") and whale ("Fisheries") products, separately, together, and together with export earnings of Tasmania's pastoral products from 1826 to 1850 (Butlin's data does not supply earnings from New South Wales agricultural products).[6]

The peak earnings from whale product exports occurred in the fifteen-year period of 1831 to 1845. However, it was only in the middle five years of that period that the earnings from the combined "fisheries" exceeded £1,000,000. In the 15 years in which fisheries' earnings peaked, the total earnings from fisheries amounted to £3.3 million; but the earnings from wool reached about £11

million. The earnings from fisheries began to decline both absolutely and in proportion to that from wool from 1841. Its decline accelerated from 1846, both relatively and absolutely. In the period 1846 to 1850 the export earnings from fisheries amounted to almost £600,000, but the export earnings from wool exceeded £8 million. By 1850, Tasmanian agricultural exports were earning more than that from fisheries.

Table 31: Export Earnings from Primary Products – New South Wales and Tasmania (1826-1850)

	Amounts in £ 000							
	Pastoral		Fisheries		Agricultural		Totals	
	NSW	Tas.	NSW	Tas.	NSW	Tas.	Fisheries + Pastoral	All Commodities
1826-1830	242.6	136.7	215.2	65.0	n/a	37.4	659.5	696.9
1831-1835	964.8	462.4	731.0	212.7	n/a	185.3	2,370.9	2,556.2
1836-1840	2,310.4	1,602.6	923.1	587.3	n/a	821.2	5,423.4	6,244.6
1841-1845	4,086.2	1,146.4	485.7	332.6	n/a	605.5	6,050.9	6,656.4
1846-1850	7,827.0	1,232.3	295.1	287.3	n/a	754.4	9,641.7	10,396.1

Source: Butlin 1994[7]

To put all this into perspective, it is likely that there were between 220 and 250 vessels seeking sperm whales in waters around Australia in each year of the subject decade, constituting 25 to 30% of the world whaling fleet, thanks chiefly to American domination of the industry.

11.3 Whaling Industry Income and Expenditure in Australian Waters

As frequently stated herein – consistent with the views of many other commentators – calculating the income derived from the whaling industry operators in Australian colonial waters is problematic. There are many reasons for this, all of which reflect the fact that for the time-frame in question there was no single authority which was responsible for managing the collection of data that the whaling operators generated in the normal course of business. Such information as was collected may be found in the accounts and other corporate documents of entrepreneurs but no whaling entrepreneur was identified to have been as transparent about his finances as the shipowners studied by Ville.[8]

Data on expenditures has proved to be at once more amenable and more receptive to the use of assumptions to compensate for lack of data. It has however led to a finding which though tentative is potentially significant. That finding is that the construction of new whaling ships for deep-sea whaling was not a significant part of the work of Australian shipyards in the time-frame in question. It appears that the number of new whaling ships constructed in New South Wales shipyards for use in colonial fishing is unlikely to have been at the rate of more than 2 to 3 per year. The equivalent output for Tasmanian shipyards may also have been around 3 per year. These findings derive from calculations of changes in fleet sizes year to year, and to other sources of data such as Australian entrepreneurs' preference for buying used vessels as platforms for whaling even though they may

have required substantial refitting. A Tasmanian parliamentary paper proved a vital source of information about shipbuilding in that colony.

The estimates derived from the model described in the previous chapter clearly indicate that, for Australian colonial shipyards, whaling-derived revenue came very much more from refits and repairs than from new ship construction. The item on which most money was spent in building new ships was timber, all of which was Australian-grown. The fact that local revenue derived from repairs and refits was greater than that for new ships suggests that the expenditures on the components for refits and repairs were more broadly based and of greater volume than if the same revenue had been derived from new ship construction alone.

11.4 The "Fisheries"

In 1969, Barbara Little wrote:

> *The sealing and whaling industry is a weak contender for the honours of a major contributor to long-run economic growth. In the short-run it earned valuable export income, but its long-run efforts on the pattern and rate of economic growth were weaker than the wool industry.*[9]

Little's assessment was made in ignorance of the nature and volume of trade brought to the colonial regions by foreign whaling vessels, as revealed by this research. It was built on the supposition that the whaling industry was a major customer of colonial shipyards. There can be no argument that whaling's influence on long-run growth was significantly less than that of wool, as she opines

Even so, the research conducted for this dissertation suggests that it is too early to write the whaling industry off as a 'weak' contender for major honours as a contributor to long-run growth. There are a number of reasons for caution.

