

The port of Bristol in the second half of the eighteenth century: An examination of the organisational structure of the port pertaining to the management and operation of its shipping with special reference to ships trading with the West Indies and America.

Volume 1 of 2.

Submitted by John Gilbert MacMillan
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Signature.....

Abstract.

In comparison to the amount of research that has been carried out on Royal Navy affairs and its ports and dockyards, few studies have been done on the day to day operations of merchant shipping and civilian ports, especially in the eighteenth century. This thesis attempts to partly redress this by examining at depth the workings of the Port of Bristol and its shipping in this period, using contemporary records where they have survived and a system of cross-referencing where they have not.

The physical structure and amenities of the port were subject to close examination, not only to establish whether they were suitable for their purpose, but to observe the effectiveness of the systems that were in place regarding their use. Similarly, the deposition of shipping in the port was scrutinised to establish whether or not it contributed to the recognised problem of congestion at the port. The reality was that the facilities and systems put in place by the managers of the port, the Society of Merchant Venturers, were mainly effective but they could not overcome the adverse conditions set by the port having one of the highest ranges of tide in the world.

However, there was another factor and that was the perspectives of the users of the port, the shipowners and merchants of the city. It was established that Bristol shipowners still adhered to the traditional system of owning ships as an element of a merchant's business interests rather than in their own right, and this meant that there was little flexibility in both ways of working and the areas ships traded to, with the result that the facilities of the port were subjected to seasonal inundations contributing to congestion. The management of the ships involved in the most important trade of the port, the West Indian, was examined and they and their crews were far from being used to their full potential. In effect the conservative attitude to trade of the Bristol merchant was exacerbating the fundamental environmental problem of the port, its unmanageable tides.

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Abbreviations.

| | |
|--------------------------------|------|
| Bristol Record Office. | BRO |
| Bristol Record Society. | BRS |
| Bristol Reference Library. | BRL |
| Felix Farley's Bristol Journal | FFBJ |
| Mariner's Mirror. | MM |
| National Maritime Museum | NMM |
| Society of Merchant Venturers. | SMV |

Acknowledgements.

The motivating force behind my study of maritime history was fifteen years spent in the merchant navy and living in Bristol, a city with an ancient port which has been in existence since at least the thirteenth century. What began as an interest led to fascination and then academic study, and after realising that there was a paucity of research at operational levels this thesis was produced to examine the last years of Bristol's most productive century.

The Bristol Record Office was the main centre of research and the staff there were always ready to discuss my requests for information and assiduous in supplying me with the necessary documentation. I am particularly grateful to Mrs Patricia Denny who as custodian of the archive of the Society of Merchant Venturers when it was kept at Merchants' Hall, provided me with documentation I would never have found otherwise and who assisted with the excellent cataloguing of the archive when it was transferred to the record office. I am also grateful to the staff at the Bristol Reference Library who again were patient and always willing to oblige.

I am particularly grateful to my tutors at Exeter. Professor Jonathan Barry not only imparted his wide knowledge regarding the history of the City of Bristol to me, but also had the patience to advise me on layout and the correct academic procedures. He also astounded me with an almost instant response by email to any query or indeed voluminous work sent to him. Dr. Roger Morris provided mercantile information from his wide knowledge and encouraged me to include minutiae where it was relevant. Dr. Helen Doe influenced me early on and later provided me with a copy of her own thesis for reference.

Lastly, the memory of my late wife's support of the project helped me persist and my friend, Mary O'Loughlin, an Irish historian, provided ongoing support and advice which generally led to trying, but necessary revisions.

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Introduction.

An inequality affecting maritime history.

Compared to the massive library of publications regarding the history and organisation of the Royal Navy, there are few dealing with the everyday management of merchant ships, at least before the age of steam; indeed Basil Lubbock has been credited with being the earliest historian of the nineteenth century merchant sailing ship yet his first publication was in 1902.¹ A factor in the attractiveness of naval research must be the abundance of surviving documentation, which is not the case for merchant shipping unless they were official papers deposited in government annals. The survival of mercantile records depended entirely on the whims of shipping companies who generally destroyed them when they closed down. Even when these documents are available there is a scarcity of detail because ships' masters kept administration to a minimum.²

Mercantile trade and economics has been well researched and the results published, but data for this is readily available from official records. However there has been little interest in investigating the mechanics of preparing, dispatching and sending goods from one port to another and this must affect research in general as, for example, an inefficient port system would certainly affect imports or exports. Again, this is difficult to assess because published information on the history of

¹ Michael Leek, 'A Reappraisal of the Life and Work of Basil Lubbock', *The Mariner's Mirror*, 100 (2014), p. 445; Basil Lubbock, *Round the Horn Before the Mast*, (London, 1902).

² See below in Chapter 2.

commercial ports, although more readily available, generally lacks technical details of their day to day practices.³

Justification for writing the thesis.

This thesis was produced as a contribution to an area of maritime history that has been under researched, that is merchant shipping and commercial ports at their basic operational levels. Research at this level not only brings to light working practices, but also can complement or contradict conclusions reached by other disciplines such as political or economic history which target their investigations at what might be called a more complex echelon.

The port of Bristol was chosen as no study had been made of its basic operations in the eighteenth century, although its trade had been thoroughly examined by scholars. There were two main aims.

- To produce a detailed description of the workings of the port and its shipping operations.
- To use this data to determine whether towards the end of the eighteenth century changes could have been made at operational levels to slow the port's relative decline compared to others.⁴

³ The publications consulted for the writing of this thesis are as follows. J. Broodbank, *History of the Port of London* (London, 1921); R. Davis, *The Rise of the English Shipping Industry* (London, 1962); C. M. Frazer and K. Emsley, *Tyneside* (Newton Abbot, 1973); J. Guthrie, *The River Tyne: Its History and Resources* (Newcastle, 1880); F. E. Hyde, *Liverpool and the Mersey: the Development of a Port, 1700-1970* (Newton Abbot, 1971); Gordon Jackson, *Hull in the Eighteenth Century*, (London, 1972); Gordon Jackson, *The History and Archaeology of Ports* (Tadworth, 1983); S. Middlebrook, *Newcastle Upon Tyne: Its Growth and Achievement* (Newcastle, 1950); S. Mountfield, *Western Gateway: A History of the Mersey Docks and Harbour Board* (Liverpool, 1975); C. Northcote Parkinson, *The Rise of the Port of Liverpool* (Liverpool, 1952); J. Pudney, *London's Docks* (London, 1975); John, Riddell, *The Clyde: The Making of a River* (Edinburgh, 2000). Those dealing with the port of Bristol are listed in the bibliography and noted throughout the text.

⁴ Minchinton believed it had gone from second in importance at the beginning of the century to eighth at the end. W. E. Minchinton, ed., *The Trade of Bristol in the Eighteenth Century* (Bristol Record Society, 20, 1957), p. ix.

Questions to be answered in this thesis.

From perusing the main publications on the subject of the port,⁶ and additional knowledge from past research, the basic questions that were required to be answered by this thesis can be listed as follows.

1. The Society of Merchant Venturers, in effect, managed the port and its river. How effective were their methods?
2. Was the structure of the port and its amenities suitable for its shipping? There was known to be congestion but was this simply due to the size of ships and trade increasing?
3. Ships at Bristol were mainly owned by merchants. How efficient was this arrangement, was there any sign of change, and what was their contribution to the efficient running of the port?
4. Bristol was an inland port on a river influenced by the third highest tidal range in the world. In practical and economic terms, what was the effect of this on shipowning and trade?

⁶ Paul Elkin, 'Aspects of the Recent Development of the Port of Bristol', in *Waterfront Archaeology: 3rd International Conference on Waterfront Archaeology*, Bristol, (1988), 27-35; Grahame Farr, *Somerset Harbours* (London, 1954); John Latimer, *The Annals of Bristol in the Eighteenth Century* (Bristol, 1893; reprinted Bath, 1970 edition); John Latimer, *The History of the Society of Merchant Venturers of the City of Bristol, with Some Account of the Anterior Merchants' Guild*, (Bristol, 1903); John Lord, and Jem Southam, *The Floating Harbour: A Landscape History of Bristol City Dock* (Bristol, 1983); C. M. MacInnes, *Bristol: A Gateway of Empire* (Newton Abbot, 1968); Patrick McGrath, 'The Merchant Venturers and Bristol Shipping in the Early Seventeenth Century', *The Mariner's Mirror*, 36 (1950) 69-71; Patrick McGrath, ed., *Bristol in the Eighteenth Century* (Newton Abbot, 1972); Patrick McGrath, *The Merchant Venturers of Bristol: A History of the Society of Merchant Venturers of the City of Bristol from its Origin to the Present Day* (Bristol, 1975); W. Matthews, *The New History, Survey and Description of the City and Suburbs of Bristol, or Complete Guide and Bristol Directory for the Year, 1793-94* (Bristol, 1794); W. E. Minchinton, 'Bristol – Metropolis of the West in the Eighteenth Century', *Transactions of the Royal Historical Society*, 5th Series, 4 (1954), 69-89; W. E. Minchinton, ed., *The Trade of Bristol in the Eighteenth Century* (Bristol Record Society, 20, 1957); W. E. Minchinton, ed., *Politics and the Port of Bristol in the Eighteenth Century* (Bristol Record Society, 23, 1963); W. E. Minchinton, 'The Port of Bristol in the Eighteenth Century' in McGrath, Patrick, ed., *Bristol in the Eighteenth Century* (Newton Abbot, 1972) pp. 127-160; Kenneth Morgan, *Bristol and the Atlantic Trade in the Eighteenth Century* (Cambridge, 1993); Kenneth Morgan, 'The Economic Development of Bristol, 1700-1850' in M. Dresser and P Ollerenshaw, eds., *The Making of Modern Bristol* (Tiverton, 1996); Anthony J. Parker, 'A Maritime Cultural Landscape: The Port of Bristol in the Middle Ages', *International Journal of Nautical Archaeology*, 28 (1999), 323-342; Charles Wells, *A Short History of the Port of Bristol* (Bristol, 1909); Alan F. Williams, 'Bristol Port Plans and Improvement Schemes of the 18th Century', *Transactions of the Bristol and Gloucester Archaeological Society* 81 (1962).

The material used to answer the questions posed above.

As can be seen above, copious numbers of books and articles have been written about the history of the port and its trade but only one short study contains an overview of port operations during the eighteenth century and, unfortunately, this work lacks source references.⁷

However this deficiency was compensated for by Kenneth Morgan's *Bristol and the Atlantic Trade in the Eighteenth Century*, a book more concerned with economic history than the everyday operation of the port, but having a very detailed appendix listing and describing the primary sources available, and also a prolific bibliography. These provided the foundation for this study and the text itself was referred to regularly when matters arose dealing with Bristol's economic history.⁸

The port's facilities and management systems.

There are no contemporary documents or publications describing these specifically and therefore to construct a model, data had to be obtained by cross-referencing primary documents. The principal papers were contained in the archives of the Society of Merchant Venturers (known henceforth as the 'Society') which has been housed in the Bristol Record Office since 2005. The key documents were the Merchants' Hall Books of Proceedings, with their Indexes,⁹ as they provided the chronological list of events to which all other documents, letters and accounts could be referred. Without these books it would have been difficult to make sense of bundles of documents, which although catalogued, were not usually numbered or stored in chronological order.¹⁰ This is not a criticism as many of these

⁷ Minchinton, 'Port of Bristol', pp. 127-160.

⁸ Morgan, *Bristol and the Atlantic Trade*.

⁹ BRO: SMV/2/1/1/8-13 Merchants' Hall Book of Proceedings, 1752-1797; and BRO: SMV/2/1/2/2-5 Index to Hall Books, 1733-1762. The information contained in these was almost identical, but the proceedings had the benefit of showing which members were in attendance, whilst the great advantage of the index was that the author had taken his information from the proceedings and subdivided it under the headings, Navigation of the river, Haven Master, Ballast Master and Pilots; Champions Dock; Wharfage, Cranes and Quays; Trade and Public Affairs.

¹⁰ BRO: SMV/7/1/6/4 Complaints against pilots, 1784-92; BRO: SMV/7/1/6/5 Letters from the Haven Master about pilots; BRO: SMV/7/1/6/7 Orders relating to towmen; BRO: SMV/7/1/2/1 Papers re the quays and

documents did not have chronological identification and after the transfer the whole archive was excellently catalogued. When it was at Merchants' Hall research was more difficult even though a guide had been published.¹¹

In the Society's archive, there are copious amounts of material available on many topics to the extent that careful selection of documents was necessary otherwise the area under discussion could be overloaded. For example, there was a whole section dedicated to the building and running of the Merchants' Dock – generally referred to in the contemporary documents as Champion's Dock – which was so extensive that it provided not only data for the text of the thesis,¹² but also allowed an appendix to be written on dock building methods in the eighteenth century. This dock is important because the extent of information available not only allows the operational systems to be examined, but also gives some insight into the philosophy behind the decision making process of the Society. It had been built to be both an asset to the port and profitable, but writers are in general agreement that neither happened and blame the Society for mismanagement and high fees. Having investigated the mass of documents the conclusion is that the former could not be sustained and the latter, though a symptom, was not the prime factor. The main problems were the reluctance of the shipowners to change their habits and, most important, the tidal effects of the river which were impossible to overcome.¹³

Some documents in the archive presented difficulties; for example the Muster Rolls, used for crew analysis.¹⁴ The original rolls, as handed in by the ships' masters, were preserved by being pasted into a book on the day that payment was made, possibly months after the discharge of the crew, so when tracing ships the whole book had to be painstakingly searched, sometimes from year to year. An

nuisances, 1751-1784; BRO: SMV/7/1/2/2 Miscellaneous papers re cranes, 1769-1792; BRO: SMV/7/1/4/19 Haven Master's correspondence.

¹¹ Elisabeth Ralph, *Guide to the Archives of the Society of Merchant Venturers of Bristol* (Bristol, 1988).

¹² BRO: SMV/7/1/3 The Merchants' Dock.

¹³ McGrath says that there were a multitude of problems and his conclusion is that it is impossible to quantify loss. McGrath, *Merchant Venturers of Bristol*, pp.155-157; Minchinton believed that revenue from the project was too low and so the dock was neglected. Minchinton, 'Port of Bristol', p. 140; Wells believes that too much money was spent by the Society that it could not afford. Wells, *Short History of the Port of Bristol*, p. 26.

¹⁴ BRO: SMV/9/3/1 Ships' Muster Rolls, 1748-1795.

index had been kept from the beginning in 1747 which saved time as it chronologically listed the payment date giving the name of the ship, but unfortunately it ended in 1787.¹⁵ The Muster Rolls also suffered from slipshod recording of crew details by the ships' masters, which will be dealt with below.

However, the point of this example is that there are copious amounts of material available in this archive and in order not to be diverted from the thesis argument, the researcher found that it was impossible to retrieve every document even if it looked useful. Apart from the above, the documents were easily decipherable and any minor failings will be discussed in the text.

Shipping.

The investigation into the ownership and trading patterns of ships, and the dynamics of their movements through the port and overseas, was more complicated as no single archive had all the records necessary and so data could only be obtained after making a systematic analysis of tabulated information obtained from ships' account books, customs documents, shipowners' letters, newspapers and sundry academic studies belonging principally to two archives, the Bristol Record Office and the Bristol Reference Library. The former had two principal sets of documents, the papers of Samuel Munckley,¹⁶ and the records of the Bright family,¹⁷ both shipowners and merchants. Contained in them were ships' account books vital to this research as they noted payments made during voyages to the West Indies, together with the master's instructions and letters to overseas agents. This information allowed templates to be created from which the complex workings of shipowning companies could be construed.

Two account books in particular, one from each owner, were exceedingly useful because by chance they covered all the voyages of two West Indian ships built and

¹⁵ BRO: SMV/9/2/1/13 Thomas Rothley's Account Book, 1747-1787. The title of this book could cause confusion to other researchers as it appears to have nothing to do with the Muster Rolls so the staff were informed.

¹⁶ BRO: AC/MU Papers of Samuel Munckley, ship owner and merchant of Bristol, 1720-1802.

¹⁷ BRO: 11168 Records of the Bright family.

sold in the same years, and thus allowed comparisons to be made regarding the two companies' working practices.¹⁸ Five other account books were available from the Bright family papers,¹⁹ and both merchants' archives contained bills of lading, letters and diverse documents concerning these and other ships. There was also a microfilm of account books and other material contained in the William L. Clements Library in the USA.²⁰

Complementing and corroborating this information was shipping data available from the Bristol Reference Library, in particular the account book for another two of Brights' ships, which on examination turned out not to be an account book, but a treasure trove of detailed receipts, accounts, letters, wage and cargo books from two voyages made during the same period.²¹ In the ordinary account books, the entries show lump sums paid for services or to suppliers, but in this book the bills to these people were itemised. This meant that any period spent in port could be analysed, in particular its refit and supply of material and provisions in Bristol and the West Indies.

Two other important sets of documents were kept at the Bristol Reference Library which were used copiously when dealing with ship movements and trade. The *Bristol Presentments*, printed bills of entry, were available for some of the years covered by the thesis and gave dates, cargoes, trading areas and merchants.²² Unfortunately these had details of foreign-going ships only. A complete run of the series '*Lloyd's Register of Shipping*' gave particulars of ownership, trading area and ship statistics, but again only for foreign-going ships.²³ The other source

¹⁸ BRO: 12162 Shipping Account Book of the Snow *Fanny*, 1777-1791; BRO: 39654/3 Voyage accounts for the *Triton*, 1777-90.

¹⁹ BRO: 39654/1 Voyage Accounts for the *Ruby*, 1758-1763; 39654/2 Voyage Accounts for the *Swift*, 1759-60; *Sally*, 1767-72; *Nevis Planter* 1770-75; 39654/4 Voyage Accounts for the *Druid*, 1790-91.

²⁰ BRO: Microfilm FX/20. Bristol Shipping Account books courtesy of William L. Clements Library, Ann Arbor, Michigan, USA.

²¹ BRL: 21258 Account Book of the *Sybil* and *Success*, 1779-86.

²² BRL: BL9 24795 *Bristol Presentments*, Imports and Exports, 1770 onwards with a break between 1781-1790.

²³ BRL: AR *Lloyd's Register of Shipping 1778, 1787 and 1792*. (Green binding. Gregg International Reprints).

contained in this repository was newspapers, used both for general information and ship movements.²⁴

The above is not a comprehensive list of all documents utilized in the research, and some could be employed in both port or ship investigations. The Society's Wharfage Books, for example were used to examine merchants' imports or exports as well as arrival dates and tonnages.²⁵

Method of research.

Much of this research was aimed at collecting contemporary information on ship and port operations at a level where if any data had been recorded at all, it was liable to have been discarded shortly afterwards, and so the only way this could be retrieved was by cross-referencing a number of sources and analysing the tabulated results. This generated substantial amounts of data which could not be accommodated in the main body of work but is recorded separately in Volume 2, General Appendices, to verify the author's arguments.

Because of the sheer volume of data available from the above repositories, it was not feasible to add from other archives. The West India Papers of the Pinney Family collection at the University of Bristol²⁶ were examined, and while there was information that could corroborate that of the Bristol Record Office, it was analogous and to include it in the research would be superfluous as well as time consuming. Another important resource at this university, *The House of Commons Sessional Papers of the Eighteenth Century*, were initially used but then became difficult to obtain.²⁷

²⁴ The two main newspapers consulted were, BRL: BL7H1 and BL8G *Felix Farley's Bristol Journal*; and BRL: BL9F. *Bristol Mercury and Universal Advertiser*.

²⁵ BRO: SMV/7/1/1 Wharfage books for Bristol, 1654-1861.

²⁶ University of Bristol Information Services: GB 3 DM 41 The West Indies Collection, 1653-1998.

²⁷ S. Lambert, ed., *House of Commons Sessional Papers of the Eighteenth Century* (Delaware, 1976). This collection contains important material for any scholar of the slave trade but the library at Bristol University has now confined it to store making it difficult to refer to it volume by volume.

The National Archives were visited on several occasions to examine various documents. The papers of James Rogers, a merchant in the slave trade with the largest fleet at Bristol, were given a cursory examination, but the sheer size of the archive was daunting and it was not feasible to do more than an initial exploration – see Chapter 2.²⁸ The Bristol Port Books were studied in an attempt to fill in the gap in the *Bristol Presentments* between 1781 and 1789, but the writing was almost indecipherable and where legible they were difficult to use.²⁹ The missing information was largely found from other documentation. The Mediterranean Passes, Colonial Papers and Naval Officer's Returns were checked but again, the information taken from them simply corroborated that available at Bristol.³⁰

The Caird Library at the National Maritime Museum provided the logbook of the *African Queen* from which the technical details of her departure from Bristol were taken and proved particularly useful. The disbursement book of the *Barum*, a collier sailing out of Bristol confirmed the system of coastal disbursements were similar to that of foreign ships, but unfortunately the period was beyond that of this thesis.³¹ A card index created by Graham Farr with details of every ship he had investigated proved useful in that it again corroborated information taken at Bristol.³²

The final archive to be considered was the Bright Family Papers at the University of Melbourne, Australia. There is no doubt that this would contain valuable information for the thesis but it is beyond the resources of the author to visit it at this time. However, Kenneth Morgan's *The Bright – Meyler Papers* reproduces a good proportion of the correspondence stored there from 1732 onward and from this material for this thesis has been extracted.³³ Unfortunately a paucity of

²⁸ National Archives: C 107/1-15 James Rogers Papers.

²⁹ Kenneth Morgan confirms this. Morgan, *Bristol and the Atlantic Trade*, p. 227; National Archives: E190/1238/3 Customer Overseas Outwards, 1788-1789; E190/1238/4 Customer Overseas Outwards, 1788-1789; E190/1238/5 Customer Overseas inwards, 1788-1789.

³⁰ National Archives: ADM7/110-112 Register of Passes, 1790-1795: CO 142/21-23. Shipping Returns Jamaica, 1783-1806.

³¹ NMM: Log/M/64 Logbook of the *Africa Queen*, 1790; NMM: AMS 38/2 Details of disbursement of the ship *Barum*, 1810-1812.

³² NMM: MSS/83/136 Uncatalogued. Grahame Farr. Card index for vessels entering the Port of Bristol

³³ Kenneth Morgan ed., *The Bright – Meyler Papers: A Bristol-West India Connection 1732-1837* (Oxford, 2007).

correspondence between the years of 1780-1815 meant that Morgan reproduced few letters from this time, the main timescale of this thesis.³⁴

The layout of the thesis and the development of the argument.

The thesis is divided into an introductory chapter and then four independent chapters, each concentrating on specific aspects of port or shipping operations. Their purpose is twofold, that is to examine the technical details of maritime and port operations, and to answer the questions posed above. Each section of a chapter has an introduction and a conclusion and a fifth chapter has been included to record overall conclusions.

Introductory Chapter.

This chapter has been included to examine the technical and logistical obstacles to shipping as experienced by other major ports in the country during the period of the thesis and the actions taken to overcome them. It has been compiled entirely from secondary sources as to have carried out research to the depth of the main chapters would have meant attendance at the associated archives of each port, which was way beyond the limits of this work.

It does, however, provide a source of information from which to compare the problems experienced by Bristol with other ports, and it will be argued later that at these places, after overcoming political objections, the solutions were relatively straightforward to implement. In Bristol's case, the success was only partial and obstacles to shipping due to actual river itself were never fully conquered, a new port having to be built at its mouth towards the end of the nineteenth century.

Although outwardly there were some similarities in the predicaments experienced by the various ports, they were not the same, and the limitation to this chapter is that it was awkward comparing the primary research sources used in this thesis

³⁴ Morgan ed., *Bright – Meyler Papers*, p. 13.

with its secondary data. For example, costs must have varied according to supply and demand for labour and materials, and whilst this is detailed in the thesis for the two major improvements carried out at Bristol, it is not possible to compare like for like without having similar research for each port available. And, as stated in the justification for writing this thesis, there is a paucity of such research.

Chapter 1.

The purpose of the chapter is to portray the environmental, geographical and structural elements of the port together with the facilities provided to service shipping, and with this information as a backdrop, to describe operational systems and evaluate their management. It is divided into three sections, each one investigating a segment of the port that more or less operated independently, although part of the whole. In the first section, it is argued that Hungroad at the mouth of the river was actually a transit port rather than simply an anchorage, and could have been more effectively used had the Society provided more resources. The second deals with Merchants' Dock and its attached shipbuilding facilities and reached the conclusion that this floating dock was a sound conception which could have been an asset to the port had it not been defeated by the tidal conditions of the river. This will be a theme throughout the thesis. Lastly, the operations of the main part of the port, the city quays (the collective term used in this thesis for Quay Head, Broad Quay and Narrow Quay on the east bank of the Frome, the historical berths for shipping along the north side of the Avon called the Backs, and the Grove, built in the latter part of the century) are described at depth as an example of the way an eighteenth-century port worked, one of the main aims of the thesis.

Chapter 2.

The first section of this chapter examines how the Bristol shipowners organised their ships and trade routes in order to provide an infrastructure from which research into other shipping matters can be developed later in the thesis. It also considers the extent to which changes were taking place nationally to the traditional rationale of ships being bought to further the trading purposes of a

merchant, or a group of merchants, to that of owning ships to provide an income from the vessels themselves from freight charges or chartering. One author holds the belief that two methods of shipowning, the traditional and what he calls professional or specialised, were being used at the end of the century – albeit that the latter was mainly a nineteenth century phenomenon – and sets out criteria to differentiate between them – see Appendix 2.001.³⁵ When considering the efficiency of ship operations at Bristol, it was important to assess where its shipowners were on the continuum between traditional and specialised shipowning because the continued use of what might be seen as outdated procedures could be a factor contributing to the relative loss of status of the port. The method used was to draw conclusions from the analysis of tabulated data³⁶ and this produced strong indications that shipowners were maintaining their long-established traditions. It will be demonstrated in Chapter 4 that apart from this being a less effective way of working, it could be contributing to the problem of congestion.

When investigating ship operations, a complete picture cannot be obtained without taking into consideration the people working the ships, so the second section of this chapter is devoted to the question of crewing and pay. It had to be split into two parts, foreign-going and coastal shipping, as there were considerable differences between the procedures of each although the boundaries were not absolute. Crewing was a complicated subject to research and involved copious amounts of cross-referencing and tabulations, so it was decided to include a general introduction to the section with a detailed description of the material and methods used as part of the ongoing argument.

The conclusions were that considerable differences existed between foreign-going ships in time of war and peace, the former increasing the shipowner's costs, whilst in peacetime wages and conditions reverted to long established practices, an indication that traditional methods were maintained. As far as adding to the general information available on crewing, no signs of allegiance of crewman to company

³⁵ S. P. Ville, *English Shipowning during the Industrial Revolution: Michael Henley and Son, London Shipowners 1770-1800* (Manchester, 1987), pp. 2-5.

³⁶ The main source was from the Bristol Reference Library. *Lloyd's Register*, 1792; *Bristol Presentments*, Import and Export, 1792; *FFBJ*, 1791 and 1792.

except for some officers was found, but on the whole the seaman was fairly treated and indeed it was he who took advantage of the owner in times of war. Regarding coastal shipping, the men appeared to be part of an informed pool of manpower who had no allegiance to any owner but picked up ships as suited their wants. There appeared to be a small number who worked both at sea and ashore.

Chapter 3.

This chapter deals with the passage of West India ships through the port³⁹ and the administration systems of the three main port agencies, the Society, Corporation and Customs. These are discussed at depth to facilitate an understanding of the complicated rules by which the port was run and the need for every shipowner and merchant to tailor his business practices to suit. Once established these became the norm and hardened the inertial attitude against change.

It is the aim of this chapter to describe the actual usage of the port facilities and the costs incurred during a ship's passage throughout. The first section outlines the technicalities of movement and illustrates the extra costs to the shipowners of overcoming the tidal river as well as the processes involved. The second describes in detail the administrative systems, whilst the third concentrates on the dual roles of merchant and shipowner and the rationale behind the decisions taken whilst a ship progresses through the harbour. The last section considers the economics and effectiveness of organising West Indian voyages along traditional lines by breaking them down and using actual data from account books to analyse each component part. The results were briefly compared to those that might have been achieved if the same ships had been run according to the ways of professional shipowning put forward by Ville.

³⁹ These are the only ships where account books detailing costs and ways of operating survived.

Chapter 4.

This chapter is divided into three sections, the first deals with the problems of overcrowding at the port and its effect on cargo handling and distribution, the second demonstrates the consequences of the tides on the movement of shipping, and the third brings together the first two sections – and information from throughout the thesis – to show that at Bristol there were environmental conditions that were particularly difficult to overcome.

Overcrowding, or congestion, generally points to a lack of berthing space or cargo handling facilities, but it can also be caused by unproductive work practices. Section 1 looks at the extent of the problem and then analyses the port's shipping, trade by trade, to establish if at least part of the cause lay with any specific group of ships.⁴¹ Data was obtained, and by using again the method of tabulation, cross-referencing and analysis, unforeseen results were obtained.⁴² Overcrowding was not only due to the late eighteenth-century increase in size of ships and cargo handling times,⁴³ but to the merchants' insistence on maintaining business habits that inevitably meant peak periods of congestion during the year.

The effect on the port due to the building of Merchants' dock was measured using the same method and it became obvious that the facility was underused.⁴⁴ Finally, the work practices of Guppy, Armstrong and Co.,⁴⁵ relative newcomers to the port, were analysed because this company was involved in many of the activities of the traditional merchant shipowner, but without actually owning ships. It proved that new methods could work at Bristol.

⁴¹ The trade areas were taken from Richard Bright's document, BRO: 11168/3/1 Tonnages of ships into Bristol.

⁴² Obtained from the *Bristol Presentments*, 1792; *Lloyd's Register*, 1792; All tonnage data from BRO: SMV/7/1/1/78 Wharfage Book, 1792-93; *FFBJ*, 1792; David Richardson, ed., *Bristol, Africa and the Eighteenth-Century Slave Trade to America*, Vol. 4.

⁴³ Morgan, *Bristol and the Atlantic Trade*, p. 31.

⁴⁴ The same sources as before were used plus BRO: SMV/7/1/3/13 Dock Master's Day Book, 1795-1799; and BRO: SMV/7/1/3/14 Dock Master's Ledger, 1796-1799.

⁴⁵ Matthews, *Bristol Directory*, 1794: Guppy, Armstrong and Co., Iron mongers and cutlers, the Back.

However, the principal cause of congestion is brought out in Section 2, and that was the impossibility of overcoming the effect of the tidal river. In this section a tide table was constructed for July, 1792, which showed the daily heights of tide (Appendix 4.030) and this in turn was referenced to all parts of the harbour (Appendix 4.031). Having this information and knowing the draughts and likely position of most ships in the harbour that month, the unalterable problems caused by the tidal conditions could be illustrated and it became obvious that there was no real alternative but to float all or part of the harbour.

Carrying on from the first two sections, the concept of floating harbour is dealt with in the third, where although it is agreed that vital improvements were held up in the eighteenth century by obscurantists, it is argued that their basic postulations were correct and as proof shows that the plan adopted in the nineteenth century, which had not been seriously considered in the eighteenth, was the only viable solution to the complex problems previously encountered. This was established by analysing the environmental conditions at Bristol, and the ensuing data was also used to compare the problems faced by this port with others nationwide. The conclusion was that Bristol had severe disadvantages in this sphere that were never fully resolved.

Introductory Chapter

The work carried out on port improvements at other British ports to meet increased shipping at the end of the eighteenth century.

Introduction.

The main purpose of this thesis is to produce a detailed description of the organisational structure of the port of Bristol and the management of its shipping, taking into consideration the adverse physical conditions brought about by its exceptionally high tidal range. A secondary purpose is to use data derived from this to make a general analysis of the efficiency of the port to see if at operational levels changes could have been made which might have assisted in slowing down the relative decline of the port. This has been examined thoroughly at political and economic levels and it is not intended to dispute these findings, but to consider the matter from the narrower viewpoint of physical and geographical restraints, port structure, facilities and organisational systems. Before doing so, however, it is of some use to reflect on the state of affairs at the end of the eighteenth century at the other major ports of Great Britain, London, Liverpool, Glasgow, Hull and Newcastle. These will be referred to when necessary within the thesis.

The secondary sources used to compile this chapter provided information on the eighteenth-century geographical and geophysical complications associated with these ports and their effect on shipping and trade. They were particularly informative as to the actual techniques used by the authorities at each port to overcome problems such as providing safe harbours, access to them, and dealing with congestion. In some ports finance and political resolve solved their difficulties, but in others success came only after a great deal of disagreement and discord. Again, the volumes consulted were enlightening about the procedures involved and the positive effect on trade but, unfortunately, they gave very few facts regarding

the day to day operational systems that evolved from the improvements. Some clues regarding the berthing facilities at Liverpool, London and Hull were revealed, but none whatever as to how the ships used them or what other amenities were available. Warehousing was mentioned, but there was no detail as to whether goods were laded by cranes or manhandled, how portorage was organised, nor what facilities available for refit and supply.

London

London had been the principal port of England since Roman times due to her easily defensible position sixty miles from the sea, and was in an excellent position to trade as physically she faced the major rivers of north Europe. Her other assets were that as world-wide markets developed she was geographically at the hub of the trade routes to the Mediterranean, the American colonies, the West Indies, Africa and the East Indies and, indeed, had a monopoly of trade with the latter. Being a capital city gave its merchants a major advantage as they had access to the centre of power, and because of a growing population, a huge coastal trade developed especially in fundamentals such as coal. The fact that after the collapse of the cloth trade due to the fall of Antwerp in the sixteenth century, London immediately found new products and new markets, is evidence of the skill of her merchants and also of her geographical advantages.¹

The Thames was a fine, wide, navigable, tidal river from its mouth to the Pool at London, with good depth of water.² The Pool, Upper, Middle and Lower, was the mooring space for London's shipping, extending from London Bridge down to Horseferry Tier, Limehouse Reach and Deptford Reach, although the lower ones were used only for East Indiamen and naval vessels.³ The spring tides rose about 18 to 20 feet and neap 12-14 feet, with flow of about five hours and ebbing seven. There were mooring tiers and chains on both sides of the river able to take about

¹ See J. Broodbank, *History of the Port of London* (London, 1921); Gordon Jackson, *The History and Archaeology of Ports* (Tadworth, 1983); J. Pudney, *London's Docks* (London, 1975).

² Broodbank, *History of the Port of London*, p. 5.

³ C. Northcote, Parkinson, 'The Seaports: London' in C. Northcote Parkinson, ed., *The Trade Winds* (London, 1948), pp. 49-58, p. 51.

800 foreign going ships.⁴ The Legal Quay servicing this stretch of water measured 1419 feet⁵ but was not increased during the eighteenth century, and there was another 2800 feet of Sufferance Quay on the south side of the river and 790 feet on the north. This was totally inadequate for the discharge of cargo as commerce had increased by a factor of 4 by the end of the century. For example, some 1775 vessels were anchored or moored in the space for 574. The Pool was so filled with shipping that a small boat could not get across the river. Ships were discharged by lighter and John Pudney says that by the end of the century there were 3500 river craft.

The congestion extended to the quay itself as the warehouses could not cope with the discharged goods and further, the roads leading to them were clogged with heavy traffic.⁶ This was especially so when the seasonal goods such as sugar from the West Indies arrived. On the river the problem was exacerbated by the system of allocating moorings. Short stay coasters were placed near London Bridge, European traders next, then colliers around Wapping and the large foreign going ships and West Indiamen in Limehouse Reach. This led to the daily influx of coasters trying to pass through the bigger ships and the lighters servicing them and resulted in damage both to goods and to the shipping itself.⁷

Congestion on both land and river was the breeding ground for organised crime. Petty crime is normal at any port, but at London the vulnerability of individual ships and lighters hidden amongst clusters of others led to the formation of dangerous gangs of thieves.⁸ Patrick Colquhoun, a London magistrate and one of the founders of the Thames River Police, wrote a treatise in 1796⁹ in which he detailed the types of gangs operating on the Thames and also the criminal behaviour of people who should have been protecting the vessels. He estimated that the value

⁴ W. J., *Two plans of the London-Dock with some observations respecting the river immediately connected with Docks in General and of the improvement of navigations* (London, 1794) pp. 2-3.

⁵ That of Bristol was already 4000 feet. Pudney, *London's Docks*, p. 14.

⁶ Pudney, *London's Docks*, pp. 17-18.

⁷ Jackson, *History and Archaeology of Ports*, p. 54-55.

⁸ Broodbank, *History of the Port of London*, p. 83.

⁹ Patrick Colquhoun, *A Treatise on the Police of the Metropolis: Containing a Detail of the Various Crimes and Misdemeanours by which Public and Private Property and Security Are, at Present, Injured and Endangered, and Suggesting Remedies for Their Prevention* (London, 1796).

of floating property in the port was £75 million and it was contained in nearly 8000 vessels within a space of four miles below and two miles above London Bridge and the cost of theft to merchants in 1797 he puts at £506,000. This includes the purloining of goods left on the quays for want of warehousing or means of removal.¹⁰

This treatise attracted the attention of the West Indian merchants who were suffering considerable losses - sugar ships could lose half a ton a day each - but whereas Colquhoun believed in better policing, they demanded the port's structure be changed by building wet docks. They had seen the success of this at Liverpool.¹¹ It was very much against the vested interests of the private owners of the legal quays, wharfingers, warehousemen, lighter men and indeed the City Corporation and so it took time to get the necessary legislation through Parliament.¹² Parliament began considering the various schemes in 1796 and although the City put forward a proposal of its own, it was obvious that the only way forward was to use private enterprise. The West India Dock Act of 1799, and the London Dock Act of 1800 allowed the wet docks to be built by private enterprise and the West India Dock Company and London Dock Company, representing the North American and European trades respectively was the result.¹³ Which was entered would depend on the origin of a ship's goods.

The West India Dock was opened in 1802 and the London Dock in 1805 and although these dates are beyond the brief of this thesis, their physical creation is relevant. The former was built on the Isle of Dogs with two basins, one for loading and the other discharge. There were entrances to the Thames on both sides of the island and multi-storied warehouses joined by massive 20 feet walls formed the perimeter to the basins. All workers within the dock belonged to the company, the port porters and watermen being excluded, and only one officer per ship was allowed to remain. After twenty years of trading, customs officials gave evidence

¹⁰ Pudney, *London's Docks*, pp. 18-21.

¹¹ Jackson, *History and Archaeology of Ports*, p. 56.

¹² Broodbank, *History of the Port of London*, p. 88; Pudney, *London's Docks*, p. 25.

¹³ Jackson, *History and Archaeology of Ports*, p. 57.

that large scale plunder had entirely stopped although petty thefts continued.¹⁴ The London Dock Company dug a single basin surrounded by high walls at Wapping and added vaulted warehouses for the bonded trade, but security was less conspicuous than at its rivals. Although they had their own workforce, merchants, customers and crews of ships could go as they pleased.¹⁵

Liverpool

The geographic location of Liverpool gave it a number of advantages in the eighteenth century. Being on the Atlantic coast it had direct, reasonably safe routes to the Americas, the West Indies and the Newfoundland fisheries, and Ireland was easily accessible either for local trade or as a staging post for outward-bound ships. Its hinterland was rich in natural assets that could either be used in indigenous industry or exported. Communications with the surrounding areas were difficult but steps were being taken to build roads and canals. Its main imports of sugar, tobacco and later cotton were ideal for stimulating industry and for re-export, and its involvement in the slave trade not only brought huge profits but boosted the West Indian as well.

However, the physical attributes of Liverpool left much to be desired. At the beginning of the eighteenth century, its entrance from the Atlantic was a turbulent river estuary with high tides, treacherous sandbanks and shifting channels, and the port itself was positioned on the Pool, a curving inlet from the River Mersey.¹⁶ As there were no quays, vessels had to anchor and to transfer cargo to and from lighters, with the only alternative being to use the equally dangerous foreshore. Liverpool's trade had been increasing and by 1688 it had acquired a Custom House and by 1699 outstripped Chester becoming a head port in its own right. Imports of tobacco and sugar from across the Atlantic had grown, as had the export of salt and coal, and the limitations of the port by the end of this century were becoming obvious. New merchants arrived at Liverpool anxious to exploit its

¹⁴ Pudney, *London's Docks*, p. 34.

¹⁵ *Ibid.*, p. 43.

¹⁶ Francis E. Hyde, *Liverpool and the Mersey: the Development of a Port, 1700-1970* (Newton Abbot, 1971), p.1.

commercial opportunities and introduced a new commercial vitality to the community, but they saw that congestion at the Pool was limiting growth and this led to the construction of Liverpool's first wet dock.