The lack of data which might have been supplied by foreign whaling vessels has been remarked upon on a number of occasions throughout this dissertation. It is likely however that much more remains to be unearthed from a different source: that is, the volume of trade between the whaling industry narrowly defined, and its linkages with other industries, backward, forward and in parallel as displayed in Figure 1 on page 9, 'Linkages to the Whaling Industry'. For example, 'Provisioning, Outfitting, Refitting and Repair and Ship Construction' are all shown as backward linkages to 'Whaling', 'Mining', 'Farming' and 'Forestry' are all shown as backward linkages to the above three (and to 'Fishing' and 'Transportation').

Unfortunately, there appear to be no primary sources which classify their data according to these definitions of industrial class/sub-class for the period to 1850, nor probably for the period to 1900.

Quantifying these chains or information flows appears to require separate and substantial research effort. The same issues dog analysis of the parallel and forward industry sub-class linkages.

This research assumes that neither Sydney nor Melbourne shipyards were strongly competitive for foreign refit business over the twenty-year period (1831 to 1850) when the ship-building and repair industry was at its most active. However, the evidence for this conclusion is not strong. Indeed, no evidence was uncovered to assess the relative strength of whaling's demand for linked industries, especially those involving the recovery purchase and refinement of raw materials such as timber, copper and those used to make sails and rigging. Further, no information was uncovered about whether the relative competitiveness of colonial shipyards varied over the period, notwithstanding the long-standing and sterling work of researchers including Rhys Richards.[10]

Having said that, it must be acknowledged that the colonial whaling industry, including the sealing component, is best described as built around spasmodic foraging until the 1820s. Moreover, what these days would be called its 'business model' was self-defeating: it was absolutely guaranteed to end in its own demise, because of the practice of capturing whale mothers and their calves. Not only did the whaling industry pursue its own primary resources to depletion, but it was buffeted in short order by a confluence of events and developments in the mid-nineteenth century: the discovery of gold in California and New South Wales, diverting a labour force; advances in producing vegetable oils in great volume; and the discovery of the uses to which mineral oils could be put when refined, not least light and cooking. Collectively, it was evident by the 1850s that the whaling industry had only a short life remaining ahead of it.

Notes for Chapter 11

[1] See Chapter 10
[2] Geoffrey Blainey, *The Tyranny of Distance: How Distance Shaped Australia's History*, 3rd ed. (Sydney: Pan Macmillan, 2001), 116.
[3] See the annual counts in O'May, 'Wooden Hookers of Hobart Town', 1978, 33–52. In some years, American and French vessels were reported there together without distinction as to nationality.
[4] Butlin, *Forming a Colonial Economy, Australia 1810-1850*, 1994, 192 (Table 13.12).
[5] Ibid.
[6] Ibid.
[7] Ibid., 192 (Table 13.12) Butlin's data is annual and I have totalled it into 5-year intervals. Butlin also omits Tasmanian entries for 1836. Those omissions have been replaced by calculations made by me.
[8] Ville, *English Shipowning During the Industrial Revolution*, 1987.
[9] Little, 'Sealing and Whaling in Australia before 1850', 127.
[10] See for example Richards, 'Pacific Whaling 1820 – 1840: Port Visits, Shipping Arrivals & Departures: Comparisons & Sources', 2002; Richards, 'On Using Pacific Shipping Records to Gain New Insights into Culture Contact in Polynesia before 1840', 1 December 2008.

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The subject areas have been chosen because of their relevance to key themes. They included references to whaling, the British East India Company, shipping (and shipbuilding in particular) and relations with American visitors. Topics such as wool-growing, food shortages or trading with other Pacific Ocean dwellers have not been included, although they may well have been in a more general work, or a work focussed on different issues.

One advantage of tabular presentation is that it reveals trends in the significance of issues and their timing, which might otherwise have gone undetected. For example, it is clear from the pattern of mentions of the Company that its behaviour did not become sufficiently irksome to locals to warrant protest to London until twenty years after settlement. By contrast, year in and year out from settlement date, there were reports of the inadequacy of local shipping capacity and the need to take a more elastic view of what it might be possible to build locally to meet local needs. The long-running debate about using whalers as cargo ships when sailing from London to Port Jackson comes into the same category.

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Appendices

Appendix 1 - Tasmania's whaling fleet in 1849

Table 32: Van Diemen's Land whaling fleet 1849

Ship Name	Description	Tonnage	Ownership
Aladdin	Barque	280	C Seal and Captain McCarthy
Augustus	Barque	110	Burns, White & Co
Cheviot	Barque	220	C Seal and W Mansfield
Catherine	Schooner	130	A Morrison and M Sherbert
Eamont	Barque	310	C Seal and J Lovitt
Emu	Barque	310	Brown & Co
Eliza	Barque	137	J Johnson
Flying Childers	Barque	260	George Watson
Flying Fox	Barque	220	George Watson
Fortitude	Barque	240	A Morrison and C Bayley
Frances	Barque	229	Messrs Richardson, London – T Brown, agent
Flying Dutchman	Brig	110	R Cleburne
Grecian	Brig	180	Nathan, Moses & Co & S Lindsay
Highlander	Brig	160	John Johnson & J Lucas
Isabella	Schooner	120	C McShane
Johanna	Brig	220	A Morrison & Captain Chamberlain
Jane	Ship	343	George Watson
Julia	Brig	90	Burns, White & Co and W Young
Lady Emma	Barque	240	Burns, White & Co and W Young
Letitia	Schooner	120	George Watson
Marianne	Brig	187	Nathan, Moses & Co and Captain Lindsay
Macquarie	Barque	200	G Watson
Maguasha	Brig	187	JT Waterhouse
Nimrod	Brig	160	Nathan, Moses & Co and A McLeod
Offley	Barque	400	Messrs Richardson, London – Brown & Co agents
Pacific	Ship	330	C Seal & R Gardiner
Pryde	Brig	190	A Fraser & D Heckscher
Prince Regent	Ship	253	Nathan, Moses & Co and Captain Gardiner
Patriot	Brig	147	Burns, White & Co and W Young
Prince of Denmark	Brig	140	George Watson
Rebecca	Barque	347	George Watson
Sir William Wallace	Brig	186	Brown & Co & W Cracknell
Sussex	Ship	350	C Seal
Triton	Brig	120	JT Waterhouse
Terror	Barque	247	Brown & Co & George Chase
Wallaby	Barque	243	A Morrison & W Young
*Unnamed**	Ship	350	A Morrison & Captain Bayley
Pet	Barque	241	Brown & Co**

Source: Editorial, *Colonial Times and Tasmanian*, 20 February 1849, p.2

Notes:

* "A new ship ready for launching in Watson's Yard"
** "Preparing for her first whaling trip"

Appendix 2 - Weights and Measures

Extracted from Mawer GA (1999) *Ahab's Trade: The Saga of South Seas Whaling (qv)* pp. 354:

> *In the interests of authenticity weights and measures have, by and large, been left as they were found. Where I intrude a figure of my own it reflects the usage of the context rather than modern practice. 'Fathom' is the best example of this; although it may surprise readers to learn that this hoary but venerable relic is still coin in the realm and will remain so in Britain until 31 December 1999. My affection for 'knot', as a terse and salty way of expressing speed at sea, will have to suffice as explanation for my prejudice against miles or kilometres per hour. Besides, the measure from which it derives, the circumference of the globe, is both more majestic and less arbitrary than the length of Henry 1's arm, whence the Imperial yard. Whenever I have found myself without an excuse I have used metric measures, if only because the metre embodies the global principle. None of this will help those who would make sense of statistics across two centuries, three systems of weights and measures, and many different usages. To them, with apologies, I offer a rough guide.*

OIL

Before 1824, the most common measures of oil in Britain and its former American colonies were the tun and the barrel. The tun was originally a wine measure, divided into 8 barrels of 31½ gallons each, i.e. 252 gallons altogether. The wine gallon was 231 cubic inches or 3.7731 litres. When Britain adopted Imperial measures and officially abandoned the tun, the oil merchants and Americans who clung to the old measure found that a tun was 210 Imperial gallons 'very nearly', or 953.8036 litres very precisely. The Imperial gallon is 1.2 US gallons. Many US states still use 31½ gallons to the barrel as liquid measure.