Liverpool had two important assets, one being that it was not an ancient port with embedded structures needing adaption and fixed prejudices to overcome, and the other that there was almost unlimited ground for expansion. This was owned by a forward-thinking Corporation who had taken a long lease on a considerable amount of wasteland and, most importantly, this included the right to enclose land on the foreshore. Thus, when it came to land for dock building, it was already in the Corporation's hands and also they were in a position to borrow money to finance the ventures.¹⁷

Thomas Steers, the resident engineer at the Howland Dock on the Thames was bought in in 1709 and he decided to exploit the natural features of the Pool by building within its tidal area rather than by excavating. The result was a rectangular dock of some 4 acres with gates and an octagonal tidal entrance basin which together with warehousing and ancillary works cost the Corporation about £50,000.¹⁸ It was not an easy construction due to the shore being covered at high tide and took longer than estimated leading to difficulties with funding due to the Corporation's borrowing being limited by law. Eventually it was opened in 1715 and finished in 1720. Longmore says that it was 'through the enterprise and tenacity of the Corporation' that Liverpool achieved its first dock and the country's first commercial dock.¹⁹

An unforeseen problem was that as trade developed there was no safe place where ships could lie before and after entering the dock, so its octagonal entrance became congested leading to an Act of Parliament in 1738 allowing a four acre tidal basin to be dug outside it in 1743, and opposite another four acre wet dock

¹⁷ Jane Longmore, 'Liverpool Corporation as Landowners and Dock Builders, 1709-1835' in C. W. Chalkin and J. R. Wordie eds., *Town and Countryside: The English Landowner in the National Economy, 1660-1860* (London, 1989), pp. 117-120.

¹⁸ Jackson, *History and Archaeology of Ports* p. 47.

¹⁹ Longmore, 'Liverpool Corporation as Landowners and Dock Builders, 1709-1835', pp. 121-122.

ten years later. The important point about the last was that this time lessons had been learned and shoreline was reclaimed from the river to build this dock.²⁰ As dock duties were increasing steadily, the Corporation was confident to proceed with the scheme and by 1754 there were eighteen acres of docks and basins, trade was flourishing and Liverpool had entered the ranks of the major British ports.²¹

The Corporation were 'Dock Trustees' and encouraged lessees to embank and enclose as much of the foreshore as possible which resulted in a number of shipbuilders taking up land and, of course, without these facilities the port could not have grown. However, by the 1760's more wet dock space was needed and by the end of the century four had been built. Duke's was a small dock but it is of special interest as it was privately owned and built to serve the inland waterways. It serviced barges and was connected to the Bridgewater Canal.²² The other three were constructed along the same lines as the Old Dock, that is with dry entry basins, but in these cases it was from reclaimed land. One of the great assets of the Liverpool docks was the proximity, less than half a mile, to the town itself. The last two docks also had two new graving docks attached to their dry basin. Altogether the four docks cost the Corporation a total of £91,000.²³

Liverpool's trade expanded rapidly throughout the eighteenth century due to the efforts of professional businessmen whose aim was to make money, and who actively joined the Corporation to voice the port's economic demands. The African and West Indian trades brought in wealth, and with it a growth in capital investment, banking, and due to the vagaries of the African trade, insurance brokering.²⁴ Mercantile interests became the primary sources of wealth and by 1800 the town had become a commercial rather than industrial centre. The opposition to the slave trade caused merchants and shipowners to develop new markets world-wide which were fundamental to Liverpool's strength and prosperity

²⁰ Jackson, *History and Archaeology of Ports*, p. 48.

²¹ Longmore, 'Liverpool Corporation as Landowners and Dock Builders, 1709-1835', p. 125.

²² Jackson, *History and Archaeology of Ports*, p. 48; Nancy Ritchie-Noakes, *Liverpool's Historic Waterfront: The World's First Mercantile Dock System* (London, 1984) p. 31.

²³ D. Swan, 'The Pace and Progress of Port Investment in England,' *Yorkshire Bulletin of Economic and Social Research*, 12 (1960). p. 36.

²⁴ Hyde, *Liverpool and the Mersey: the Development of a Port, 1700-1970*, pp. 16-18.

in the nineteenth century. Kenneth Morgan compares the business abilities of the Liverpool merchants favourably to those of Bristol, believing Liverpool to have created better access to her hinterland as they had had the prescience to heavily invest in it. They were also quicker to divert to other trade goods when the need arose and to enter the re-export business.²⁵

As far as the organisation of the port is concerned, there is little information available in secondary sources. Until the second dock was built, the Old Dock was open to all trades and congestion occurred due to mixing disparate ships whose turn-around times were set by individual seasonal fluctuations in trade, and in war time the influx of ships arriving in convoys. However the dock was successful and warehouses were built but by the end of the century it had become too small and the quays too narrow. Also, sewage had become a problem. The second dock, Salthouse, concentrated on the Irish trade and to a lesser extent on salt export. Georges Dock took vessels trading with West Africa, North America and the West Indies, and Kings Dock dealt with the tobacco trade, having a warehouse on site.²⁶

Hull.

The port of Hull, or to give it its full name, Kingston upon Hull, was situated on the west bank of the River Hull where it flowed into the River Humber and in the early part of the eighteenth century it formed a good, natural harbour about three quarters of a mile long. Compared to other ports it was unusual in that its facilities were not continuous quays but individual wharves – staiths in local parlance – belonging to merchants living along its High Street which ran parallel to the river. Although it was possible to trade without one – some were owned by wharfingers and there were a few built by the corporation – the system did not encourage expansion of trade. Furthermore, the lack of public quays meant that there were no legal quays and customs officers struggled as ships had to be dealt with individually. New quays were needed but the owners of the wharves insisted on them being built alongside the High Street staiths and under their control, whilst the

²⁵ Morgan, *Bristol and the Atlantic Trade in the Eighteenth Century*, p. 220.

²⁶ Longmore, 'Liverpool Corporation as Landowners and Dock Builders, 1709-1835', pp. 22, 26, 28, 39-40.

other merchants called for them to be under public ownership. So visiting ships had to wait outside at anchor until berths became available in the haven and once inside suffered damage as there was little room for manoeuvre. By the middle of the century the increase of trade meant ships suffered long delays while waiting for discharge and lading facilities to become free, and light ships added to the chaos as they could not moor anywhere else.²⁷

At a town meeting in 1756, it was decided that the harbour could not handle its shipping and so a 'Committee for the whole Town' was formed to take the matter forward. The conclusion they came to was that the port had sufficient facilities for loading and discharging, but it could not handle light ships and so a proposal was made that a wet dock be built on the bank of the Humber along the same lines as those constructed at Liverpool.²⁸ This did not suit Customs as they would be left in the same position, that is without a Legal Quay. So a long political argument developed as to where and what type of facilities would be built. Gordon Jackson says that at one stage Customs unashamedly blackmailed the local authorities by threatening to move to another port on the Humber if Hull did not agree to a Legal Quay, but as an inducement offered a subsidy of £15,000 and a grant of Crown land. In 1773 it was this pressure that brought in legislation²⁹ allowing a commercial dock deep enough to take loaded vessels to be built, which meant a Legal Quay could be established.³⁰

Once the building of the dock had been agreed, the question of financing came in. The Corporation had intended to fund it themselves, possibly with help from Trinity House, but the reality was that they simply did not have the money. In the end a decision was made to finance it privately and under the same Act, the 'Dock Company of Kingston upon Hull' came into being with the right to collect dock

²⁷ Gordon Jackson, *Hull in the Eighteenth Century* (London, 1972), pp. 234-237.

²⁸ *Ibid.*, p. 238.

²⁹ 14 George III, c. 56. An Act for making and establishing publick Quays or Wharfs at Kingston upon Hull for the better securing of His Majesty's Revenues of Customs and for the Benefit of Commerce in the Port of Kingston upon Hull; for making a Bason or Dock with Reservoirs, Sluices, Roads, and other Works, and for the Accommodation of Vessels using the said Port; and for appropriating certain Lands belonging to His Majesty and for applying certain Sums of Money out of his Majesty's Customs of the said Port for these Purposes; and for establishing other necessary Regulations within the Town and Port of Kingston upon Hull.

³⁰ Jackson, *History and Archaeology of Ports* p. 49.

duties levied on all ships coming into the port and, using this as security, the capital for the dock was easily raised. Initially it was seen to be under the authority of the Corporation and Trinity House but in the end was controlled by a coterie of local merchants who were concerned for the wellbeing of the port. It was a financial success and eventually the expenditure on the dock was £64,588 with land an extra £8,741.³¹

The new rectangular dock was the largest yet constructed in the country, capable of taking 100 ships or more and situated on the west bank of the Hull River, north of the haven and entered by a single gate. The quaysides were wide leaving room for porters to work and the south side was denoted a Legal Quay and was longer than that at London. However the warehousing provided was insufficient which led to the problem of the use of lighters and carts to take goods to the warehouses on the High Street which added to the congestion.³² A further problem was that foreign going ships preferred the dock to the haven and coastal traffic built up there. This led to the need for another dock but, again, arguments developed as to who was responsible for building it. It was not in the interests of the Dock Company to do this and time after time when it was believed a compromise had been reached, negotiations failed. The second dock was not opened until 1809.

Glasgow.

Glasgow developed from a small village near the River Clyde to being a royal burgh with a cathedral by the late twelfth century. A substantial stone bridge was built over the river in about 1350 and this encouraged trade to the extent that it became the market town for the west of Scotland lowlands. It had little access to the sea as the Clyde, due to shoals, was unsuitable for other than small boats and sandbanks blocked the way to its open estuary ten miles downriver. However, the Glasgow merchants were pioneering and bought ships able to trade with Ireland and the continent even though Dumbarton, 14 miles away on the north side of the estuary, was its nearest port. Cargoes had to be unloaded there and brought to the

³¹ Jackson, *Hull in the Eighteenth Century*, pp. 246-248.

³² *Ibid.*, p. 246.

town by packhorse, the only other alternative being to tranship them at open roads into very small boats. The problem for the merchants was that they had deep water access to the Atlantic less than twenty miles away, but in the seventeenth century when trade was increasing, they had no easy way of reaching there. After trying to remove shoals and failing, the only solution was for Glasgow to buy land at one of the bays already used for transhipment and to build a port there.³³ At the beginning of the eighteenth century Port Glasgow had been constructed for a sum of £944 and all Clyde trade from the royal burghs had to pass through there as had all ships owned at Glasgow.

After union with England in 1707, Glasgow's trade in tobacco from the American colonies and the West Indies increased and by 1716 Port Glasgow was the primary customs port of the Clyde although the newly built port of Greenock, a few miles downstream, was a strong rival. Tobacco was stored locally before distribution but unfortunately neither Port Glasgow nor Greenock had enough warehousing and so some had to be transported to Glasgow and so the roads deteriorated through constant use. Matters became worse by 1750 as Port Glasgow was silting up and Greenock, nearer to the sea, was taking trade away. The merchants and city fathers at Glasgow were forced to reconsider the possibility of deepening the Clyde to allow shipping to reach the town itself, although at that time there were few facilities to handle it at the Broomielaw, the cargo handling area near the bridge.

Engineers were brought in but it was a complex problem to solve. The River Clyde was normally slow moving – hence the silt – but it was prone to periodic flooding. The original engineers believed the solution was to build a lock which would raise the depth of water sufficiently for coasters to reach Glasgow. A Lock Bill was therefore passed in 1759 and construction begun but it failed in 1762 as the ground could not take the stonework, nor the scouring and siltation from the river flow. Another engineer, John Golborne was brought in and his suggestion was to train the river, that is to alter its natural flow and by doing so deepen it. He believed that

³³ John Riddell, *The Clyde: The Making of a River* (Edinburgh, 2000), pp. 6-10.

with the passage of time the Clyde had widened due to the soft material on the banks being washed away quicker than the hard bottom, so it was proposed that projecting jetties and dykes would be built which would artificially narrow the river and so increase the force of the flow. Where necessary the bottom could be dredged. Parliamentary approval was given in 1770 and dues were to be imposed on all shipping depending on how far they travelled on the river. The condition was made that the depth of the river would be increased to at least 7 feet at neap tides. The lord provost, magistrates and council of Glasgow became 'Statutory Trustees of the Clyde' and responsible for the enlargement of the quay at the Broomielaw. The work was carried out but even by the turn of the century, the port at Glasgow could only take coasters and small boats up to 100 tons. Transshipment at Greenock and Port Glasgow was still a necessity.

The problem of silting at Port Glasgow had been partially resolved by John Golborne diverting the course of a stream through the harbour in 1772, but there was another problem in that much of Glasgow's tobacco was re-exported to the continent and rather than send it by the dangerous sea routes, it was taken overland to the east coast ports of Leith, Aberdeen and Newcastle. Unfortunately the roads suffered in a similar way to those from the Clyde estuary to Glasgow. It was decided that a canal had to be built from Bowling on the estuary to the River Carron at Grangemouth and this was to include a spur ending at a new inland port, Port Dundas, about a mile from the Broomielaw, where a quay was built with its own granaries, sheds and crane. It was finished in 1790 and it was its success that led to Glasgow becoming an independent customs port and not the trade upriver to the Broomielaw.

Newcastle.

Newcastle was situated nine miles upstream from the mouth of the River Tyne and its greatest commercial asset, and indeed that of the entire area, was coal. It showed itself in outcroppings, but with massive reserves underground, and the produce of the Tyneside pits – the earliest in the country – could readily be

exported as the river gave access to the North Sea, ideally positioned for trade with the Baltic and northern Europe.³⁴ By the end of the seventeenth century coalfields were developed with the yield being both exported and locally employed in the production of salt, which was itself shipped out and used in the fishing industry. Coal was also needed for glass making, the materials for which were brought in as ballast on colliers and the products similarly taken away for distribution. With the opening up of the Baltic to trade, Newcastle began to import shipbuilding materials and colliers were described as being 'built on Tyneside from Baltic timber, their sails made from Baltic flax and their seams caulked with Baltic resin'.³⁵

The problem with the Tyne was that it was a shallow, slow moving river depositing silt throughout its length and this caused navigational problems which were not even begun to be rectified until the second half of the nineteenth century. Jackson infers the Tyne did not need improvement up until the middle of the nineteenth century and quotes its historian, James Guthrie; 'the capabilities of the river in its unimproved state, a natural dock, as it was called, were great for the class of vessel in use'.³⁶ However, on closer inspection it is evident that Guthrie was, tongue in cheek, parroting one of the excuses that Newcastle Corporation was making to condone its neglect of the river and that Guthrie himself actually argued the opposite.³⁷ In reality, as a report by a consultant engineer in 1816 noted, the Tyne was in worse condition than in 1723, unable to accept shipping of any size due to shoals, sandbanks and a sand-bar across its mouth.³⁸ In the late eighteenth century it was also described as a 'cursed horse pond' and traders were complaining to the Corporation about being unable to get into the river due to silt, but the latter did nothing.³⁹

Monopolies controlled trade on the Tyne, with an oligarchy of wealthy locals dominating the municipal offices and monopolising the sale of coal until the end of

³⁴ S. Middlebrook, *Newcastle Upon Tyne: Its Growth and Achievement* (Newcastle, 1950) p. 4; C.M. Frazer and K. Emsley, *Tyneside* (Newton Abbot, 1973) p. 24

³⁵ Frazer and Emsley, *Tyneside*, p.85.

³⁶ Jackson, *History and Archaeology of Ports*, p. 33.

³⁷ James Guthrie, *The River Tyne: Its History and Resources* (Newcastle, 1880) pp. 62-63.

³⁸ *Ibid.*, p. 122.

³⁹ Susie Brackenborough, 'Pound Foolish Penny Wise System: The Role of Accounting in the Improvement of the River Tyne', *The Accounting Historians Journal*, Volume 30.1 (2003) p. 50

the eighteenth century. The Corporation of Newcastle had secured the conservancy of the river in the seventeenth and considered they had the right to use river taxes for the general benefit of Newcastle, despite the fact that there were three flourishing towns on the river, North Shields, South Shields, and Gateshead, all contributing but receiving nothing back in terms of improvements.⁴⁰ The Corporation were in a position of power because the committee responsible for the making decisions regarding the river, the 'River Jury', were their own placemen, made up of lay people with little knowledge of the river who enforced the belief of the Corporation that any benefits were not cost effective.⁴¹ Part of the problem was that engineers brought in to assess the situation had high technical skills but little local knowledge and tended to apply inflated London prices which alarmed the prudent Corporation.⁴²

As a result of this, trade did not increase at Newcastle until the second part of the nineteenth century and a number of ports, Gateshead, North and South Shields, and Tynemouth, suffered also. There were two Admiralty enquiries in 1849 begun by a parliamentary bill being deposited by the people of Shields which ended with control of the river being taken from Newcastle Corporation and put under a trust called the Tyne Improvement Commission. It had been found that the income from the river from 1809 to 1849 was £957,973 out of which only £397,719 had been used for the river, and that included administration, ballast and suchlike. The rest had been appropriated for the use of Newcastle alone.⁴³

Conclusions.

By the late eighteenth century, all of these ports were in the process of overcoming practical difficulties faced by their shipping, whether geophysical or structural. Ships bound for London and Hull had relatively easy access to their ports but a lack of berths caused congestion. Liverpool had faced hazardous environmental

⁴⁰ Guthrie, *River Tyne: Its History and Resources*, p. 5; William Tomlinson, *North Eastern Railway* (Newton Abbot 1967) p. 210.

⁴¹ Susie Brackenborough, 'Pound Foolish Penny Wise System', p. 49.

⁴² *Ibid.*, p. 51.

⁴³ *Ibid.*, p. 68.

conditions at the beginning of the century and was in the process of overcoming it by building wet docks. At Glasgow and Newcastle there was a lack of navigable water and the former had set up a transit port and built a canal to partially rectify the problem, but more had to be done. It was well into the nineteenth century before Newcastle even began to overcome its problems.

Political arguments, economic issues and quarrels over private property occurred at all of these ports but to provide an analysis of these would be beyond the theme of the thesis. What is clear from the information provided above is that where there was local government support, even though it had to evolve, ports began to improve. Liverpool was the prime example of success because their corporation worked assiduously for the benefit of the port. Glasgow and Hull corporations were supportive but their financial circumstances were limited and eventually the latter had to relinquish control of their dock to a private company. A lack of local government support at London meant that the finance for building docks had to be entirely private but their merchants had the means. It did have the positive effect that they could build as they wished and as a result one of their main problems, the massive losses due to organised crime, could be targeted and brought into the realm of petty theft whilst congestion, the principal obstacle to the port's effectiveness, was brought under control by customised dock construction. All of these port improvements needed parliamentary approval, but once a plan had been accepted locally it generally passed into law and contained favourable financial provisions.

The one major port not dealt with in this chapter was Bristol. Like the ports detailed above it had a geophysical problem, in its case caused by an extremely fast flowing tidal river, which affected the effectiveness of cargo handling and indeed the port structures themselves. This theme is dealt with during the course of the thesis with the information attained being brought together in Chapter 4, Section 3, where it is analysed, applied to the known environmental factors, and the actions of the port authorities considered and compared to the ports described above in this chapter.

Chapter 1.

The structure and facilities of the port of Bristol.

Section 1. The amenities of the river.

Introduction.

To enable the geography of the region to be understood a series of maps will be used throughout the chapter. Illustration 1.001 shows the Severn Estuary and the River Avon¹ whilst Illustration 1.002,² depicts the river from its mouth to the City of Bristol. Illustration 1.003 covers the river as it passes through the City including the city quays.³ Section 1 deals with the river between Holes Mouth and the bend of the river at Rownham Meads, and in particular with Pill, Hungroad and the surrounding area (Illustration 1.004).⁴ Hungroad is generally referred to as an 'inner anchorage' for ships using the port of Bristol, but the author intends to refute this and to establish that it was actually a transit port⁵ working in a similar fashion to those developed elsewhere to assist with difficult river conditions.⁶ It is important to make this distinction for although Hungroad undoubtedly played a vital role in the functioning of the port as a whole, the author can find no definitive work

¹ An extract from MacKenzie senior's chart of the St. George's and Bristol Channels, 1775. In Adrian James Webb, *Maritime Surveys, Charts and Sailing Directions of the Somerset Coast, circa 1350-1824* (Somerset Record Society, 97, 2014); Referred to as the Bristol Channel but denoted as the Severn Estuary in this thesis.

² Bristol Museum, Map 769, 'A Plan of Somerset', B. Donn, 1769.

³ Matthew's Plan of Bristol, 1794. Matthew's new and correct plan of the city and suburbs of Bristol including the Hotwells and Clifton and the new buildings down to the year 1794. In Matthew's, *Bristol Directory*, 1794.

⁴ A section of Bristol Museum, Map 769, 'A Plan of Somerset', B. Donn, 1769.

⁵ Robert Allen, ed., *The New Penguin English Dictionary* (London, 2001). Describes an anchorage as 'A place where boats and ships are anchored or can anchor'; [http://www.transportation-dictionary.org/Shipping - Dictionary/](http://www.transportation-dictionary.org/Shipping-Dictionary/). The Shipping Dictionary defines a transit port as being one where goods received are merely en route and from which they have to be transferred and dispatched to their ultimate destination by coasters, barge and so on. Also called a transshipment port.

⁶ See Introductory Chapter for examples of Port Glasgow for the Port of Glasgow. Riddell, *The Clyde: The Making of a River*, p. 9-10; South Shields for the Tyne. Gordon Jackson, *The History and Archaeology of Ports* (Tadworth, 1983) p.85; Brockweir for the upper Wye. Colin Green, *Severn Traders* (Lydney, 1999) p.109.

detailing its operations although there are generalised allusions to it.⁷ References to the pilots and watermen of Pill are too numerous to list and at least two books have been written on this subject,⁸ with the result that attention may have been diverted away from the function of the area as a whole.

To emphasise that Hungroad had the structure of a port, it will be shown that visiting ships were berthed at permanent moorings, albeit anchors could be used for additional safety, and also that it had its own facilities; namely a customs house, slipways, repair yards, chapel and also its own supply of fresh water and fuel. As many as thirty ships could be using the port at one time with passengers alighting, goods being discharged into coasters, barges and lighters; some to re-export to destinations other than Bristol. There is also evidence that two commodities were directly exported; timber from local woods, and gunpowder from the nearby powder magazine which had its own wharf and crane. However, the river conditions were such that goods from the latter establishment could only have been loaded into small coasters or dispatched via lighters into larger ships. It also stored powder from incoming vessels.⁹ The port had its own regulations and the key figure in its operations was its Haven Master, one of whom was noteworthy enough to have a monument in Shirehampton churchyard on which was inscribed the title 'Haven Master of Hungroad, Port of Bristol'.¹⁰

The argument will be made that this port merits investigation due to the unique way in which it was administered by the Society to whom the Corporation had delegated the conservancy of the river. Any other port or harbour of this significance would have its own workforce to manoeuvre shipping and control cargo operations, but the only direct employees were the Haven Master and one deputy and as will be shown, the former's duties also involved oversight of the rest

⁷ It is described as 'the deep water anchorage in the Avon a little below Bristol' in McGrath, , *The Merchant Venturers of Bristol*, p. 138; Minchinton also describes it as an anchorage though allowing that there were discharging facilities. Minchinton, 'The Port of Bristol' p.138.

⁸ J. Rich, *The Bristol Pilots* (Pill, 1996); P. J. Stuckley, *The Sailing Pilots of the Bristol Channel* (Bristol, 1999).

⁹ Brenda J. Buchanan, 'The Technology of Gunpowder Making in the Eighteenth Century: Evidence from the Bristol Region' *Transactions of the Newcomen Society*, 67 (1996) p. 139; R.A. Buchanan, and N. Cossens, *The Industrial Archaeology of the Bristol Region* (Newton Abbot, 1969) p. 38.

¹⁰ J. W. Damer Powell, *Bristol Privateers and Ships of War* (Bristol, 1930) p. 248.

of the river as far as the city quays. The Society's expectation was that he could coerce any pilot or waterman on the river whenever he needed assistance¹¹ but one author maintains that this was unreasonable as 'an atmosphere of non-cooperation prevailed' and that the merchants were deliberately using the Haven Master as a buffer between them and the 'closed shop' of cantankerous mariners at Pill.¹²

The river between Hungroad and the city quays required continuous management to clear it of natural obstacles, the rubble from quarries and the ever increasing industrial debris deposited along its entire length.¹³ Again, the responsibility for this fell upon the Haven Master, as did enforcing the regulations regarding shipping movements. It will be generally argued in the thesis that insurmountable river conditions were a factor in the relative decline of the port of Bristol towards the end of the century, but in this section the possibility is examined that if more resources on a day by day basis had been made available to the Haven Master by the Society, then the inexorable downturn might have been slowed as more ships would have been encouraged to use Hungroad and to make the passage upstream.

The environment of the Severn Estuary and River Avon.

Ships using the port of Bristol in the eighteenth century were challenged by river conditions unlike any other port in the country. Although having similar estuarial circumstances to Liverpool, sandbanks, shifting channels and strong tides, the nature of the latter's foreshore and its proximity to the city meant wet docks could

¹¹ The Haven Master's right to call for assistance was included in the pilot's contract and seventeenth century pilots could be disciplined for using watermen who had defied the former. An example of this in practice is set out in a letter from J. Shaw, Haven Master, to the Hall 5 June 1792, read by them 23 June 1792, where after an accident Shaw says that 'the men employed by the pilots think that they are not under any command of the Haven Master' and ending with him saying that the pilots should be ordered not to employ any man who was not obedient to him. Printed out in Rich, *Bristol Pilots*. p. 86-88: This letter was read to the Standing Committee on 23 June 1792 but there is no indication of action being taken. SMV/2/1/2/5. Index 5. 23 June 1792.

¹² Rich, *Bristol Pilots*, p. 42.

¹³ In 1783 the difficulties had reached such a level that the Society petitioned and obtained an Act of Parliament; 11 and 12 William III c. 23: An Act for the better preserving the navigation of the River Avon and Frome and for cleansing, paving and in lighting the streets of the City of Bristol.

be built so that on arrival ships could be berthed safely and continuously worked. Conversely, the River Thames provided relatively easy access to London, as did the Humber to Hull, whilst at Glasgow and Newcastle the problem was not the power of their rivers but the antithesis, their slow flowing rivers could not remove silt and so left shallow water able only to float small vessels.¹⁴ The methods used to overcome the environmental obstacles at these two ports is detailed in the introductory chapter, but the additional problem facing Bristol was that although ships bound for the port could reach the relative safety of the lower regions of its river after negotiating the estuary, they then faced a second obstacle, the rigours of a torturous passage up a fast flowing, winding waterway controlled by tides which left its harbour dry for most of the day. As will be shown below, this problem could not be alleviated in the eighteenth century, and indeed was never fully overcome, which necessitated the building of a new port at the river's mouth.

Bristol was situated at the conjunction of two rivers, the Frome and the Avon, neither of which was fast flowing except in times of flood when massive amounts of water could be produced; but their combined output flowed into the Severn Estuary which had the highest range of tide of any major navigable river in the world. The height of tide at the mouth of the Avon was 13-14m at spring tides and although upstream it was reduced, there was still a rise of 7m at Bristol.¹⁵ When the tide turned, the combination of ebb tide and the flow of the river itself carved out a narrow channel with a series of bends and a steeply sloping trench between the banks; dangerous, as it was completely covered at high water.¹⁶

The River Severn itself is the longest river in Britain, and although its flow is not particularly rapid at its mouth it carries massive amounts of silt into its estuary, as do its tributaries the Avon and the Wye, creating constantly shifting sandbanks which makes navigation difficult and forced ships to use pilots from at least the fifteenth century. There are few natural anchorages to provide shelter and winds

¹⁴ See Introductory Chapter

¹⁵ At London the spring rise was less than 2m. See Introductory Chapter.

¹⁶ Elkin, 'Aspects of the Port of Bristol', p. 29; Parker., 'A Maritime Cultural Landscape' p. 323.

which would be seen as moderate in other areas act against the fast running tides over shallow water creating rough seas, again adding to the navigational problems.

The above is a general description of the environmental conditions which today have been largely overcome by powered vessels, but the author sailed a small yacht for fifteen years out of Crockern and Chapel Pill, the latter situated at the end of Hungroad, and so can empathise with the problems faced by eighteenth-century vessels. Firstly, the range of tide limits even a small boat's ability to float to about two hours on either side of a high spring tide and at neaps it may remain aground. This reduces a boat's manoeuvrability time even within its own moorings, and certainly short departures must be timed accurately as there is no shelter if the ebbing tide is misjudged. Similarly when a boat's tender is used the tides have to be calculated to ensure there is enough water to return to shore.

Also, silt builds up rapidly with slipways needing to be cleared week by week and again the author has experience of work-parties organised several times per year to excavate mooring areas, repair chains and trim tree branches which at low tide are 70 ft above but snare masts at high. These have to be held according to the times of the tides ignoring weather conditions, and so in winter they can be particularly miserable affairs. The mud is not easily moved and so is shovelled into the path of the next tide, an operation called 'throwing' in the eighteenth century when it had to be done regularly throughout the haven. Labouring at this on a daily basis must have been a pitiless employment in those days. The silt has no particular use, although sand is collected in the estuary, but being lifeless it has the asset that vessels lying in it do not require any form of anti-fouling.

The estuary itself has few natural shelters, the shoreline being generally rocky covered by a thin layer of silt. The tides can reach 5 knots making it impossible for sailing vessels to navigate against it although it becomes an asset when it turns provided that one understands the geography of the channels. However, when a useful tide such as this turns and the wind is in the opposite direction, the progress of a vessel becomes particularly unpleasant. In the eighteenth century these conditions must have at least obstructed the unloading of vessels at the mouth of

the river and stopped small boats servicing the ships. Fog is not generally a problem in the estuary, but if a boat strays outside of the channels the depth of water – easily seen on a modern echo-sounder – rises and falls at a speed that a sailor could never keep pace with by heaving a lead line. This was the environmental back-drop facing the port authorities in the centuries before the advent of steam.

The Haven Master.

In 1700 the Society procured an Act of Parliament allowing them to draw up new port regulations.¹⁷ The importance of this act was that it allowed them to bring in new port officers and clearly define rules and regulations for the principal officer, the Haven Master, which established a basic arrangement that was more or less adhered to for the rest of the century.

It is beyond the scope of this thesis to detail the history of the Society and its *raison d'être*,¹⁸ but it must be noted that it was an organisation whose members did not join to gain financially – indeed during most of the eighteenth century it had to borrow money¹⁹ – but because it gave them prestige and the power to influence major decisions concerning the port and city. So saying its General Meetings, which should have included all members, were poorly attended and at times were unable to form a quorum. This was important, because its executive, the Standing Committee (henceforth referred to as the ‘Committee’) consisting of the Master, two Wardens, Treasurer and 10 Assistants directed all its affairs including the port although their decisions had to be ratified at the General Meetings. As the ultimate responsibility for the preservation of the Rivers Avon and Frome lay with the Corporation,²⁰ some matters had then to be fully debated at the Quarter

¹⁷ 11 and 12 William III c. 23: An Act for the better preserving the navigation of the River Avon and Frome and for cleansing, paving and inlighting the streets of the City of Bristol.

¹⁸ See McGrath, *Merchant Venturers of Bristol*; Patrick McGrath, ‘The Society of Merchant Venturers and the Port of Bristol in the 17th Century’ *TBGAS*, 72 (1953); Latimer, *History of the Society of Merchant Venturers*.

¹⁹ McGrath, *Merchant Venturers of Bristol*, p. 115.

²⁰ 11 and 12 William III cap 23. Act for the better preserving the navigation of the rivers Avon and Frome and for the cleaning, paving and enlightening of the streets of the city of Bristol, 1756.

Sessions.²¹ The activities of the Committee, which generally met at least fortnightly, will be examined throughout this chapter. This hierarchy controlled the Haven Master whose job it was to ensure the river was fit for navigation on a daily basis.

In terms of pay, he was clearly the most important officer but the opinions of Bristol scholars differ over his actual duties. Patrick McGrath sees him as having authority for both the river and the city quays,²² but the last was split administratively into the Quay and Backs, the former coming under the jurisdiction of the newly engaged Quay Warden with responsibility for all operations around the Quay and St Augustine's Back,²³ and the latter the Water Bailiff accountable for the Bristol Back, Redcliffe Back and the banks of the Avon.²⁴ Minchinton says that this official was given control of mooring ships in the river and harbour by the Act of 1700²⁵ and had the two other officials as his assistants. However, in a report to the Committee in 1797 it appears clear that by that time at least, he had no jurisdiction over those officers' territories.²⁶ There was one other new post created in 1701, that of the Ballast Master, which complicates matters as it was on occasion combined with that of the Haven Master.

The Port of Hungroad.

Hungroad was not simply an anchorage, but in reality a transshipment port, indispensable because of the tidal conditions. Many ports had roadsteads where ships reported to customs or anchored to await a berth – Bristol had Kingroad as described below in Chapter 3 – but few had their main resources so far inland and

²¹ For example. McGrath says that whilst the Corporation were normally willing to leave pilotage in the Society's care, it occasionally exerted its authority. McGrath, *Merchant Venturers of Bristol*, pp. 166-167.

²² McGrath, *Merchant Venturers of Bristol*, p. 161.

²³ BRO: AC/JS/53/27 Rules and orders of the Quarter Sessions to be observed by the Quay Warden. His duties will be dealt with below in Section 2.

²⁴ Minchinton, 'The Port of Bristol', p. 141: See Chapter 1 Section 2 for maps and details of the operations at these locations.

²⁵ Minchinton, ed., *Politics and the Port of Bristol*, p. 200.

²⁶ BRO: SMV/2/1/1/13 Merchants' Hall Book of Proceedings (Henceforth referred to as Hall Book) 13 1797 – 1807, 30 January 1797. Duties of the Haven Master; See Appendix 1.001 for his responsibilities.

accessible only by navigation up a fast flowing, dangerous river.²⁷ This will be detailed below but first it is necessary to argue the case for designating Hungrood as a port in its own right by detailing its amenities.

Describing the ‘anchorage’ as a port is not mere conjecture on the part of the author because as early as 1551 the ‘Ordinance for Hungrood’ was issued clearly stating that Hungrood was a port.²⁸ The contemporary Illustrations (1.001 and 1.004) illustrate its main features which, discounting the outer roadstead Kingrood and the secondary sea anchorage at Holes Mouth, were the village at Crockern Pill, Hungrood, Chapel Pill, the river itself and a number of secondary facets which will be described later. The original hydrographics are not available and therefore the actual moorings at Hungrood cannot be shown on a chart. The flow of water through the port probably did not significantly alter over the centuries so there would not be appreciable differences,²⁹ the more important changes being the deliberate removal of obstacles by the Society and the shifting of shoals.

The moorings at Hungrood.

Hungrood is a stretch of water bounded by Crockern and Chapel Pills, approximately 3850ft in length and on average 300ft wide with the deepest water on the Somerset side of the channel where the river bed was gouged out by the tidal flow in both directions. The south bank is in the form of a vertical stone face behind occasional outcrops of rock and topped by trees, whilst the other side is composed entirely of mud and slopes gradually upwards. The ships discharging at Hungrood would have been doing so because they were too large for the river, or they simply did not want to risk the passage to Bristol. The barges and lighters servicing them, together with ships awaiting suitable tidal conditions before proceeding upstream, would also congregate in this area and some ships may

²⁷ Burney, W., ed., ‘*Falconer’s New Universal Dictionary of the Marine*’ (London 1815, re-published Chatham Publishing, 2006). Road or roadstead is defined as a ‘place of anchorage at some distance from the shore on the sea coast’. This dictionary will be referred to as ‘*Falconer’s Dictionary*’ henceforth.

²⁸ BRO: 04272 Ordinances of the Common Council 1505-1667. Ordinance for Hungrood; A proclamation devised and made for the preservation and maintenance and also for the good order of the Port of Hungrood. 1551 – see Appendix 1.003.

²⁹ See Appendix 4.029 in Chapter 4 for data regarding water level change.

have finished their preparations for the next voyage there, depending on the availability of berths as undoubtedly priority would be given to those discharging. Also, it is said that careening took place, but this would seem unlikely as space would have been at a premium and the silt was not conducive to supporting gangs of workers. It was not allowed at the berths or near the city quays.

A researcher trying to measure the effectiveness of Hungroad has the problem that there are few primary documents giving details of its day to day working or of the numbers of ships involved. In 1728, the Society spent £700 on 14 additional moorings for ships at Hungroad, but there is no clear indication of the total berths, anchor sites or waiting areas.³⁰ To overcome the lack of documentary evidence, the author has attempted to put the known facts together to construct a viable model of the berthing at Hungroad.

A description of the area is given by John Rich, a retired Bristol Channel Pilot who can trace his pilot ancestry back six generations.

Vessels tied by their masts to the rocks in Hungroad had to keep their wooden hulls away from the sheer, coarse face of the rocks and by laying anchors attached to their ships by long cables across the river into the mud of the Shirehampton bank, the vulnerable hulls could avoid damaging themselves as those rose and fell on the second highest tidal range in the world. These moorings would have been attended continuously once each craft was afloat and the vessel's crew would be employed to slack out the lines as the flood tide rose and haul in on them as the ebb fell away. Naturally they would have to be slackened off from time to time to allow the free passage of other craft proceeding, either further up or down the river. Once a vessel was settled on the bottom, literally hung up by chains embedded in the rocks made fast to its masts preventing it from falling over on its side, the crew could rest and it soon became apparent that it was

³⁰ Minchinton, 'The Port of Bristol', pp.138-139; Latimer, *History of the Society of Merchant Venturers*, p. 207.

during this period that most damage was being done to the cables of craft moored in Hungroad.³¹

It is difficult to question the word of a writer of such experience, but there are some anomalies with this model. The distance between Crockern and Chapel Pills was 3685ft and the average length of the large Baltic ships 100ft, though to leave space between them, this must be increased to at least 150ft per ship. This would allow berths for a maximum of about 24 ships, although it is unlikely that all areas along the cliff face would be suitable due to outlying rocks. If chains were attached to the masts, these vessels would have to be near the bank and light chains used as otherwise damage could be done to spars or running gear in medium to strong winds. If anchors laid in soft mud were all that was retaining ships then they would be liable to drag and the flow of tide in either direction would put the ships on the rocks.

At a meeting of the Hungroad committee of the Society in 1728, they discussed a visit to Hungroad where they had inspected the anchorage and measured the depths of water at the various berths. Appendix 1.002 gives the results of their visit which makes it clear that there were 14 berths available at that time and they were not in line but staggered along the southern bank. This committee also made a recommendation for 14 moorings, but do not make it clear if they were new or replacing the 14 they inspected. It is likely that they were new moorings.

An estimate being made by this committee for laying down seven stones for Hungroad on the Shirehampton side for mooring ships and also of fixing seven rings on the Somerset side for the same purpose. For 14 moorings the wrought iron may weigh 14 tuns at £32 per tun = £444.0.0. Laying down 7 stones at £7 each = £49.00. Fixing 7 rings in the rocks on Somerset side at £10 each = £70. Other incident charges unforeseen = £3. Total £600. ³²

³¹ Rich, *Bristol Pilots*, p. 25.

³² BRO: SMV/2/1/1/5 Hall Book 5 1723-1733, 29 April 1778.

The most likely proposition is that chains were stretched across the river as there would be rings on one side where there was solid rock to take them, and heavy stones sunk in the mud either on the other or midstream. Taking it that the wrought iron refers to chains, then their weight indicates a long chain for each set of moorings. However the entry does refer to 14 separate moorings which makes it likely that the ships on the Somerset side were discharging whilst those in transit took to the mud on the Gloucestershire bank. There is a further reference to the stones in 1769 where 'the Haven Master reported that an 'eyebolt fixed in one of the stones at Hungroad is broken so that three chains in the Norway ships' berths are rendered useless. Ordered that Mr Davis, the carpenter, and Mr Robinson the smith do take care of putting the same and all other stones that shall appear to want reparations [repair] in proper conditions'.³³

John Rich also makes the comment that the ships would have to be continuously adjusting the lines as they rose and fell and this would obviously also include the mast chain. There is a problem with this presumption, for foreign ships from the Baltic would have sufficient crew onboard, but Bristol ships paid off theirs on arrival at Kingroad and left them in charge of the pilots³⁴ putting onboard only a shipkeeper or watchman. If they were anchoring or berthing at Hungroad then they would not have sufficient crew to continuously adjust cables. In modern times, chains are strung across the two Pills and boats are attached to them with risers allowing them to be left unattended indefinitely, rising and falling with the tide and creating their own hollow due to the scouring effect of the water. This would certainly have worked in the eighteenth century provided the chains were heavy enough and any ship coming to the haven could have moored to them. This was how the chains at the quays at Bristol were utilised.

Hungroad would have been heavily congested at times and care would have to be taken to avoid a ship fouling anchors and chains. Reporting to the Hall on a serious accident in 1784 when a pilot refused to drop anchor when his ship was being carried onto moored shipping, the Haven Master refers to the common practice of

³³ BRO: SMV/2/1/1/9 Hall Book 9 1762-1772, 1 April 1779.

³⁴ See Chapter 3.

pilots sending their yawl ahead with men to slacken and then take cables in again.³⁵

Considering all the available information, it is most likely that about 28 berths in total were ranged on either side of the river, the through traffic awaiting a tide taking the Gloucester side of the channel, whilst the very large 'Norway' ships discharged on the Somerset side where the depth of water was greatest. Chains for the discharging berths emanated from rings on the rock face, whereas the vessels in transit would fasten to chains embedded in 'stones'. There was a chain boat at Hungroad in 1786 and 1791³⁶ as distinct from the process at the quays where the pilots' own boats carried out the work; which suggests conditions were such at Hungroad that a specialised boat was required.³⁷

A number of other anchorages were available in the port area. Holes Mouth was an overflow anchorage used by shipping when Hungroad was full, and the *Sybil* spent 4 days in 1786 at Hollow Backs³⁸ in the vicinity of the river mouth before moving into the river itself.³⁹ It is unlikely that the Haven Master would have had authority or the time to supervise these areas. There were four 'pills' (creeks) in the area. Broad Pill on the Gloucestershire bank, rarely documented except as a geographical reference, was used by small craft as an anchorage, though it may not have been secure as on one occasion a pilot sought shelter there with catastrophic results to the ship he was guiding.⁴⁰ On the Somerset side there was Morgan's Pill where there were mooring facilities, but again little is said about it in

³⁵ BRO: SMV/7/1/6/4 Complaints against Pilots 1783-1792, 11 September 1784. Bundle of letters from Captain Shaw, the Haven Master. Letters unnumbered. Personal notation No. 2.