SHIPS

A ship's tonnage was originally the number of tuns it could stow, recorded for taxation purposes and the calculation of harbour dues etc. Register tonnage, that most commonly used, left much to be desired as a measure of volume; length and breadth were actually measured but depth was arbitrarily allowed to be half the breadth. In 1836 Britain revised the formula to include measured depth, and New Measure, as it was known, re-rated most vessels upwards or downwards, sometimes significantly. The *Charles W Morgan*, for example, was remeasured in 1864 to register 313.75 tons, down from 351 tons Old Measure. In Imperial solid measure, one ton of shipping for cargo stowage purposes was 42 cubic feet or 1.1892 cubic metres.

Appendix 3 - The Manufacture of Sperm Oil and of Spermaceti Candles

The following quotation constitutes Appendix J in Hohman EP 1974 *The American Whaleman (qv):*

> *Crude oil, or oil in its natural state, is that which is obtained from the blubber of the whale in the process of "trying out" on shipboard. The oil then, which is taken from whale ships and carried to the oil manufactory, is said to be in its crude state. We will speak first of the manufacture of crude sperm oil.*
>
> *The first step in the process of manufacture is to take the oil in its crude state, and put it into large kettles, or boilers, and subject it to a heat of one hundred and eighty to two hundred degrees, and then all the water which happened to become mixed with the oil, either on shipboard or since, will evaporate.*
>
> ***Winter Strained Sperm Oil**. In the fall, or autumn, the oil is boiled for the purpose of granulation during the approaching cold weather. The oil thus passes from a purely liquid into a solid state, or one in which it is in grains, or masses.*
>
> *When the temperature of the atmosphere rises, or the weather slackens during the winter, the oil which has been frozen, but is now somewhat softened, is shovelled out of the casks and put into strong bags that will hold half a bushel or more, in order to be pressed ... The oil which is now obtained from this first pressing is called winter strained sperm oil.*
>
> ***Spring Sperm Oil**. What remains in the bags after the first pressing, is again heated by being put into boilers, after which it is baled into casks again, and upon cooling, it becomes more compact and solid than it was before.*
>
> *During the month of April, when the temperature is about fifty degrees, the oil becomes softened; it is then put into bags, and goes through a second process of pressing similar to the first. The oil from this pressing is called spring strained sperm oil.*
>
> ***Tight Pressed Oil**. That which is left in the bags after the second pressing, is again melted, and put into tin pans or tubs which will hold about forty pounds each. When this liquid is thoroughly cooled, as each pressing makes what is left harder, in consequence of extracting the oil, the cakes taken from the tubs are then carried into a room heated to about ninety degrees; and as they being to yield to the influence of this high temperature, or the remaining oil begins to soften the cakes, they are taken and shaved into very fine pieces, or ground up as in some instances, deposited din bags as hitherto, and put into the hydraulic press.*
>
> *The room being at the temperature indicated above and the bags subjected to a powerful pressure of three hundred tons or more, all the oil is extracted from them, and what is left is perfectly dry, free from any oily matter, and brittle. The oil thus obtained by this last pressing is called sight pressed, or summer oil.*
>
> ***Spermaceti.** What remains after the several pressings, and the removal of all the oil is called stearine, or spermaceti.*
>
> *Spermaceti is not confined to the head matter of the whale, as some suppose ... But ... the spermaceti from the head oil is quite different from that of the body oil; the firmer presents fine, bright, transparent scales like small particles of isinglass, while the latter is more compact, something like dough. In cooling, one exhibits a sparry, crystalline structure, the other that of clay.*
>
> *Head oil or matter is usually manufactured with the body oil of the whale, and mixed in proportion to one-third of the latter.*
>
> ***Spermaceti Candles.** That which remains in the bags after the hydraulic pressure is both dry and brittle. The oil, it is supposed, is wholly extracted, and mothering now remains*

but the spermaceti. Its color, however, is not white, but interspersed with grayish streaks, bordering on the yellow.

The spermaceti is put into large boilers adapted for the purpose, and heated to the temperature of two hundred and ten degrees. It is refined and cleared of all foreign ingredients by the application of alkali. Afterwards water is added, which, with a temperature of two hundred and forty degrees, throws off the alkali in the form of vapour. The liquid which remains is as pure and clear as the crystal water, and ready to be made into the finest spermaceti candles.