³⁶ BRL: 21258 Account book of the *Sybil* and *Success* 1779-86. Pilot's bill for mooring at Hungroad. Paid 5/- for the boat and 2 men. p. 81; BRO: SMV/2/1/1/12 Hall Book of Proceedings 12 1789-97, 20/1/91. p103. Pilot's bill for the Diligence at Hungroad. Chain boat 5/-.

³⁷ *Falconer's Dictionary* p. 80. Defines a chain boat as a large boat with a davit over the stern and two windlasses, one forward and the other aft. It is unlikely that the chain boat at Hungroad would have been so sophisticated but would have had rollers and at least a specialised grapnel.

³⁸ BRL: 21258 Account books of the *Sybil* and *Success*, p. 81. Although this anchorage is named in the *Sybil's* accounts, it is not shown on any contemporary map seen by the author; Parker researched the name in 1999 but was unable to find its location. A. J. Parker, 'A Maritime Cultural Landscape: The Port of Bristol in the Middle Ages', p. 332-333; The author's conclusion is that it is probably near, or another name for, Holes Mouth.

³⁹ BRL: 21258 Account book of the *Sybil* and *Success*, p. 81.

⁴⁰ Rich, *Bristol Pilots*, p. 40.

the eighteenth century.⁴¹ Chapel Pill, originally called Saint Katherine's Pill will be referred to below but again is rarely acknowledged; which is surprising as it could certainly have provided an anchorage for more than one ship especially if it had been dredged – it now has moorings for about 20 yachts and at one time a jetty was built. The final creek, Crockern Pill will be discussed below (Illustrations 1.001 and 1.004).

Shipping in and through Hungroad.

By collating the data from contemporary documentation, it is possible to construct a fairly comprehensive record of shipping moving to and from the port of Bristol but none of these documents gives the exact geographical position of where ships were berthed across the extended port and therefore there is no record specifically stating which ships used Hungroad and which went on to the city quays. Minchinton says that 'almost all the timber ships from the Baltic discharged there sending their cargoes to Bristol in rafts or lighters',⁴² whilst a broadsheet dated 1796 reduces the Baltic figure to about half.⁴³ Other moorings would be taken by vessels bound for Bristol but wishing to partially discharge to reduce their draught and there were others whose owners did not want to risk the passage or to pay the extra insurance involved.

Outward bound ships waiting for their last cargoes could take up moorings but most owners would avoid the cost of lighters by finishing loading at Bristol where, with Merchants' Dock the exception, there were no daily harbour dues and so no incentive to leave the port until it suited the owner. There were some anomalies in that ships might take advantage of a spring tide to lie at King or Hung Roads for their last remaining cargo and Morgan says that some waited to take aboard servants bound for America.⁴⁴ Hungroad was also used as a transit port by the

⁴¹ There had been basic mooring facilities at this pill since at least the seventeenth century. Latimer, *History of the Society of Merchant Venturers*, p.155.

⁴² Minchinton, 'The Port of Bristol', p. 138.

⁴³ BRO: 11168/27 An Untitled Broadsheet, 22 March, 1796.

⁴⁴ Morgan, *Bristol and the Atlantic Trade*, p. 125.

Navy transferring timber from the Forest of Dean to ships bound for their dockyards.⁴⁵

All facilities at Hungroad were organised and controlled by the Haven Master, it being his duty to 'direct and order the placing of the anchors and mooring and lying of all vessels in all parts of the river' and similarly to maintain 'all the chains and moorings at Hungroad' and indeed anything belonging to the Society on the river.⁴⁶ His task was increased because for all but minor repairs, he did not have the authority to order the work to be done, but had to apply to the Committee for permission.⁴⁷ Similarly, he had to indent for essential stores to the treasurer in advance, which meant inevitable delays as for day to day malfunctions he might not have the tools, spares or personnel available to redress them.⁴⁸ For example, in June 1786, a pilot came in too early and took away a mooring chain, agreed it was his fault and was willing to pay for the repair of the chain, but it was not until the following September that the Haven Master could report to the Committee that the chain had actually been repaired. Had he had the authority to pay for the repair, albeit to collect later from the pilot, the mooring would have been back in use earlier.⁴⁹ This system of accounting may have assisted in keeping down costs but this could only be to the detriment of efficiency.

The principal duty of the Haven Master was to control the mass of shipping at Hungroad and considering the extent of his other duties,⁵⁰ a small staff of assistants would appear vital to the task, especially as he could not be there 24 hours per day – though in 1797 it was ordered that he live near Hungroad. However, he had one deputy only and indeed was not even granted a boat to carry out his work but allowed 1s per day when a ship was moored at Hungroad. Considering that the cost of hiring a boat to take a ship's captain out to his vessel

⁴⁵ Andrew Whitefield, *Mr Hilhouse of Bristol: Shipbuilder for the Navy 1749-1822* (Bristol: Redcliffe Press Ltd, 2010) p. 81.

⁴⁶ See Appendix 1.001. Duties of the Haven Master.

⁴⁷ BRO: SMV/2/1/1/9 Hall Book 1762-1772, 1 April 1769.

⁴⁸ BRO: SMV/2/1/1/10 Hall Book 1772-1782, 27 February 1782.

⁴⁹ BRO: SMV/7/1/2/1 Papers re the quays and nuisances 1751-1784, 14 June 1784: SMV/7/1/6/4 Complaints against Pilots 1783-1792, 26 September 1784. Letters from the Haven Master to the Society, No. 3.

⁵⁰ See Appendix 1.001.

at Kingroad was 5s6d and the average pay per day of a waterman without a boat was 1s, the allowance was not excessive.⁵¹

The Haven Master and his difficulties with the men of Pill.

There was an obvious lack of manpower, but as far as the Society was concerned this could be found at the ancient village of Pill situated on Crockern Pill at the heart of the port.⁵² This village had no industry except some shipbuilding and repair yards dating from the late eighteenth century,⁵³ but its *raison d'être* was, and always had been, to provide watermen to service ships trading with Bristol. Almost the entire male population was composed of pilots, tow-boatmen (known as hobbler)s⁵⁴, and general watermen all of whom considered themselves to be independent of Bristol. Indeed there were no direct roads on the Somerset side of the river with almost everything not coming by boat being carried by packhorse.⁵⁵

Hungroad officially became a port by the 'Ordinance for Hungroad' issued in 1551 by the Mayor and Justices (Appendix 1.003), who as commissioners of the Admiralty included in it instructions that in all matters pertaining to the anchoring and mooring of ships, all owners and mariners using the port should be obedient to the Water Bailiff of Bristol *and to the pilots of Shirehampton*.⁵⁶ However, during the seventeenth century the Corporation gradually delegated responsibility for the conservancy of the river to the Society who in 1670 requested the Corporation to appoint a Haven Master as they felt administration of the port needed

⁵¹ BRL: 21258 Account Book of the *Sybil* and *Success*, 30/7/79, p 118. Pilot's note: Minchinton, 'Port of Bristol', p. 139.

⁵² There are various spellings; Crockerne, Crewkerne, Crockarm, Crockham, but in this thesis Crockern will be used when necessary as it is depicted in that way on Map 1.003, but in general the modern simplification of 'Pill' for the village itself will be used.

⁵³ Graham Farr., *Shipbuilding in the Port of Bristol* (National Maritime Museum monographs and reports 27, 1977) pp. 19-20.

⁵⁴ Elkin draws attention to the fact that the Pill Hobbler's Association still exists today to provide quayside workers for Avonmouth. Elkin, 'Aspects of the of the Port of Bristol' pp. 29-30.

⁵⁵ Latimer says that in 1757 the road from Bristol to Pill was a mere horse track but the council had voted to make a road between Road from Rownham to Abbots Leigh. If it was built at all it is not shown on Donne's map of 1769. See Illustration 1.002. Latimer, *Annals*, p. 325.

⁵⁶ Author's italics for emphasis: The Ordinance says 'the pilots of Shirehampton' but it was only a hamlet with a few cottages. All pilots, hobbler's and boatmen were from Pill. Rich, *Bristol Pilots*, p. 12.

improvement.⁵⁷ This reduced the role the pilots were given in the Ordinance and almost immediately differences of opinion developed between the new official and themselves for, as Rich states:

Here was a person from outside the close-knit community of mariners, someone appointed to superintend *their* river and what was even worse, he was to take charge and order them to place their anchors and moor ships. Decisions which from time immemorial had been their sole province.

He goes on to say that an atmosphere of non-cooperation followed and believes that the Society had covertly appointed the Haven Master to dilute or take the blame for any problems arising from the militant attitude of the mariners of Pill.⁵⁸ As will be described below, this tension continued throughout the eighteenth century and at times blatant disobedience evolved into actual violence.

One bone of contention was that all progress through the port was governed by two marker posts above and below the moored ships, positioned there since the early seventeenth century to bar ships' movements until the tide covered them. The post below showed that there was enough water to pass over the ships' cables whilst that above was an indication that the larger ships could leave their mooring and proceed upriver to Bristol.⁵⁹ It was specifically written into the Haven Master's instructions that he prevent these small vessels breaking the rules.

There is nothing in the contemporary documentation to indicate that this was other than a simple system applied to all shipping, but it meant that the lowest draught trow or coaster would have to wait until there was enough water to float the larger ships, which must have been a frustrating experience for masters' trying to get their vessels to Bristol for markets. The eighteenth-century trow drew about three to four feet⁶⁰ whilst a West Indiaman would need between 10 and 15 and the large Baltic

⁵⁷ McGrath., *Merchant Venturers of Bristol*, pp. 75-76.

⁵⁸ Rich, *Bristol Pilots*, p. 43.

⁵⁹ Rich, *Bristol Pilots*, p. 26.

⁶⁰ Graham Farr, 'Severn Navigation and the Trow', *The Mariners Mirror*, 32 (1946) p.76. For general information see also Richard Barker, 'A Probable Clinker Built Severn Trow at Lydney', *International*

vessels more. Any ship over 60 tons also had to have a licence from the Haven Master before it could proceed.⁶¹

In 1775, the Committee insisted that hatch-lighters obey the poles as they had a deeper draught than the regulated trows, and they specifically referred to the 1700 Quarter Sessions order, showing that regulations and ingrained practices rarely changed during the eighteenth century.⁶² It would not have taken much effort to put a post with markers to indicate when the various categories of vessels could pass, but that might have meant stationing a guard at Pill during spring tides and as previously mentioned, the Haven Master did not have assistants. Instead, the Society preferred to rely on informers, paying them one tenth of a 40s fine imposed on vessels reported to have crept through early.⁶³ The use of informers went back at least to the time of the Ordinance.

A better system should have been put in place because it was a serious problem for the Haven Master as transgressions were frequent and any damage to ships or the mooring was his responsibility and could cost him his job. This almost occurred in 1784 after an accident occurred due to a ship called the *Renown* running foul of the cable of another, the *Bernard Anker*, causing considerable damage to both, the deaths of two men and serious injury to a seaman belonging to another ship. This accident serves to illustrate not only the hazards of Hungroad navigation but also the vulnerability of the position of Haven Master.⁶⁴

It appears that there were 11 large ships moored at Hungroad when the collision occurred and witnesses say that the pilot, James Gilmore, had his ship too near rocks on a following tide and so could not avoid hitting the moored ships. Several persons called on him to drop his anchor including the deputy Haven Master, but he refused, not wishing to miss the tide. The *Bernard Anker*, a large Norway ship of

Journal of Nautical Archaeology, 23.3 (1992), 205-8: and M. Nance, 'Trows Past and Present', *The Mariners Mirror*, 2 (1912), 201-205.

⁶¹ Minchinton, 'Port of Bristol', p. 138.

⁶² BRO: SMV2/1/2/4 Index to Hall Books (Henceforth noted as Index) 4, 21 November 1775.

⁶³ Rich, *Bristol Pilots*, p. 26.

⁶⁴ For details of the disaster see. BRO: SMV/7/1/6/4 Complaints against pilots. Single sheet of notes about the disaster, 9 July 1784. Letter from Captain Shaw to the Society defending his actions, 11 September 1784: and SMV/2/1/1/11 Hall Book 11, 13 September 1784 for details of the action taken by the Society.

600 registered tons, had been badly moored but the accident would have occurred anyway. The deputy Haven Master, George Culliford, claimed he had ordered the slacking of the cables on the *Bernard Anker* but his statement was contradicted by others.

The Committee found that the Haven Master was in dereliction of his duty as his orders were to be at Hungroad during every spring tide and he was absent; also he should have checked beforehand that the *Bernard Anker* was properly moored. They decided that Culliford had not done his duty as his testimony was flatly contradicted by others and that he was not a fit person for the job. The Haven Master was retained but his deputy was dismissed even though he had been in that position for 17 years.

Most accidents occurring at Hungroad were not of the scale of the above, but documents show that the port applied its own rules to ships. John Shaw, Haven Master, indicated it was the custom for a pilot approaching the moorings to send his yawl ahead to ascertain where the ship was to anchor and to slacken cables if necessary. He further implied that if the pilot did not give warning of his impending arrival, a ship with a strong tide behind it would be up to the moorings before anything could be done. This means that the Haven Master relied on the pilots and did not have men of his own to report back on sighting ships, a seemingly basic procedure to modern eyes, and certainly by 1794 there was an arrangement whereby pilots would send a letter ahead to Bristol to be left in a box on the Quay detailing their needs.⁶⁵

Communication between the shore and the incoming vessels was made entirely by shouting and Shaw claimed that his deputy must have been heard by both the *Renown* and the *Barnard Anker* because when he was directing shipping he used the man to repeat his orders because he had a much stronger voice. Neither of them appears to have carried a speaking trumpet although the mate of the *Barnard Anker* did use one to call on the *Renown*. Signal flags were in use for convoys at

⁶⁵ BRO: SMV 2/1/2/5 Index 5, 4 October 1794, p. 343.

sea and at Bristol, so some system could have been devised for the port, probably by putting a flag hoist at the turn of the bend on the Gloucestershire side where it could be seen in both directions, but the only mention of any sort of watchtower or signals was in 1776 when the Haven Master greeted visitors with '13 guns and a display of colours from his platform'.⁶⁶ Again there seems to have been either a lack of initiative at this port or else the Society were not providing adequate resources and oversight.

However, when the evidence is sifted, it is obvious that this incident occurred because the pilot of the *Renown* was trying to come in with the tide and refused to anchor when ordered to by the man in charge, the deputy Haven Master, even though his own tow boatmen and colleagues gave the same advice. Shaw claimed that Culiford had always been obeyed when carrying out his duties, but as mentioned above there was antipathy between 'outsiders', especially the man in charge of the port, and the pilots and watermen of Pill.

Technically, the Haven Master had the legal right to call for assistance from any waterman on the river, but in reality at times he was simply ignored by the watermen or indeed abused. In 1792, Shaw complained to the Society that three ships came in with the tide on a Sunday when there was no emergency and fouled the anchorage. In the same letter he says that 'the men employed by the pilots thinks that they are not under any command of the Haven Master as they are a set of very unruly fellows' and he gives the example of the mooring cable of a vessel parting and a towboat he ordered to help refusing, even though he offered to pay them. Finally, he asked the Society to make a ruling that tow boatmen who defied him could not be employed by the pilots.⁶⁷ It is an illustration of the antagonism felt by the watermen of Pill to the Society that even John Shaw, a famous and successful privateer captain, had difficulty in being obeyed.⁶⁸

⁶⁶ Damer Powell, *Bristol Privateers*, p. 248.

⁶⁷ Rich, *Bristol Pilots*, pp. 86-88.

⁶⁸ For a resume on the career of Captain Shaw, see Damer Powell, *Bristol Privateers*, pp. 248-249.

It appears that throughout the century the Society gave very little practical help to the Haven Master leaving him to sort out the problems with the Pill people by himself. However, when the Hall was faced with direct defiance or an attack on their property or businesses, they would act decisively. On 29 July, 1772, the hobbler took strike action and refused to move ships up or down river unless they had a rise in wages; and also they wanted to be paid in advance when summoned to attend ships at Bristol as often when they arrived to move a ship, it was not ready or the weather had deteriorated. They referred to the advance as being paid a 'dotage'. The Society and the Corporation's joint reaction was to order the pilots to move the ships themselves, one at a time, and they suspended two pilots who had encouraged the action.⁶⁹ A comment 'that the wages now paid them amount to more than they would be able to get at any labouring work' has been scored out on this document.

The action appears to have lasted until 31 October when the men gave in 'humbly' and petitioned for forgiveness for unknowingly breaking the law of the land. The first Combination Act was not till 1799, but the law referred to would be the Statute of Artificers,⁷⁰ an early industrial code based on the notion of the universal obligation to work.⁷¹ The men had asked for a rise to 1s.6d from 1s for the haul from Bristol to Hungroad, 2s6d from 2s for Bristol to Kingroad and 6d for a dotage, the latter to be paid when they had made the trip up to Bristol to take a ship out and it was not ready. It was not the only incident of industrial action that decade for in 1778 both pilots and tow boatmen refused to allow vessels to move in the river on account of their brethren being pressed. The mayor intervened and the men returned to work after a promise from him that the impressed men would be released.⁷²

The Haven Master had less power over the watermen than he had with the pilots as the latter's authority to operate, although granted by the Corporation, was in

⁶⁹ BRO: SMV/7/1/6/7 Orders relating to the Towmen, 1772. Bundle.

⁷⁰ 5 Eliz c.4. An Act touching divers Orders for Artificers, Labourers, Servants of Husbandry, and Apprentices.

⁷¹ W. E. Minchinton, *Wage Regulation in pre-industrial England* (Newton Abbot: 1972) p. 11.

⁷² *FBJ*, 4 April 1778.

reality given by the Society after an initial investigation by him and it had to be renewed annually. Pilots also had to produce a bond of £50 and could lose this or be suspended at any time depriving them of their income. However, in spite of being suspended some continued to work covertly in the background facing prosecution if caught.⁷³ An uneasy relationship existed between authority in the form of the Haven Master and the pilots, but they had more to lose than the other Pill residents and so for the most part cooperated. Apart from his certificate, each pilot had to reside at Pill, (though they generally lived above the village),⁷⁴ and to possess at least a yawl and a towboat, numbered and marked with the owner's name in white letters upon black.⁷⁵

All the village boats were moored in Crockern Pill, but could be susceptible to vandalism even in such a closed community. This brought about an institution called the 'Society of Pilots' in 1785 which presented the Hall with a set of articles stating amongst other things that they would prosecute anyone damaging or stealing from their boats even if they were relatives. They also agreed to construct moorings where the boats would be safer and charge 1s per annum per boat, agreeing to turn adrift any boats that had not paid their dues. A number of fines were put in place and they claimed it would be lawful to retrieve these by taking and selling the goods and chattels of the guilty party.⁷⁶ The document appears similar to those of some of the guilds that had formed at Bristol but it did not impress the Society who saw it as being 'mischievous'.⁷⁷

Although the pilots resented authority, they were extremely jealous of their own rights and pleading poverty petitioned the Society on occasions to limit the number

⁷³ John Dickens was a pilot who was suspended in 1785 for misconduct but worked taking whatever jobs he could until reinstated in 1791 having petitioned the Society and having the backing of other pilots. Rich, *Bristol Pilots*, pp. 67-77.

⁷⁴ A pilot, William Griffiths had been suspended and asked the Society if he could live where elsewhere but locally whilst waiting to be reinstated. BRO: SMV/7/1/6/5. Letters from the Haven Master about pilots: Complaint against a pilot for not having a towboat and being resident at Portishead. BRO: SMV/2/1/2/4 Index 4, 27 February 1782, p. 107.

⁷⁵ BRO: SMV/2/1/1/10 Hall Book 10, 1772-1782. March 1773.

⁷⁶ Rich, *Bristol Pilots*, pp. 79-83.

⁷⁷ McGrath, *Merchant Venturers of Bristol*, p. 165.

of branch pilots,⁷⁸ but the merchants' only real concern was that enough pilots were available for their ships, and so were not generally sympathetic.⁷⁹ The pilots were anxious about interlopers and complained bitterly of the Combe and 'deputy' pilots appropriating their customers. The former were based at Ilfracombe and would board ships bound for Bristol, an action that the Pill pilots strenuously objected to, but these men were necessary as weather conditions could stop or delay pilot vessels coming down the estuary from the Avon. This was not resolved until 1797 when the Society came down on the side of the Pill pilots and directed that they would be paid from the moment they boarded incoming vessels.⁸⁰

The so-called deputy pilots had no official basis and the Pill pilots petitioned the Society to have their operations stopped.⁸¹ They asked the Society to stop any unqualified person from piloting coastal shipping to or from Bristol and to put an embargo on their boats as apart from taking their business, they said that if deputies arrived onboard a ship before a pilot, they would threaten to throw the latter overboard. They also accused the deputies of going onboard simply to crimp, that is to entice the crew to leave the ship for better wages elsewhere.⁸²

On the other hand, the deputies' petition states that they were the watermen of Pill who 'carry up' small craft, they having served their time with pilots both in the river and the channel and had boats 'before some of the pilots were made'. They said that small craft could not afford to pay the pilots' river charges but when out in the channel, the same pilots would not bring them in as they were too small and so leave them in dangerous circumstances. The deputies claimed that they only charged 2s6d or 3s6d each and the writer of the letter pleads that when a named

⁷⁸ Rich, *Bristol Pilots*, pp. 64, 83: BRO: SMV/7/1/6/5 Letters from the Haven Master about pilots, 27 May 1788, 20 January 1789; A 'branch' pilot was simply one who held a licence. Rich, *Bristol Pilots*, p. 36.

⁷⁹ McGrath, *Merchant Venturers of Bristol*, p. 166.

⁸⁰ BRO: SMV/2/1/1/12 Hall Book 12, 12 December 1790.

⁸¹ These petitions were undated and in a bundle of letters SMV/7/1/6/5 dated between 1784-92. However the pilots' mention crimping, which generally only takes place in wartime and therefore they could not be in the assigned period. The signatures of the pilots when compared to a list of pilots in Minchinton, ed., *Politics and the Port of Bristol* p. 193-198, dates the documents between 1771 and 1782, probably during the American War of Independence.

⁸² Crimps 'Detested agents who trepan seamen by treating, advancing money and suchlike and under liquor induce them to sign articles.' W.H. Smyth, *Sailor's Word Book: An Alphabetical Digest of Nautical Terms* (London 1867, republished London, 1991) p. 222.

ship was in distress in the channel, only the deputy pilot boats went to its assistance.

Both petitions seem to have a grain of truth to them and as the deputies probably could not afford the mandatory bond, yawl and towboat, it was probably the only way that skilled watermen could make a living.⁸³ It is important to note, however, that both sets of mariners came from the small community of Pill and probably knew each other well, yet there was internal jealousy and strife: however they would close ranks when threatened by outsiders.⁸⁴

To all intents and purposes, the Corporation had delegated responsibility for the day to day working of the Pill pilots to the Society who awarded certificates (albeit they had to be rubber stamped by the Corporation), heard complaints, disciplined pilots and recommended dismissal. McGrath takes a positive view of their efforts,⁸⁵ but the author believes that they did this from a distance and the Haven Master was left to pick up the pieces with few resources. It was he who had to report any misdemeanours; to check that each pilot had the proper equipment; to carry out a pre-examination of prospective pilots and to countersign or even adjust their notes⁸⁶ although he was rewarded for the last at 1s per note.⁸⁷ These duties alone, never mind the daily squabbles over shipping, must have created animosity between the pilots who regarded themselves as the aristocracy of the port, and, from their viewpoint, the placeman of an alien authority.

Other facilities at Hungroad.

The argument that Hungroad was more than just a port has been made above and is strengthened when its other facilities are considered. There were no quaysides or warehouses, but there was a slipway maintained by the Society since 1611 as

⁸³ No reply to these petitions from the Society has been found.

⁸⁴ Rich, *Bristol Pilots*, p. 64.

⁸⁵ McGrath, *Merchant Venturers of Bristol*, p.166.

⁸⁶ Minchinton, 'The Port of Bristol', p. 135; Rich, *Bristol Pilots* pp. 53-54.

⁸⁷ BRO: SMV/2/1/1/13 Hall Book 13, 30 January 1997.

an obligation under the anchorage, and later the wharfage leases.⁸⁸ In contemporary documents it was referred to in the singular and therefore it would be the medieval ferry slip between the west side of Crockern Pill and the other bank, both sides being cobbled down into the water.⁸⁹ This would have the dual purpose of connecting the two banks and of loading and unloading small items of cargo and passengers. The slip would have had to have been cleaned almost daily and for this the Society paid the 'Keeper of the Slip' £2 per annum in the seventeenth century.

Mariners leaving from ships in the port and passengers from small vessels in transit, would alight and progress onwards from the Lamplighter's Hall, a hostelry and coaching house near the slipway on the Gloucestershire side.⁹⁰ The road from there to Kingsweston and Bristol had been considerably improved in 1704 and made into a turnpike in 1758, which opened out Shirehampton for development.⁹¹ The hostelry was also used by the members of the Committee when examining pilots or to make its authority felt, although it might have been more effective, if not so comfortable, to have used premises at Pill.⁹²

Church services were held at Shirehampton, part of the incumbency of Westbury, for the seamen from Hungroad but it is probable that they had to pay for this themselves. Certainly, in the sixteenth century a penny in the pound was deducted from their wages.⁹³ In 1756, John Wesley preached to a full audience at Pill, but the attendance may have been helped by the fact that the local press gang had orders not to take seamen from religious meetings.⁹⁴ It is most likely that the services for seamen were carried out at Shirehampton but Chapel Pill, originally called St. Katherine's Pill, still had a chapel and could also have been used.

⁸⁸ Leases were granted in 1601,1661,1690,1712, and in 1764 all ancillary dues were accustomed to Wharfage. McGrath, *Merchant Venturers of Bristol*, p. 72

⁸⁹ Rich says it was said to have been laid by monks in the middle ages. Rich, *Bristol Pilots*, p. 24.

⁹⁰ Small ships in ballast or with passengers came no further than Pill. BRO: 11168/27 Untitled broadsheet.

⁹¹ Latimer, *Annals*, p. 65, 331.

⁹² McGrath, *Merchant Venturers of Bristol*, p. 166.

⁹³ J. Latimer, *Sixteenth-Century Bristol* (Bristol, 1908) p. 107.

⁹⁴ Rich, *Bristol Pilots*, p. 96.

As in most small ports there was a customs presence, and they were based in the Customs Watch House situated on the upper corner of the River Avon and Crockern Pill, built so that it had a vantage point up and down the river.⁹⁵ Custom's working practices are dealt with in Chapter 3, but at Pill they served Kingroad where all foreign shipping had to report. Another duty of the Haven Master, established in 1700, was to enforce the fire regulations, but although likely, it is not clear whether these were the same as those at the quays, which in 1797 refer to 'unseasonable times' when fires could not be lit, or if the specific hours noted in 1700 were being observed.⁹⁶ At Hungroad there would generally be river water available for fire-fighting but care had to be taken as it was a crowded anchorage and this affected the positioning of yet another of the port's facilities, the Powder Magazine near Shirehampton situated on an isolated bend of the Avon.

This complex was built in 1749 to take powder transferred from the previous magazine at Tower Harratz in the city and still exists (Illustration 1.005).⁹⁷ Situated about 700ft from Chapel Pill on the opposite bank, it was situated far enough from Hungroad to protect shipping in the event of an explosion, but near enough to provide easy access. It consisted of a main magazine to store gunpowder transported from mills at Woolley and Littleton for export, and a quayside on which there was a crane and a small warehouse.⁹⁸ Anti-fire regulations forbade the carrying of gunpowder to the city quays or indeed anywhere on the river (it had to be off the ships within 24 hours of mooring)⁹⁹ and so it was landed to be retrieved on departure. The tidal conditions were such that no large merchantman would try to load or unload gunpowder there, especially as there were dangerous rocks

⁹⁵ Graham Farr, *Somerset Harbours*, (London, 1954) p. 34.

⁹⁶ No fires were permitted on board after six o'clock at night in winter and nine o'clock in the summer except on extraordinary occasions with licence from the Haven Master. Patrick McGrath, 'The Society of Merchant Venturers and the Port of Bristol in the 17th Century' *Transactions of the Bristol and Gloucester Archaeological Society* 72 (1953) p. 126; The wording of the report from the committee is that he is to prevent fire being made onboard ships at anchor or moored in any part of the river at unseasonable times. SMV/2/1/1/13 Hall Book 13, 30 January 1797.

⁹⁷ Brenda J. Buchanan, 'The African Trade and the Bristol Gunpowder Industry', *Transactions of the Bristol and Gloucester Archaeological Society*, 118, (2000) pp. 144-145

⁹⁸ For details of the local gun powder industry see Jonathan Barry, ed., *The Diary of William Dyer: Bristol in 1762* (Bristol Record Society, 64, 2012).

⁹⁹ McGrath, 'Society of Merchant Venturers in the 17th Century', p. 126.

nearby, so it would be conveyed to and fro in ships' boats, lighters or small craft which could go aground at low water.¹⁰⁰

On 2 July, 1765, the Society received a letter detailing a scheme for watering the ships at Hungroad from Henry Bright, a Bristol merchant with shipping interests who had married Sarah Meyler the daughter of another Bristol merchant in 1746, so gaining her father's country house at Ham Green behind Pill.¹⁰¹ At a general meeting of the Hall on 4 July, 1765, it was said that the scheme would be 'of great service to the navigation of this port' so they referred the matter to the Committee and the fact that they also ordered the treasurer to provide finance measures their interest.¹⁰² The process that followed is detailed in Appendix 1.004 and is an example of the Society's peculiar blend of accepting progressive ideas, but tempering their actions with parsimony. It is a theme that will be discussed throughout this thesis, as it not only involves the Society but it seems to have been institutionalised into the business methods of the time.

The benefits to the port were that by the time the project was finished in November, 1766, a constant supply of fresh water had been provided, not only for the ships at Hungroad, but for Kingroad and the village as well.¹⁰³ As part of this project it had been necessary to construct a slipway next to the Customs House to give access to water cocks and this was an additional advantage. However, as shown in the appendix, maintenance was a problem for the Haven Master onto whose work load had been added the oversight of the water supply line. It took about a year longer to construct than it needed due to arguments over costs, and repairs were required to maintain the line which could have been avoided if there had been less parsimony.

However, in his letters to the Committee detailing the problems he was facing, Captain Shaw provides information which reinforces the argument that Hungroad was a port. In 1782, he states that damage was caused by 'carriages that bring

¹⁰⁰ Farr, *Somerset Harbours*, p 32.

¹⁰¹ Morgan, ed., *Bright-Meyler Papers*, p. 34-35.

¹⁰² BRO: SMV/2/1/2/4 Index 4, 4 July 1765, p. 96; SMV/2/1/1/9 Hall Book 9, 1762-1772, 4 July 1765.

¹⁰³ Farr, *Somerset Harbours*, p. 36.

down a great weight of timber to be shipped off on the spring tides',¹⁰⁴ confirming that as well as gunpowder, local timber was an export. At Crockern Pill the spring tides can rise to the extent of flooding local houses, so it would be easy to load boats from the shore or even float wood round to the anchorage where it could be handled like any other timber bound for Bristol or around the coast.

Another letter from Shaw¹⁰⁵ refers to tanners working locally, a process which required bark. It is unlikely that enough could have come from trees felled locally, but the Forest of Dean was an exporter and imports would have made up any local shortage.¹⁰⁶ The source of fresh water was a mill pond and it is likely that this serviced a timber mill sawing local timber for export, which strengthens the argument that Hungrood, although essentially a transit port, did handle the output of local industry.

The Haven Master and the River Avon.

The Haven Master's fiefdom extended from the mouth of the Avon to Sea Banks at Bristol (Illustrations 1.002-1.003) but surprisingly, even though it was within the limits of the port, it did not include Kingrood the mandatory first port of call for foreign shipping. Within the given area he controlled the river traffic; directed shipping to mooring and anchoring positions; policed and reported any breach of regulations and had to provide a monthly account of all shipping staying more than 24 hours. He also supervised the maintenance of navigation aids such as buoys, oversaw the upkeep and repair of the various implements and apparatus used on the moorings, and kept a note of any changes or obstructions in the river. Later, in 1797 he was ordered to record those on a chart and this included marking shifting sandbanks in the Estuary.¹⁰⁷

For the purposes of the thesis, his duties concerning the river can be split into two parts, reporting and then dealing with what were called the 'nuisances on the river',

¹⁰⁴ BRO: SMV/2/1/2/4 Index 4, 27 February 1782, p. 107.

¹⁰⁵ BRO: SMV/7/1/4/19 Haven Master's correspondence 1785-1790, 23 February 1790.

¹⁰⁶ Green, *Severn Traders*, p. 47.

¹⁰⁷ BRO: SMV/2/1/1/13 Hall Book 13, 1797 – 1807, 30 January 1797; See Appendix 1.001.

that is man made obstructions; and reporting natural obstacles to navigation such as rocks and shoals, and accidental barriers like sunken vessels. The word 'reporting' is used deliberately to emphasise the fact that as at Hungroad he had little power to instigate removal operations, centralised control by the Committee again being imposed.

The nuisances on the River.

Illicit dumping of industrial material from the area above Bristol Bridge was a constant problem as it not only caused problems locally, but the Haven Master had to worry about its affect on Hungroad even though it was 7 miles away (Illustrations 1.002-1.003). Twice per day, the tremendous power of the tidal river could gather up debris and deposit it along its length and breadth and, as will be seen below, this was not just small semi-submersible items, but stone, rock and other heavy materials. A letter from the Haven Master to the Society in 1786 epitomises the problem. He includes:

The late fresh (flood water) has brought down a great quantity of broken brick, pieces of tiles and other from the works above Bristol Bridge. Part has been lodged above the bridge and as far down as the new mud dock. It has received the bricks and makes it a very hard bottom for vessels to lie from the bridge to the Grove slips. Lucky we had a number of heavy ships moored at Hungroad and prevented the berth from filling up.¹⁰⁸

The area above the Bristol Bridge was outside his authority, but here he wore his other hat, that of Ballast Master, a position created in 1700¹⁰⁹ which meant that among other tasks, he was to see that the quarries near the river had sufficient stanks¹¹⁰ and hedges to prevent stones and rocks going into the river. By 1722 his

¹⁰⁸ BRO: SMV/7/1/4/19 Haven Master's Correspondence 1785-90. Bundle 1/7, 28 October 1786.

¹⁰⁹ Following the same 1700 Act of Parliament, 11 and 12 William III c. 23, as had resulted in the Society issuing new instructions to the Haven Master. Initially the position of Ballast Master was a separate appointment but it came to be held by the Haven Master.

¹¹⁰ A sort of coffer dam. *Collins English Dictionary* (Glasgow, 2005).

domain had increased to the river from Hanham Mills to Holes Mouth¹¹¹ and by 1797 his instructions were 'taking care sufficient banks and stanks are made at all quarries to prevent stones rolling below the high water mark and to prevent stones, rubble, ashes or filth being thrown into the river between Hanham and Crookham [Crockern] Pill'.¹¹²

With the progress of the industrial revolution, new industries grew along the banks of the River Avon in the area above the bridge, and there are regular entries in the Hall Books where the Haven Master and other port officers report transgressions of the port regulations to the Society. A letter written by Captain Shaw in 1785 illustrates the general problem and the solutions as seen by him. This letter is concerned with two men, Hutchins and Webber, both lime-burners and brick-makers on the riverside at Avon Street.¹¹³ Webber reported Hutchins for building a stank on the river bank, and Shaw investigated, but was impressed by the fact that it was successfully protecting the river and said that if 'every landing place were to follow the example it would prevent the great quantity of rubble that is brought down from the banks which is the reason of not having that depth of water at Hungroad; formally there was seventeen feet but now eleven at low water'.

Shaw went on to examine Webber's landing place and found that the slope there meant that stones collected at the half-tide mark, and was informed by Hutchins that Webber brings 'cart loads of rubble stuff' and leaves it on the bank to roll into the river. In his letter Shaw tells the Committee that this sort of thing is a daily occurrence and could be stopped if a reward was offered for information that led to prosecution, adding for emphasis, that 'many of the old lightermen could testify that one third [width] of the river is filled up by the works above the bridge'. The letter finishes by him reporting that large stones at a disused quarry were a danger to shipping and that he will have them broken up and removed if 'the gentlemen' approve'.¹¹⁴

¹¹¹ Minchinton, ed., *Politics and the Port of Bristol*, p. 202.

¹¹² BRO: SMV/2/1/1/13 Hall Book 13, 1797 – 1807. Report of the Committee to the Society, 30/1/97.

¹¹³ *Bristol Directory*, 1785, pp. 28, 58.

¹¹⁴ BRO: SMV/7/1/4/19 Haven Master's Correspondence 1785-90, 11 March 1785.

Apart from giving a graphic description of the industrial waste situation, the letter again highlights the fact that he could not act on his own, which inevitably caused delays. Also, he gets his information second-hand from informants – and indeed rewarding them is his solution to the problem – and also it shows that as at Hungroad he has no assistants to patrol the riverbanks. There was a suggestion in the late 1760's, that 3 or 4 boats might ply the river every tide to report nuisances and they were to be manned by 'worn out seamen enabled to obtain as subsistence without being dead burden on any other charitable institution'.¹¹⁵ There is no record of this being put into effect, and it is unlikely the Society would have borne the cost.

The precise ballasting of ships was imperative to their safety – indeed it could be considered an art – and is a topic regularly taken up by marine and especially naval historians.¹¹⁶ However, the actual provision of ballast at merchant ports is not well documented because in general it was a fairly ubiquitous proceeding involving ships' loading or unloading of sand, gravel or stone. Iron was not commonly used by merchant ships due to cost, and also the heavier items of cargo could be used instead, bringing in an income from freight charges. When the Quay Warden needed to replace his equipment for weighing lighters in 1786, he recommended the use of 'iron ballast as used in a man of war' an indication that it was not common to Bristol merchant ships.¹¹⁷

The position at Bristol was as usual complicated by its tidal problems and the Corporation had found it necessary to have Acts of Parliament passed concerning ballast and industrial waste because there was a serious risk that it could contribute to the river being blocked.¹¹⁸ As his instructions clearly show, it was the

¹¹⁵ BRO: SMV/7/1/4/5. New Quay Wall at the Grove Bristol 1767-69. No date. This document was among an un-numbered batch of papers.

¹¹⁶ For example, John Harland, *Seamanship in the age of sail* (London, 1984) p. 49; Brian Lavery, *Nelson's Navy* (London, 2012) p.71; Brian Lavery, *The Arming and Fitting of English Ships of War 1600-1815* (London, 1987) pp. 186-188.

¹¹⁷ BRO: SMV/2/1/1/11 Hall Book 11, 28 August 1786.

¹¹⁸ 11 and 12 William III c. 23: An Act for the better preserving the navigation of the River Avon and Frome and for cleansing, paving and inlighting the streets of the City of Bristol; 28 Geo III c. 65. To the hazard, hindrance, and obstruction of the navigation of ships and vessels trading to the said city [Bristol].

Ballast Master's job to address these problems directly, his main purpose being to police the river from the city to its mouth (Appendix 1.005).¹¹⁹

Paragraphs 2 and 3 of the instructions contain the only clues as to the actual operations involved and his role. Discharged ballast would be of two types; that which was no longer of use and to which he would allocate a dumping ground; and the good ballast as carried by ships sailing light which when no longer needed had to be discharged at the ballast wharf where it would be sold on at a maximum price of sixpence a ton. Whether or not he paid for this material and where the proceeds went is not indicated. He was also empowered to grant permission for ballast to be transferred between ships. In reality the supply of ballast at Bristol was a private industry carried on by lightermen, albeit they could only dig it from places indicated by him. The ballast wharf is not shown on any maps seen by the author, but it is likely to have been either on the Redcliffe Keys or at the western confluence of the rivers where the marshes were being filled in. To accommodate the piles of ballast, it must have covered a substantial area.

Considering the Society was always on the lookout to make money, a comparison between their ballasting operations and those on the Thames does not demonstrate enterprise. Trinity House controlled the Thames operations through a ballast office and supplied all ships sailing out of the river from 60 marked lighters each of 30 tons with a crew of two being permanently employed. Their charge per ton in 1794 is not known but by 1815 was 1s3d which would be considerably more than at Bristol.¹²⁰ Albeit the number of ships dealt with on the Thames was much greater than at Bristol, a more efficient and profitable operation could have been put in place without difficulty. However, the Society's concern appears to have been to use all their resources to keep the river open for navigation rather introducing schemes for its development.

¹¹⁹ The original list of instructions was sent to the Society by the Town Clerk, Samuel Worrall, along with a copy of the 'Rules and instructions of the Quarter Sessions to be observed by the Ballast Master' which were copied into the Hall Book. BRO: SMV/2/1/1/12 Hall Book 12, 8 January 1794, p. 321, 324; McGrath says that this was done because the system was not working properly. McGrath, *Merchant Venturers of Bristol*, p. 162.

¹²⁰ *Falconer's Dictionary*, pp. 30, 582.

There is nothing in these instructions to indicate that the Ballast Master had assistants to help police the river, and yet the sixth paragraph clearly shows that he was expected to do so or lose his position and bond. This would have been a monumental task for one man alone considering the extent of the river, but when his other duties as Haven Master are added on, it seems impossible. As mentioned before, he did have one deputy but he was based at Hungroad. As usual the Society relied on informers, but this could never be an efficient method of working so there were regular complaints about the state of the river. To avoid confusion there will be no specific references to the Ballast Master from this point in the thesis as the Haven Master was carrying out both sets of duties.

Natural and man-made obstacles to navigation on the river.

Responsibility for the safe navigation of shipping on the river between the port of Hungroad and the city quays lay with the Haven Master and this was a passage considered so dangerous that large ships were obliged to take out insurance.¹²¹ Horseshoe Bend to the north of Hungroad, and Seamills Reach, the river from there to Seamills; followed by the Avon Gorge at St Vincent's Rocks gave particular problems before the comparative safety of Rownham Meads for upstream traffic or Hungroad for downstream was reached (Illustration 1.002). It must always be remembered that due to the tides the flow of water in the river could reach 5 knots.

Horseshoe Bend was aptly named and a ship being towed upriver from Hungroad would be heading north north-east towards it and unless care was taken, a wind blowing on her beam as she turned would drive her onto the rocks on the north shore; but then she would have to turn immediately and head south-east whereupon the same wind would be driving her stern onto the rocks. There was no time to run lines ashore so the safe completion of the manoeuvre depended entirely on the skill of the pilot and the brute strength of the towboat men. In spite

¹²¹ See Chapter 3.

of the problems of manoeuvring in high winds faced by the pilots and their hobbler, only heavy gales were allowed to disrupt shipping movements.¹²²

Seamills Reach was a relatively safe stretch of water, but it suffered from sudden fog and mist and although there were some mooring posts opposite Seamills Dock, they could not be used by the larger, loaded ships as the strain of being aground at low water on the steep mud banks would damage them.¹²³ The two mile, narrow, tortuous channel through the Avon Gorge with its changing, funnelling winds left no room for mistakes and made the use of sails to assist the passage dangerous. Indeed some ships actually lowered their topmasts. Unfortunately these natural hazards were impossible to overcome and indeed even with the event of steam propulsion they were a major factor in the later relocation of the port to Avonmouth and eventual commercial closure at Bristol.

Nevertheless, there were obstacles that could be dealt with such as dangerous ledges, rocks and shoals, and the residue from the quarries along the river all of which was the responsibility of the Haven Master. However as has been previously mentioned, he was powerless to act on his own accord except on minor matters as all executive decisions, especially financial, had to go through the Committee. As there is adequate information available regarding their handling of the river problems, it is useful at this point to consider whether this way of working was effective.

An examination of the relevant Hall books¹²⁴ shows that between the years 1763-1787 the nuisance problem remained unresolved although it was brought up on a regular basis, year by year, and on 11 occasions the Committee completed tours of inspection to check reports of infringements, usually emanating from the Haven Master. Three surveys were presented to the Hall itemising the various offences discovered and in the first two, the main miscreants were the quarries and glasshouses – although natural obstacles also posed a threat. The last survey also

¹²² BRO: 11168/6a ii Diary of winds and tides taken at Bristol from 2 March 1792 to 14 March 1793 by Captain James Jolly at the request of Richard Bright. This diary will be referred to in detail in Chapter 4 but it shows that only in these conditions were ships unable to reach the quays.

¹²³ Elkin, 'Aspects of the port of Bristol', p. 30.

¹²⁴ BRO: SMV/2/1/2/4 Index 4, 20 March 1763; BRO: SMV/2/1/1/9 Hall Book 9, 16 August 1764; BRO: SMV/2/1/1/9 Hall Book 9, 24 October 1771; BRO: SMV/2/1/1/11 Hall Book 11, 1 July 1783.

includes the problems stemming from the quarries, but there had been a massive increase in the amount of discarded industrial waste entering the river.¹²⁵

There is no mention of the Committee taking action in 1764, but by 1771 the extent of the problem had increased and the Committee gave 'notice' to the various offenders but without effect. However the quarry operators renting from the Society were ordered to appear before them and forbidden to work until they removed stones on the banks opposite their sites. The Committee had more power in these cases as they themselves controlled the leasing of the quarries on the Gloucestershire side of the river but on the Somerset side control was shared with the Corporation, so they could only recommend to the Hall that the annual leases were not renewed. Nevertheless, by 1783 the problem had worsened and threats of prosecution, or in the case of the quarry owners being turned out of their berths, were again being made but there is nothing in the Hall Books to indicate that action was taken or the matter resolved.

A letter from the Haven Master in 1785 shows concern about the amount of rubble on the banks of the river together with other nuisances; and it is obvious that he has no mandate to sort the problem out on his own.¹²⁶ Similarly in 1786 he complained about the debris from the works above the bridge but this time the Committee ordered a survey of the river to be carried out by the Haven Master and other port officers, together with a member of the Committee.¹²⁷ They did the survey two weeks later and reported exactly one month after the initial order, an indication that the usual delays could be overcome.¹²⁸

However, the rapid completion of the survey may have been due to a deputation from the Corporation attending the Committee with regard to the nuisances and asking for a copy of the Wharfage Lease to be produced, no doubt to ascertain

¹²⁵ BRO: SMV/2/1/1/9 Hall Book 9, 16 August 1764; BRO: SMV/2/1/1/9 Hall Book 9, 24 October 1771; BRO: SMV/2/1/1/11, Hall Book 11, 1 July 1783. See Appendix 1.010.

¹²⁶ BRO: SMV/7/1/4/19 Haven Master's correspondence, 1785-90.

¹²⁷ BRO: SMV/2/1/1/11 Hall Book 11, 20 November 1786.

¹²⁸ BRO: SMV/2/1/1/11 Hall Book 11, 20 December 1786.

exactly where the responsibilities lay.¹²⁹ The report and the lease was perused at the next meeting and a decision made to invite a Corporation deputation to attend again,¹³⁰ which they duly did and a resolution was made to prepare a memorial requesting the Corporation, as conservators of the river, to proceed against the offenders.¹³¹

The memorial had to be sanctioned by a General Meeting and finally be approved at the Quarter Sessions. The point is that this complicated and cumbersome system was applied to all decisions regarding the river and was in place because the Corporation had delegated responsibility to the Society, but retained the right to have the final say in decision making. In reality, at the operational end of the administration, the Haven Master's function was only to report transgressions even though he had the day to day responsibility for the river. There are fewer entries in the Hall Books regarding nuisances after this, but from that time Committee meetings were dominated by discussions over floating the quays.¹³²

It may be unfair to project the methods of modern times back to the eighteenth century but the easiest way to cope with this problem would have been to send a man down the river and back with the tide at least once per week to report infringements immediately and then they could have been dealt with on the spot. This had been suggested previously but not taken up and there is no evidence that the Society owned any small boats. They had purchased lighters during the building of the new Mud Dock¹³³ but these must have been sold because the only other reference to one was in 1783 when the Society ordered gravel to be delivered to assist in building the road to Hotwells 'using their own lighter'.¹³⁴ However, this lighter was loaned out and the borrowers, having initially repaired it, wanted to be recompensed for its return but the Society refused.¹³⁵ It is difficult to

¹²⁹ BRO: SMV/2/1/2/4 Index 4, 6 December 1786.

¹³⁰ BRO: SMV/2/1/1/11 Hall Book 11, 20 December 1786.

¹³¹ BRO: SMV/2/1/1/11 Hall Book 11, 16 January 1787.

¹³² The following references show that the problem continued. BRO: SMV/2/1/2/5 Index 5, 9 December 1790, 20 December 1791, 7 February 1791, 14 November 1792.

¹³³ See Appendix 1.012.

¹³⁴ BRO: SMV/2/1/1/11 Hall Book 11, 7 December 1783.

¹³⁵ BRO: SMV/7/1/2/2 Miscellaneous papers re-quays, 29 May 1786. This document was difficult to read and the outcome is not clear.

comprehend how a large port like Bristol could be controlled when its authorities did not possess any water craft, but apart from the above the author has found no mention of any and if there had been there should at least have been a reference to repairs or replacements.

The Society's administration system was complex and it may be that this was partly due to the need to work with the Corporation and the Quarter Sessions, but when it came to finance, the amount they spent on the port was their prerogative and as will be emphasised throughout this chapter, they were frugal. As far as the river was concerned, the removal of rocks, shoals and sunken vessels needed to be done as soon as possible, but they tended to remain in place until their removal had been put out to tender or somehow circumvented. It was not so much that they refused to pay for necessary maintenance, but more that there was a propensity to temporise or to cut corners.

For example, in 1778 when the Haven Master reported breaches in the bank at Hungroad were endangering the essential work of cattle towing ships,¹³⁶ the Committee agreed that a tender be put out for repairs, but four months later on finding out that the repairs would cost £700, they decided that the work should only be done on a temporary basis.¹³⁷ There are other examples but perhaps the method used by the Society for the removal of the Ledge Rock in 1773 demonstrates how devious they could be at avoiding spending money.

Merchants' Hall Bristol, March 15, 1773.¹³⁸

Whereas it appears to this Society that it will be greatly for the benefit of the navigation of the river to take away the point of rock called the Ledge Rock, notice is hereby given that all persons may dig stones for ballast from the said rock gratis and it is ordered that if any person or persons holding a quarry of this Society shall from and after the 25th Day of this instant March permit any stone to be taken from his or her quarry for ballast he or she will

¹³⁶ Cattle were used where the ground was too soft for horses to get a firm grip. Rich, *Bristol Pilots*, p. 65.

¹³⁷ BRO: SMV/2/1/2/4 Index 4, 15 June 1778, p. 104.

¹³⁸ BRO: SMV/7/1/2/2 Miscellaneous papers re quays, 15 March 1773.

be turned out of possession of such quarry and never after be permitted to hold a quarry on the river. And for the better carrying the above measure into operation a reward of one guinea will be given to any person or persons who shall give information to this Society of any breach of the above order and prove the same when called upon.

By order of the Society, S. Worrall.

As usual, however, problems developed and within a few weeks the 'persons who provide ballast for ships' – they appear to have had no collective name – were attending the Committee because ships were in want of ballast and they could not dig it out due to the hard layer on top. The Master issued temporary exemption certificates, but again a ploy was used to save money on the removal of the hard layer by diverting workers from Merchants' Dock to do the work.¹³⁹ Further problems came later when the ballast removers were reprimanded for just skimming the top leaving the rock dangerous when covered by the tide.¹⁴⁰ Finally come winter, they had to stop due to the weather.¹⁴¹ Considering these problems, and the fact that the ballast workers were likely to be resentful of their treatment and more liable to dump old ballast illegally, it is probable that there were no actual savings.

This is not to say that the river was unimproved in the eighteenth century, but there is always the suggestion that it was being done cheaply. On 27 September, 1762 there was a proposal from a Mr Spencer to remove by 'blast and blow' rocks near the powder magazine; to remove stones from Sea Mills by blast and lighter; to take up underwater rocks and carry them by lighter to be dumped near Sea Mills and to do the same for Crow Island – total cost £107'.¹⁴² There is no note of this being accepted in the Hall books, probably due to costs, but an entry on 28 October says that a Mr Grey had agreed to break down a rock at the Powder House for £4.4s

¹³⁹ BRO: SMV/2/1/1/10 Hall book 10, 3 April 1773.

¹⁴⁰ BRO: SMV/2/1/1/10 Hall book 10, 21 July 1773.

¹⁴¹ BRO: SMV/2/1/1/10 Hall book 10, 15 December 1773.

¹⁴² BRO: SMV/7/1/2/1 Papers re the quays and nuisances, 27 September 1762.

and this was accepted.¹⁴³ However, this was obviously not effective as the Haven Master was still complaining about the rocks in this area in 1786.

On another occasion in March 1786, a trow had come onto the same rocks and had been 'righted' by the Haven Master and watermen at a cost of £3.3s6d, and over the next few months the Society sued the owner for this money but did nothing about the rock.¹⁴⁴ Forcing the owners of sunken vessels to remove them on threat of being sued, appears to have been a common practice.¹⁴⁵ In November, a barge loaded with stones broke its back on these rocks and on this occasion the Haven Master did act on his own initiative and immediately sent for a barge to put the stones into in case another 'fresh' took them down to Hungroad. He then asked the Society to consent to the rock being lowered four feet, saying that it would not be of great expense and of great benefit to large vessels.¹⁴⁶ However, even after two ships had gone aground the Committee put it back for the 1786 survey which then went through the process recorded above before they finally agreed that the rock be removed in February, 1787.¹⁴⁷

Animal propulsion on towpaths could not be used by the larger ships due to the topography and so it was mandatory to use towboat men.¹⁴⁸ The exceptions were at Hungroad and between Hotwells and the city quays where there were open spaces. Nevertheless, there were towpaths on the banks which were suitable for smaller ships and in 1782 the Haven Master represented to the Committee that a path be created on the Somerset side of the river, he having been given permission by the various landowners, but the Committee still insisted on an investigation by the 'gentlemen' who would suggest a scheme and detail its expense.¹⁴⁹ This was completed that year by Mr Bright and Mr Hilhouse and accepted.

¹⁴³ BRO: SMV/2/1/2/2 Index 2, 28 October 1762.

¹⁴⁴ BRO: SMV/2/1/2/4 Index 4, 14 March 1786, 8 September 1786.

¹⁴⁵ BRO: SMV/2/1/2/4 Index 4, 21 July 1773.

¹⁴⁶ BRO: SMV/7/1/4/19 Haven Master's correspondence, 9 November 1786.

¹⁴⁷ BRO: SMV/2/1/2/4 Index 4, 23 February 1787.

¹⁴⁸ Elkin, 'Aspects of the port of Bristol' p. 29.

¹⁴⁹ BRO: SMV/2/1/2/4 Index 4, 22 September 1782, p. 107.

When the towpath on the Gloucestershire side near the Hotwells was constructed in 1778, the Committee made it mandatory that any person renting a quarry would provide a man to work for six days per year under an overseer appointed by the Society; again a creative way of saving money.¹⁵⁰ Although the Committee did not show much interest in developing the river, they could spot an opportunity for making money and on a general inspection tour of the river in 1783, they decided that as it was of 'considerable expense' to keep Crockern Pill maintained, they should set charges on vessels using it.¹⁵¹

Finally, apart from his aforementioned duties, the Haven Master also had to keep in order the mooring posts, buoys and navigational aids on the river and he was responsible for checking the estuary between the mouth of the Avon and the Holmes, registering shifting sands and changes in direction of the channel. Unfortunately there are few references in the Hall books to marking the river, but a letter from Shaw to the Committee in 1797 comments on the dangers at Devil's Reach – probably the area between the Avon Gorge and Rownham Meads – saying that six chains, marked with a board saying 'a chain here' were kept at Ledge Point for pilots to 'stop' a ship and that a capstan 'with bars bolted so that no one can carry them away' was available. Bollards, one self-tailing, remain in this area to this day.

The same letter points out that just below Nelson's Point near the mouth of the river, there was what he calls a 'flat', probably the gently sloping bed of silt called the Swash that is there today, on which ships, especially small ships, were stranded until dug out or released by spring tides. He suggested that this could be avoided by situating two 20ft poles on either side of the river, one with a white top and one with a salmon, and at the mouth of the river two more white topped poles on either side. He ended his letter by saying that 'he flatters himself the above observations I have laid before their worships will meet with their approbation for they will be of great utility and small expense'. That these obviously essential

¹⁵⁰ BRO: SMV/2/1/2/4 Index 4, 28 September 1778, p. 104.

¹⁵¹ BRO: SMV/2/1/1/11 Hall Book 11, 1 July 1783.

markings were not suggested until very late in the century is an indication that buoyage systems were still in their infancy.

The Severn Estuary.

A resolution had been passed by the Committee proposing a lighthouse be placed on Flat Holm (Illustration 1.001) as early as 1728, but agreement was not reached between the Society, Trinity House, and a private investor until 1737 when it became operational.¹⁵² It turned out that there were no guarantees on the lease to force the lessee to run an efficient service and throughout the rest of the century the beacon was simply a coal or wood burning brazier maintained by inefficient keepers and disasters continued to happen. Meantime each passing ship was forced to pay a toll.¹⁵³ This was the limit of the area of the estuary kept under surveillance by the Haven Master.

There are few references to the work he did there, but buoys were positioned to mark the channel and there is a mention of this being done on the English Grounds by pilots.¹⁵⁴ There is no records that they were paid for this work but it could be that this was part of their agreement. The oath they took 1605 ended with 'You shall likewise do and perform any other things appertaining to the office of pilot as to the maintenance and preservation of the ports and rivers'.¹⁵⁵ Rich says that general surveying and laying of sea marks and buoys was the responsibility of the pilots¹⁵⁶ and a letter from Captain Shaw to the Committee in 1785 confirms that pilots could be asked to carry out survey work in the estuary gratis.¹⁵⁷

This is an interesting letter as it shows that the channel was not clearly marked and so the Haven Master believed it should be properly surveyed. He reminded the

¹⁵² For a short history of English lighthouses see Bella Bathurst, *The Lighthouse Stevensons* (London, 1999) p. xvi-xvii.

¹⁵³ Latimer, *Annals*, p. 200; McGrath., *Merchant Venturers of Bristol*, p. 167; Minchinton, ed., *Politics and the Port of Bristol*, p. 47.

¹⁵⁴ BRO: SMV/2/1/1/10 Hall Book 10, 29 June 1773.

¹⁵⁵ Rich, *Bristol Pilots*, pp. 33-34.

¹⁵⁶ Rich, *Bristol Pilots*, pp. 56.

¹⁵⁷ BRO: SMV/7/1/6/5 Letters from the Haven Master about pilots. Not numbered. Self allocated number 4. 25 March 1785.

Committee that a trow was sunk near Lydney due to shifting sands caused by prolonged easterly winds and says that the same thing had happened between Kingroad and the Holmes. He asked for the sands to be surveyed and suggests that for the next 11 spring tides, all 44 pilots take their turn in groups of four to do this, the operation taking 5 months. This he strongly advocates as he believes the pilots had become careless, but asks that the Committee order it as if he was to do so 'it would have no great a weight as it would have from the Gentlemen of the Committee'. This is another example of the difficulties a Haven Master faced in supposedly having authority, but no power.

This letter also gives insight into the way he selected men to be recommended to the Committee for a pilot's 'branch'. Obviously these men would have to have knowledge of the river and estuary and the conditions ships would experience, but he also wanted them to be skilled at surveying and so before recommending young pilots to the Committee, Shaw says that he 'insists that they are able to make their soundings and bearings and turns down those who cannot'.¹⁵⁸ Filed with this letter is an undated document, possibly compiled from such surveys, giving implicit sailing directions from place to place in the Bristol Channel and detailing depths and bearings to landmarks. This document shows a sophistication not normally associated with the pilots.¹⁵⁹

Conclusions.

The maintenance of services and amenities available to shipping on the river and estuary was the responsibility of one man, the Haven Master, but he was tightly controlled by the Committee and although he had a deputy there is no indication that this man carried out any of the tasks away from Hungroad, nor is there mention of any other staff apart from the slip cleaner at Hungroad. As far as the Committee were concerned he could call upon the pilots and towboat men at any time. They must have known but ignored the fact that he had very little power over them and Rich is probably correct when he says that the Committee saw the

¹⁵⁸ BRO: SMV/7/1/6/4 Complaints against the pilots, 28 March 1785.

¹⁵⁹ BRO: SMV/7/1/6/5 Letters from the Haven Master about pilots.

Haven Master as a buffer between themselves and the unruly Pill.¹⁶⁰ This meant that he was left to depend on pilots and watermen for information about conditions on the estuary and river, something they were unlikely to give if it meant unpaid work for themselves. The use of informers seeking reward did not resolve the perpetual problem of nuisances.

It is doubtful if Hungroad could have been developed to the extent of Port Glasgow and the Tyne ports, which were specifically designed to handle goods bound for and from a main commercial centre,¹⁶¹ but there is no doubt that it had all the facilities of a small port and could have reduced the pressure on Bristol and attracted more shipping, but the administration system of having a Committee overseeing all facets of the Society's business meant that executive decisions were delayed; and it is obvious that their actions were governed by cost, and frugality was a byword, which led in turn to short-term solutions that had to be resolved again at a later date. It is beyond this thesis to establish if they were simply following eighteenth-century work practices, but it is inconceivable that in modern times such an extensive operation would be under the auspices of one man with so little power. Perhaps it was because the income from the river was modest compared to that of the city quays that the same effort was not put into it as was to the rest of the harbour. History was to prove this short sighted as at the end of the next century the new port of Avonmouth was developed and came to eclipse the old.

¹⁶⁰ Rich, *Bristol Pilots*, p. 43.

¹⁶¹ See Introductory Chapter

Section 2. The harbour between Rownham Meads and the city quays.

Introduction.

The harbour at Bristol can be said to begin where the river turns at Rownham Meads and flows through the city and although its statutory boundary was at Hanham about five miles upstream from Bristol Bridge, to all intents and purposes it stopped at the bridge as only barge traffic could pass this point. The main cargo handling area was at the city quays – which will be described in Section 3 – but the river between Rownham Meads and Sea Banks cannot be overlooked (Illustration 1.006). Measuring slightly over one mile, it was mainly undeveloped on the Somerset side although a shipbuilding yard existed between 1778 and 1786 at the Rownham Meads end after which the site returned to nature and remained so even after the floating dock was built in 1807.¹⁶² Indispensable maritime services were carried out on the north bank where there was one large floating dock and three shipbuilding and repair yards, but there was still a large amount of disused space which could have been developed to relieve congestion at the city quays, but quay building was expensive.

The Society's general remit made it responsible for this region and shipping movements came under the Haven Master's authority rather than the officials at the city quays. Before detailing the facilities available, it is necessary to look at the use of the river itself. Little has been recorded about shipping in this part of the harbour, but for any port it was necessary to have an area where ships could moor whilst awaiting a berth, cargo or orders, and at this point there was relatively calm water due to its depth. There were mooring posts on the Somerset side at Rownham Meads and opposite Merchants' and Limekiln Docks, all known to have been sited on the bank to avoid them being washed out rather than embedded in

¹⁶² Whitefield, *Mr Hilhouse of Bristol*, p. 75.

the river,¹⁶³ and as the land did not belong to the Corporation or Society, a fee for this had to be paid to the owner.¹⁶⁴

Although this may be a minor detail, at spring tides the manoeuvring of large vessels in both directions to avoid the smaller trows, lighters, wherries and suchlike plying to and between the docks must have been tricky. The mooring of vessels would have to be well planned as otherwise they would become obstacles to this traffic, hence the need for them to be situated close to the river bank. The Haven Master's instructions refer particularly to the mooring and lying of vessels at Rownham and Limekiln Dock an indication that those were the officially designated areas. Further confirmation is contained in a report to the Committee that three mooring posts had been washed out of the ground on the Somersetshire side of the river, two opposite Champions Dock and one opposite Limekiln Dock.¹⁶⁵ Shipping was also known to lie outside the mouth of the Frome on the Sea Banks. The priority given to a ship to move upstream was determined by its arrival time at the mouth of the river and there must also have been a way of regulating downstream traffic as otherwise there would have been chaos, especially at the junction of the Frome and Avon. Technically this part of the river was under the Haven Master, but he had to be at Hungrood on spring tides so it must have been done by quay officials, probably the Quay Warden. His duties will be discussed in the next section, but probably flag signals were used as Tombs plan of 1792 shows that flags and lamps were to be employed to direct ships out into the river through his proposed system of locks (Illustration 1.007).¹⁶⁶ By 1824 there was a small tower on St Augustine's Reach for this purpose.¹⁶⁷

¹⁶³ BRO: SMV/2/1/1/10 Hall Book 10, 7 January 1773.

¹⁶⁴ A guinea a year was to be paid for the liberty of putting mooring posts in private ground above Rownham passage. BRO: SMV/2/1/2/4 Index 4, 1 August 1774, p. 104.

¹⁶⁵ BRO: SMV/2/1/1/13 Hall Book 13, 13 January 1797.

¹⁶⁶ Tombs original plan could not be found but 'A plan of two designs for keeping the ships afloat in the harbour of Bristol' by Richard Tombs, April 1792, was copied from BRO 41561/57, Minchinton papers, which held a photograph of Tombs plan of 1792.

¹⁶⁷ Sheena Stoddart, *Bristol before the Camera* (Bristol, 2001) p. 56.

The Merchants' Dock complex.

Although no quays were sited on this part of the river, it is of historic importance that a large wet-dock was built there for merchant shipping in 1768 at a time when few such facilities were available elsewhere.¹⁶⁸ In addition two dry-docks had been constructed alongside it and these eventually developed into a series of interrelated establishments providing shipbuilding and repair as well as extensive cargo handling facilities. The initial impetus came from William Champion, a man of many talents who was a porcelain, copper and brass manufacturer, merchant and shipowner, and who in 1767 produced one of the original plans for floating the harbour at Bristol.¹⁶⁹ He began building the docks at Rownham Meads in 1765 but had gone bankrupt before they were finished due to a dispute with Josiah Wedgwood over his porcelain patents. In 1770 he was forced to sell the docks, and in what could be seen as a possible conspiracy they were purchased cheaply by a member of the Society who in turn sold them on for the same amount.¹⁷⁰

The acquisition of Champion's Dock and associated dock-yards¹⁷¹ by the Society provides a bonus for the researcher as it generated a great deal of documentation which accumulated as the main dock developed and because the other docks and associated grounds were not sold but leased, under which conditions improvements and maintenance were ongoing and recorded in the Hall books. An analysis of these documents sheds light on the work practices of one of the earliest commercial floating docks, its structure and that of its associated shipbuilding and repair establishments.

There is some controversy over the original purpose of Champion's Dock, with Farr saying that it was for the safer discharge of cargoes – earlier local wet docks being mainly for fitting out ships – and Latimer, Wells and Williams claiming it was for

¹⁶⁸ Rotherhide Dock on the Thames was built towards the end of the 17th century and later two others at Liverpool. Seamills Dock on the Avon, mentioned above, was another but it had failed.

¹⁶⁹ Alan F. Williams, 'Bristol Port Plans and Improvement Schemes of the 18th Century' *Transactions of the Bristol and Gloucester Archaeological Society* 81 (1962), 146-148.

¹⁷⁰ Whitefield, *Mr Hilhouse of Bristol*, pp. 42-43.

¹⁷¹ The author uses the generic term 'complex' as the best way of describing the interrelated establishments in that part of the river. Limekiln Dock is included and was later purchased by James Hilhouse.

repair and refit.¹⁷² However an entry on one of the Committee reports says that the dock should be dug deeper ‘to receive loaded ships on the westward side instead of light ships for which it was originally intended’.¹⁷³ This almost certainly means that Farr was correct as ships entering a dock for repair would normally be unloaded first. Another anomaly is that as distinct from Farr, the same authors and others refer to the Floating Dock as the ‘Great Dock’, an understandable error, but this term referred to the larger of the two wet docks situated nearby, the smaller being known at the time as the ‘Small or Little Dock’.¹⁷⁴ Several authorities including McGrath¹⁷⁵ say that the complex then became known as ‘Merchants’ Docks’, but in the documentation they are referred to as ‘Champion’s Docks’ or ‘the late Mr Champion’s Docks’ and the principal dock, the ‘Floating Dock’.

James Martin Hilhouse, a qualified shipwright with private funds, took the lease to the two dry-docks and the grounds around, sub-letting the smaller dock to business associates. Eventually he developed his property into the largest shipbuilding and repair yard in the harbour and about 1777 built another yard on the Somerset side of the Avon at Redclift which he used to build naval vessels. However, by 1787 business was poor so he dismantled this yard and when he realised he might have had to sell the Hotwells establishment, he bought the smaller Limekiln Dock said to date from 1626.¹⁷⁶ However, the economy recovered and he continued to build and repair ships at Hotwells into the next century.¹⁷⁷

It is beyond the scope of this thesis to examine shipbuilding at the port, but repair work will be covered in Chapter 4. The importance of these shipyards to this chapter is their effect on the river traffic and the fact that the two Hotwells docks, being leased, left the Society with certain obligations which will be described

¹⁷² Farr, *Shipbuilding in the Port of Bristol*, p. viii; Latimer, *Annals*, p. 368; Wells, *Short History of the Port of Bristol*, p. 25; Williams, ‘Bristol Port Plans and Improvement Schemes’, p. 145.

¹⁷³ BRO: SMV/7/1/3/2 Management Committee Reports on the Floating Dock 1770-1775, 14 January 1771, p. 8.

¹⁷⁴ BRO: SMV/7/1/3/2 Management Committee Reports on the Floating Dock, 14/1/71, 14 January 1771, p. 12.

¹⁷⁵ McGrath, *Merchant Venturers of Bristol*, p. 154.

¹⁷⁶ John Lord, and Jem Southam, *The Floating Harbour: A Landscape History of Bristol City Docks*. p. 24.

¹⁷⁷ Whitefield, *Mr Hilhouse of Bristol*, p. 120.

below. Hilhouse's establishment took up a considerable area being described in 1787 as having:

A dock 265 foot in length at the bottom and 44 foot upwards in width at the gates and is capable of receiving a fifty gun ship. The yard is very spacious and there are three slips for launching. A crane for landing timber. Moulding lofts, sheds, saw pits. A steam kiln. Smiths shop. A ground for melting pitch and tar. Two small tenements for a foreman or workman.¹⁷⁸

There was also the smaller dock nearby, named Farr's dock after one of its proprietors, but the author has no details of how this operated as it was leased out, though the likelihood is that it was part of the Hilhouse operation, as was the Redclift yard and later the Limekiln Dock. The point is that they themselves would generate considerable traffic in this part of the river as most of their material would come from the city by boat or lighter as the roads were unsuitable. Timber and deal supplies could only be delivered by trow; by lighter from Hungroad; by being towed upriver; or floated from around the harbour. Certainly many of the later paintings of the port area show timber and planks being manoeuvred by workers adding to the obstacles on the river.¹⁷⁹

McGrath believed that the rationale behind purchase of the docks was that the Society saw them as a profitable investment rather than a disinterested effort to improve the port facilities.¹⁸⁰ However, as port administrators they had been looking for a site for ships to discharge combustibles since they tended to be left on the quays constituting a serious fire hazard, and in 1768 had actually contracted for a site opposite Cannon's Marsh on the Somerset side of the river, intending to build a wharf and have it made a legal quay. Within a month of buying the docks,

¹⁷⁸ Whitefield, *Mr Hilhouse of Bristol*, p. 47.

¹⁷⁹ Francis Greenacre, *Marine Artists of Bristol* (Bristol, 1982) pp. 69, 86, 88; Francis Greenacre, *From Bristol to the Sea; Artists, the Avon Gorge and Bristol Harbour* (Bristol, 2005) pp. 92, 107, 112, 122; Sheena Stoddard, *Bristol before the Camera: The City in 1820-30*, pp. 96, 100, 103.

¹⁸⁰ McGrath, *Merchant Venturers of Bristol*, p. 154.

the Docks Committee¹⁸¹ reported to the Committee that they had surveyed the Floating Dock and recommended it be dug out to accommodate ships discharging naval stores and lumber; so it is unfair to say that their purchase was purely mercenary. It also diverts attention from the fact that, to their credit, the Society, although known for their caution, had decided to undertake a substantial project which was innovative for the time.

A floating dock dedicated to handling such goods meant developing a much greater working area well beyond the requirements of a simple quayside, and also needing specialised storage facilities, but apart from handling goods the Society needed to consider the two neighbouring dry-docks with their shipyards. Champion had intended to use part of the floating dock to fit out ships built or partially repaired at these shipyards, and this arrangement needed to be contemplated when planning the new development. Considering that this multifaceted commercial dock was the first of its kind and that the two dry-docks themselves were far from complete and required improvement, the technical problems associated with the project were arguably on a par with the floatation of the entire harbour twenty-five years later. The latter, of course, was a mammoth task as far as the amount of earth to be excavated and the masonry work to be completed, but the facilities on the quays were already in place and systems had evolved for using them.

The management committee appear to have been over-optimistic about the time it would take to reopen the floating dock and so bring in an income and the impression is that little thought was given to its ultimate requirements. Initially, in September, 1770, they insisted on men being employed to dig out the dock 'as expeditiously as possible, to hang the outward gates and to build walls',¹⁸² but by November caution was being voiced by the Hall, as they could not decide upon the

¹⁸¹ At a General Hall on the 14th June, 1770, the line of management was set up. A small management team of four formed a Docks Committee reporting to the Standing Committee whose resolutions were in turn ratified by the Hall. BRO: SMV/2/1/1/9 Hall Book 9, 14 June 1770.

¹⁸² BRO: SMV/7/1/3/2 Management Committee Reports on the Floating Dock, 5 September 1770, p. 3-4.

volume of shipping it was to take.¹⁸³ The argument about dimensions continued, as did concern about expense, and by the middle of 1771 they gave up the rush to reopen.¹⁸⁴ In reality, although plans to flood the dock were made in 1775 and the rates of admittance agreed upon, it was not fully enlarged and operational until 1778.¹⁸⁵ In fairness, the Society cannot be accused of vacillating because it was a massive undertaking for the period and they simply did not comprehend the extent of the project – see Appendix 1.006 for details of the building of the dock and surrounding area.

The Society had purchased the Floating Dock with the intention that it would be used by ships carrying combustible goods, so in 1776 they obtained an Act of Parliament making it compulsory for all ships carrying combustibles to discharge them at this dock.¹⁸⁶ If a ship's cargo consisted of two-thirds of these items it was forbidden to land them elsewhere – lighters from any ship with this quota also had to use the dock – but coastwise traffic could discharge them on the Back and ships bound for private quays were exempted. This legislation also allowed them to enlarge the dock and build specialised facilities for handling and storing combustibles.

Although the Society recorded the dock as being completed in May 1778, work on pitching continued and as time passed the dock was further improved. A stoutly built custom's house 'not exceeding 14 feet squares' was erected in 1784 after customs officers on duty at the dock complained of 'great inconveniences for the sake of a couple of rooms'¹⁸⁷ (Illustration 1.008).¹⁸⁸ The road to the dock was widened and boundary walls built,¹⁸⁹ whilst upright railings were erected near the

¹⁸³ BRO: SMV/7/1/3/2 Management Committee Reports on the Floating Dock, 6 November 1770, p. 7. This was submitted by Champion's son.

¹⁸⁴ BRO: SMV/7/1/3/2. Management Committee Reports on the Floating Dock, 18 June 1771, p. 12-13.

¹⁸⁵ BRO: SMV/7/1/3/2. Management Committee Reports on the Floating Dock, 17 June 1775, 13 September 1775, p. 34.

¹⁸⁶ 16 Geo III c.33. An Act to remove the danger of fire amongst the ships in the port of Bristol by preventing the landing of certain commodities on the present quays; and for providing a convenient quay and proper places for landing and storing the same; and for regulating the said quay, and the lighters, boats and other vessels carrying goods for hire within the said Port of Bristol and for other purposes therein mentioned.

¹⁸⁷ BRO: SMV/2/1/2/4 Index 4, 3 November 1784, p. 262.

¹⁸⁸ BRO: SMV/7/1/3/11 Problems Attending the Use of the Floating Dock, 1784-91.

¹⁸⁹ BRO: SMV/2/1/2/4 Index 4, 28 May 1771, p. 235.

road entrance to the quay, together with gateways to 'prevent improper things being brought there and to secure the goods'.¹⁹⁰ Apparently they had a problem with theft and illegal dumping.

Regulations covering Merchants' Dock.

The rules for its use were not published until August, 1778, an indication that it was not operational till after that date (Appendix 1.007).¹⁹¹ Those rules make it clear that the Society were cognizant with the likely problems with silting if the tide was allowed into the dock, and although the use of a chamber allowed ships to enter or leave without changing the level of the water in the main dock, it also served the purpose of keeping silt out. Ships had to wait there for twelve hours to allow silt to settle. Twelve hours notice had to be given before a ship's arrival in order that the gates be prepared for opening – a delay not necessary at the city quays – and if the ship was late or did not turn up then they had to pay the same fee for opening the gates as charged to ships entering the dock without cargo. Similarly a ship leaving had to give notice so that the chamber could be filled twelve hours before.

All vessels entering had to pay weekly dock rates on a daily basis (Appendix 1.007), but in addition to the usual port duties such as Town Dues and Wharfage,¹⁹² there was the cost of portage, craneage, warehousing and ground storage – see Appendix 1.008 for costs of warehousing and ground storage. Obviously these increased the Society's income, but on the other hand vessels carrying cargo were allowed in and out free; charges for opening the gates being made only to those ships fitting out, lying up or waiting for cargo, but at the turn of the century this perquisite was stopped. In all cases, light ships had to give way to those with cargo and if necessary to leave the dock if it were full. There were also regulations covering the throwing of rubbish or wood chips into the dock and no fires onboard ships were permitted. A works surveyor, Solomon Roach, was appointed shortly after the dock was purchased and allowed free residence

¹⁹⁰ BRO: SMV/2/1/1/11 Hall Book 11, 1782-89, 27 October 1784.

¹⁹¹ BRO: SMV/7/1/3/7 Rules for the Better Government of the Floating Dock, 28 August 1778.

¹⁹² See Chapter 3.

there.¹⁹³ His title became Dock Master when it opened, he being responsible for all functions and rated on a par with the Quay Warden and Water Bailiff.¹⁹⁴ He was to remain so until his resignation in 1794.¹⁹⁵

As lighters would bring enumerated goods from Hungroad, the legislators of the 1776 Act took the opportunity to regulate all 'lighters, boats and other vessels carrying goods for hire within the port of Bristol'.¹⁹⁶ These were to be registered with the Quay Warden in a book which was to be made available to any interested party and which listed the owners' names and the crafts' tonnage. The owners had to present their vessels to the Quay Warden, who would note their tonnage when half, three-quarters and fully loaded and this information, together with the register number, was to be marked white on black on bow and stern. The process was to be repeated annually and can be seen as a progressive step by the Society as lighters and barges were not registered nationally until 1795 and then only those above 13 tons.¹⁹⁷ As far as using the dock was concerned, up to two lighters entering were to pay 5s for opening the gates and any number above this charged 2s6d each.¹⁹⁸

Problems encountered at the Floating Dock.

The above and Appendix 1.006 describe a well made and appointed wet dock with adequate grounds and facilities attached, and in a port where ships were regularly damaged due to grounding it should have been successful, yet it was never filled with shipping.¹⁹⁹ Minchinton says that the Society found it no more profitable than Champion had and as revenue fell short of expectations 'too little was done to keep the dock in good order'.²⁰⁰ However, as has been mentioned above, there are

¹⁹³ BRO: SMV/7/1/3/2 Management Committee reports on the Floating Dock, 5 September 1770, p. 3.

¹⁹⁴ See Chapter 3.

¹⁹⁵ BRO: SMV/2/1/2/5 Index 5, 23 October 1794, p. 157.

¹⁹⁶ Geo III c.33. Section III. The Act specifically states that the cargo of ships consisting of two thirds of the enumerated goods must be unloaded at the Floating Dock whether directly or by lighter. Sections XXVII-XXIX deals with lighters etc.

¹⁹⁷ Geo III c.35. An Act for requiring all boats, barges and other vessels of certain descriptions used in inland navigations in Great Britain to be registered.

¹⁹⁸ BRO: SMV/2/1/2/4 Index 4, 22 April 1779, p. 234.

¹⁹⁹ Wells, *Short History of the Port of Bristol*, p. 26.

²⁰⁰ Minchinton, 'The Port of Bristol', p. 140.

copious surviving documents concerning Merchants' Dock and after analysing them the author would argue that the matter was far more complex. The Society put a great deal of effort and money, £23,547, into the project in the eight years before it was operational,²⁰¹ and it would be against their principles to lose interest and allow this investment to decay within such a short period unless there were exceptional circumstances.

The dock had an inauspicious beginning as the American War of Independence had started and was to go on for another three years drastically reducing the expected timber and naval stores from the North American colonies, and although this trade revived afterwards it never reached the pre-war levels.²⁰² This was beyond the Society's control although they did petition parliament concerning the American trade in 1774.²⁰³

It was within their power, however, to adjust the dues charged for using the dock and there is an argument that had they done so, it would have been more profitable. A memorial presented to the Society by local merchants and traders ten years after the dock opened voiced concern and made suggestions: it gives some insight into the efficacy of the port procedures (Appendix 1.009).²⁰⁴ The plaintiffs' main point was that they had been singled out to pay the whole costs of keeping the port safe from fire through what they saw as heavy taxes on their goods, which they calculated as being 35% on staves and 20% on naval stores. Rather, they insisted, a general tax should be in place as the dock could be utilized by all port users and they suggested an alternative source of income, that ships for sale or unemployed should be made to pay to lie up there, which would incur no further expense to the shipowners as the dock fees were equivalent to ship-keepers' wages, they being unnecessary there.

²⁰¹ McGrath, *Merchant Venturers of Bristol*, p. 156.