Appendix 4 - Shipping Returns: North American Trade

Source: Greenwood G (1944) *Early American-Australian Relations (qv)*, Appendix 1:

> *This list was compiled from data collected from the following sources: Collins,* Account of New South Wales*; Governors' despatches and shipping returns given in the* Historical Records of Australia*; shipping news in the* Sydney Gazette *and* New South Wales Advertiser*; shipping lists from the different* Almanacs *during the years 1808 to 1831.*

Table 33: List of United States' Vessels entering and leaving Port Jackson (1792-1830)

Date of Entry	Ship's Name	Captain	Tons	Number of Guns	Men	Owner
1792:						
1 Nov.	*Philadelphia*	T. Patrickson	-	-	-	-
24 Dec.	*Hope*	B. Page		-	-	
1793:						
29 Oct.	*Fairy*	-	-	-	-	-
1794:						
14 June	*Halcyon*	B. Page	-	-	-	-
5 July	*Hope*	Page	-	-	-	-
17 Oct.	*Mercury*	-	-	-	-	-
1796:						
24 Jan.	*Otter*	E. Dorr	-	-	-	-
15 Feb.	*Abigail*	-	-	-	-	-
19 Apr.	*Susan*	-	-	-	-	-
23Aug.	*Grand Turk*	-	-	-	-	-
1797:						
11 Jan	*Mercury*	-	-	-	-	-
1798:						
7 July	*Argo*	-	-	-	-	-
1 Oct.	*Semiramis*	-	-	-	-	-
1799:						
5 Mar.	*Rebecca*	-	-	-	-	-
						-
6 Sept.	*Resource*	-	-	-	-	
1800:						
7 June	*Belle Savage*	D'Orkington	-	-	-	-
21 Sept.	*John Jay*	B. Dexter	464	12	36	Brown & Co.
21 Nov.	*Diana*	J. Gardner	215	2	14	Rodman & Co.
1801:						
21 Jan.	*Follensby*	J. Perry	269	6	23	Vernon & Co.
2 May	*Missouri*	W. Vickery	206	6	20	Willings & Co.
2 Nov.	*Hope*	N. Ray	269	8	26	Duggell & Co.
22 Dec.	*Caroline*	S. Tuckerman	103	2	9	Swain & Co.
1802:						
21 June	*Arthur*	S. Jenkes	265	6	20	Brown & Co.
26 June	*General Boyd*	-	-	-	-	-
9 July	*Fanny*	E. Smith	185	5	12	Harris & Co.
9 Sept.	*Surprise*	-	-	-	-	-
17 Nov.	*Bertha Ann*	G. West	164	4	11	Lawrence & Co.
26 Nov.	*Patterson*	J. Aborn	447	10	35	Munro & Co.
1804:						
6 Jan.	*Union*	J. Pendleton	99	4	22	Fanning & Co.
24 Jan.	*Mary*	S. Balch	211	4	14	Bordman & Co.
25 Jan.	*Rose*	J. Carey	305	8	21	P. Gardiner
4 Mar.	*Union*	J. Pendleton	99	4	22	Fanning & Co.
26 May	*Fair American*	J. Farrell	300	10	34	J. E. Farrell
29 June	*Union*	J. Pendleton	99	4	22	Fanning & Co.
1 July	*Independence*	O. Smith	35	0	16	"
22 Aug.	*Pilgrim*	S. Delano	62	6	8	Bradbury & Co.