²⁰² Morgan gives the figures of ships entering Bristol from the Northern American Colonies in the years 1764-75 as 248 and 92 from 1785-97. Morgan., *Bristol and the Atlantic Trade*, p. 35.

²⁰³ Minchinton, ed., *Politics and the Port of Bristol*, pp. 130-132.

²⁰⁴ 'To the Worshipful, the Master, and Society of Merchant Venturers of the Port of Bristol. The Memorial of Sundry Merchants and Traders of the same City, individually, respectfully praying ...'. BRO: SMV/7/1/3/11 Problems Attending the Use of the Floating Dock. 1784-91. It is undated but recorded in BRO: SMV/2/1/2/5 Index 5, 28 February 1788 as being read.

The problem with their argument was that the losses they faced were not so much to do with the dock dues, which as shown amounted to the same as any other ship entering the port, but with having to unload and lay up their cargoes away from the traditional market at the city quays. The example attached to the memorial was of a ship's cargo discharged at the dock losing its expected profit if landed and marketed at the Quay; but this misses the point that their category of goods were a fire hazard and there was general agreement that it was unsafe for them to be lying there.²⁰⁵ They saw the distance from their businesses to Merchants' Dock as generating an 'unreasonable' tax on their time, although the distance of about a mile does not seem extensive. There was, of course, the inevitable haulage fees the rates of which were set by the Society.²⁰⁶ Lighterage was an additional expense and here the Society again used – or possibly abused – their powers to charge half-craneage to a merchant using his own tackle and workforce to transfer cargo.²⁰⁷

The craneage fees at the dock were the same as at the quays²⁰⁸ but the Society set its own rates for laying up and warehousing at the dock and they may well have been excessive. The author has not found documents enabling a comparison to be made of charges at floating dock with the city warehouses, but there were no fees for goods left on the quayside, although they were time-limited. One of the gentlemen presenting the memorial compared the prices at the dock with those of the warehouses in the city and believed they should be halved. There is no indication on record that the Committee did other than read this memorial and in reality, having spent a great deal of money, the only way they could see any return was from storage and dock fees. As part of their efforts to increase income, a supplementary charge of 40s was applied in 1782 to vessels entering the dock for the sole purpose of repairing upper works.²⁰⁹

²⁰⁵ Minchinton, 'Port of Bristol', p.140.

²⁰⁶ Committee set the rates in proportion to a hogshead of sugar at 1s. BRO: SMV/2/1/2/4 Index 4, 20 September 1784, p. 237.

²⁰⁷ BRO: SMV/2/1/2/4 Index 4, 28 April 1779, p. 234.

²⁰⁸ Geo III c.33. Section VI.

²⁰⁹ BRO: SMV/2/1/2/4 Index 4, 23 November 1782, p. 237.

An important point in the memorial, however, was the claim that high charges were turning shipping towards Liverpool, where merchants had the advantage of cheaper rates in the new wet docks built at low cost on land already owned by their Council.²¹⁰ This situation was a precursor of the long battle in the nineteenth century against the Bristol Dock Company who were saddled with high interest rates on money borrowed to finish the floating dock, and so ruined trade by levying high port charges.

It is doubtful if at this time a small reduction of fees would have substantially increased the volume of shipping using the floating dock because a far more serious problem was its propensity to accumulate silt. It was well constructed under the scrutiny of James Paty and James Hilhouse, one a renowned engineer and the other an experienced shipwright, yet within three years the dock apron and gates required repairs²¹¹ and ten years after opening it was described in a letter as being in a 'shameful' state due to silt and a lack of water; the writer ending with the comment 'The Society of Merchants cannot expect to be paid for vessels lying afloat if they are really lying in mud'.²¹²

The problem was that although the regulation waiting period was enforced, the gates were unable to withstand the unrelenting tides of the Avon and constant leakage caused silt to seep into the dock and water to escape which the lower tides could not replace. As early as 1781, the Dock Master reported that low water levels 'prevented the *Hercules* getting out and losing a spring'. He put this down to great quantities of chips mixed with mud preventing the gates from shutting, but also said that he had warned the captain not to load so deep. This delayed another ship because opening the gates again would lose six inches of water trapping the *Hercules* even further.²¹³ She again grounded in 1787, this time due a problem with the apron.²¹⁴ Granted this ship's draft was 16ft, but the dock had been designed for large timber ships. Hilhouse's dry-dock fared no better and in 1788 he complained

²¹⁰ Hyde, *Liverpool and the Mersey*, p. 14.

²¹¹ BRO: SMV/2/1/2/4 Index 4, 12 November 1782, p. 236.

²¹² Letter from a Mr Claxton to Richard Bright. BRO: SMV/7/1/3/11 Problems Attending the Use of the Floating Dock. 1784-91, 7 November 1789.

²¹³ BRO: SMV/2/1/2/4 Index 4, 2 May 1781, p. 235.

²¹⁴ BRO: SMV/2/1/2/4 Index 4, 2 May 1787, p. 266.

that his apron and gates were dangerous to work.²¹⁵ The apron was found to have dropped 3ft and both it and the gates needed substantial repairs, the responsibility of the Society.²¹⁶

Eventually the floating dock was emptied in 1790 and after viewing the accumulated mud the Committee ordered it removed, instructing the contractors to make three breaches in the walls, use not less than 20 men at each to wheel away the mud, and to complete the work in three months. The only mechanical assistance was the use of the crane. New gates were installed, but leakage problems continued and they had to be repaired in 1791; in 1792 beams were sprung in one of the middle pair; and in 1794 the dock had to be emptied again for repairs.²¹⁷ The reality was that contemporary technology could not cope with the severe environmental conditions with the result that merchants who might have used the safer conditions of the floating dock kept their ships at the quays.

At times the poor state of the dock forced merchants to attempt to land enumerated goods at the city quays, but to obtain permission they had to have a certificate signed by two Justices of the Peace to confirm they were unable to enter the dock²¹⁸ and after that to obtain authorisation from the Collector of Customs.²¹⁹ This was an anathema to the Society, but under special circumstances they would allow unloading at the quays, usually under payment of extra fees. To try to prevent underhand activity, pilots were threatened with suspension if they took a ship carrying these cargoes anywhere but the dock.²²⁰

Documents detailing the day to day operations of the dock survive for the period 1795-1807 and show that the dock was still working more or less as it had been set

²¹⁵ BRO: SMV/7/1/3/8 Hilhouse Papers 1781-1791, 6 November 1789.

²¹⁶ BRO: SMV/2/1/2/5 Index 5, 3 January 1788, p. 148.

²¹⁷ BRO: SMV/2/1/2/5 Index 5, 11 March 1790, 20 June 1791, 17 January 1792, 12 September 1794, pp. 151-152, 155, 157.

²¹⁸ BRO: SMV/7/1/3/11 Problems attending the use of the floating dock 1783-91, 28 November 1786.

²¹⁹ Letter from James Laroche to the Society dated 29 November 1786. Unfortunately this letter was seen by the author at the Merchant Venturers Hall before the archive was moved to the Bro and re-catalogued, but is now missing.

²²⁰ BRO: SMV/2/1/2/4 Index 4, 27 July 1784, p. 237.

up by the original legislation, an indication that the fundamental practices had been well thought out.²²¹

Conclusions.

There was sound reasoning behind the Merchants' Dock project and it was well constructed and should have been an asset to the port. However, unforeseen circumstances caused profits to fall and in an effort to recoup their expenditure the Society probably overcharged. However, the real problem was the tidal river and it was beyond the technology of the time to overcome this. The successful dock building at Liverpool showed that in a less aggressive environment, profits could be made and long term solutions to geographical problems achieved – see Introductory Chapter. In the author's opinion, the Society did their best under the circumstances.

²²¹ BRO: SMV/7/1/3/13 Dock Master's Day Book 1795-99; BRO: SMV/7/1/3/14 Dock Masters Ledger 1796-99; BRO: SMV/7/1/3/16 Dock Masters Journal 1799-1807.

Section 3. The facilities available to shipping at the city quays.

Introduction.

Although the river with its anchorages was essential to the port and without the ship building and repair yards described in Section 2, foreign-going shipping would have had difficulty in continuing to trade, the real hub of activity was the city quays which were the destinations of the vast majority of shipping using the port. These, and their facilities had evolved to meet needs rather than as an entity and to understand their use, a knowledge of their development, the way they were administered, and the people involved is necessary.

The formation of the city quays.

The harbour had probably been used for centuries before significant developments began in the thirteenth century with the course of the River Frome being diverted and a trench, about 2400 ft in length, 120ft wide and with an average depth of 18ft, being dug to meet the River Avon. At the head of this trench a bridge, later known as the Stone Bridge, was constructed and a masonry quay built from there to approximately the end of what became known as Broad Quay. Shortly after, the old wooden bridge crossing the Avon was replaced by one of stone, similar to that across the Thames at London. It is not necessary for this thesis to delve deeply into the historical development of the port, although a chronology up to 1793 has been provided in Appendix 1.011 and Illustration 1.009. The extent of the walls of the Quay and Backs, about 20 feet in height, gradually increased until by 1762 they were separated by only about 550 ft of underdeveloped riverbank at the Grove.²²²

Between 1750-60, the steady rise in trade had increased shipping, creating congestion which harmed commerce and caused damage to ships due to their close proximity. The Common Council drew attention to this and in 1758 an

²²² This paragraph is based on Wells, *Short History of the Port of Bristol* pp. 11-23; McGrath, *Merchant Venturers of Bristol*, pp. 73-75, 151-152; Minchinton, 'Port of Bristol' pp. 153-155; Lord and Southam., *The Floating Harbour*, pp. 14-20.

advertisement was placed in the London newspapers for a surveyor to assess the possibility of floating part of the harbour, but the matter was not taken further due to costs.²²³ Negotiations between the Corporation and the Society to enlarge the quays took place at this time, but no agreement was reached until in 1764 when the Corporation renewed the wharfage agreement with the Society for 99 years and included a lease on all property on the quays. In return for this, the Society contracted to build a new dock and walls at the Grove to make an unbroken quay from the Stone Bridge at Quay Head²²⁴ to Bristol Bridge at the end of the Back. They also agreed to build a small wharf at St. Augustine's Back.²²⁵ Clearly, the agreement benefited the Society, as they gained considerable income for the next century from a lease costing a yearly rent of £10 and what was to be a relatively small outlay of about £9747²²⁷ when compared to the plans being brought forward at the time for floating the harbour at a cost of £25,000 - £30,000.

By this agreement the Corporation surrendered its property for a nominal fee but financial responsibility for the maintenance of the port as well as the specified improvements was the responsibility of the Society under the wharfage lease. At this time, fiscal obligations for maintenance and development of other ports still lay with their corporations, except in the case of Hull, where a private dock company had had to be created to make improvements. In essence the port of Bristol was run by a private company, but unlike at Hull where the Corporation tried to impose the cost of further improvements on the Dock Company, the wharfage agreement meant that any new harbour improvements such as its flotation would have to be negotiated anew with all concerned.²²⁸

The wharfage agreement is an example of the lengths that the Corporation would go to avoid immediate expense, and as will be shown below they were not alone because in spite of having had a bargain, the Society itself began the building of the new quays by cost cutting. The reality was that the linking of the Quay to the

²²³ McGarth, *Merchant Venturers of Bristol*, p. 151.

²²⁴ The more common term 'Quay Head' is used throughout the thesis although in some documentation it is the area is referred to as the 'Head of the Quay', for example, Matthews, *Bristol Directory*, 1794, p. 100.

²²⁵ McGarth, *Merchant Venturers of Bristol*, p. 153.

²²⁷ BRO: SMV/7/1/4/30 Account book 1745-1788.

²²⁸ See Introductory Chapter.

Back would have been imperative whether the entire harbour had been made into a floating dock or not, because this part of the harbour had a depth of only one foot less than at the deepest part of the Quay and as such was a tremendous asset to the congested port.

Linking the Quay to the Back began with the hiring of an engineer, Ferdinando Stratford, in 1762 to examine the area while the negotiations for the wharfage deal were going on, the purpose being to inform the Society of the extent of its responsibilities if it made an agreement. He prepared a plan showing the situation on the Grove before 1767 (Illustration 1.010),²²⁹ and the engineer Thomas Paty was hired to supervise the construction. Appendix 1.012 describes the work done at the Grove in detail. The area to be developed lay between the Mud Dock and the last market shed and contained 150 feet of quay wall, not a legal quay and so without benefit to shipping, and a slipway for the Grove Ferry and the city dung wharf.

There were no other facilities there, but in 1757 due to growing congestion, permission had been given by the Corporation to remove mud from the area between the wall near the Gibb and the Dung Wharf to lay up empty ships, so no doubt it was still being used for that in 1767.²³⁰ Before starting work, Captain Bennett, the Quay Warden, was instructed to find out the identity of the owners of junk left there and to obtain an order for its removal indicating it was probably a general dumping ground as well.²³¹

The method of mooring at the new dock was the same as used at the old Mud Dock, that is the ship was at right angles to the wall rather than alongside, and this atypical way of mooring will be discussed below when dealing with the quays as a whole. Anchor shanks in the walls and anchors laid in the river behind them provided the moorings, and shortly after the laying of the first in 1768 a ship arrived to unload timber. The superintendents collected the port dues from these ships and

²²⁹ BRO: SMV/7/1/4/29 Plan of the Bristol Quays.

²³⁰ BRO: SMV/2/1/2/2 Index 2, 1733-62, p. 10.

²³¹ BRO: SMV/2/1/1/9 Hall Book 9 1762-72, 30 March 1767.

paid them at the customs office, a process that went on as each part of the work was completed showing the dock was being used long before it was finished.

Strong foundations for three cranes had been laid down and a shed was built which was not marked on any plan although must have been substantial as it included a tiled roof. There is no mention of the fate of the dung wharf, but it must have been repositioned as the new dock and slipway would have covered its original location. Illustration 1.007, by Richard Tombs in 1792, shows two indentations between the slipway and the last market shed which were not there before the work started. Both of these had cranes added since 1770 and one is likely to have been designated as the new dung wharf.²³²

The work in 1770 completed the city quays and no further major improvements were made till the floating harbour was created. In 1793, Shiercliff could report that the accommodation at the quays was 'upwards of a mile in extent, reaching from St. Giles's Bridge to Bristol Bridge, and is all the way embanked by a firm wall coped with large hewn stone, from which to the front of the buildings is such a considerable breadth, without interruption, as to make it one continued wharf'.²³³

The allocation of berths to shipping.

When considering where to allocate ships in a harbour, the paramount concern has to be the depth of water available, and if there is little variation then facilities can be assigned according to the logistics of cargo handling. However the tidal conditions at Bristol were such that they controlled the berthing arrangements, the resources available, and indeed the design of the quaysides. Illustration 1.011 depicts the city quays with cranes predominating in two of the designated areas, Narrow Quay and the Grove, whilst at Broad Quay and the Backs, slipways (henceforth written in the

²³² This plan was one of the many concocted by individuals with an interest in floating the harbour that was never put into effect but its depiction of the basic quays can be taken as being reasonably accurate. BRO:41561/57 Minchinton papers.

²³³ E. Shiercliff, *The Bristol and Hotwell Guide* (Bristol, 1793) pp.59-60.

shortened version, slips)²³⁴ had been cut into the harbour walls. At Narrow Quay, the depth of water shallowed from the Gibb until it reached 12ft at the start of Broad Quay. Here there was one crane, but after this point slips prevail. This crane was the first of eighteen servicing Narrow Quay and the Grove, as in these areas the depth of water was suitable for the larger ships whose cargoes were generally heavier and required mechanical assistance.

The use of slips on both Broad Quay and the Backs was due to the considerable range of tide causing the small, lower draught ships to settle so far down the wall that the porters could not manhandle goods on or off them. This was not so much a problem for the larger ships as they were higher up the wall and anyway were generally at a crane. At Bristol, the slips on the quays were designed to give an incline suitable for portage. This is shown in Illustrations 1.012 and 1.013 which show the incline culminating at a suitable point on the wall, level with the average height of the ships using them.²³⁵

As can be seen from Illustration 1.007, there were slips along the whole length of the Backs but the problem with them was that they took up space and it is unlikely that they were of the size shown on the plan as this would make movement of goods difficult – although this is possible at the Market Sheds where they were part of a complex. The slips on Broad Quay and the Backs are shown as having the same length, but if Illustration 1.012 is examined, even with artist's licence, they cannot be more than about 15ft in length and it is likely that all would have been roughly the same size except for the ferry slips where the incline would have to be less to accommodate passengers.

²³⁴ Slips are defined as 'a place lying with a gradual descent on the banks of a river or harbour, convenient for shipbuilding', *Falconer's Dictionary*, p. 435; BRO: SMV/7/1/4/29 Plan of the Bristol Quays.

²³⁵ These two illustrations are substantially the same but there are important differences. Illustration 1.012 shows a young black servant dressed in livery talking to a merchant whilst apparently pointing at two well dressed ladies. Neatly dressed children play on a seesaw yet it would be unlikely that children other than street urchins would be let loose among the filth on a quayside. Illustration 1.013 appears more basic and what might have been family figures have been replaced with what appears to be a schoolmaster and pupils. Navigational schools were advertised in the newspapers. Conjecture suggests the former was commissioned by a merchant and his family was included but there is no evidence available.

However, there is some evidence that the ships berthing at the Backs were moored bow-on to the quay, with their bowsprits overhanging the quay wall. Certainly that was the method of mooring at both Mud Docks²³⁶ and when the New Mud Dock was being planned, the Committee said 'that the wall above the Dung Wharf should be laid out in slips in the same manner as the Back now is for the accommodation of vessels of 130 or 140 tons'.²³⁷ This method of berthing is indirectly confirmed by a letter to the Society from the Water Bailiff in March, 1791 after a spate of thefts of cable from ships moored at the Market Sheds.

Herewith the great necessity of having chains fixt in the slips between the corn sheds (Market Sheds) at the Back of Bristol the posts being at the top of the slips, the vessels that moor there make fast their cables to the post the thieves come in the night and cut their cables at the bottom of the slip. The vessels goes adrift on the stream and ground on the bank of the said River and damage the vessels and cargo. Prayeth that the order may be given for the above evil to be remedied.²³⁸

It corroborates the notion that the ships were mooring bow-on at least as far as the Market Sheds were concerned and probably this continued the length of the Back, although some slips had a greater distance between them so there was probably a mixture of mooring systems with some ships alongside the two cranes. It is unusual for ships to be moored in this way and Paul Elkin has argued that the expression 'ship shape and Bristol fashion' refers to this and not to the robust build of Bristol ships.²³⁹ After the harbour was floated in 1809, plans no longer show slips on the Back as they were unnecessary in a non-tidal harbour except to assist passengers using the ferries.

Whereas the cranes on the quays were numbered in order to 'more readily find the

²³⁶ John Roque, Plan of Bristol 1742; John Plumley and George Ashmead 1828; Thomas Rowbotham, The south end of Prince Street, 1826. BMG M2928; P. Malpass and Andy King, *Bristol's Floating Harbour: The First 200 Years* (Bristol, 2009) p. 21.

²³⁷ BRO: SMV/2/1/1/9 Hall book 9 Standing Committee of the SMV Meeting, 18 February 1767.

²³⁸ BRO: SMV/7/1/2/2. Miscellaneous papers re quays, 1769-92. Papers are not numbered.

²³⁹ Paul Elkin, *Images of Maritime Bristol* (Derby, 1995) p.14.

subjacent vessel',²⁴⁰ the names of three of the slips denoted their locality on the quay whilst the fourth, Barnstaple, was named after a specific port, an indication that it serviced ships trading with this port. This method of naming slips after the port they served is confirmed in the Bristol directories as the slips at the Backs were designated so, and yet there was no difference in water depth from one end to the other and therefore no need to segregate shipping.²⁴¹

Appendix 1.013 was compiled from the berthing locations listed therein for constant coasters, and also references to these named sites are to be seen in contemporary documents. No map or plan has so far been found with the slipways labelled although cranes are sometimes numbered, but it has been possible to transcribe the information from this appendix onto Illustration 1.011. On the Narrow Quay and the Grove, the deep water was suitable for any large foreign ship, but the gradual reduction in depth of the Frome upstream meant that the area from Crane 4 was suitable only for smaller ships.

Quay Head has been added to the appendix because it was an integral part of the city quays although no mention has been found anywhere that it had cranes or slipways. This was the area where trows, barges and other vessels from the ports on the Severn and Wye were handled due to them having a particularly low draught of about 3-5 ft necessary for river navigation and therefore suitable for this part of the quays. No special amenities were necessary for cargo handling as their rise and fall alongside the quay wall was relatively small. There was a private slip on the west side of the river at St. Augustine's Reach.

Regarding the rest of the quays below the drawbridge, they were divided into areas dedicated to servicing ships plying their trade to specific geographical areas, not always dependant on water depth. The large foreign traders had to be berthed in the deepest parts of the quays where cranes were available to assist with heavy goods, but most coastal shipping was of a size that could have been handled anywhere else except near the drawbridge.

²⁴⁰ Matthews, *Bristol Directory*, 1794, p. 35.

²⁴¹ *Bristol Directory*, 1785, pp. 72-75; Matthews, *Bristol Directory*, 1794, pp. 98-100.

One of the most important factors of an efficient berthing system is easy access to storage areas or markets, especially so in the eighteenth century when roads were generally poor and particularly so at Bristol. Goods landed from ships could be stored at the merchants' own warehouses,²⁴² or after 1783 in the Tontine Warehouses.²⁴³ There was also the Corporation's Back Warehouse, or, alternatively, produce could be sent directly to market.²⁴⁴ An examination of Illustration 1.009 shows the Tontine Warehouse at Quay Head and the Back Warehouse near Bristol Bridge were separated by about a mile and so should have been accessible to ships on the quays. The problem was that these warehouses tended to take the bulkier goods and the drays carrying them had to negotiate the encumbrances on the quays – they were banned from the city streets. Clutter on the quays will be dealt with below, but had it been possible, the Tontine Warehouses might have been better built nearer to the Gibb and the foreign shipping. However, a quayside evolving over centuries cannot be re-designed and both these buildings were probably in the most suitable sites available. This difficulty was not experienced at Liverpool where all the docks were newly built on open land. As far as the merchants' warehouses are concerned, the wealthier had purpose built premises but others relied on cellars and storerooms in the vicinity of the quays attached to domestic buildings.

When maritime scholars consider Bristol in this period, concentration tends to be on the foreign-going vessels, especially West Indiamen, but the reality was that in 1791, 527 foreign vessels used the port whilst 211 coastal vessels left on 416 occasions. There were 176 Irish ships, 1951 trows and other estuary boats; plus unknown numbers of barges and lighters.²⁴⁵ Although the foreign ships would be the more difficult to manoeuvre due to size, the majority of the Quay Warden and Water Bailiff's work would be to organise the smaller coasters, especially on

²⁴² In the eighteenth century, the term 'warehouse' was generally applied to what in today's vernacular we would term shop as well as its more common use denoting a storage facility.

²⁴³ A tontine was a speculative investment in which the proceeds were eventually divided amongst the surviving investors. In this case 195 people invested to complete the warehouses according to this principle.

²⁴⁴ For the facilities associated with warehouses, see Chapter 4.

²⁴⁵ BRO 11168 (3) l. Tonnage of ships into Bristol.

market days. The location of their berths was therefore a matter of major importance.

The main area designated for coasters was the Backs and as shown in Appendix 1.013, the two ladders and the first four slips were dedicated to vessels from Wales. They were denoted by the geographical area from which goods were imported rather than the type of merchandise carried, which would allow passengers and those interested in specific ships to find them easily and make it easier to control the influx of ships on busy market days. These vessels had traditionally berthed there, so resources had developed to suit; in particular the Welsh Market shed was built in 1776 opposite King Street after the parishioners of St. Nicholas complained of the 'inconveniences caused by the open markets (Illustration 1.014).²⁴⁶

The goods coming in from Wales were varied, some going straight to the market on appropriate days,²⁴⁷ but there was easy access from this area to the other markets and the Back Warehouse. The Welsh traders did not have all of the Backs at this period, there being two slips for coasters from Somerset, possibly situated there because of the proximity of the Exchange Market which had an arcade called the Somersetshire Market. However, as there was also a Gloucestershire Market in the same place and as vessels from there came in at Quay Head, it is possible that ships simply kept to their historical berths throughout the centuries.

The remainder of the Back was taken up by the seven corn sheds with their slips, alternatively known as the Market Houses. Allowing for the inaccuracies in the maps, they were likely to have been about the same size as the Welsh Market and had been built in 1748 to land all types of grain for the distilleries, corn factors, and such like. The market there took place every spring tide and the sheds had been built to secure the goods from the weather.²⁴⁸ Here, the regular traders from the

²⁴⁶ Latimer, *Annals*, p. 422.

²⁴⁷ Mainly foodstuffs. Matthews, *Bristol Directory*, 1794, p. 44.

²⁴⁸ Matthews, *Bristol Directory*, 1794, pp. 20, 44.

Severn and Wye Rivers discharged but they would be open to any vessel carrying these commodities.

In a similar fashion to the Back, the slips on the Quay were allocated according to incoming geographical area, though only the first was so named, and goods from the south and southwest of England predominated. Ships from Scotland and Ireland occupied the space nearest the Drawbridge and the first four cranes had the trade from London, Liverpool and Cork, probably because these ships were of deeper draught and carrying bulkier goods.

There were no large transit sheds in the harbour as were to be installed in the nineteenth century, and although the need to shelter goods vulnerable to weather conditions had been recognised, there were few on the rest of the quays. A new shed had accompanied the building of the Grove in 1770 and there were another two, one at the Gibb and the other just east of the Mud Dock shown on Illustrations 1.007 and 1.010. Also in 1774 the Society approved a proposal with an estimate of £100 for erecting a shed for fruit at Crane 1, but although advertised it is not shown on any plan.²⁴⁹ Similarly a description of the corn sheds mentions market sheds for the same goods at Quay Head but they cannot be found on maps or documents.²⁵⁰ Considering the magnitude of goods vulnerable to weather that were handled on the quays, this is an indication that the authorities lacked vision or were being parsimonious and it did lead to complaints.²⁵¹ A fish market had been held at Quay Head in the past, but had been moved to the central area of the city leaving the Quay and the Grove without adjacent markets. The type of goods handled by coasters and the markets will be dealt with in Chapter 4.

²⁴⁹ BRO: SMV/2/1/1/10 Hall Book 10, 1 March 1773 and 17 November 1774.

²⁵⁰ Matthews, *Bristol Directory*, 1794, p. 44.

²⁵¹ Complaint that goods coming from the north were being damaged for want of sheds to cover them. BRO: SMV/2/1/2/4 Index 4, p. 48.

Porters on the quays.

In the second half of the century is not clear who actually carried out the work of shipping and landing goods on the quays.²⁵² According to the instructions given to the Crane Master, Benjamin Thomas on his appointment in 1772,²⁵³ he was to pay the 'porters' wages, an indication that the men who did this work belonged to 'The Company of Porters of the City of Bristol', which had come into existence in 1670 to regulate the porters (stevedores in modern parlance) following complaints about their bad behaviour and extortion. After this date, all who wished to work in the harbour had to be members and follow its rules, regulations and a schedule of work rates, set after agreement between the Common Council, the merchants, and the Society.²⁵⁴ The original Ordinance setting up the Company shows that it was established along the lines of the other Bristol guilds and companies, with a master and wardens, but later it did not appear to have had the same status, possibly because the members were unskilled – many having failed in their own crafts (Appendix 1.014).²⁵⁵ And, of significant importance to future members, there was no absolute right for them to be the sole cargo handlers in the harbour.

In the Ordinance there were various strictures regarding their behaviour, but the establishment of set rates for landing, shipping and carrying of goods was an important factor in creating stability in the port. These rates were changed three times before the final schedule in 1747, but they could be altered for individual items on the suggestion of the Society if then ratified by the Council. The system was to rate commodities according to type and whether the men were working on 'even key', or at the slips, ladders or cranes; and whether there was the additional work of weighing.²⁵⁶ The porters were initially allocated to four or five areas of the quays but eventually they were designated as either Quay or Back porters.

²⁵² These were the terms used for loading and unloading in the eighteenth century.

²⁵³ BRO: SMV/2/1/1/9 Hall Book 9, 11 March 1772.

²⁵⁴ The dates given are those of the period of the Book but the date of the incorporation of the company was 1 February, 1670. BRO: 6787 Book of the Porters Company, 1671-1799.

²⁵⁵ BRO: 39290/FW/LN/37 Papers of F.G. Webb, The Company of Porters, p. 3.

²⁵⁶ BRO: 6787 Book of the Porters Company, 1671-1799.

It would seem natural that a regulated company set up by the port authorities to work on the quays should have a near monopoly, but following a substantial increase in the number of cranes after 1740, the matter of who did what becomes confused. At that time porters' petitions were presented to the Corporation beseeching them to stop the process of installing new cranes; one stating that '60 poor families would be totally ruined' though it did include a caveat 'unless your worships will allow your poor petitioners to work the said cranes'.²⁵⁷ The predicament for the porters was that when working at the cranes, or on ground belonging to the cranes, they received two thirds of their usual rates if the goods were weighed and only half if they were not, the rest going to the crane owner.²⁵⁸ The petition mentions 60 families, which could mean an equal number of porters, but it is probably an exaggeration to gain sympathy because numbers had been falling from the original 80 in 1670 to 45 in 1717, and then to 23 in 1786.²⁵⁹ Apart from the question of the cranes, the porters' exclusive right to work ships was being challenged. An undated memorandum shows the corn factors at the sheds on the Back were using their own men²⁶⁰ and that one individual was also defying them by working goods on the Back. Significantly, the Corporation did not support the porters in this matter.²⁶¹ In 1807, a Wharfage Act²⁶² was passed which should have had a clause relating to employing porters, but it was removed and although the Corporation appointed 24, it was not compulsory to employ them.

The crane leases in 1758 refer to porters, as do the instructions to the Crane Master in 1772, but there are no details so it could be that it had become a generic term for general crane labourers. The reality is that with 16 cranes in place by 1772, and at least 19 by the end of the century, they simply could not have been serviced by only 24 porters, never mind the fact that they were also covering the rest of the quays. The porters must have been subcontracting work for some time and this has been confirmed by nineteenth-century letters.²⁶³

²⁵⁷ Loose papers and letters attached to the document. BRO: 6787 Book of the Porters Company, 1671-1799.

²⁵⁸ Appended to the 1699 rates. BRO: 6787 Book of the Porters Company, 1671-1799.

²⁵⁹ BRO: 39290/FW/LN/37. The Company of Porters, p. 6.

²⁶⁰ This would date it after 1748 when the sheds were built.

²⁶¹ BRO: 6787. Book of the Porters Company, undated memorandum.

²⁶² 47 Geo 111. c.33.

²⁶³ BRO: 39290/FW/LN/37 The Company of Porters, p. 6.

Considering the above, the conclusion is that the porters' grip on cargo handling was tenuous, especially at the cranes, and the most likely scenario would be that they were strongest in non-crane areas where they hired men to work the ships, to assist in weighing, and probably to shift goods about the quayside, paying their wages out of the scheduled rates collected from the merchant or ship's master.²⁶⁴ Transporting goods to and from the quays is not on the 1747 schedule and may no longer have been part of their job. The licensed porter probably collected his money at the crane office from the crane master, paying his hirelings agreed amounts.

There must have been some form of keeping tally, perhaps similar to that where a merchant's clerk kept his own copy of the Custom's blue book,²⁶⁵ or perhaps the porter attended to this but did not do the manual work. There were crane foremen as overseers, but the cranes could have been operated by porters as the work was not highly skilled. There are few job descriptions available and in this case the nearest was in the rates schedule of 1699 where they were said to receive their wages for 'heaving, rowling and weighing'.²⁶⁶

An entry in the Hall Book for 1776 detailing a complaint about damaged goods opens up another line of enquiry, that is whether or not porters were responsible for work within ships' holds. In the complaint there are references to 'shipmen' and 'cranemen' with the Committee concluding that the damage was equally the fault of both parties and that the Society would only pay one half, the owners the other. This division of responsibility is further shown in 1780 when the Society refused to pay for damage to a cask as it had been 'safely delivered below the hatchway',²⁶⁷ again an indication of separate labour forces. Although two workforces could be considered uneconomical, it must be remembered that precise cargo stowage has always been vital to the safe passage of a ship and also its owner could have been worried about theft.

²⁶⁴ BRO: 6787 Book of the Porters Company, Undated memorandum.

²⁶⁵ See Chapter 3.

²⁶⁶ Attached papers, Schedule of Rates, 1699. BRO: 6787 Book of the Porters Company, 1671-1799.

²⁶⁷ BRO: SMV/2/1/2/4 Index 4, 17 September 1776, 16 October 1780. pp. 240-242.

There is further evidence of this division of labour from documentation showing that the responsibility for the shipping and landing cargo lay with the mate. The mate's disbursements for unloading the *Sybil's* cargo in 1785, states that six men discharged the ship and the outgoing cargo was taken in and stowed, again by six men. All were paid at a rate of 2s per day per man and similarly in 1786 her cargo was worked by men earning 1s6d per day. The mate's disbursements for the *Success* for 1779 again show men being paid daily rates to load and unload the ship.²⁶⁸ The cost of craneage – or portorage if no cranes were used – would be itemised on the bill of the merchant loading or unloading goods onto a ship and was not paid by the shipowner. It is likely that once the goods were onboard they were his responsibility so he paid for the final disposition.

Unfortunately ships' account books do not itemise the mate's disbursements but there is always a general entry. Invoices for outgoing goods usually have an item 'shipping', but there are few bills available for incoming goods and charges for 'landing' are not itemised. The conclusion is that goods were discharged or loaded onboard ship by porters or other labourers belonging to the cranes, but distributed in the holds by workmen hired and supervised by the mate.

If this was the case then it makes sense of an incident recorded in the Hall book in 1783 reporting that sailors had assembled at Queen's Square threatening to unrig ships unless, amongst other demands 'lumpers', that is non-seamen, ceased to be employed loading and discharging ships as this was a job for seamen who, they said, should be employed at the same wages as they get at sea. A deputation of them were seen by the Hall who agreed in general, but not to the wages.²⁶⁹ It is unlikely that the seamen would be claiming the jobs of the porters or their usual hired men, but were probably objecting to unqualified men working in the holds.

²⁶⁸ BRL: 21258 Account book of the *Sybil* and *Success*, 1779-86, pp. 22, 43, 82, 116.

²⁶⁹ BRO: SMV/2/1/1/11 Hall Book 11, 7 may 1783, pp. 25-26.

The Crane Office.

Cranes were vital pieces of equipment at any port and so their use requires special attention in this study. At Bristol the Society controlled them and regularly discussed their operation at Committee meetings and recorded the proceedings in the Hall Books. This makes it possible to examine the Committee at work; to look at the financial aspects; to assess the actual operations of the cranes; and the effect on the merchants using them.

The first crane at Bristol was on the Back, donated by a merchant's widow Alice Chester in 1475, and when its foundations perished in 1634, another was erected. By the end of the seventeenth century new cranes had been built and let, reputedly of a design similar to those in use in London.²⁷⁰ The Society leased out the cranes until 1772 deriving income from rent in preference to having to deal with the complications of everyday administration. The leases were renewed every seven years by auction.²⁷¹

In 1758, the leases for six cranes were publicly auctioned in lots and an examination of the lease conditions set by the Society illustrates the way they were administered before they were taken over in 1772. The cranes varied in size and each had a working area of 30-35 feet on either side and the leaseholder was obliged to retain and pay a sufficient number of porters so that the 'merchant's business may be dispatched without loss of time'. They had also to provide 'ropes, slings, can hooks, cradles and all other tackle fit and necessary for the loading and unloading goods' and to have a presence at all convenient tides. Crane workers were forbidden to 'cast off' vessels from the quay when work was completed unless new arrivals were waiting, a sign that the Quay Warden, not the lessee was in overall control and that merchants' could keep their vessels at the quay if there was space. The Society as leasers had to pay local taxes, king's tax, poor tax,

²⁷⁰ McGrath, 'Society of Merchant Venturers in the 17th Century', p. 117.

²⁷¹ McGrath, *Merchant Venturers of Bristol*, p. 162.

bridge rate, watch rate and lamp tax,²⁷² repair the moving parts of the crane and keep the quay walls in good order.²⁷³

The Great Crane on the west wall of the Mud Dock was also auctioned, together with the dock itself, the quay between the crane and the Gibb slip on one side, and the wall as far as it went on after the dock.²⁷⁴ This crane will be described below but the annual rent from this lot was £195 as compared to the average rent from a single crane of £66, emphasising perhaps the lifting power of the crane and the position of the Mud Dock at the deepest water of the quays.

The Society had not relinquished wharfage payments to the lessees and although the cranes had brought the Society a gross income of £6916 between the years 1758-72, they were obviously impressed by the increasing popularity of leasing and wondered if it would not be better to retain control and profits for themselves. In the 1758 auction the Society had initially put the starting prices at £320 but took £652, more than double their estimate, and in 1765 annual rents again rose to £988. So, at the termination of the last lease in January, 1772, they decided to operate the cranes themselves for one year and it being successful continued this into the next century.²⁷⁵

The General Account of the Cranes for the first nine months after taking over in 1772 gives a gross income of £1461.12s and outgoings of £585.17s for labour, repairs and taxes making a net profit of £875.15, pro rata per annum, £1167. Of this, £260 was disputed by merchants. The gross income for 1771 was £988 and if the same amount for 1771 is deducted for repairs and taxes, then the net income would be £662. It was certainly more profitable for the Society in the first year but McGrath says that it is not clear if the new arrangement was financially satisfactory over the rest of the century.²⁷⁶

²⁷² BRO: SMV/7/1/2/3. Cranage Accounts 1769 – 1792. These documents are in an unnumbered bundle.

²⁷³ BRO: SMV/2/1/1/8 Hall Book 8, 25 March 1758.

²⁷⁴ BRO: SMV/2/1/1/8 Hall Book 8, 27 April 1758.

²⁷⁵ McGrath, *Merchant Venturers of Bristol*, p. 162:

²⁷⁶ McGrath, *Merchant Venturers of Bristol*, p. 163.

After taking over the cranes, the Society left the overall management to the Committee who began by appointing a crane manager to carry out their day to day management.

The Committee in pursuance of the power given to them by the Hall of the 31st January 1772, appointed Benjamin Thomas to be the Crane Master during so long time as he shall conduct himself to the satisfaction of the Committee and it ordered that he do employ a proper number of porters for the working of the cranes and receive the rates of landing and shipping goods and pay such porters their wages and that for such service he be allowed a salary of £50 by the year and so in proportion, and also proper clerks and assistants and all incident expenses.²⁷⁷

An operation of this magnitude – at the time there were 16 cranes, including the Great Crane ²⁷⁸ – needed to be accommodated properly so at the same meeting the Committee selected one half of a warehouse on the north side of the Hall as the crane office. No records have so far been found detailing the method of operation, but this can be determined from documents recording complaints from the crane office regarding the periodic refusal of merchants to pay their ‘notes’ (bills). Formerly, when leasing out, the Society only had the problem of recovering arrears of rent from the crane operators,²⁷⁹ but after 1772 the issue was magnified as each participating merchant was invoiced individually by the crane office and all quibbles over payments were referred to the Committee. They could allow the complaint, reduce the charge, or as a last resort sue for payment, but the effort involved should be weighed against increased income from direct management.²⁸⁰

²⁷⁷ BRO: SMV/2/1/1/9 Hall Book 9, 11 March 1772.

²⁷⁸ Minchinton says that there were 14 cranes including the Great Crane in 1774. However there appears to be at least two more if three cranes built during the work done at the Grove were added to those on Illustration 1.007. Minchinton, ‘Port of Bristol’, p. 146.

²⁷⁹ BRO: SMV/2/1/2/4 Index 4, 3 September 1770, p. 49-50.

²⁸⁰ The late renters of the cranes to be sued for all arrears, 27 May 1772, and again Clerk to bring actions, 11 July 1772. BRO: SMV/2/1/2/4 Index 4, p. 250.

Goods were worked according to a schedule denoting specific charges per item or in multiples of that item.²⁸¹ The rates listed in the schedule had been in force before the Society took over the administration of the cranes and from time to time were revised, an example being that in 1768 the ‘renters’ of the cranes asked the Society to apply to the Quarter Sessions for an increase in the charges for landing and weighing butter. When the Committee considered the matter two months later, it saw fit to change the crane operator’s recommendations before sending the proposal on to the Quarter Sessions who eventually approved it eight months later. It is important to note the time it took to affect change, as even a simple matter like that had to be shunted between the initiator, the Committee, the full Hall, the Quarter Sessions and back again.²⁸²

The day to day working of the cranes was the responsibility of the Crane Master and under him, stationed on the quays, were foremen supervising the actual handling of ships’ cargoes. Their duties are not recorded, but in 1775 the Quay Warden asked the Committee to order foremen to attend when ships came up in the night to let go the ‘fasts’²⁸³ and act under the Quay Warden’s directions. This shows that shipping did come up at night in spite of the regulations imposed by Customs.²⁸⁴

As far as the actual collection of fees is concerned, they were taken by ‘collectors’, stationed at the crane office, but in 1778 the Committee visited the office and ordered them to pay the monies directly to Mr Nathaniel Champion, appointed Examiner of the Wharfage and Crane Accounts in 1773 at a salary of £50, increased to £80 in 1776.²⁸⁵ He was then to advance to Mr Thomas, the overseer, money to pay wages, ‘so that there would not be any account between collectors and overseers’. Benjamin Thomas had been appointed Crane Master in 1772 but in this entry he is referred to as Overseer, and although his original job description had indicated he was to receive the rates of landing and shipping goods and pay

²⁸¹ BRO: 39290/FW/LN/37 (a/b). Papers of F.G. Webb. Company of Porters.

²⁸² BRO: SMV/2/1/2/4 Index 4, 19 December 1768, 8 February 1769, 9 August 1769, pp. 46-47.

²⁸³ A rope cablet or chain by which a cable is secured to a wharf. Smyth, *Sailors Word Book*, p. 289.

²⁸⁴ BRO: SMV/2/1/2/4 Index 4, p. 53.

²⁸⁵ Appointed 10th November, 1773. BRO: SMV/2/1/2/4 Index 4, pp. 51, 53.

all incidental expenses, the Committee now instructed the collectors to list all outstanding debts quarterly, visit the debtors themselves to ascertain their excuses, and advise the Committee in writing. This apparent loss of status for Thomas could be due to the realisation that the work was beyond one man, or they may have suspected some dishonesty was taking place.²⁸⁶ However in 1781 the Committee were of the opinion that it was better to have the crane office managed by Thomas again and the two collectors were dismissed.²⁸⁷

The above changes do not seem to have worked because in September, 1785, the clerk and collector were dismissed and the Committee decided to effect a reorganisation. Appointments to the higher echelons of the Crane Office would now have to be properly qualified people, giving securities. The 'principal person', a Mr Whitchurch²⁸⁸ with the title, 'Chief Clerk and Accountant of the Crane Office', was to have a salary of £100 per annum after paying a bond of £1000; to be accountable for all monies, and to produce balanced books monthly. Two boys from Colston's Hospital were to be employed in the office.

Benjamin Thomas was retained at the same salary to superintend the men at the cranes and assist in collecting, whilst three foremen at 9s per week were appointed. Another was shortly added and it is of interest that one of the new men had to be replaced as a condition of appointment was that a foreman could not also own a public house.²⁸⁹ By 1795, the number of foremen supervising daily operations had increased to five²⁹⁰ and therefore each must have had several cranes under his authority or to have been employed in a roving capacity.

The numbers of men working at the cranes is not documented, but it needed at least two to operate each plus porters to manhandle goods, and petitions to the Society asking for employment as 'cranemen' are evidence that they were directly

²⁸⁶ BRO: SMV/2/1/2/4 Index 4, 20 August 1778, p. 240.

²⁸⁷ BRO: SMV/2/1/2/4 Index 4, 7 September 1781, p. 243.

²⁸⁸ James Whitchurch. Chief Clerk and Accountant of the Crane Office. BRO: SMV/2/1/2/4 Index 4, 10 September 1785, p245: Listed as a salesman based at 77 on The Quay. Sketchley, *Bristol Directory*, 1775; Listed as a merchant, St James Square. *Bristol Directory*, 1785; Listed as a merchant, Oxford Street. Matthews, *Bristol Directory*, 1794.

²⁸⁹ BRO: SMV/2/1/2/4 Index 4, 5 September 1785 to 13 October 1785, pp. 244-245.

²⁹⁰ BRO: SMV/2/1/2/5 Index 5, 26 March 1795, p. 28.

employed.²⁹¹ A letter from Customs to the Society in 1791 accuses them of condoning fraud at the cranes saying that under interrogation porters ‘working under the direction of your officers at the quays’ had been under-weighing, but were afraid to confess as they had been warned by a Mr William Long, probably the foreman, that if they did they would no longer be employed under him.²⁹² This is an indication that the Company of Porters had no power to distribute their members or any real independence; the word ‘porter’ may even have become a generic term for quay workers. It is clear that all work at the cranes was done under the direction of men employed by the Society.

The numerous entries in the Hall Books show that the crane office’s powers were limited to making recommendations about maintenance, repairs or setting up new cranes and that any measure costing money had first to be sanctioned by the Committee. In 1773, Crane 9 was seen as being unfit for use and it was decided by them that the present No 8 be moved to that position and a new double purchase crane be erected in its place.²⁹³ The estimate for this has survived and shows that the cost of £110 was reduced by £20 as the foundations, post and barrel of the old crane were still good.²⁹⁴

Ever since they had had undertaken the provision of cranes in the 17th century, the Society had been responsible for the costs of their erection and maintenance. These were said to be a copy of the ‘rats tailed’ cranes used at London and were susceptible to mechanical damage through mishandling (Illustration 1.015). The jib was about 30ft long, enough to reach the hold of a ship lying alongside the quay and possibly, with some manipulation, that in the next mooring outwards. The state of the cranes on the quay deteriorated with constant use and in 1788 they were

²⁹¹ Loose papers include petitions from individuals, some with minor disabilities, begging for employment as ‘cranemen’. BRO: SMV/7/1/2/2 Miscellaneous papers re cranes, 1769-1792.

²⁹² BRO: SMV/7/1/2/2 Miscellaneous papers re cranes. Letter from the Controller of Customs, 11 August 1778.

²⁹³ BRO: SMV/2/1/1/10 Hall Book 10, loose paper, 16 April 1773.

²⁹⁴ BRO: SMV/7/1/2/2 Miscellaneous papers re cranes, loose paper. Although this document has no date it must have been shortly after the 16 April 1773 entry in Hall Book 10.

inspected by a carpenter and millwright, Joseph Glasoedine,²⁹⁵ who found that six needed repairs to the frames, blocks or machinery.²⁹⁶

However, most damage appears to have been caused by mishandling, details of which allows some insight into the difficulties people experienced by having to work in a congested tidal port. In 1790, the Committee were considering whether they would 'call on' Mr Tombs for the cost of the considerable damage to Crane 4, 'at his dock' which was inaccurate as he was a shipbuilder and Crane 4 was not at his dry-dock but on the quay opposite; therefore it must have been damaged whilst assisting a ship to leave or enter the dock. At that point, the river was only about 120ft wide, see Illustration 1.007, and bringing a ship out must have been an intricate manoeuvre involving clearing vessels away from the quay opposite.²⁹⁷ This must have been something of a nuisance as the dock was in regular use for ship repair and being about 200ft long could take several ships, all of which would need to be brought in and out near high tide, when the port was at its busiest. Farr says that ships were built at the head of the dock and launched through it, the slipway being clearly marked on Illustration 1.007.²⁹⁸

The use of cranes outside of their primary purpose was again noted in 1792 when the Committee forbade the use of their cranes to lift ships over mud into their berths, they 'having been much injured by the process'.²⁹⁹ As was typical in a tidal mud port; ships would shape themselves trenches in the mud as the tide ebbed and flowed and when they departed the outside lip would act as a reef over which the next needed to float or be dragged. Most damage, however, would have been caused through overloading, broken chains, worn blocks and wear and tear as the crane moved on its axis. The cranes themselves could cause damage as indicated in a letter from Customs in 1791 when they remonstrated that due to the necks of the cranes being lengthened to facilitate discharge, swinging parcels were

²⁹⁵ Carpenter, Penn Street. *Bristol Directory* (1785); Carpenter and mill-wright, Stokes Croft. Matthews, *Bristol Directory*, 1794.

²⁹⁶ BRO: SMV/7/1/2/2 Miscellaneous papers re cranes, loose document, 30 May 1788.

²⁹⁷ BRO: SMV/7/1/2/2 Miscellaneous papers re cranes, loose documents, 6 March 1790 and 30 April 1788; BRO: SMV/2/1/2/5 Index 5, 17 March 1790, p. 23.

²⁹⁸ Farr, *Shipbuilding in the port of Bristol*, p. 1.

²⁹⁹ BRO: SMV/2/1/2/5 Index 5, 24 January 1792, p. 26.

damaging their weighing gibbets.³⁰⁰ These were the responsibility of the Society and they were requested to move them to a safe distance.³⁰¹ Again an example of an attempt by the crane workers to overcome a problem caused by the tidal river.

Refusals to pay and quibbles about dues by merchants and others were regularly entered in the Hall Books and took up a great deal of the Committee's time. In August 1778, the Committee visited the crane office and instructed the collectors to list all outstanding debts quarterly, visit the debtors themselves to ascertain their excuses, and advise the Committee in writing. The crane officer's returns are available for 8 August, 1779, and illustrate the additional complications brought about by direct ownership.³⁰² There were 36 debtors, out of whom nine were in dispute with other merchants over responsibility; six claimed that cranes were not used to load their goods; two protested overcharging; three refused to pay under any circumstances; five had now passed out of the crane officer's department, presumably under legal process; three agreed to pay; two claimed goods had been lost over the side by the cranes; one denied that the goods belonged to him; one was deceased; one had paid; and in three cases the excuse was difficult to understand.

The Committee allowed merchants in dispute time to settle their differences before taking matters further but otherwise they had to adjudicate between the decisions of their own office and recalcitrant merchants. It is not surprising that they generally decided on legal action if payment was refused and in the two meetings following these returns, only one was altered whilst the clerk was ordered to take legal action if payment was not received.³⁰³ The Society insisted that the crane office received payment even when their own cranes were not used. Four entries on this report are of merchants unloading goods over the side into trows using their own ships' resources, in one case the merchant landing them at his own dock, and in another that the ship was not 'under a crane'.

³⁰⁰ The reality of the problem can be seen on Illustration 1.012 at the bottom left hand side where two men are operating a crane very near the Custom's weighing gibbet.

³⁰¹ BRO: SMV/7/1/2/2 Miscellaneous papers re cranes, loose document, 26 February 1791.

³⁰² BRO: SMV/7/1/2/3 Craneage Accounts 1769-1792, loose documents, 8/4/79. 8 May 1779.

³⁰³ BRO: SMV/2/1/2/5 Index 5, 15 November 1779, 4/1/80, 4 January 1780, p. 2.

Evasion of duties had been a problem ever since the Society took over the cranes, one complaint being that merchants shipped goods and later denied responsibility for payment, so the Committee put out printed bills declaring that a note would have to be sent with goods denoting the shipper and small parcels would need to be paid on the spot.³⁰⁴ In 1775 additional rules were imposed which stated that goods without notes would not be accepted by the crane operatives and that small parcels had to be paid for at the crane office before being accepted.³⁰⁵ This appears to have worked because there is no further mention of it in the Hall Books.

The theft of hawsers has been mentioned above but Bristol suffered less from organised crime than other ports, especially London where it became the driving force for the construction of secure floating docks.³⁰⁷ Matt Neale makes the argument that crime was a major factor at Bristol,³⁰⁸ but the theft of goods left on the docksides, stealing whilst ships were lading, and from warehouses is something that has occurred at ports since time immemorial. Port workers will always find a way. The reality was that when the West India Dock opened in 1802 it had twenty foot walls surrounded by a six foot deep ditch, only dock workers were allowed inside, and it was patrolled by its own police force.³⁰⁹ When the floatation of the harbour at Bristol was completed in 1809, no wall was built, nor were any new restrictions put in place.

Port installations were also targeted and the theft of a crane chain caused 500 copies of the following hand bill to be distributed.³¹⁰

Merchants' Hall, Bristol, March 15th 1773.

Whereas on Saturday the 6th instant at noon, a cradle chain belonging to Crane No 4 on the Key weighing about 45lb and marked at each end MH

³⁰⁴ BRO: SMV/2/1/1/10 Hall Book 10, 9 March 1773.

³⁰⁵ BRO: SMV/2/1/1/10 Hall Book 10, 31 October 1775.

³⁰⁷ See Introductory Chapter.

³⁰⁸ Matt Neale, 'Crime and Maritime Trade in Bristol, 1770-1800' in Steve Poole, ed., *A City Built Upon the Water* (Bristol, 2013).

³⁰⁹ Gordon Jackson, *The History and Archaeology of Ports* (Tadworth, 1983) pp. 57-58.

³¹⁰ BRO: SMV/2/1/2/4 Index 4, 9 March 1773, p. 50.

was stolen off the Key. A reward of five guineas will be given to any person who will discover the offender or offenders, to be paid on conviction.

By order of the Committee. S. Worrall.³¹¹

Nevertheless, there are few references to crime in the Society's books, which may mean that they simply accepted the losses. Crime may also have been discouraged due to a shipkeeper being stationed aboard each foreign-going ship together with the tidewaiter. Also, to deter crime in 1791, the Chief Constable of the ward had requested permission to erect a stone watch tower on the quay and believed that the best spot to view the area was between the Dial Slip and Crane No.1. Agreement was made to build it 24ft below the Dial and 40 ft from the edge where it is shown on Illustration 1.007.³¹² An incident involving riotous crane labourers demanding higher rates of pay took place on the quay in 1792.³¹³

Ancillary services.

The cranes and porters were vital to working ships but a number of other services and devices had to back these if shipping was to be handled efficiently. Goods being laden or shipped, whether by crane or manually would be measured, gauged or weighed using gibbets. Illustration 1.012 clearly shows them with their associated huts containing the implements required by customs to assess duties. These huts were large enough to shelter the landwaiters supervising the operation and may have been portable.³¹⁴ Illustration 1.016, shows what could be called the working module; crane, gibbet, hut and an additional shed, all of which were the property of the Society.³¹⁵

³¹¹ BRO: SMV/7/1/2/3 Craneage Accounts, loose document, 15 March 1773.

³¹² BRO: SMV/2/1/1/12 Hall Book 12, 7 February 1791; and BRO: SMV/2/1/2/5 Index 5, 11 February 1791.

³¹³ BRO: SMV/7/1/2/3 Craneage Accounts, loose document, 5 September 1792.

³¹⁴ G. W. Braikenridge catalogued drawings by Hugh O'Neil and referred to the 'Landing Waiter's movable box'. Greenacre, *From Bristol to the Sea*, p. 87.

³¹⁵ Evidence of the Society's ownership of these appliances is to be found in BRO: SMV/7/1/2/2 Miscellaneous papers re cranes, loose document, 26 February 1791. Customs had complained that damage to the gibbets might offset the weights and asked for the gibbets to be moved; and SMV/2/1/1/10. Hall Book 10. 1/3/73. 1 January 1773. The landwaiters requested new boxes from the Society for the new legal quays.

To avoid cluttering and blocking the quays, merchandise had to be removed as soon as possible, either to one of the two large warehouses or a merchant's own premises. At the quays, this was done by horse drawn sleds or by drays (Illustration 1.012). Transport was strictly controlled to avoid damage to the vast conglomeration of cellars at Bristol, but although the normal means of transport was by sled, wheeled vehicles were permitted provided they conformed to size and wheel-width regulations.³¹⁶

Since time immemorial, ships carried planks for access to and from quaysides but they could not be used at Bristol because in 1601 the Society had been granted the right to collect dues for supplying them.³¹⁷ In 1751 a Plank Master was appointed to administer them and collect dues,³¹⁸ although later this tax became consolidated with wharfage and as such the merchant paid and not the shipowner.

As no fires were allowed on board any vessel at the quays,³¹⁹ included in the general facilities were large iron hearths situated 20ft from the quay edge,³²⁰ each capable of holding three pots for boiling pitch enabling ships to make repairs. However, the position of these was strictly regulated causing the Committee to complain in 1770 that there were none on the Grove or the Back, and only three on the Quay, a situation not appropriate to the port's needs; an indication that the quays were regularly used for repair work which would have adversely contributed to congestion. New hearths were still being installed late in the century.³²¹

Another fire precaution was the ringing of the 'candle bell' of an evening after which no candle was to be lit aboard any vessel on pain of a fine. This bell was situated beside the Drawbridge and had originated from a sixteenth-century act to prevent smuggling which had forbidden cargo working during the hours of darkness. The

³¹⁶ BRO: M/BCC/CCP/1/14 Common Council Proceedings, 5/2/66, p. 78.

³¹⁷ Latimer, *The History of the Merchant Venturers*, p. 62.

³¹⁸ BRO: SMV/7/1/2/1 Papers re the quays and nuisances, 10/11/51.

³¹⁹ BRO: SMV/2/1/1/9 Hall Book 9, 4/7/70. General instructions from the Quarter Sessions to be observed by the port, Clause 8.

³²⁰ This was part of the regulations reorganising the port after 1700 when the Society had obtained an Act of Parliament, 11 and 12 William III c. 53. McGrath, 'Society of Merchant Venturers in the 17th Century', p. 125-127.

³²¹ BRO: SMV/2/1/2/5 Index 5, 19 June 1788, p. 21; BRO: SMV/2/1/1/12 Hall Book 12, 28 January 1790.

port had secured some dispensations as being tidal it severely limited cargo working, and by the end of the century it was 6pm in winter and 9pm in summer.³²² To estimate the state of tides, a sundial on a pillar, about 25ft tall and known as the Dial, was prominently placed on the Quay³²³ (Illustrations 1.012 and 1.017).

The original drawbridge was replaced by a bascule bridge in 1775 which had a 'mechanical contrivance' allowing it to be operated by two men.³²⁴ It continued to be known as the Drawbridge and should have been an asset to the port as the upper St. Giles Bridge was unable to cope with road traffic passing from the Quay to St. Augustine's Back. However, the Common Council Rules, Orders and Bye Laws governing the bridge banned all 'wagons, carts, trolleys, sledges and drays and other carriages' from crossing except for 'coaches, landaus, chaises, phaetons and one-horse chaises or chairs', in other words passenger traffic.³²⁵ Drays were designed to spread weight and so were allowed across empty but all other unfilled working vehicles were banned. Permanent staff worked the bridge and imposed fines for breaching regulations. It is surprising that a more substantial bridge was not constructed to take harbour traffic and indeed a proposal for replacing it with a stone bridge was made at the same time but 'unanimously negated'.³²⁶

A constant problem recorded in the Hall Books throughout the century was that the quays became encumbered with goods either awaiting collection or abandoned, which interfered with work and the movement of wares along the quays and thus was a direct contribution to congestion.³²⁷ From an examination of the data in the Society's books and papers, the conclusion is that it was never properly dealt with although it was always within their power to take the matter to the magistrates and

³²² McGrath, 'The Society of Merchant Venturers in the 17th Century', p. 125.

³²³ Greenacre, *From Bristol to the Sea*, p. 86.

³²⁴ Matthews, *Bristol Directory*, 1794, pp. 36-37.

³²⁵ BRO: M/BCC/CCP/1/16 Common Council Proceedings. 20 December 1788. Rules, Orders and Bye Laws for the Regulation of the Wooden Bridge over the River Froome, p. 253-255.

³²⁶ Latimer, *Annals*, p 483.

³²⁷ Examples are: Note from Samuel Worrall, Clerk to the Society, saying he would take people to the magistrates for cluttering the keys. BRO: SMV/7/1/2/2 Miscellaneous papers re quays, 27 March 1771; Quay encumbered with deal boards and other things, especially the Back and Grove. Complaint to be made to the magistrates. BRO: SMV/2/1/1/9 Hall book 9, 13 August 1785; Complaints made that the quays are encumbered. Crane master to send proper persons to examine what goods are lying on the quay and report when landed. SMV/2/1/2/5 Index 5, 10 December 1792.

to have the goods confiscated. In 1771 and 1775 they did place advertisements threatening legal proceedings,³²⁸ but the only prosecution noted in the books was in 1787.³²⁹

This matter was exacerbated by the complications involved in keeping the quays clean throughout the period. A letter in 1769 from Edward Davis, the Cleaner of the Quays, to the Committee outlines the problems:

(He) acquaints them that as it has become almost general for the sweepings of ships' holds which used to be thrown in the river to be put on the quay and a great many mast yards etc are now made on the Quay, the chips of which make a great increase to the dirt and filth which used to be hauled to the dung wharf. All other soil fit for manure he sends to his grounds but now the dirt on the quay is so much increased and become of so little value, being pitch, tar, gravel and such like, his being deprived of halling that to the Dung Wharf obliges him to decline halling the said dirt from the quay unless the salary be advanced.³³⁰

This is an interesting letter as it shows that it was not only minor repairs that were being carried on at the quaysides; mast-making must have been particularly obstructive. The sweeper appears to have a point, but it was not resolved and at the end of his term in 1771 when he did not remove soil, the cost of this was deducted from his wages the following year.³³¹ Arguments between the Society and the sweepers continued and in 1792 they found it difficult to replace them as the only applicant was asking for £5 on top of the present incumbent's salary.³³² The work of the sweeper was obviously not highly rated, but a lacklustre approach due to low wages would increase the difficulties moving goods from the quays and could damage the more delicate merchandise.

³²⁸ BRO: SMV/2/1/2/5 Index 5, 20 November 1771, 7 March 1775, pp. 49, 53.

³²⁹ BRO: SMV/2/1/2/5 Index 5, 27 October 1787, p. 246.

³³⁰ BRO: SMV/7/1/2/1 Papers re quays and nuisances, 7 August 1769.

³³¹ BRO: SMV/2/1/2/4 Index 4, 17 April 1772, p. 49.

³³² BRO: SMV/2/1/2/5 Index 5, 14 February 1792, p. 27.

Similarly, they had problems with the ferry slips as there would have been a daily build-up of mud and other refuse brought by the tides. The Gibb Slip was probably used most as it accommodated people travelling between the quays and the shipbuilding and repair yards on the Somerset side of the Avon. In 1768 the Committee agreed to build a wooden house for the woman who took care of it,³³³ but by 1790 it was under a similar contract to that of the sweeper, and this was cancelled after an inspection by the Committee who found it 'much encumbered'.³³⁴ The author has found no evidence that fares were charged for the ferry but it would be unlikely that the Society would miss that opportunity and it seems confirmed by the fact that the caretaker required shelter.

The replenishment of drinking water was vital to all ships, and for the Quay, and probably the Grove, a conduit brought water from a spring about five miles away dispersing it at an outlet called the Quay Pipe situated at Quay Head beside the Tontine Warehouse near St. Stephens, (Illustration 1.018). This was finally dismantled in the 1930's.³³⁵ There was a lead cistern under the quay and the water was drawn from two cocks,³³⁶ probably under natural pressure, but it must have had at least one mechanical pump attached as it would have been in constant use servicing outgoing ships and providing for a multitude of tasks on the quays. To take the example of a single ship, the *Sybil* in 1785 filled 10 Butts and 2 puncheons, a total of about 1700 gallons of water.³³⁷ Filling ships' water containers must have caused congestion on that part of the Quay and encumbrances would have led to difficulties for the heavy drays used to move the receptacles from ship to pipe and back again.

Bristol's water supplies were good and there were outlets in every street,³³⁸ but it is not clear where the ships berthed at the Backs drew water. The St. Nicholas Pipe, equivalent to that on the Quay, was removed about 1762 when the old Bristol

³³³ BRO: SMV/2/1/1/9 Hall Book 9, 15 November 1768.

³³⁴ BRO: SMV/2/1/1/12 Hall Book 12, 28 January 1790.

³³⁵ S. Watson, *Secret Underground Bristol* (Bristol Junior Chamber, 1991) pp. 116-117.

³³⁶ J. Leach, *Pipes, Pumps and Conduits of Bristol* (Bristol, 1853) p.9.

³³⁷ BRL: 21258, Account book of the *Sybil and Success*, pp. 28.

³³⁸ Matthews, *Bristol Directory*, 1794, p. 45

bridge was dismantled,³³⁹ and although the smaller ships on the Backs would have had less requirements than those on the Quay, there were many more of them and a proper outlet would have been necessary. The only information the author has uncovered is that there was a well at the back of the Quay Walk at the Welsh Market, but William Paty reported to the Society in 1793 that the fresh water in it rose with the tide and on the ebb did not sink in the well to the level of the river so a link would be necessary to the low water mark to drain away river water.³⁴⁰ Parker says that river water at Bristol was not suitable for ship's casks³⁴¹ which could mean that all ships had to use the Quay Pipe, again adding to the congestion on the quays.

Illustration 1.012 shows that on the extremities of Broad Quay there were warehouses (shops) with accommodation above and it would seem logical that these warehouses would be primarily supplying the needs of shipping, but an attempt to confirm this failed because the buildings housed a mixture of retail, manufacturing and domestic accommodation. James Sketchley produced his local directory³⁴² in 1775 and for the first time at Bristol a system of street numbering which continued well into the nineteenth century.³⁴³ Even with this, however, it was not possible to denominate businesses on the quays as although it lists names and occupations at numbered addresses, this could include a tradesman in domestic accommodation. However, most trades associated with shipping are listed and it is probable that these predominated. Messuages, defined by Johnson as a 'house and ground set aside for household use',³⁴⁴ on the quays were owned by the Society and reviews for the rent of those are entered in the Hall books which may have caused a conflict of interest.

³³⁹ Leach, *Pipes, Pumps and Conduits of Bristol*, p. 12.

³⁴⁰ BRO: SMV/2/1/1/12 Hall Book 12, 19 February 1793.

³⁴¹ Parker, 'A Maritime Cultural Landscape', p. 334.

³⁴² Sketchley, *Bristol Directory*, 1775.

³⁴³ Roger Leech. *The Topography of Medieval and Early Modern Bristol, Part 1* (Bristol Record Society, 48, 1997) p. xvii.

³⁴⁴ Samuel Johnson, *Dictionary of the English Language*, 14th ed., (London, 1815).

Conclusions.

This section examined the structure of the city quays and their management by the Society. Unlike newer ports such as Liverpool,³⁴⁵ the city quays at Bristol developed over time in a built-up city area and as such the amenities concerned with shipping could not always be placed in the most suitable positions. On the whole, the manpower necessary to work the ships was efficiently organised and managed, but problems could arise through the frugality of the Society and indeed this could be reciprocated by the shipowners themselves. Again, the administration system was slow due to the hierarchy stretching above the men responsible for actually working the ships. However, in practical terms, all the facilities necessary for effective day to day working were provided and Bristol's relative loss of status cannot be blamed on poor port management. Patrick McGrath believes that the Society's achievements were of great value but that it committed a disservice to the port by obstructing the building of the floating harbour.³⁴⁶ This will be dealt with below.

³⁴⁵ See Introductory Chapter

³⁴⁶ McGrath, *Merchant Venturers of Bristol*, pp. 169.

Chapter 2.

Shipowning and crewing at the port of Bristol.

Section 1. The rationale behind shipowning at the port.

Introduction.

The main purpose of this section is to examine the oceanic organisation of trading areas by Bristol shipowners, the companies they formed and how these fitted into the national maritime structures at the end of the eighteenth century. Firstly, however, it is necessary to define what is meant by the term 'shipowner' in this age. There are few instances of the expression 'shipowner' being recorded in the port or town directories of the eighteenth century, people usually being described therein by their principal business interest or social title. However, Gordon Jackson says that the use of the word 'shipowner' as a title was first used at Hull in 1773 and came into common usage in 1775 mainly to describe owners who had previously been master mariners.¹ Nevertheless, shipowning generally was the province of the merchant who saw it as a useful adjunct to his main business, the entrepreneur who believed it was a sound investment, and the master who regarded owning his own ship as a necessary means of advancement. On the other hand, there was a certain amount of risk attached which for most of the century resulted in few ships being under the sole ownership of one person, the majority belonging to four or more shareholders,² each ship being managed by one denoted the 'ship's husband'. Shipowners might own a part-share in a number of vessels, spreading their investments to reduce any individual loss, but leaving management to others. A ship's husband received little or no additional emolument

¹ Out of 114 shipowners he traced between 1766 and 1800, 81 had been master mariners. Jackson, *Hull in the Eighteenth Century*, p. 142.

² Ships were not owned by a partnership but by shareholders who could dispose of their shares as they wished. Jackson, *Hull in the Eighteenth Century*, p. 140.

but in this position could control operations to the advantage of his own trade and business.³

Towards the end of the eighteenth century, however, modifications in the approach to shipowning were taking place in the major ports of the country due to the growth of the English economy and its mercantile marine.⁴ As far as the port of Hull was concerned, Jackson saw the evolution of the merchant shipowner to specialist shipowner as a feature of the second half of the eighteenth century and although there was a long transitional period before it became recognised as a distinct profession, he believed that 'by the end of the century the shipowner had made his mark on the economic and social life of Hull'.⁵

It is difficult to establish exactly when the move towards specialist shipowning began as no dedicated research appears to have been done on the subject, but although Ralph Davis believed that it was a nineteenth-century phenomenon,⁶ he admitted that little research had been done into the operation of ships between 1760-1860,⁷ and there were indications that the standard model of shipowning had begun to fragment in the eighteenth. The percentage of vessels with single owners at Newcastle when the shipping registers were established in 1786 was 24, and at Liverpool, 25.⁸ Concentration of ownership is further shown at the latter port as 25 percent of all ships registered there at this time had two owners and on average the number of shareholders per ship had dropped to 3.25.⁹ At London, research showed that in 1787, a quarter of ships had only one owner and two thirds four or less.¹⁰ Single, or limited ship ownership does not necessarily mean that a specialised company had developed but it is likely.¹¹

³ Davis, *Rise of the English Shipping Industry*, pp. 81, 89; Ville, *English Shipowning*, p. 2.

⁴ Simon Ville, 'The Growth of Specialisation in English Shipowning', *Economic History Review*, New Series, Vol 46 4 (1993), p. 704.

⁵ Jackson, *Hull in the Eighteenth Century*, pp. 141-144.

⁶ Davis, *Rise of the English Shipping Industry*, p. 81.

⁷ R. Davis, 'Maritime History: Progress and Problems' in S. Marriner ed., *Business and Businessmen*, (Liverpool, 1978), p. 177.

⁸ Ville, 'Growth of Specialisation in English Shipowning', pp. 707-8.

⁹ Robert Craig and Rupert Jarvis, *Liverpool Registry of Merchant Ships* (Manchester, 1967) p. xxxviii. Table 21.

¹⁰ Jarvis, 'London Shipping', p. 414.

¹¹ Ville, *English shipowning*, p. 14.

A letter by a partner in a shipowning company in London in 1826 said that 'within the last 30 years the shipowners of London have entirely changed character'¹² and so gives an indication that changes there began about the end of the eighteenth century, which could confirm the intimation by a Bristol merchant in 1789 that London merchants had less than a sixteenth share of their vessels as compared to the major Bristol merchants who owned the majority of their own.¹³ Other differences existed between the way the merchants of the two ports operated, an example being in the way they organised their West India trade, the most important they shared.¹⁴ In 1792 at London, 37 percent of ships belonged to companies with three ships or more whilst at Bristol it was 77; those having two ships or less per company was 54 and 21 percent respectively; whilst those owned by a captain or captain and company were 9 and 2.5 respectively,¹⁵ the last being the sector who were most likely to emerge as specialist shipowners.¹⁶ As London had approximately double the number of West Indiamen compared to Bristol then the figures show that merchant firms could have been moving away from purchasing ships for their own purposes towards either freighting goods or chartering. To confirm this would require research beyond the scope of this thesis which is about Bristol shipping, but the point is that by the end of the century differences in the operating procedures between London and Bristol had evolved.

Specialist shipowning does not seem to have come about at Liverpool, as in 1786 merchants owned 79 percent of shares in ships, although 12 percent were owned by captains.¹⁷ Jackson puts this down to ships at Hull being fewer, smaller and less valuable than those of Liverpool¹⁸ but a more significant difference may be that at the latter port the most important and influential occupation was the slave trade where ships fitted out for what amounted to expeditions rather than as general traders. Regarding trade to the West Indies in 1792, 156 ships were listed in *Lloyds*

¹² Quoted in Ville, 'Growth of Specialisation in English Shipowning', p. 707.

¹³ Pares, *West India Fortune*, p. 209.

¹⁴ Bristol was denied the East India trade.

¹⁵ *Bristol Presentments*, Export, 1792.

¹⁶ Jackson, *Hull in the Eighteenth Century*, p. 141.

¹⁷ Craig and Jarvis, *Liverpool Registry of Merchant Ships*, Table 26, pp. 201-202.

¹⁸ Jackson, *Hull in the Eighteenth Century*, pp. 142-143.

Register for Africa and most would be involved in the slave trade, whilst less than half that amount, 75, were registered as trading directly to the West Indies.¹⁹

The reason why changes were taking place generally was that in the second half of the eighteenth century commerce was growing requiring larger, more profitable ships, which were now protected by underwriters and this made a attractive investment for the entrepreneur.²⁰ Simon Ville believes that from 1780 'the old fashioned merchant organisation of shipowning was unable to cope with the huge increase in the shipping industry required by trade expansion and war'.²¹ The benefits of single ownership of a ship or a fleet was that decision making did not require discussion and possibly argument with shareholders, and ships could be used in a variety of trades depending on the markets. Operating a fleet of ships under one owner was less costly than the same number of single vessels each under a different set of shareholders because the larger shipowner could buy his supplies and other services in bulk.²² Also, in slack periods of his own trade, he could make his ships available for charter or to earn income from freight from other merchants.

Although there are indications that by the end of the century shipping firms nationally were beginning to change their operational methods, there is little actual evidence as to where and to what extent. The theme of this thesis is Bristol's organisational structure, management and operation of shipping in the late eighteenth century, so it is necessary to establish exactly what the position was there, and if the time honoured practices of traditional shipping were still in place, whether they were working efficiently or could have been improved by implementing change.

To do so it was essential to have a model by which the procedures in place at Bristol could be compared, and this can be extracted from the surviving records of

¹⁹ *Lloyds Register of Shipping, 1792.*

²⁰ Jackson, *Hull in the Eighteenth Century*, p. 142.

²¹ Simon Ville, *English Shipowning During the Industrial Revolution: Michael Henley and Son, London Shipowners, 1770-1830* (Manchester, 1987) p. 5.

²² Ville, 'Growth of Specialisation in English Shipowning', p. 718

a London firm of specialist shipowners, Michael Henley and Son, which have been researched and published.²³ The firm came into existence in 1775 when Henley bought two colliers in 1775 to transport coal from Newcastle to London – a trade where single ownership was recognised²⁴ – and by 1790 the fleet had enlarged to nine ships and in 1805 there was a total of fifteen. At the same time he expanded his trading areas to include the Baltic, Mediterranean, and Atlantic. Whilst researching this company, Simon Ville uncovered two other London shipowners who were sole owners of their vessels and in other aspects were similar to Henley.²⁵ All three had comparatively old fleets, bought prizes or cheap American ships, and both Henley and one of the other firms always purchased vessels of between 200 and 400 tons, the size of the vessel being regarded as suitable for deployment in an assortment of trades.

In one aspect, Henley's were considered different from the other London firms because of their dual involvement in the coal and foreign trades, but they also had ancillary activities which pointed to specialised shipowning.²⁶ Primarily they: earned income from carrying freight and chartering; were flexible in their approach to ship buying and repair; did not raise capital from outside sources as this would have restricted their operations; generally kept vessels for a short period only; kept their own stores; bought second hand when prices were low; owned lighters and other cargo handling craft, and possessed their own warehousing and some wharves. Ville refers to specialised shipowners operating in these ways as 'professional owners',²⁷ and their methods are compared to that of traditional shipowners in Appendix 2.001. The information in this appendix will be used as the template to evaluate the situation at Bristol towards the end of the eighteenth century.

To begin with, it is indispensable to identify who owned ships at Bristol, their trade areas, and on an individual basis, the number of ships owned and how they were

²³ Ville, *English Shipowning*.

²⁴ Davis, *Rise of the English Shipping Industry*, p. 91.

²⁵ James Mather and James Margetson. Ville, *English Shipowning*, p. 9.

²⁶ Ville, *English Shipowning*, p. 6-10.

²⁷ *Ibid.*, p. 3.

operated. To find the identity of the principal Bristol shipowners, *Lloyd's Register*²⁸ was consulted for the years 1778, the beginning of the American War of Independence; 1787 as it was in the middle period of a time of peace; and 1792 when the volume of shipping using the port peaked a year before the resumption of war. Any company registered as having three or more ships in the given years was considered as having sufficient resources to be managing ships in the traditional manner or to have formed, or be in the process of forming, a dedicated shipping company in the new sense. The term 'company' will be used in this chapter to describe the shipping operations of any merchant house or business rather than as a technical term except when naming an actual company. The results of this investigation are listed in Appendix 2.002.

As can be seen, the number of companies with three or more ships increased by 12 percent between 1778 and 1787 and then by 32 percent between 1787 and 1792. Similarly there was an increase in the numbers of ships per company, but taking simple percentages presents problems unless the large slave trading firms are ignored. A more accurate measurement to indicate individual growth is to take the number of companies with five vessels or more. In 1778 this was 24 percent; in 1787, 26 percent; and in 1792, 48 percent. These figures show that the criteria of expansion in both numbers of ships and increase in size of individual companies was met in Bristol and so the conditions to form professional companies were there.

Maritime operations in the Bristol trading areas.

Before examining the companies on an individual basis, it is necessary to determine the overall characteristics of maritime operations in the areas to which Bristol merchants traded, as shipping practices could differ according to geographical area. Appendix 2.003 lists the overseas trading areas and the goods generally carried to each. Direct trade with Africa and the slave trade have been treated as separate areas because the slave ships were engaged in the so-called

²⁸ *Lloyd's Register*, 1778, 1787, 1792; *Bristol Presentments*, 1792.

'triangular trade' and, similarly, Newfoundland and Quebec were detached from North America as before the War of Independence, the colonies that became the United States were refusing British cargoes, and afterwards trade with them was on a different basis. The year 1792 was taken as a sample year as any changes in practice would have evolved by then.

Appendix 2.004 gives a breakdown of the number of ships importing and exporting to and from Bristol by trade area as recorded in the *Bristol Presentments* for the year 1792, correlated to place of registry taken from *Lloyd's Register*. In addition, the cargoes carried by ships registered in Bristol were separated into three categories; those being carried almost wholly for the shipowner; those carried both for the owner and for others to earn freight; and finally goods shipped entirely to earn freight from external shippers. Vessels not registered at Bristol were deemed to be foreign to the port and ignored; those owned by their captain would not form part of a shipping company, and a number of ships were not recorded in *Lloyd's Register* and could not be classified. A study of the data recorded in Appendix 2.004 confirms shipping operations differed according to trade area and therefore an assessment of each individual area can now be done.

Africa. Direct trade between Africa and Bristol was carried out entirely by Bristol ships carrying cargo for their owners. The slave trade was again a Bristol operation, but what is of interest is that when the sixteen importing ships are subjected to further examination it becomes clear that eleven must have returned from the West Indies in ballast as their cargo consisted of a minuscule quantity of elephants teeth or suchlike from Africa. Two of the others had a fair amount of African goods, one had a full mixed cargo of African and West Indian commodities, but only two had cargoes purely from the West Indies. This would indicate that by 1792 ships sailing on the so-called 'triangular' trade were unable to find cargoes in the West Indies for the home voyage and were likely to be making a loss.

Baltic. It is obvious from the data that Bristol shipowners left most of the timber imports to be brought in by foreign registered ships. However, there was regular trade to there by Bristol vessels exporting manufactured and plantation goods and

returning with commodities for the shipbuilding trades and bar iron, this mainly on behalf of their owners.

Newfoundland and Quebec. There is a discrepancy between the number of ships leaving Bristol and returning due to the fact that many were involved in the triangular trade between Bristol, Newfoundland and southern Europe. However, the direct trade was mainly carried out by Bristol ships shipping goods for their owners.

North America. The overwhelming majority of ships visiting Bristol were American owned, 74 percent, but those belonging to Bristol merchants were mainly employed in carrying their owners goods rather than shipping for freight.

Northwest Europe. Relatively few Bristol owned ships traded in this area and those that did exported whatever cargo the owners could assemble, sometimes sailing almost empty, but imports for both the owners and other merchants had clearly been arranged beforehand.

Mediterranean. There was not a great deal of trade with the Mediterranean and it was done almost equally by Bristol and foreign shipping. All ships leaving for the Mediterranean were Bristol owned, but only one carried goods for the owner. However imports, as with Northwest Europe, were mainly brought in for the shipowner, making it likely that these were cargoes that had been ordered beforehand.

Southern Europe. The data taken showed that the ships were sailing without full cargoes, indicating either a lack of an export market, or that the owners of these ships had no real interest in exporting to this area. On the return trip only two of the sixteen Bristol ships were carrying a full cargo for the owner and the rest shipped wine and fruit for numerous consignees, the conclusion being that ships were being run for the income from freight charges. Also, the trade was dominated by foreign vessels including sixteen Irish, twelve of whom had not entered out from Bristol; and there was a surplus of twenty-three ships importing to those exporting.

The triangular Newfoundland trade would account for some of this but other vessels must have gone direct from other ports.

Southern Fisheries. In reality this was not a trade area as there were no exports, and although some ships sailed carrying a minimal amount of dutiable goods, others may have left unrecorded due to having no dutiable cargo. The imports were mainly whale products caught in these seas, and in two out of the three ships returning to Bristol, the cargo, or catch, was for the owner.

West Indies. The data clearly shows trade in this area was carried out by Bristol owned ships and the goods in most vessels were carried for the owner, although there was always a quantity shipped on behalf of others to earn income from export freight charges. In a minority of cases, the shipowner had little or no export cargo of his own, but on the return trip the vessel carried his own commodities. An additional three ships came in from the West Indies compared to those that went out and were probably 'interlopers' or 'seekers', that is ships not necessarily British that had been in the West Indies speculating on picking up a cargo for freight.³⁷

This analysis shows that as late as 1792 Bristol merchants maintained the same systems of trade in the same specific areas that had been in place throughout the eighteenth century. Details of these systems have been recorded in publications by Kenneth Morgan, W.E. Minchinton, and others and the fact that no change had occurred by the end of the century history points to the continuation of traditional shipowning.