Date of Entry	Ship's Name	Captain	Tons	Number of Guns	Men	Owner
1 Oct.	*Pilgrim*	S. Delano	62	6	8	"
25 Oct.	*Union*	D. Wright	99	4	19	Fanning & Co.
27 Dec.	*Aeolus*	A. Mather	487	6	28	Champlin & Co.
1805:						
23 Apr.	*Independence*	J. Townsend	35	0	6	Fanning & Co.
24 Apr.	*Criterion*	P. Chase	229	6	22	Hussey & Co.
25 Apr.	*Favorite*	I. Paddock	245	4	25	Gardener & Co.
16 May	*Ann*	J. Gwynn	288	0	22	W. Rock, Jnr.
10 July	*Brothers*	B. Worth	256	0	20	O. Mitchell
22 Oct.	*Ann*	-	-	-	-	-
22 Oct.	*Elizabeth*	-	-	-	-	-
21 Dec.	*Eliza*	W.Richardson	185	6	11	J. Pierce
1806						
10 Mar.	*Favorite*	I. Paddock	245	4	36	Gardener & Co.
26 May	*Criterion*	-	-	-	-	-
22 July	*Brothers*	B. Worth	256	0	20	O. Mitchell
1807						
17 Mar.	*Hope*	R. Bromley	171	8	26	Fanning & Co.
5 Apr.	*Hannah & Sally*	N. Cogswell	167	4	11	N. Cogswell
11 Sept.	*Grand Sachem*	C. Whippey	250	18	22	B. Roach
31 Sept.	*Jannette*	-	-	-	-	-
2 Nov.	*Jenny*	W. Dorr	205	6	14	J. Dorr
9 Dec.	*Eliza*	E.H. Correy	135	3	10	Brown & Ives
17 Dec.	*Amethyst*	S. Smith, Jnr.	270	10	50	J. Dorr
1809						
24 July	*Ann*	J. Gwynn	-	-	-	-
1810						
17 July	*Aurora*	O. F. Smith	180	6	17	T. Walder
23 Oct.	*Hunter*	T. Folger	268	0	17	T. Folger
29 Dec.	*Active*	W. Richardson	206	4	18	J. Cook & Co.
1811						
1 Jan.	*Aurora*	O. F. Smith	180	6	17	T. Walder
26 Apr.	*Millwood*	E. Smith	253	8	20	B. Minturn
19 May	*Aurora*	O. F. Smith	180	6	43	T. Walder
24 Aug.	*Sally*	R. M. Field	322	10	36	P. Amidon & Co.
1812						
1 Aug.	*Ann*	J. Gwynn	288	2	27	B. Roch
1816						
30 Jan.	*Ontario*	Dore	-	-	-	-
19 Feb.	*Traveller*	W. French	-	-	-	-
8 May	*Avon*	Whittimore	-	-	-	-
1817						
23 Feb.	*William & Jane*	Mellor	-	-	-	-
17 Mar.	*Enterprise*	Coffin	-	-	-	-
1819						
4 June	*General Gates*	A. Riggs	-	-	-	-
1820						
12 May	*General Gates*	A. Riggs	-	-	-	-
18 Nov.	*North America*	O. Wyer	-	-	-	-
1823						
10 Jan.	*Cossack*	Dix [1]	-	-	-	-
10 Oct.	*Chili*	F. H. Barnard	-	-	-	-
1825						
5 Aug.	*Yankee*	Thayer	-	-	-	-

Date of Entry	Ship's Name	Whence	Date of Depart	Destination	Cargo to Port Jackson
1792:					
1 Nov.	*Philadelphia*	Philadelphia	7 Nov.	Norfolk Island	Speculative
24 Dec.	*Hope*	Rhode Island	10 Jan.	Canton	"
1793:					
29 Oct.	*Fairy*	Boston	Nov.	N.W. Coast of America	Refreshments.
1794:					
14 June	*Halcyon*	Rhode Island	8 July	Canton	Speculative
5 July	*Hope*	"		-	"
17 Oct.	*Mercury*	"		-	"
1796:					
24 Jan.	*Otter*	Boston	18 Feb.	-	"
15 Feb.	*Abigail*	Rhode Island		Canton	"
19 Apr.	*Susan*	"		"	"
23Aug.	*Grand Turk*	Boston		-	"
1797:					
11 Jan	*Mercury*	Manilla		-	To refit
1798:					
7 July	*Argo*	Mauritius	7 Oct.	China	Speculative
1 Oct.	*Semiramis*	Rhode Island	7 Oct.	"	To refit
1799:					
5 Mar.	*Rebecca*	Cape of Gd Hope Rhode Island		-	Speculative
6 Sept.	*Resource*		14 Sept.	China	To refit
1800:					
7 June	*Belle Savage*	"	15 June	-	"
21 Sept.	*John Jay*	"		China	Merchandise
21 Nov.	*Diana*	America	1 Dec.	"	"
1801:					
21 Jan.	*Follensby*	America	31 Jan.	China	"
2 May	*Missouri*	Philadelphia	15 June	"	"
2 Nov.	*Hope*	River Plate	15 Nov.	"	Skins
22 Dec.	*Caroline*	Boston	29 Mar.	New Bedford	Speculative
1802:					
21 June	*Arthur*	Providence	22 July	China	"
26 June	*General Boyd*	-	-	-	-
9 July	*Fanny*	Boston	17 Nov.	Batavia	Speculative
9 Sept.	*Surprise*	Isle of France	4 Oct.	Lost	"
17 Nov.	*Bertha Ann*	New York	24 Nov.	Sealing	"
26 Nov.	*Patterson*	Providence	23 Nov.	"	"
1804:					
6 Jan.	*Union*	Bass Straits	29 Aug.	China	5,000 seal skins
24 Jan.	*Mary*	Boston	12 Feb.	Manilla	Speculative
25 Jan.	*Rose*	Isle of France	3 Feb.	China	"
4 Mar.	*Union*	Norfolk Island	28 Apr.	Bass Straits	5,000 skins
26 May	*Fair American*	Manilla	12 Nov.	Manilla	Speculative (pork)
29 June	*Union*	Bass Straits	29 Aug.	China	12,000 skins
1 July	*Independence*	"	29 Aug.	"	Oil
22 Aug.	*Pilgrim*	"	29 Sept.	Bass Straits	Ballast
1 Oct.	*Pilgrim*	"	9 Oct.	"	"
25 Oct.	*Union*	Tongataboo	12 Nov.	China	"
27 Dec.	*Aeolus*	New York	9 Feb.	"	Speculative
1805:					
23 Apr.	*Independence*	Norfolk Island	11 June	Canton	Ballast
24 Apr.	*Criterion*	Crozat Island	29 May	Fishery	Speculative
25 Apr.	*Favorite*	Coast	11 June	Bass Straits	Oil and skins
16 May	*Ann*	N. Zealand	6 June	Whaling	Oil
10 July	*Brothers*	Coast	1 Nov.	"	"
22 Oct.	*Ann*	N. Zealand	20 Nov.	Fishery	"
22 Oct.	*Elizabeth*	"	20 Nov.	"	"
21 Dec.	*Eliza*	Isle of France	3 Mar.	China	speculative