Analysis of the operations of the major shipowners of Bristol.

If the shipping companies in Bristol were evolving towards professional ownership there should be clear evidence of this near the end of the eighteenth century and if not it can be taken that the traditional approach to ship ownership and operation was in place throughout the era of this research. One of the key points in the

³⁷ See R. Pares, *A West India Fortune* (London, 1950) p. 207-8.

argument is that a traditional company tends to trade primarily to a single area, though there may be some slight deviations, whilst a professional concern will be more flexible as it is looking for freight income. The position at Bristol can be investigated by correlating the ships belonging to the major companies with the trading areas they served and analysing the results.

The year 1792 is again chosen and data from Appendices 2.002 and 2003 entered on Appendix 2.005 to show where each company plied their trade.³⁸ There is the anomaly that comparatively large numbers of ships belong to two slave trading companies and as this distorts the analysis their operations need to be examined separately. The primary trade area of a company is that to which the majority of its shipping resources are directed, and secondary trading areas are those to which one or a few of the company ships might be dedicated or would visit as part of its normal voyage. Companies tabled as having two primary areas have evenly split their fleets or are engaged in one of the triangular trades. This will be detailed below.

Flexibility of trading areas is a major factor of professional shipping and the first observation is that it was not influenced by the number of ships owned. J. Harford and Co. has eight ships and visits seven areas whilst Philip Protheroe has the same number but is dedicated to trading with the West Indies. Similarly, G. & F. Fisher has five ships and six areas, whilst Samuel Span with the same number again trades only with the West Indies. The smallest companies are naturally limited to one or two areas. Statistically, seven companies, or 32 percent, trade to one area only, eight, or 36 percent, to two areas, together making a total of fifteen companies or 68 percent. Of the seven remaining, four were slave traders, who must be seen as having fixed routes, leaving just three, or 14 percent of the total that could fit the model of professional shipowning.

Further analysis shows that at least one company was trading primarily in seven of the eleven trade areas, and that the interest of Bristol companies was low in four

³⁸ For sources, see Appendices, 2.002, 2003 and 2.005.

other areas confirming the data given in Appendix 2.004. In all, twenty of the twenty-two companies dedicated the majority of their ships to one specific area leaving no doubt that traditional shipping was still in place.

Out of this total fourteen, or 56 percent, were trading to the West Indies emphasising the overwhelming importance of this area to Bristol commerce, but this included four slave trading companies, an anomaly due to the triangular nature of their trade and so requiring separate study. It leaves a total of ten shipping companies dedicated to trading with the West Indies and these are listed with the number of ships they owned in Appendix 2.006.

An initial examination revealed a remarkable consistency in the way eight of these companies operated, the exceptions being those of Richard Fydell and Walter Jacks which will be studied later. (Henceforth shipping companies will be referred to by the owner's surname rather than the full title.) Out of the 37 ships owned by these eight companies, 36 traded to the West Indies in 1792 to the ports as listed for them in *Lloyd's Register*, 1792, and 25 of these were denoted as constant traders. The one exception was a ship belonging to Miles which had been bought in 1792, and whose maiden voyage was to the Baltic, probably on charter to fill in time before embarking on her regular run to Jamaica. An initial voyage of this nature has been observed elsewhere.³⁹ As part of the West Indies run, some ships might visit ports such as Cork and Madeira on the outward trip, and two of Span's ships called at Virginia on their return trip. The only other deviation from the norm was a Protheroe ship that ended its voyage at Halifax. As far as trade within the West Indian islands was concerned, all except Span and Baillie, who visited three, limited themselves to one or two islands.

The number of voyages a ship made per twelve-month period can be calculated by counting the entering or leaving of Bristol on two occasions as one voyage. This may seem a convoluted approach, but voyages were not arranged by the calendar year. Combining the ships of these companies as a whole, it is observed that one

³⁹ The first voyage of the *Fanny* belonging to Samuel Munckley and Co. was made for the same purpose. BRO: 12162 Shipping Account Book of the Snow *Fanny*, 1777-1791.

managed the much sought after two voyages, twenty-one ships made one and a half, ten completed a single voyage, and two, half or one leg. Of the remaining three, one went to the Baltic, one to Halifax and the other being of small size, did not carry cargo and may have been dispatched for use as a tender. Apart from Protheroe and Span, who averaged one voyage per year per vessel, the others made one and a half stressing the similarity of operation of these companies.

Of paramount importance is the question as to whether these ships were carrying cargo mainly for the owner's benefit or for others, and therefore primarily for freight. In all cases, both import and export, the greater part of cargo was carried on behalf of the owner and this preponderance was particularly so with imports. The process of shipping cargo for ships making ready to sail from Bristol would be to load the owners goods and those already accepted for other shippers, and if there was still space available to advertise it in the Bristol papers.⁴⁰ There is no doubt that shipping was run for the benefit of the merchants who owned the ships and that freight charges were an important but secondary consideration.

Regarding the two companies that were excepted above, Richard Fydal had eight ships, of which one was sold in 1792 and for which there is no record of its movements. Four of the remainder were registered as trading to the West Indies, but two of these were registered as departing from London. Of his West Indian ships, one, a supposedly constant trader, did not return to Bristol; another completed the voyage but the owner's cargo did not constitute the majority of the goods onboard; and the other two left port but did not return that year. Two of his other ships exported to Newfoundland carrying the owner's cargo but did not return, and the last sailed for Ostend, again not returning. Compared to the other shipping companies, Fydal's appears disorganised, but he was a partner in a number of slave trading ventures with James Rogers and as detailed below, the methods of ship operation of slavers were in some ways dissimilar to those of ordinary traders. The point is that with his multiple trading areas and intermittent

⁴⁰ For example. The *Lively*. *FFBJ*, 10 December 1791. The *Sisters*. *FFBJ*, 21 January, 1792.

carrying of cargo for his own purposes, he fits some of the criteria to qualify for professional shipowning. He was bankrupted in the financial crash of 1793.

The other shipowner operating abnormally was Walter Jacks who was definitely a slave trader using three of his fourteen ships for the trade in 1792. Eleven of his ships were registered for the West Indies trade only, one for both West Indies and Africa, and two for Africa alone. His three slaving ships are examined below. There is no information on movements on six out of the eleven West Indian vessels although the other five followed the West Indian norm of shipping of goods predominantly for the owner. Jacks was not bankrupted and therefore the lack of consistency of his shipping operations may have been connected with his involvement in slave trading or perhaps he used them pragmatically, a sign of him moving towards professional shipowning.

As far as shipping operations in the West Indies are concerned there is no evidence that the shipping companies were not following the traditional ship owning operations of the eighteenth century.

Analysis of shipping companies trading outside of the West Indies and the slave trade.

These areas, as has been observed above, were mainly serviced by foreign-going shipping, by ships under the ownership of their captains, and by single vessels chartered or owned by individual merchants or partnerships. The companies that did operate in these areas are listed below in Appendix 2.007. There were seven companies concentrating their efforts outside of the two main trades, the West Indies and the slave trade, and they are individually examined below.

Henry Cooke and Co. had four ships, one of which was sold in 1792. Of his other three, all should have traded with Newfoundland,⁴¹ but the movements of two cannot be traced after 1791. The remaining ship is recorded as taking general

⁴¹ *Lloyd's Register*, 1792.

cargo for the owner to Newfoundland and returning with whale products again for him, but there are no details of further voyages. It may be that as this was a very small ship and it was diverted to the coastal trade.

Thomas Deane and Co. had four ships trading with London and registered as constant trade ships. As the ships were classed as coasters, there are no entries in the *Presentments*.

John Noble had three ships all trading to Newfoundland. Again, it is difficult to trace the shipping movements of these small companies as they may have been sent to work at the coastal trade from time to time. One ship was engaged on the triangular run between Bristol, Newfoundland and Southern Europe, one trading with Newfoundland and Quebec and the last cannot be traced after leaving for Newfoundland. In all three cases the cargoes were carried on the owners behalf.

J. Harris and Co. had three ships, one of which was reported at Antigua in December, 1791, but no further movements are traceable. The other two traded with North America, one to Virginia as a constant trader carrying general cargo outward, some of which was for the owner, and returning with tobacco mainly on behalf of the owners. This ship appears to have been operated along similar lines to the West Indiamen. The last ship made one trip to New York with goods shipped for others and then sailed to Petersburg carrying merchandise for other merchants. It is probable that this ship could have been chartered for the Baltic trip.

Regarding the above four companies, the examination of the movement and lading of their ships adds little detail to the information previously gained from studying the other areas except that even the ships of the smallest companies seem to have been carrying goods for the owners and to have been following traditional trading practices. A caveat might be that the chartering of vessels was part of the change from traditional shipping.

James Lockier and Co. had no constant trading vessels, but three of five of their ships were trading with South Carolina, one of which appeared to be importing and

exporting goods for the owner in the usual manner. Another left Bristol for Charleston but returned from London, which was not unusual as cargoes for London were accepted as an alternative to returning to Bristol partly laden. The third was registered for the Newfoundland trade but brought in a cargo of timber for the owner from the Baltic before leaving for South Carolina with a small cargo, some of which was shipped by the owner. Regarding the other two ships, one was a constant coaster to London, providing evidence that some shipowners were carrying out a mixed coastal and foreign-going trade, and the other was trading to Africa and Honduras. Richardson describes it as a 'wood ship', that is concentrating on importing wood rather than slavery, but he gives the owner as James Jones a slave trader, below, with Lockier as a partner. The return cargo of wood was for Lockier, Woodward and Co. and the complexity of Bristol partnerships is demonstrated by Lockier being involved in yet another partnership of timber merchants.⁴²

G. and F. Fisher and Co. merits closer investigation as its five ships were trading in seven out of the eleven areas, and four ships moved from one area to another during the year. There was a wide range of cargoes imported including fruit from the Mediterranean, timber and wood from four separate areas, rice from South Carolina, and some other goods. Exports followed the usual mixture of general cargo, but there were also re-exports to the continent. The merchandise was mainly carried on the owners behalf, but there were three occasions when export cargoes were not predominantly shipped for the owners and on one instance both export and import cargoes were for another merchant which could indicate chartering of the vessel. There was no connection with the slave trade, the African voyage being for the products of this area, timber, beeswax, elephants teeth and the like. The merchants owning the vessel must have dealt in a wide range of commodities. As far as the ships themselves are concerned their tonnage's were 81,145, 200, 279 and 287 with building dates 1791, 1774, 1787, 1791 and 1777 respectively; the last three being built in Bristol.

⁴² Lockier, McAulay, Gee and Co. Timber merchants, Milk Street. Matthews, *Bristol Directory*, 1794, p. 54.

There are factors concerning this company which could indicate a move towards professional shipowning, but referring to Appendix 2.001 for criterion brings a mixed message as the tonnage is suitable for flexible trading, which was what was actually happening, but the age of the ships did not suit, three being under five years. Also, the fact that the larger ships were built in Bristol and the smallest in Chepstow (where it could have been built to Bristol standards), point to owners who were not buying cheap easily disposable ships. The company may have been moving towards the new mode of ownership, but the all important factor of cargoes being shipped for freight payments is missing.

Harford and Co. consisted of two sectors, Harfords and Company and J. Harford, both shipping cargoes for Harford, Partridge and Co. and Daniel, Harford and Co., examples of the complicated business incorporation at Bristol. Again, this company traded to seven out of the eleven areas and deserves a more detailed analysis. They had a total of eight ships working in the coastal and foreign trade and because some shifted between the two, it is difficult to trace their movements, especially as they did not conform to the route registered at Lloyd's. They appeared to have favoured two triangular routes; one to Northwest Europe and then to the Baltic, returning to Bristol; and the other to Newfoundland, southern Europe and then either Bristol or the Baltic. Two ships were registered for London, but one came in from Lynn as a coaster and then traded to the Baltic and Spain. There was one anomaly, that is a ship, the *Trusty*, sailing for, or chartered by the Sierra Leone Company to take stores and personnel out to the colony. Its departure was recorded in a local newspaper⁴³ and it was reported to have gone on to Barbados and New York, but sank on its return in Barnstaple Bay.⁴⁴

All import cargoes were carried for the owners, generally timber, iron and ship building materials. Exports were on behalf of the owners and others. The size of ships were 59, 100, 130, 200, 210 tons with four built in Wales and two in Bristol, and they were built in the years, 1790, 85, 89, 90, 86. The *Trusty* at 278 tons and constructed at Bristol in 1778 may have been used for one voyage only as it was

⁴³ BRL: BL9F. *Bristol Mercury and Universal Advertiser*, 23 January 1792.

⁴⁴ Richardson, ed., *Bristol, Africa and the Slave Trade*, p. 229.

both older and larger than the other vessels. The size of the ships, on average, 140 tons would make them too small to be able to adapt to West Indian or American trading and if any move towards professional shipowning was made, they would still have to keep to the current trade areas. Four of the five ships were built in Wales, but if Newport was used for all, as it was for one vessel, it was close enough to understand and build to the requirements of the Bristol shipowner. The remaining ship was built in Bristol. Again, though the flexibility of the trading routes was suitable for professional ownership, these ships were mainly carrying cargo for the owners and this one overriding factor suggests traditional operation.

The slave trade.

The history of the slave trade and its practices have been well documented,⁴⁵ and it is not intended to elaborate on it in this work, but as it was an important part of Bristol's maritime commerce the operations of its ships must be examined. They were usually outfitted as if for an expedition, carried additional crew and provisions, and a general cargo was put onboard by the owners to be sold at the coast, the proceeds being used to purchase slaves. This was the case in all thirty-four vessels sailing from Bristol in 1792. The slaves themselves were treated as what can only be described as merchandise, to be sold on the other side of the Atlantic and it was called the 'triangular trade' because if possible a cargo was loaded on the ship for the return leg to Bristol which would either provide the owner with freight income or profit by sale or commission.

The reality was, however, that return cargoes were not easily obtainable in the West Indies unless there had been bumper harvests and only three of the sixteen slave ships returning to Bristol were actually laden with what could be described as a full cargo. This shows that the triangular trade was more or less finished in 1792, and this would have meant that the profits from a voyage were probably low and there could have been losses. In 1774, the *Africa* successfully completed the first

⁴⁵ Morgan, *Bristol and the Atlantic Trade*, pp. 128-151; C. M. MacInnes 'Bristol and the Slave Trade' in Patrick McGrath, ed. *Bristol in the Eighteenth Century* (Newton Abbot, 1972) pp. 161-184; Dresser, *Slavery Obscured*.

two legs of the trade but was unable to find a cargo in the West Indies returning in ballast with only a few elephant's 'teeth', and when the profitability of the venture was calculated she made a loss of £250.8s.⁴⁶

Although the slave trading companies could not be classed as professional shipowners due to the fact that the entire venture was operating for and on behalf of a partnership of owners, the overall research objectives makes it necessary to examine their systems as they owned a considerable amount of shipping, 40 percent of that of the major shipowners. These companies, with the numbers of ships owned, are recorded in Appendix 2.008. David Richardson has detailed the movements of all vessels employed in the slave trade in 1792 and his work has been used in this study and will be referred to when necessary.⁴⁷ Each company has been examined individually.

Anderson had four ships engaged in the slave trade, one of which was a small sloop of 26 tons which may have been used as a tender, but did return direct to Bristol once in 1792 with a cargo of elephants teeth and camwood. The three other ships left Bristol on the first leg of the voyage but did not return that year. Two of these ships were of average size, 200-300 tons, but the last was of 600 tons which was massive by Bristol standards and would not have been able to berth at the City Docks. None of his ships were built in Bristol and with the exception of the sloop were all old vessels.

Patrick Fitzhenry had four ships, three of which were slavers and the other was registered for Newfoundland, to where it shipped a cargo belonging to the owner in 1792; its movements after this are unknown. They appear to have been following the normal slave trade routine and were between 130 and 200 tons, none were built in Bristol, and they were not particularly old.

Walter Jacks owned three slaving vessels, one of which had been trading directly to Dominica until the notorious Captain Kimber was transferred to her after being

⁴⁶ W. E. Minchinton, 'The Voyage of the Snow Africa' *The Mariner's Mirror*, 37 (1951), pp. 194-195.

⁴⁷ Richardson, ed., *Bristol, Africa and the Slave Trade*, pp. 202-230.

cleared of a charge of cruelty to slaves.⁴⁸ These were old ships, with three out of the four not built in Bristol.

James Jones had twenty ships, seventeen of which were employed in the slave trade. Regarding the other three, contrary to the normal practices of the company one imported fruit and wine for other shippers from Lisbon and then went on to work on the coast. No information except registry details could be found for another and the last ship was a whaler bound for the Southern Fisheries area.⁴⁹ All other ships carried both export and import goods for the owners benefit although the imports were minimal, consisting of a few elephants teeth and the occasional barrel of other goods. The size of his ships is given in Appendix 2.009.

Most of the ships in this company were 100-299 tons and out of the twenty ships, only two were Bristol built, the others being of English, French or American origin and it is possible that the non-English ships could have been prizes.⁵⁰ The age of his fleet is shown in Appendix 2.010. The oldest was built in 1746 and the last in 1787 making it a comparatively old fleet. As has been mentioned above, an important criteria of professional ownership is 'concentrated ownership' and for the vessels engaged in the slave trade the details of partnerships are known. Richardson says that from 1789-95, 37.8 percent of ships were owned by three or more individuals, 21.5 percent by two, and 40.1 percent by a single person.⁵¹ Jones was the sole owner of twelve of his seventeen ships, engaged with one partner in three ships, with two in a single vessel, and had three in one other ship. This would point to a movement away from traditional ownership.

James Rogers was by far the most substantial shipowner in Bristol having thirty-two ships, but unlike James Jones his fleet was not dedicated to the slave trade although exactly half, sixteen, were used for that purpose in 1792. Of his other vessels there was no information available for two, but six were trading to the West

⁴⁸ Report of the trial of Captain Kimber. *FFBJ*, 16 June 1792.

⁴⁹ Sale of the *Catherine*. When ships were being sold, some adverts made the statement that a ship was 'suitable for both the African trade and the Southern Fisheries' indicating they had similar characteristics. *FFBJ*, 9 March 1792.

⁵⁰ Henley and Co. were known to favour buying prizes. Ville, *English Shipowning*, p. 9.

⁵¹ Richardson, ed., *Bristol, Africa and the Slave Trade*, p. xx.

Indies, five with Africa directly, two with Newfoundland, and one with the Mediterranean. This indicates some flexibility with regards to trade areas, but as far as cargo carrying is concerned, there were only two ships where both export and import cargoes were not being shipped on behalf of the owner. Details of the ships' tonnage is given in Appendix 2.011.

The versatility offered by this range of shipping means his ships could be used in any trade area with the eight small ships available as tenders. Also, three of his ships were possibly on charter and there appears to be some evidence of a trade in ships themselves as four were sold, two of which were newly built in Bristol in 1791 and disposed of as soon as they reached the African coast. He bought eleven ships originally built in Bristol and the rest were from England, France and America, the last two may have been prizes. The age of his fleet is shown in Appendix 2.012. He had a fleet with a mixed age range indicating pragmatic buying rather than following a set procedure. As far as concentrated ownership is concerned, of his sixteen slave trade ships he owned four outright, had one partner in three, two partners in six and three in three ships.

When the information regarding the slave traders is analysed, no great difference can be found between the data regarding the three lesser operatives and other small companies working in the Bristol trading zones, except that their ships tended to be older and not to have been built in Bristol. The companies of Rogers and Jones however, not only had far larger fleets, but they could fit into more of the criteria for professional shipowning, (Appendix 2.001). In both companies there were a number of ships owned solely by the registered shipowner, and their largest partnership was of four people with most being less.

In Rogers's case, other trading areas were regularly being serviced by ships not involved in the slave trade, and there were a small number of vessels employed as tenders to the larger vessels. Some of his ships may have been on charter. The type of vessels bought by these owners were older, cheaper and were obviously bought, as they were in Henley's case, on a wide market with some indication that Rogers himself bought ships with a view to selling them on at a profit. However, the

factor against the suggestion that they were professional ship owners was that although their methods fitted the criterion in many ways, there is no doubt that both Jones and Rogers were carrying goods primarily for their own purposes and not to make an income from freight.

Analysis of the operations of the minor shipowners of Bristol.

It is almost impossible to apply the above criterion to the minor shipowners even though there were a total of 46 Bristol shipowners owning 54 ships registered at Lloyd's in 1792, out of which 39 were recorded in the *Bristol Presentments* as having 46 ships trading with the port. Appendix 2.013 shows the available data and it can be seen that six had two ships and the rest a single vessel.

Conclusions.

Analysis of the above data leaves no doubt that the vast majority of Bristol merchant shipowners adhered to their time honoured, conventional methods, that is they ran their vessels according to the criteria listed in Appendix 2.001 under the heading 'traditional shipping' and if that was the case in 1792, then no change could have taken place in the rest of the century.

However, there is the caveat that in the non-slavery areas, Richard Fydal and Walter Jacks might bear further examination. James Rogers and James Jones, showed signs of innovation to a certain degree, and it could be that they were ahead of their time as far as running a shipping business is concerned, possibly having been influenced by the changes taking place in London.

Section 2. Crewing.

General introduction.

In Section 1, Bristol's progress towards professional shipowning was discussed and it was concluded that there was little change in the traditional ways of working. In this section and the following, their methods of manning ships and paying crews will be investigated to establish what structures were in place and whether they were broadly similar to those used nationwide or if again Bristol had its own methods.

No documented schedule of wages for Bristol, or any other port for that matter, has been found, so research must concentrate on the surviving ships' account and wages books, and other contemporary documents. A great deal of information regarding the conditions of seamen was published towards the end of the century in the form of books and pamphlets due to the great debate on the abolition of slavery taking place, but the veracity of their data cannot be relied upon as both the pro-slavery and abolitionists propagated statistics and reports aimed primarily at supporting their cause.

Merchants involved in the trade decried the work of the abolitionists, denied all abuses, and formed associations to present information to the various parliamentary commissions and committees investigating the matter in this period.⁵² On the other hand, Thomas Clarkson, one of the principal abolitionists, came to Bristol between 1787-89 seeking evidence, but although his cause was laudable and eventually was won partly through his efforts, much of the information he provided to parliament depicted the worst-case scenario and lends confusion to the more mundane questions asked in this research. For example, to substantiate

⁵² For example. The West India Society formed in 1782 was concerned with economic issues regarding the West Indies, the wages of seamen and freight charges. In 1788 a petition was presented by them against the bill before parliament aimed at regulating the African Trade. McGrath, *Merchant Venturers of Bristol*, pp. 136, 238.

his claim that slave ships were highly unpopular with seamen, he argued⁵³ that it was for this trade only that shipowners had to resort to crimping.⁵⁴ As will be shown below this contradicts data taken directly from the account books of ships belonging to Samuel Munckley and Co. (referred to henceforth as Munckley) and R. and L. Bright (referred to henceforth in the singular as Brights) whose ships were regular West Indiamen.

The most useful documents for determining crew numbers, fluctuations, destinations of ships and the length of voyages are the Muster Rolls (known henceforth as musters) mandatorily presented to the Controller of Customs by a ship's master at the end of each foreign voyage.⁵⁵ However, there is some difficulty in using them to trace movements of seamen as those of the foreign ships suffer from erratic recording of a crew member's last ship. Jonathan Press analysed the 1787 musters to determine the size of the Bristol seafaring community by extracting the numbers of seamen giving the port as their usual place of abode and put it at five percent of the total population, but argued that this figure could be distorted by immigrants and sailors from other ports claiming to be from Bristol. From the results of his research, he concluded that few came from the inland towns unless they were directly connected by river.⁵⁶

Having thoroughly examined the musters, the author decided to disregard statistical information regarding place of abode because in the vast majority of cases, the master had simply entered Bristol at the top of the column and 'ditto' henceforth, an indication that anyone signing on in Bristol was taken to be resident in the city. Only one roll actually has the addresses of the people listed and they mainly lived in boarding houses around the port area, which does not lend

⁵³ Thomas Clarkson, *The History of the Rise, Progress, and Accomplishment of the Abolition of the African Slave Trade by the British Parliament*, (London, 1808) pp. 323-324.

⁵⁴ Usually a landlord of a hostelry who allowed a seaman credit but threatened to have him arrested for debt unless he signed on with a ship of the landlord's choosing, whereupon the landlord received a fee from the shipowner. See Peter Kemp, ed., *Oxford Companion to Ships and the Sea* (Oxford, 1988) p. 213; or Smyth, *Sailor's Word Book*, pp. 222-223.

⁵⁵ For coastal vessels, Muster Rolls could be presented to customs every six months. BRO: SMV/9/3/1 Ship's Muster Rolls 1748-1795.

⁵⁶ For example, Bath and Pill. Jonathan Press, *The Merchant Seamen of Bristol, 1747-1789* (Bristol Branch of the Historical Association, Reprint Pamphlet No. 38, 2001) pp. 1-3.

credence to their residential status.⁵⁷ Though there were seamen living in long-term accommodation, by the nature of their calling many would be itinerant, especially in wartime and when there was an excess of employment. However the information regarding abode does have implications which will be considered below when dealing with men taken on at foreign ports and on coasting vessels.

For the seamen of the eighteenth century there was no facility like the Shipping Federation of Employers 'pool' of seamen which was developed from the end of the next century, where men looking for a ship reported and were sent to whatever ships were available.⁵⁸ This provision might have made it easier for seamen to find work, but they had to deal with officious, overbearing clerks who had complete power over them, making the system open to abuse.⁵⁹ In the period of the thesis, crews would be made up of men who had been hired either by direct approach from the owner, master or mate, or by an advance to them by the men themselves.

There are few references in documentation to the system by which seamen were employed in Bristol and indeed in the country as a whole. However, the archive of Michael Henley and Son, who ran both foreign and coastal shipping, is available and information from there can be compared with that from Bristol records. There was little evidence to show that the same seamen were employed on a regular basis on Henley's vessels as no employment roll was kept, each master being responsible for ensuring that their vessels were manned. The master was also given leeway regarding the number of hands.⁶⁰

According to Ralph Davis, three methods of crew payments were in use in the eighteenth century; shares in a ship's earnings – mostly used for fishing vessels and whalers; payment by lump sum in the coastal trades, Ireland, Hamburg, Norway and the nearby continental ports; and by monthly wages for seamen on

⁵⁷ BRO: SMV/9/3/1/9 Muster Rolls 1783-89. *Prince William*.

⁵⁸ Shipping Federation 1890-1982. National association set up by employers to protect shipowners against growing union unrest. One of its main features was the 'pool' where crews would be selected. It was very much an employer's union. National Museums Liverpool: D/SF MMM.1991.89.

⁵⁹ For general comments by seamen on this establishment see British Merchant Navy. Old Friends Plus. www.merchant-navy/general-postings/15558-merchant-marine-shipping-offices-british-shipping-federation.html

⁶⁰ Ville, *English Shipowning*, p.93.

longer foreign voyages. He says that this 'firmly established custom would be followed by seamen when signing on for any voyage'.⁶¹

The first of these methods is of slight interest to this thesis as the numbers of vessels working in the Southern Atlantic Fisheries was minute compared to the whole and there are no surviving account books. The ships operating out of Bristol were mainly foreign-going and coastal, with monthly wages generally being the method of payment of the former and lump-sum the latter. Although initial investigation showed that there was no fixed line of demarcation between them, the total number of ships was such that it was necessary to consider foreign and coastal in turn in order to determine whether or not Davis's general principles were applicable to Bristol. Section 2 of this chapter has therefore been divided into two sub-sections.

Section 2a. The crewing of foreign ships.

Introduction. No introduction has been made to this section due to it being fully covered in the General Introduction above.

The structure of ships' crews.

In the instructions to the master of Bright's ship, *Triton*, a phrase such as 'and order you to get your ship's company aboard to the number of ..., yourself included' is at the beginning of all voyage orders, an indication that while it was the captain's responsibility to engage crew he had no discretion as to numbers.⁶² He could, of course, delegate this to his mate,⁶³ but there is no evidence for mates being employed prior to sailing for any purpose except to load the ship.⁶⁴

⁶¹ Davis, *Rise of the English Shipping Industry*, pp. 133-134.

⁶² BRO: 39654/3 Voyage accounts for the *Triton*, 1777-90, p.p. 3,19, 39,56,90,102,111,124.

⁶³ Clarkson says that the mates of slave vessels preparing for voyages used to pick up hands at public houses. Clarkson, *History of the Slave Trade*, p. 122.

⁶⁴ See Chapter 3.

It was of great benefit to this investigation to be able to examine the portlidge bills⁶⁵ from the account books of two ships of the same size voyaging to the West Indies between 1777 and 1788.⁶⁶ Data from the first of these, the *Fanny* belonging to Munckley, was taken to compile Appendix 2.014 showing the numbers of crew and their duties in peace and war.⁶⁷ There were distinct differences in the ways of hiring of seamen in times of war when there was a shortage, and peace when owners could impose wages and conditions.⁶⁸ The first year of peacetime conditions for merchant shipping was taken to be 1784 as it took up to a year to return to peacetime establishments.

The first item to note was that half of her voyages were completed under wartime conditions and she carried an average crew of 18 compared to a peacetime 15. This ship did not carry a Letter of Marque, but it will be seen that in 1783 she had a gunner on board and all her wartime outsets⁶⁹ recorded taking on gunpowder so that she could defend herself to a certain extent. Another wartime anomaly was the shipping of a steward, who would normally be in charge of foodstuffs or the servant of the master,⁷⁰ but crew numbers had not increased considerably so it is possible that he may have been more of a clerk, assisting the captain with the wartime increase of paperwork. His wages were on par with a seaman. Twice in wartime the ship carried a third mate, which was unusual and may have been to assist with watch keeping, but as his rate of pay was less than that of a seaman on his first voyage and only equal on his second, it may be that he was rated as such as protection against impressment – see below.

In the Royal Navy, hands were rated either as 'able', that is able to carry out any seamanlike task, or 'ordinary', capable of making themselves useful but not skilled. In the portlidge bills of the *Fanny* the term 'ordinary' was used but some seamen

⁶⁵ Portlidge bills were completed at the start of a voyage and contained a list of the crew, their rating, pay per month and any advance. They are not to be confused with the Muster Rolls which were completed at the end of a voyage. Portlidge bill was a common seafaring term at the time but is not to be found in dictionaries. See Minchinton, ed., *Trade of Bristol*, pp. 92-93.

⁶⁶ BRO: 12162 Shipping account book of the Snow *Fanny*: BRO 39654/3 Voyage accounts for the *Triton*, 1777-90.

⁶⁷ BRO: 12162 Shipping account book of the Snow *Fanny*, pp. 4,17,31,47,67,81,99,114,128,142,156,171.

⁶⁸ See Press, *Merchant Seamen*, pp. 5-6; Davis, *Rise of the English Shipping Industry*, pp. 136-137.

⁶⁹ Outsets. The name given to the record of all outgoing expenses in the account books.

⁷⁰ *Falconer's Dictionary*, p. 504.

were rated in fractions, for example ½ seaman. This appears to have been a general practice as it is seen on for other ships portlidge bills between 1759-91.⁷¹ Unfortunately crews' ratings were not entered on the musters so they cannot confirm that this was a system in general use at Bristol, but it is likely. The master probably rated seamen according to his own judgement of their skills, a system by which the unscrupulous might reduce his portlidge bill. When this is allowed for, the number of full seamen in peacetime was eight or nine and during war between five and nearly eleven.

An important difference in crew establishment between peace and war was the carrying of apprentices. At Liverpool the practice in both states was to take on apprentices at annual wages as a method of cutting down on the wage bills (Appendix 2.015). Appendix 2.014 shows that this was not the case with the *Fanny* for although she did carry apprentices in wartime, she did not in peacetime except for the two who would be finishing off their agreement.

Two types of apprentice went to sea, the boy paying a premium who was expected to learn the trade and become an officer when finished, and poor boys sent to sea as an introduction to seafaring.⁷² There were three main reasons for taking apprentices in wartime; the ships' needed a higher level of manning and seamen were scarce; apprentices were not paid highly, if at all, and lowered the overall portlidge bill; and for the first three years of their apprenticeship they were exempt from being pressed and needed no protection to be purchased for them.⁷³

The *Fanny's* portlidge bills confirm Munckley did not pay his apprentices monthly wages though he did provide clothing and shoes. Appendix 2.016 shows the progress they made as far as this ship was concerned. Apprentices could be transferred to another ship at the owner's discretion – they did not like paying subsistence for idle hands during the period the ship was preparing for its next

⁷¹ BRO: 39654/1 Voyage Accounts for the *Ruby*, 1760, 1762; BRO: 39654/2 Voyage Accounts for the *Swift* 1759; BRO: 39654/4 Voyage Accounts for the *Druid*, 1791; BRO FX/20: Bristol Shipping Account Books from William Clements Library, Ann Arbor. *Industry*, 1782. No pagination; BRL 21258: Account Book of the *Sybil* and *Success*. *Success*, 1779, p. 125.

⁷² Press, *Merchant Seamen*, p. 3.

⁷³ Ville, *English Shipowning*, pp. 109-110.

voyage – so it is possible that this was why the six left the *Fanny* as all had returned to Bristol from their voyages.⁷⁴ Without ratings being entered on the musters, it is difficult to trace them on other ships but of the four who progressed in this vessel, three became officers and after seven years the other became a full seaman. The length of apprenticeship depended on age which means that they probably came aboard about 14. Joseph Kendricks and Louis Cowper were 18 in 1782 which would make the former 17 when he came aboard as that was his first trip, and the latter initially 14 or 15.⁷⁵

The conclusions are that Munckley used apprentices during the war years to make up for a shortage of seamen, but he treated them well and allowed them to rise through the ranks. However, the practice stopped when hostilities ended, showing that he was not using the Liverpool system to reduce his portlidge bill. He did put both paid and unpaid boys on board, the former earning about half a seaman's wage, but there was no sign that he advanced them except in the case of Joseph Devonish, who was probably a protégé of his father, Captain John Devonish.

The second ship, the *Triton*, was husbanded by Brights completing nine voyages at the same time as the *Fanny's* twelve, five under wartime manning and carrying an average of 23 crew compared to 16 in peacetime. She required more men due to being a Letter of Marque ship and was thus armed with twelve guns and 6 swivels; hence the gunner on three occasions and the additional crew.⁷⁶ Unlike the *Fanny*, she carried no third mates, ordinary seamen or apprentices and a steward on only three occasions, obscuring further the latter's role. On the 7th voyage the position was taken by a man who had already made four trips as a seaman and who was on the same wages, making it a possibility he had a dual role as seaman (Appendix 2.017).

⁷⁴ Ville says that apprentices could be transferred at the owners discretion. Ville, *English shipowning*, p. 109.

⁷⁵ Unusually, this muster roll had the age of the apprentices on it. BRO: SMV/9/3/1/8 Muster Rolls 1777-83, 30.

⁷⁶ See Damer Powell, *Bristol Privateers*, p. 299. However, Damer Powell was wrong about the tonnage which was 230 and the number of men which he put at 30.

The complement of officers was similar to the *Fanny* except, unusually, a cooper was carried on one occasion who was pressed at Barbados. Again, the seamen were rated according to how experienced the master considered them, but no matter how the author tried to compute the number of men equivalent to a skilled seamen, even counting boys, the figures per voyage in wartime were irregular, an indication that desperate masters would take anyone they could get. At the beginning of the war the *Triton* even carried landsmen, possibly because she was a Letter of Marque and like slave ships needed hands rather than skilled seamen. This does not seem to have been cost-effective as six of the eight ran or left in the West Indies, whilst the two who returned home did not continue with the ship. The *Triton* did not use apprentices and the economics of taking boys will be dealt with below.

The allegiance of crewmen to one ship or company.

Having looked at the structure of a ship's crew, it is logical to consider whether or not there was any allegiance between shipowners and former crewmen, or if new crewmen were found for each voyage. The portlidge lists for these two ships are again the basis for investigation. Appendices 2.018 and 2.019 give lists of all crewmen who sailed for more than one voyage on the *Fanny* and *Triton* respectively. Appendix 2.020 condenses data from the previous two appendices .

Considering the number of crewmen who sailed with the *Fanny*, it is shown that very few stayed for more than one voyage. Seven made two to three consecutive trips, but only one man left and returned several voyages later, an indication that there was no general allegiance to the ship. A few returned for another voyage having changed roles such as from seaman to cook, but the main reason for men making return voyages appears to have been personal advancement. The apprentices and boys have been dealt with, but in general the long-term men were officers; for example, the second mate Thomas Healey promoted from boatswain stayed for five years. The original master and part-owner, Thomas Richards, made seven voyages before becoming ill and being replaced by his chief mate who stayed with the ship till it was sold. The longest serving were the boy Stokes,

mentioned above, and the carpenter who returned for all voyages missing only the original to Petersburg.

Discounting officers, there were no signs of allegiance but it would seem reasonable that an owner would take on men who had worked well for him before on his other ships and that a man would return if he had been treated properly. The difficulty for seamen might have been that they could not afford to wait between voyages for their ship to refit.

Munckley husbanded two other ships, the *Exeter*⁷⁷ and the *Hope*,⁷⁸ during this period and although their account books have not survived, inter-ship crew movements amongst the three ships can be traced by comparing their musters. The recurrent problem for the researcher, however, is the accuracy of the 'last voyage' column which was dependant on the ability and inclination of the master. For example, Captain Winder of the *Exeter* was fairly diligent but Simms of the *Hope* made copious use of 'unknown' even for seamen who returned with the ship; his roll for 1786 had nine out of a total of 17 men listed as such. Comparing the portledge bills and musters again brings out vagaries in the latter, the cooks' names not being included in the first three voyages, perhaps because they were Africans having what were probably nicknames bestowed on them; on two voyages the cook was named 'Somerset'. Apprentices and boys if not on wages were not entered on the musters and sailors taken on in Cork could also be omitted. Any research done using only the Bristol musters of this period must include some inaccuracies.

However, the name and length of time onboard of each man was accurate as the deduction of hospital money from his wages depended on this, and so compiling data regarding allegiance to the ship is possible. Unfortunately, due to Simms, the musters of the *Hope* give only limited information, especially as the original ship was sold and another built during the period. Data from her will be referred to, but

⁷⁷ *Exeter*; Captain W. Fuss, 300t, built Bristol 1776, Munckley, Bristol-Jamaica. *Lloyd's Register*, 1787.

⁷⁸ *Hope*; Captain J. Simms, 350t, built Bristol 1784, Munckley, Bristol-Jamaica. *Lloyd's Register*, 1787.

the research will mainly concentrate on the voyage details of the *Fanny* and *Exeter* listed in Appendices 2.021 and 2.022.

The *Fanny* at 230t was smaller than the other two with an average crew for all voyages of 16. This included apprentices and boys, residents of Bristol who would remain aboard. On two occasions in wartime, seamen joined at Cork and it is probable that a captain unable to fill his crew at Bristol would sail expecting to find seamen in Ireland. There is no sign of this happening in peacetime. A total of 70 men, or 38 percent, rejoined the ship for another voyage, there being little difference war to peacetime except on the 7th voyage when the realisation that jobs might be scarce was probably the cause for almost doubling the percentage. As has been noted above, a higher proportion of officers showed allegiance to the ship but these figures demonstrate this was not the case with ordinary crewmen, either to the ship or between company ships.

The percentage of crew returning to the *Exeter* was 42, higher than the *Fanny* but this could be weighted by having no portlidge bills to substantiate data. There appears to be no correlation between voyages having a high proportion of seamen returning and the length of time the ship refitted. In 1779 the ship had discharged its last crew in August 1778 and left late December with a fair proportion of the previous men, and the same occurred on her last voyage when she arrived in the September and left in December. Likewise short terms in port made no difference, so length of time in port has no effect on previous crew returning. Again, this ship took seamen on at Cork but only in the war years, and once more there was no sign of allegiance to company ships.

Regarding the *Hope*, on average 25 percent returned next voyage. She also carried apprentices in wartime and took seamen at Cork. There was more movement between ships, but this was caused by Captain Simms and his mate moving to the *Exeter* when his own ship was being rebuilt. The conclusion as far as Munckley's vessels were concerned is that there was no practice of retaining seamen or moving them between ships; they would stay if it suited them but there was no company policy to encourage them to do so.

Considering Bright's vessels and using the same methods as with Munckleys', the data for the *Triton* presented on Appendix 2.020 shows that even fewer men stayed with the ship long-term, the longest serving five trips. Even the masters were changed four times. Men did stay on to advance themselves, usually a boy becoming a seaman – although on a single occasion one advanced only to landsman but on more pay – but in general men simply returned for another voyage and with no structure of promotion it is unlikely that the company practised any policy of allegiance.

Brights at this period husbanded more ships than Munckley, seven in all, and by using the same research methods for the *Triton* allegiance should be exposed by examination of the results shown in Appendix 2.023. The problem of inaccurately completed rolls was worse with this ship than with the two above, and was complicated further when the correlation of portlidge bills and muster rolls showed that some captains were leaving blank spaces to indicate repetition, otherwise 'ditto'.⁷⁹ In addition, the portlidge bills and muster rolls did not always agree on crew numbers, for example on Voyages 7 and 8. Although the *Triton* did sail to Cork on her 3rd and 5th voyages she does not record taking on men.