Date of Entry	Ship's Name	Whence	Date of Depart	Destination	Cargo to Port Jackson
1806					
10 Mar.	*Favorite*	N. Zealand	29 July	Whaling	60,000 seal skins
26 May	*Criterion*	China	29 July	America	Tea, etc.
22 July	*Brothers*	Coast	17 Aug.	Coast	oil
1807					
17 Mar.	*Hope*	New York	2 Apr.	America	To refit
5 Apr.	*Hannah & Sally*	Rio	25 Aug.	"	Merchandise
11 Sept.	*Grand Sachem*	Fishery	26 Sept.	Fishery	Oil
31 Sept.	*Jannette*	Boston	-	-	Speculative
2 Nov.	*Jenny*	"	-	-	-
9 Dec.	*Eliza*	Buenos Aires	-	-	Speculative
17 Dec.	*Amethyst*	Fishery	19 Dec.	Sealing	sealskins
1809					
24 July	*Ann*	America	26 Sept.	Fishery	Oil
1810					
17 July	*Aurora*	New York & Rio	18 Sept.	"	Ballast
23 Oct.	*Hunter*	Cape of Gd Hope	23 Nov.	Derwent	Merchandise
29 Dec.	*Active*	Isle of France	15 Feb.	Fiji	-
1811					
1 Jan.	*Aurora*	Fishery	9 Feb.	Derwent	Oil
26 Apr.	*Millwood*	New York	10 July	Canton	Merchandise
19 May	*Aurora*	Fishery	10 July	Calcutta	"
24 Aug.	*Sally*	Boston	21 Oct.	China	Sundries
1812					
1 Aug.	*Ann*	Fishery	19 Sept.	Fishery	Oil
1816					
30 Jan.	*Ontario*	Boston	27 Mar.	China	Merchandise
19 Feb.	*Traveller*	Canton	1 May	Timor	"
8 May	*Avon*	Boston	3 June	NW Coast of America	Nil
1817					
23 Feb.	*William & Jane*	New York	4 Apr.	NW Coast of America	Merchandise
17 Mar.	*Enterprise*	Isle of France	9 Apr.	Fishery	Nil
1819					
4 June	*General Gates*	Boston	29 July	N. Zealand	Sealing
1820					
12 May	*General Gates*	Whaling	21 Dec.	Fishery	-
18 Nov.	*North America*	Fishery	21 Dec.	"	-
1823					
10 Jan.	*Cossack*	N. Zealand	18 Mar.	N. Zealand	Lost
10 Oct.	*Chili*	Fishery	15 Nov.	Fishery	-
1825					
5 Aug.	*Yankee*	New York	24 Aug.	-	-