The number of crew returning for another voyage, 38 or 22 percent, was less than for the *Fanny* and yet the *Triton* was taking all outgoing seamen from her home port. This ship took more first voyagers, probably due to her being a Letter of Marque, and this is substantiated by their reduction in numbers at the end of the war. What was significant was that each time the captain changed, the number of previous crew remaining dropped significantly; Henderson and Jolly to none and only one man stayed to sail under Honeywell. Henderson brought four with him from his previous ship, two petty officers and two stewards, but the other captains came alone.

⁷⁹ Captain Henderson was using a system of one 'ditto' at the top of a column and it is assumed that all underneath till the next entry are the same. He put *Triton* and one 'ditto' underneath which would normally mean two were from the previous voyage but the portlidge bills indicate seven. BRO: SMV/9/3/1/9 Muster Rolls 1783-1789, 66.

These anomalies may simply be coincidence, but it could mean that captains preferred to start afresh on new ships and likewise resident crewmen were not keen on following new captains. Captain Honeywell's muster roll was well compiled and of particular interest was the column noting usual residence which showed that out of the 15 crew on it, eight were from Bristol, two were local and the other five from as far afield as Scotland. That is probably a more likely assortment than the usual entry claiming all were from Bristol. Again, there appears to be little allegiance of crew to the ship and no indication that there was movement amongst company ships.

The *Druid*, another ship husbanded by Brights was chosen as the equivalent of the *Exeter* because she worked through the same period, and although no account books survived for these years, two are available for 1790-92. The data obtained in the same way as above is recorded in Appendix 2.024. Again there was the problem of inaccurate muster rolls, as can be seen in the unknown column, although those from Captain Stott were as good as any demonstrating that the quality of the returns depended on the captain. There were no portlidge bills available for 1778 so the number of boys or apprentices is unknown.

The *Druid* was a Letter of Marque ship during the American War and like the *Triton* carried a larger crew to work 12 guns.⁸⁰ Damer Powell records only the details of the ship and therefore she took no prizes and almost certainly no prize money.⁸¹ Only in 1780 and 1782 did she pick up crew from Cork so they do not alter the composition of the outgoing crew. The 'last ship' column in Captain Stott's musters had no unknowns so it can be revealed that crew came from a broad assortment of ships belonging to other companies, 12 or more per voyage, and sometimes three or more men from the same ship. Although that occurred in wartime, the 1787 muster has the same pattern with 13 different ships represented, leaving no doubt that seamen did not have allegiance to one ship but would take what was available.

⁸⁰ *Druid*, Ss, Captain T. Powell, 300t, Built Bristol, 1777, L&R Bright, Bristol-Jamaica. *Lloyd's Register*, 1787.

⁸¹ Again Damer Powell has got the tonnage and the number of men wrong. Tonnage should be 300 and crew are as in Appendix 2.024. Damer Powell, *Bristol Privateers*, p. 294.

While Stott was captain, 28 percent of men returned for the next voyage and under Powell, 27 percent. The fact that five crewmen returned when Powell became captain does not alter the comments above regarding new captains as he had served as mate on three previous voyages and was therefore known. As far as crew were concerned, the 1784 voyage was particularly successful in that the same men he left with all came back with the ship and none had to be taken on in the West Indies.

The difficulties of retaining crews in the West Indies.

The crewing problems for ships trading to the West Indies were manifold, the extent depending on whether the country was at war or peace, the former causing men to be scarce as they could be impressed anywhere in the world there was a naval ship. Also with wages being at a premium, men were liable to run to seek better elsewhere. Technically, after signing articles a crewman should have remained for the entire voyage, but the numbers of men being discharged at the West Indies in both war and peace point to informal agreements between master and individual seamen. To examine these problems, the turnover of men during the voyages of the above four ships has been analysed with the data recorded in Appendix 2.025 and a précis of this in Appendix 2.026.

Taking the situation in wartime first. The massive manpower requirements of the Royal Navy meant that they impressed every seaman they could catch, leaving the shipowners with the problem of finding and keeping men for their ships. Protections could be bought either for individuals or an entire ship's company, but the slightest mistake in them could result in a man being pressed. Munckley bought individual, servants, and ship's protections for the crew of the *Fanny* from 1777 to 1783, but it did not stop two men in 1780, and three in 1781 being pressed in Barbados.⁸²

There is no account book for the *Exeter* for verification, but being from the same company she would probably have carried protections though she had five seamen

⁸² BRO: 12162 Shipping account book of the Snow *Fanny*, pp. 5,32,50.69,83, 101. There was no entry in 1778 but it is likely there were protections not recorded in the disbursements.

pressed in the war years. Unfortunately the *Triton's* book does not record protections though again it is likely they were carried. The only loss she had was in 1782, but that was a severe case of eleven men. The *Druid* had men taken regularly so it could be that Brights were not as careful as Munckley about protections, though it could be due to them shipping bigger crews.

As has been mentioned above, shipowners in wartime resorted to using the landlords of hostelrys and suchlike to inveigle seamen to join their ships and it is likely that they did use nefarious tactics, even though Clarkson believed that these devices were only used in the slave trade. The reality was that a respectable company like Munckley's used landlords to procure seamen for every voyage between 1778 and 1782, paying a guinea per head.⁸³ Unfortunately the *Triton's* book records only one incident, 'crimpage paid sundry landlords, £17.6s.6d' in 1779, but it was probably done every voyage and the actual sums lost in the general disbursements.

The wages of crewmen will be described below, but one of the difficulties for owners during wartime was that men were inclined to desert in the West Indies if they thought they would earn more on other home-going ships short of crew. This problem was voiced in the instructions to the master of the *Triton* on its first voyage:

As you come home with convoy there will not be any necessity of having so many men as you take out and as we expect many of them will leave you in the West Indies we would not have you supply their place with runners without so many should leave you as you would stand in need of some to work the ship.⁸⁴

This instruction shows that despite the ship carrying a Letter of Marque, Brights had no intention of allowing their ships to aggressively seek prizes. In fact, on this

⁸³ BRO 12162: Shipping account book of the *Snow Fanny*. p.p. 18,32,15,69,82. The actual cost of an individual seaman is not recorded but all charges are recorded in multiples of a guinea and the cost, £13.13 in 1781, was multiplied in terms of half guineas then the number of seamen would outnumber the whole crew.

⁸⁴ BRO: 39654/3 Voyage accounts for the *Triton*, 1777-90, p. 6.

voyage ten men ran in Jamaica and one died, the captain replacing them with only four runners.⁸⁵ It may be that the captain took it as an instruction to actively get rid of men because in the next four years of war, only two men ran though 23 were discharged. If the initial voyage and the single impressment event were discounted, there is no real deficit in crew numbers outward and inward on the *Triton*, and although the *Druid* had an overall shortfall of eight, this was mainly caused by men being pressed. Very few were discharged compared to the *Triton* and overall there is little indication that Brights deliberately tried to save money by encouraging crew to leave in the West Indies. Munckley's ships had an even better record of replacing crew and as shown in Appendix 2.026, they ended the war taking a surplus of men back again.

In peacetime, as might be expected, there were fewer runners because wages were stable and except for the *Exeter* the ships carried back more crew than they took out. More men died in peacetime from disease than from armed conflict in war; the figures being inflated by five at once on the *Triton* in 1786, which shows that death in the West Indies was a lottery. Some minor points the investigation brought to light were the need for some ships to take men on at Cork and that Irish seamen would join at Bristol and sign off again in Ireland, presumably the masters accepted this as they were short of men.

Payment of crews.

The conditions under which seamen were hired and paid were laid out in 'Articles of Agreement Between the Master and Mariners' which were first established by law in 1729 and made perpetual in 1762 after verbal contracts had become unworkable. Another act was passed in 1797 due to the problems of seamen deserting in the West Indies.⁸⁶ These acts will be referred to where they apply to Bristol seamen.

⁸⁵ BRO: SMV/9/3/1/8 Muster Rolls 1777-83, 52.

⁸⁶ 2 Geo II c. 36. An Act for the better regulation and government of seamen in merchants service: Made perpetual by 2 Geo. III c. 31: Desertion of Seamen Act, 37 Geo III, c 73, sect 1.

Articles of Agreement (henceforth referred to as 'Articles') were not included in the account books so surviving copies are few and far between. Appendix 2.027 contains a transcript of that of the *Sybil* for the voyage of 1785 to Antigua and Jamaica and this document will be referred to when examining the technicalities involved in dealing with crewing a ship.⁸⁷ The Articles are an agreement between the master and crew, not crew and owners. The second paragraph gave the parameters of where the master was allowed to take his ship, and although it designated the discharging ports, it allowed him considerable freedom as to where his return cargo was loaded – and indeed he could go on to discharge at any port in Great Britain. The most likely alternative for Bristol ships was London. Trading outside of these areas left it open for the crew to enter into negotiations regarding pay.

Wages will be dealt with below, but once a seaman had been hired either by the captain or an agent ⁸⁸ and signed the ship's articles, he was entitled to a month's wages in advance. This was not given to him in cash but in the form of a docket known vernacularly as a 'sailing note'. A number of them survive all following roughly the same format. The entries in brackets were made individually when signing on.

No. Bristol, August 11th 1779.

Six days after the last sailing of the (Ship *Success*) from Kingroad (myself) master for (Jamaica). I promise to pay to (James Hill) or order, the sum of (four pounds ten shillings) for one month's pay provided he proceeds in said vessel agreeable to the Articles he hath signed.

William Ball for Messrs L & R Bright , Merchants Bristol.⁸⁹

This document is useful to the researcher as it was the custom to record on the back the date cashed, who had presented it and occasionally whether there had

⁸⁷ BRL 21258: Account book of the *Sybil* and *Success*. *Success*, 1779, p. 46: For further details of the refit of these ships and their voyage to the West Indies, see Chapter 4.2a.

⁸⁸ For example, Walter Jacks, a local merchant, signed some of the notes on behalf of Brights.

⁸⁹ BRL: 21258 Account book of the *Sybil* and *Success*. *Success*, 1779, p.166.

been an intermediary. From an analysis of this information it is possible to understand the structure of the hiring system.

All the seamen's notes found so far give the sailing port as Kingroad, not Bristol, so the likelihood is that all foreign-going ships stopped there to be cleared and have the articles signed by the master and witnessed by Customs. The *Sybil's* were dated 23 November, 1785, but although the three surviving seamen's notes were made over a week before, there is no date recording when they reported aboard.⁹⁰ The ship had been towed down on the 15th so it is possible that they could have joined it then, but it is unlikely that seamen would come aboard before they had to as they were not yet on pay and the agreement was that his wages would not begin 'until the ship's last departure from the port of Bristol', which in the case of the *Sybil* was not till 9 December, this date being confirmed by the date wages began for each seaman.⁹¹

The purpose of the advance was to allow the man to equip himself for the voyage and to clear any debts ashore but, of course, if a safeguard had not been built into the system there was no guarantee that the crewman once in possession of this money would not abscond or even join another ship. To prevent this, the sailing note clearly stated that it could not be cashed until six days after he had sailed, which was not a problem for an established man with family like William Saunders of the *Success* who was given his sailing note on 4 August 1779, and after the ship sailed on the 16th, it was cashed by his father on 14 September.⁹² It appears from the cashing in dates on these notes, that the shipowner did not honour them ad hoc, but probably published some sort of notice setting a specific day.

However, many seamen had no family and would want the money immediately and so have to sell their notes for whatever sum they could get. John Donovan of the *Fanny*, received his note on 19 December, and from the back of the note, it

⁹⁰ BRL: 21258 Account book of the *Sybil* and *Success*. *Success*, 1779, p. 45, 160-172; BRO: AC/MU/3/8c Promissory note Capt Richards for seaman's advances, 19 December 1786.

⁹¹ Hilhouse's bill gives the actual sailing date. BRL: 21258 Account book of the *Sybil* and *Success*, 1779, p. 25. The wages book was contained in the account book but not attached to it.

⁹² BRL: 21258 Account book of the *Sybil* and *Success*. *Success*, 1779, p. 162.

appears he sold it to another crew member, Thomas Kirby, who in turn gave or sold it on to the payee who cashed it on 7 January. The ship had sailed on 24 December so Donovan had probably been in desperate need of the money.⁹³ In a way this was similar to the manipulation of bills of exchange, but at a much less respectable level.

The fleecing of seamen ashore was common practice⁹⁴ but perhaps the most notorious way was the system of 'crimping'. This has been mentioned above, but further evidence comes from dockets associated with the sailing notes. On a note signed by Walter Jacks, six pounds, six shillings was promised to a Mr George Porter⁹⁵ provided three seamen sail in the *Success*, but of special interest is that this payment was split in two, one half to be paid when they were onboard, and the other six days after the ship sailed. One of these men made over his sailing note to Porter who cashed it the day the ship left and further examination shows that Porter was paid before the sailing day, but had to provide a note of hand saying he would refund the money if it turned out the man or men had not sailed. The latter note distinctly mentions crimpage.⁹⁶ Other similar notes were available and it appears that Brights would pay out early provided the recipient was reliable and signed a note of hand.

Porter appears to have been regularly involved in this business as two other sailors, one of whom did not sail, were lined up by him for the same ship and he again received his fee and the proceeds of the sailing note given to the other man. Another set of notes shows that others apart from him were involved in the same possibly shady trade.⁹⁷ Porter was a salesman, contemporarily defined as 'one who sells clothes ready made',⁹⁸ which indicates he probably ran a slop-shop, one of the trades known to take advantage of seamen.⁹⁹ The word crimp is emotive¹⁰⁰

⁹³ BRO: AC/MU/3/8c Promissory note Capt Richards for seaman's advance, 19/12/86.

⁹⁴ Press, *Merchant Seamen*, p. 4.

⁹⁵ George Porter was a salesman on the quay. *Bristol Directory*, 1785.

⁹⁶ BRL: 21258 Account book of the *Sybil* and *Success*. *Success*, 1779, p. 170.

⁹⁷ BRL: 21258 Account book of the *Sybil* and *Success*. *Success*, 1779, pp. 160-161.

⁹⁸ Johnson, *Dictionary of the English Language*.

⁹⁹ Press, *Merchant Seamen*, p. 4.

¹⁰⁰ Dixon suggests the following definition. 'A crimp is an informal labour contractor who uses guile, force or fraud to gain physical or financial control over seamen taking his profits from their past or future earnings or

but there is no real evidence of the practice of what would be referred to in the next century as 'Shanghaiing', that is sailors being shipped against their will.¹⁰¹ Conrad Dixon's term 'an informal labour contractor' albeit with few ethics, would probably be the best description of the work of the crimps at Bristol and no doubt they were aided and abetted by landlords.

Crimping was not confined to Great Britain. The *Success* reached Barbados in February, 1780 and seven crew left including three seamen discharged with full pay, whereupon the captain was obliged to get five runners through the agent for the onward trip to Jamaica¹⁰² for which the agent received five guineas, his bill stating this was for 'crimpage'.¹⁰³ There is some confusion about the term 'runners', and although some may have been listed on their ship's musters as having 'ran' from their ship, that is deserted, the term actually describes men who signed on for a 'run', that is a one way trip, usually back to England.

Nevertheless, four of the five seamen joining this ship in Barbados wanted only to sail to Jamaica and on arrival signed off again receiving £7.14s for the eleven days run, more than double the monthly wage of those who joined in England.¹⁰⁴ The fifth seaman received £4.10s but stayed on for about seven weeks to work on the ship at the current seaman's wages of £2.16s per month eventually collecting £9.7s. Altogether another eight men and one acting second mate were taken on for one to two months at £4 per month, again an excellent salary. All the figures given are in sterling although they were paid in full in equivalent currency. It was obviously lucrative in wartime for seamen to remain in the islands taking short term employment maintaining and manoeuvring ships.

At the end of the voyage, the *Success's* crew's final payments were entered in a separate wages book recording per man his due wages for the months and days

from the employers of sea labour when hands are delivered to a ship.' C. Dixon, 'Signing-on', *The Mariner's Mirror* 70 (1884), 311–319. p. 318.

¹⁰¹ See Peter Kemp, ed., *The Oxford Companion to Ships and the Sea*, p. 776.

¹⁰² BRL: 21258 Account book of the *Sybil* and *Success*. *Success*, 1779, p. 129. Letter from Captain Ball to owners.

¹⁰³ BRL: 21258 Account book of the *Sybil* and *Success*, 1779, p. 127.

¹⁰⁴ BRL: 21258 Account book of the *Sybil* and *Success*, 1779, pp. 127-128.

worked and the deduction of any pre-voyage advances and hospital money. Each man signed his page agreeing that he had no further claim against the owners and all crew members' earnings were totalled at the end of the book. The Wages Book for the *Sybil* contains the same information, but there the seaman signed a stamped docket which was pasted on one side of a double page which also recorded his hospital money payment with the final wages calculated on the other. In two cases the docket requesting monthly payments to the seaman's wife has been pasted in.

Please to pay to my wife (name and sum per month) on account of my wages per your ship Sybil which I promise to allow her and to be deducted out of my wages.

One man was paid an extra guinea for piloting the ship from Lundy to Minehead. Six seamen had signed on during the stay in the West Indies being paid normal wages when there, but their 'run money' was £9.9s taking their total wages for an average two months work above those of the crew who had served the whole voyage.

There is one other Wages Book available dated 1761-1762 pertaining to the *Clifton*, one of Munckley's vessels.¹⁰⁵ It is of an earlier period but is of interest because the ship had a much larger crew than normal, 37 leaving Bristol compared to her usual contingent of about 15, and so may have carried a Letter of Marque. However Damer Powell says that it was not issued till April, 1762. It is odd that Munckley would pay wages to so many crew for no purpose, but it is possible that she was manned purely for defence as she was running without convoy.¹⁰⁶ In his penultimate letter, the master says that she 'was well manned and fitted for defence hopes not easily taken'.¹⁰⁷ As well as the Wages Book, three letters survive and analysis of these brings forth some of the problems faced by shipowners and masters in wartime. From the information in the Wages Book an

¹⁰⁵ BRO: AC/MU/1/9 Wages book for the ship *Clifton*, 1761-1762.

¹⁰⁶ Damer Powell, *Bristol Privateers*, p. 239.

¹⁰⁷ BRO: AC/MU/1/8a Letter from John Smith commander of the *Clifton* to Samuel Munckley and Co, 13/1/62.

itinerary of the movements of the *Clifton's* crewmen can be made starting at Bristol (Appendix 2.028).¹⁰⁸

As would be expected a number of seamen ran at Barbados but Captain Smith says he carried no runners, so these appear to have been replaced without having to resort to crimping. The *Sybil's* articles do not specify the penalty for desertion, but those of the snow *Hope*, 1768, follow the 1729 legislation, that is the seaman was liable to lose both wages and all goods and chattels on board.¹⁰⁹ The book entry simply gives the man's wages till he deserted and deducts his initial advance, two months wages in this case, and hospital money. It makes the balance out to the seaman but gives no mention of its ultimate destination.¹¹⁰

Two were pressed at Barbados, one of whose wages was paid to Smith which could mean he originally paid the man himself, but there is no indication of where the proceeds of the other went or of the five who joined the army. Smith claimed he had saved money by not taking 'runners', but the wages of the men who joined were on average twice that of the resident seamen.

The final letter was sent by Smith to the owners from Ilfracombe (Appendix 2.029) gives details of the dispersal of the men at the end of the voyage which, when combined with the information given in the Wages Book, highlights the uncertainty faced by seamen in wartime. The *Clifton* did reach British waters without encountering the enemy, but with the weather against her all the way and by the time the ship reached the Holmes in the Bristol Channel, only the master and four or five of the officers were fit to work the ship due to gales. She could not proceed past the Holmes and had to put into Ilfracombe, managing this only with the help of men from an impressment service tender.¹¹¹

¹⁰⁸ There is no page numbering in the Wages Book so column three gives the sequential number of the seaman's entry starting at the first.

¹⁰⁹ BRO: AC/MU/1/12a Seamen's articles of the Snow *Hope*. These were too damaged to be released to the public but are copied in Minchinton, ed., *Trade of Bristol*, p.169

¹¹⁰ Conrad Dixon says that in 1790 forfeited pay from deserters amounted to £100 and was transferred to the Greenwich Hospital account. The amount is ludicrous because on this ship alone runners had earned at least £10. Dixon, 'Signing-on'.

¹¹¹ For details of the history of impressment at Bristol, see Nicholas Rogers, *Manning the Royal Navy in Bristol: Liberty, Impressment and the State, 1739-1815* (Bristol Record Society, 66, 2014) pp. xv-xvi.

In wartime the main impressment centre was a tender based at Kingroad supported by an active pressgang at Bristol, so returning seamen were vulnerable to the press. Stratagems were employed by masters to save their crews, such as allowing them to escape ashore at remote places like the Holmes and Ilfracombe.¹¹² This ship was unfortunate in that it had needed the tender's assistance and so once it reached Ilfracombe it was inevitable that men would be pressed. However, because of this incident data is entered in the Wages Book which allows the researcher to analysis a situation that is not normally recorded, that is the actual method of paying off of men pressed at sea.

There was certainly no attempt by Smith to avoid paying his men, and indeed he settled with them the next day after taking the trouble to obtain cash by a Bill of Exchange from his local agent because the men were 'in want of necessaries'.¹¹³ All outstanding monies were duly paid including internal debts between crewmen and those to the master. It is unusual in contemporary documents to see debts such as these recorded and indeed there are no entries in any wages books concerning advancements made once a ship had left port, an indication that money was only available to the crew overseas by taking loans on the Captain's account or from other crew members.

All nine pressed men owed money to the captain, probably for slops and minor loans, ranging from £1.9s. to £4.5s., the latter being a considerable sum as the men earned £1.8s. per month. Smaller debts of under one pound were owed by men to the officers and to each other. Considering that these represented the financial dealings of only nine men, out of a total of 48 employed on the voyage, relatively substantial sums must have been exchanged when wages were paid at the end of a voyage.

Only the pressed men had their debts formally recorded as private enterprise was not the business of the shipowner, but the special circumstances here were that

¹¹² Rogers, *Manning the Royal Navy*, p. 40.

¹¹³ AC/MU/1/8e. Letter from John Smith to Samuel Munckley and Co. from Ilfracombe.

these men would be incarcerated in the Impress Service's local lockup and it may have been difficult for the captain to exercise the usual end of voyage system, where he would have his own account book and settle during the payoff. Eight others were discharged, four of whom were given an advance of £2 each, possibly to get them back to Bristol overland and to keep them till they cashed their notes. Going by the higher wages involved, these men must have been petty officers and although by discharging them the captain might have been saving a few days wages, it is possible that they were returning overland to avoid the attention of other press tenders. Also, the tenders were required to leave enough men onboard to work the ship. The remaining four men were probably foreigners and as such not liable to the press.

The advance given these men was not entered in the Wages Book but recorded on a docket which survived within the book meaning they must have received a payment note rather than cash. The men who actually took the ship back were signed-off two days after leaving Ilfracombe and all were paid eleven days later showing that they too had avoided the press. The short delay in men getting their wages at Bristol was part of the articles, their pay being held back until the cargo had been discharged lest the owner wanted to charge them for damage. There is no sign of any owner doing this in any of the surviving Bristol wages books and the time limit of 30 days was always observed. Similarly, there were no fines or forfeitures listed in the books and as these would not be the property of the master, it is likely that it was not a normal procedure used against ordinary Bristol crewmen. Perhaps, as with other traditions built up over the years, the Bristol shipowners and seamen had developed a system that satisfied each other.

Crew Wages.

When considering seamen's wages on Bristol ships in the eighteenth century, the information above has shown that there was a marked difference between peace and wartime conditions. In the former case, the levels remained remarkably stable with a seaman receiving about 25s per month for most of the century up until the

end of the American war when it went up to 30s.¹¹⁴ John Latimer says that in 1768 there had been a disturbance on the quays by seamen trying to raise wages to 30s, but it had been unsuccessful. However, after the war there had been poverty in Bristol and following another disturbance, the mayor agreed to recommend to shipowners to pay the increase and also half-wages at Kingroad.¹¹⁵ Wartime wages were still being paid in 1783 but from the following year 30s became the norm. There is no indication the seamen ever received wages for being at Kingroad.

Immediately the country went on a war footing and the press began, seamen's wages rose and fluctuated to cope with the inevitable shortage of men. To examine this phenomenon and to compare war and peacetime wages, data has been taken from the portlidge bills of the *Fanny* and *Triton* covering the period 1777-1788 and has been recorded in Appendices 2.030 and 2031, voyage by voyage. These appendices will be referred to later, but for the immediate purpose of comparing peace and war wage levels, data has been extracted from them to compile Appendix 2.032 and 2.033, into which the wage levels from the portlidge bill for a pre-war vessel, the *Sally*, have been inserted as a yardstick.¹¹⁶ All wages are per month.

Jonathan Press believed that at Bristol wage levels were far less affected by the onset of war than were those of London due to the former not being a naval port and therefore not so affected by the pressgangs. He puts the figure at an increase of 16 percent for an able seaman, but this was certainly not the case at the start of the American war if these two ships on the same trade but belonging to different owners are taken as standard.¹¹⁷ The *Fanny's* seamen had a 120 percent increase whilst those of the *Triton* gained 140, and on both ships the wages for seamen continued to rise through the course of the war.

¹¹⁴ Davis, *Rise of the English Shipping Industry*, p. 136-137.

¹¹⁵ Latimer, *Annals*, p. 385, 454.

¹¹⁶ BRO: 39654/2 Voyage accounts for the Swift (1759-60), Sally (1767-72) and Nevis Planter (1770-75). There are no page numbers in this account book. This portlidge bill was for the *Sally's* 7th Voyage, she sailing 1 April 1768. The *Sally* sailed for Jamaica and was husbanded by Henry Bright, father of Richard and uncle of Lowbridge.

¹¹⁷ Press, *Merchant Seamen*, p. 6.

Comparing both ships, it can be seen that *Triton's* men were on slightly higher wages than those of the *Fanny*, which was probably due to the former being a Letter of Marque and needing more inducement to get crew, or Brights simply paid a little more. If it were the latter then the appendix shows it did not continue into peacetime. However, when the individual wage rises by rank are considered, it can be seen that some fared better than others.¹¹⁸ Appendix 2.034 gives the percentage rise of wages by rank from peace to wartime and its peak.

The master's wage had risen before the war to £6 and remained the same throughout and after, but this cannot be seen as his true income as he had other sources such as primage, day money in the islands, cabin money, passenger fares and as described above he would have revenue from the crew. Also, if his owner was operating in the traditional way, he might own part of the ship and would certainly be carrying some freight on his own accord. The reality was that small increases in his wage were not of great importance to him and hence his wages did not fluctuate.

Although the chief mate did not have the master's potential to augment his salary significantly, he would not have sought temporary increases as he was in waiting for that post and so would not risk losing it.¹¹⁹ On African ships the mates and other officers usually had the right to carry slaves freight free and so increase their earnings,¹²⁰ but the freight lists outwards and the few surviving inwards for these two ships have been scrutinised and there are no goods for any member of the crew except the master. With all the warnings in the master's instructions about smuggling, it is unlikely that crew members would take the risk. The most likely

¹¹⁸ The word 'rating' is used here as a general term to indicate the position held on the ship.

¹¹⁹ John Devonish and William Fuss of the *Fanny* became captains as did James Jolly of the *Triton*. See Appendices 2.007 and 2.008. In the instructions to the master at the beginning of a voyage the mate was almost always denoted to be master in the event of the incumbents death.

¹²⁰ Davis, *Rise of the English Shipping Industry*, p. 148.

reason for chief mate's wages to stay near peace time levels is that they were technically exempt from being pressed so there would be no shortage.¹²¹

Carpenter's wages did not rise dramatically, which is surprising considering he was a man whose skills were always in demand, especially during wartime, but again there was no real shortage as they were exempt from the press. There was another factor preventing their impressment and that was that they were well organised. In 1799, an ex-carpenter of a West Indies ship was pressed and then released by 'a very considerable body of ship's carpenters' after which it took the intervention of James Hilhouse to calm the situation. Again in 1804, a letter states that a carpenter had been had been rescued by 'a large body of shipwrights belonging to the merchants' yards' and gives the information that the carpenters of the ships of Bristol belonged to the yards and at the end of a voyage they returned to work there.¹²²

The other crewmen, however, all had large increases and although Press may have been correct in saying that the press was not as effective in Bristol as elsewhere, the reality was that the shipowners would be obliged to increase wages to near a national level because otherwise the men would move to another port or, more likely, take the wages and ship for the West Indies but desert there. Second mates and boatswains could claim exemption, but they were usually only experienced seamen who could not easily escape the press so there would be some shortages. Similarly, many cooks were actually seamen and probably did both jobs at once, especially when men were short, so they could expect their wages to compensate for this. Ships' boys were not apprentices and so not exempt and thus could expect an increase though it must be remembered that this was from a low base.

Lastly, differentials do not appear to play a part in wartime wages. Before the war, the chief mates of the *Fanny* and *Triton* earned three times the wages of a seaman

¹²¹ In actual fact, no one was truly exempt as the impressment service could find an excuse to press anyone, but it was unusual for masters, chief officers, boatswains or carpenters to be taken. Rogers, *Manning the Royal Navy*, p. xvii.

¹²² Rogers, *Manning the Royal Navy*, p. xvii. Letter No. 402 p. 195.

and the carpenters almost the same. During the war this fell to about a fifth more, an indication that the shipowners were paying according to the principles of supply and demand and not proficiency, and that this was accepted. After the war, roughly the same differentials returned.

The effect of war on the wage bills of the shipowners.

The American War ended in 1783, but its effect did not show in the manning levels of merchant ships until the following year. Appendices 2.030 and 2.031 clearly illustrate this with the *Fanny* and *Triton's* outset¹²³ wage levels dropping by approximately half and remaining near that figure for the following years of peace. In the account books' insetts,¹²⁴ the figure year by year for crew wages is given, and that should have provided accurate data from which the relative costs of wages in war and peace could be calculated.¹²⁵ Unfortunately, this was not the case as when these figures are examined there are a number of anomalies such as the captain's wages being included in some but not others, and it is uncertain whether his perks, or indeed his whole disbursements, were not there as well.¹²⁶ The *Triton's* accounts are particularly difficult as for some voyages they separate the advances to seaman's wives and at least one has a separate book for Jamaica. For reference, the insett totals have been included in Appendices 2.030 and 2.031.

The only way to be sure of the final figure would be to examine wage books as these had all transactions in them, but only three survived.¹²⁷ However, the entries in the portledge bills were the wages agreed at the time of signing the articles at Bristol and although they cannot be used to calculate the final bill for the voyage,

¹²³ In all ships' account books, the 'outsett' is the account of all outward expenses.

¹²⁴ In all ships' account books, the 'insett' is the account of all inward expenses.

¹²⁵ BRO: 12162 Shipping account book of the *Snow Fanny*, pp. 6, 20, 48, 54, 72, 85, 103, 117, 131, 147, 160, 175; BRO: 39654/3 Voyage accounts for the *Triton*, pp. 16, 34, 48, 68, 86, 98, 108, 120, 144.

¹²⁶ At the end of the first voyage of the *Fanny*, the figure is for seamen's wages and captain's balance, but voyages 2, 3, 4, 7 are for seamen's wages only whilst 5, 6, and 8 are for both captain and seamen.

¹²⁷ Those of the *Sybil* and *Success*. BRL: 21258 Account Book of the *Sybil* and *Success*, 1779-86; and the *Clifton*. BRO: AC/MU/1/9. Wages book for the ship *Clifton*, 1761-1762.

they provide a monthly wage figure which can be used to examine trends and also dissimilarities between the two vessels. Appendix 2.035, compiled from Appendices 2.030 and 2.031, give the monthly wage bills per year.

The first trend noted was from 1777 the wage bill rose almost linearly for both ships until 1784 the year after the war ended, the most likely reason being the numbers in the pool of seamen decreasing and owners having to obey market forces. As Appendices 2.014 and 2.017 show, crew numbers rapidly stabilised at the beginning of the war and it is unlikely that they would raise wages for any other purpose. Immediately after the war, wages dipped to their lowest figure in the period of peace that followed, which would be due to the reduction from wartime manning levels and also an ardent desire by shipowners to cut costs. Wages rose slightly but then stabilised with both ships on approximately the same levels.

The wage bills in wartime reached approximately double that of peace but on average that of the *Fanny* was £30 per month in wartime and £20.10s in peace, or about a third lower, whilst the equivalent figures for the *Triton* were £38 and £22 which is again nearly double. As the peacetime figures of both ships are similar, the difference in wartime was caused by the *Triton* having a bigger crew due to the Letter of Marque. Bristol had always been a centre for privateering but these ships sustained disastrous losses during this war with only two or three exceptions.¹²⁸ The *Triton* was not an active privateer but its wage bill shows that over the war period, it must have cost Brights a minimum of nearly £700 extra in wages alone, plus food for six extra men a month¹²⁹ at 12s a head¹³⁰ equalling £302, and taking the total figure to over £1000 not accounting for the cost of martial material. Privateering was no longer profitable.

¹²⁸ Latimer, *Annals*, p. 436.

¹²⁹ The difference between the average wartime wages and size of crews of the *Fanny* and those of the *Triton*.

¹³⁰ Davis, *Rise of the English Shipping Industry*, p. 145.

Conclusions.

There were marked differences between the manning of foreign-going ships in war and peace with the former leading to a shortage of men, higher wages and a more numerous though less skilled crew. Bristol shipowners had to resort to crimpage and the buying of protections for their crews. Traditionally, Bristol had fitted out privateers which exacerbated the problem but with little sign of profit from the ships considered above. Established companies differed in their attitude to this and also on the way ships should be run in wartime, a difference that receded when peacetime practices were resumed.

In both war and peace there was little sign of allegiance by seamen to ships or owners, and vice versa, except in the case of senior officers, and indeed crew members might show more allegiance to a master whose ways they were used to. The high wages to be earned in wartime at the West Indies meant a loss of crew there and paying higher rates to their replacements, adding to the wages bill. Nothing seems to have been done about this by shipowners except to warn the masters against overpayment. The men were subject to impressment but when this occurred on one of Munckley's ships, they were treated fairly by the captain and received their due wages. Peacetime wages remained stable between wars and there was little difference in the amounts paid by the two shipowners considered above. In effect, it was back to the traditional ways once war ended.

Section 2b. The crewing of coastal and short haul ships.

Introduction.

As has been mentioned in the general introduction to Section 2, the method of paying seamen involved in coastal and foreign shipping cannot simply be partitioned and described under these headings because the lump sum payments per voyage, or part voyage, normally associated with coastal shipping was also used for ships sailing to Ireland and nearby Europe, classed as sailing foreign. The question is whether Bristol merchants followed the national trend described by Ralph Davis, above, or if they had developed methods of their own or even moved towards new ways of working.¹³¹ Therefore the purpose of this sub-section is to investigate how Bristol seamen working outside of the areas described in Section 2a were paid and if there was a set pattern to their employment.

There are few account books available for coastal vessels nationally, and none known for any of the Bristol vessels described below¹³² and therefore the primary investigative source used was again the musters.¹³³ The number of ships involved in these trades was such that research had to be limited to 1785-87, chosen as it was peacetime and in the same period as most of the research done for the previous sub-section. The use of the musters limits the research to Bristol shipping because unlike foreign-going vessels, a high proportion of the coastal trade was carried out by vessels registered at other ports. The criterion for the research was to take data regarding manning and retention of crews on ships making three or more voyages from Bristol. More information was available when vessels normally sailing on the coast made short-haul voyages to areas geographically classed as 'foreign'. Irish ships are a prime example and information such as ship details, names of owners, trade area and whether they were constant traders was obtainable from *Lloyd's Registers*.¹³⁴

¹³¹ Davis, *Rise of the English Shipping Industry*, pp. 133-134.

¹³² There is one known ledger from a Bristol collier, probably the *Barum*, dated 1812 and held at the National Maritime Museum, AMS 38/2. This is outside the time scale for this thesis.

¹³³ BRO: SMV 9/3/1/9 Muster Rolls, 1783-89.

¹³⁴ *Lloyd's Registers*, 1785-87.

Payment on a monthly basis for the crews of coastal or short-haul ships was not economical to the coastal shipowner as they spent more time in port than at sea, so according to Davis the payment of crew by 'lump sum' was common and when income was averaged out over a year the earning power of the short-haul seaman was only slightly lower than those in the foreign trade.¹³⁵ Whilst it is entirely reasonable to accept that this also applied to Bristol coasters, initial examination of the musters gave the impression that there was no common policy regarding the engagement of crew on these ships, which indicated the need for further research if the movement and deployment of Bristol's seamen on short voyages was to be fully understood.

The amount of shipping involved was too great to be examined as a whole and for the purposes of this research it was divided into four regions; London, Liverpool, the general coasting trade and Ireland. The method of research was to examine individual Bristol ships that had made three or more voyages to the specific region during the research period.

Vessels trading with London.

The musters recorded a total of eight ships trading with London, two were disqualified as they were foreign-going, and another, a coaster completing a single voyage only, was also deleted. The other five were constant traders belonging to Thomas Deane and Co. who appears to have dominated the Bristol-London coastal trade.¹³⁶ Although for individual voyages each ship had submitted a muster, unlike those for foreign-going ships it was generally divided into two parts to record the outward and inward voyages, a detail that allows the chronology of each vessel's voyages to be compiled giving more insight into the way coasters

¹³⁵ Davis, *Rise of the English Shipping Industry*, pp. 133-134.

¹³⁶ Thomas Deane, Merchant, Princes Street; Banker, Merchant and Mayor of Bristol, 1770. *Bristol Directory*, 1785.

operated and the varying composition of the crews. Appendix 2.036 gives data regarding the voyages of the five regular traders.¹³⁷

All ships were run on the same basis, which might be expected as they belonged to the same company, but this showed a discipline that was not always the case for foreign ships where the master had more control. On arrival, the majority of the men were discharged and after an interval, presumably for unloading and loading of new cargo, another crew was assembled for the return trip to Bristol. Some men remained onboard on pay for the whole voyage, presumably as ship-keepers and to assist in the loading, but in the eighteenth century ships anchored at the pool of London suffered constant damage from passing vessels and were plagued by organised gangs and petty thieves, so security may have been the main explanation for their presence.¹³⁸

Appendix 2.037 provides general crew data for the five ships and it may be seen as further confirmation that security was at least part of the reason for retaining the men, there being generally at least two men onboard each ship unlike the single shipkeeper employed by large foreign ships at Bristol. The master occasionally remained on the ship, probably for duties concerning the cargo, but this was a regular feature only on the *Pollard*. Crew numbers per ship per voyage remained the same inward and outward but the personnel did not. As was usual at this time, the master was a permanent fixture on all these ships, but few of the outward men returned to take the ship back to Bristol. The obvious reasons for this would be that it was costly to send men to London by coach and by the time the seamen were required again, they might have taken another ship.

However, this raises the question of how coastal sailors practised their trade. As mentioned before, it would be unlikely that the men being discharged in London or elsewhere would be given transport to and from Bristol by the shipowner due to costs, and this seems to be confirmed by the fact that the return crews were a

¹³⁷ The *Chard* completed only two voyages in the time period but was included as it belonged of Thomas Deane and Co.

¹³⁸ J. Pudney, *London's Docks* (London, 1975) pp. 18-21.

mixture of men from other ports, from foreign ships and from Bristol. If return transport had been provided then it would appear rational that they could be sent back again but the evidence points to the majority being hired at the discharge port. If the men were not given expenses or compensated by high wages – though it is probable that the masters were – then the only other way they could get back would be by sea which leads to the conclusion that seamen would find a berth for the return trip by some informal method of their own.

However, there was a far greater affinity between Deane and Co. and the men they hired than was apparent in foreign shipping as about half the men sailing on these ships had been on one or more of the five vessels. Some were regular employees moving between ships but rarely, apart from the ship-keepers, completing both parts of the voyage (Appendix 2.038). As regards employments outside of the company, two sailors had been on a voyage to Lisbon, another to Ireland and one returned to Bristol on a London registered vessel, lending credence to the idea that seamen returned to their original port by sea.

If the 'previous ship' column is correct then most of these men sailed almost entirely on Deane's ships with occasional voyages on other vessels, apparently preferring to wait ashore a month or more before the next employment. This is an important detail as it is an indication that they would have to take up some form of shore employment between voyages as they were not strictly full-time seamen. The wages they earned at sea sailing four or five times per year on average, would not have been enough to keep themselves and a family, or indeed to live the extravagant life of a deep sea sailor ashore disposing of his pay.

Nevertheless, because these men were returning regularly to Bristol, they would have the time and connections to set up some form of regular work ashore which may indeed have been their main income. The crews were probably chosen by the ships' masters who would know which men were reliable and could send for them at the beginning of a voyage.

The possibility that the coastal seaman led a double life has not, as far as the author knows, been researched. There is some argument regarding the age of men on the coast with Dixon and Press believing the men changed to coastal as their physical powers deteriorated whilst Ville says that the physical exertion there demanded younger men.¹³⁹ The decision of a man to leave the sea or move to short-haul sailing is usually for personal reasons, marriage, family or offers of shore employment – not all seamen in the merchant service were there for the wild lifestyle.

It clear that wages on the London ships, unlike those on foreign, could not have been paid on a 30 day monthly scale as a single leg of a voyage could be as little as seven days and rarely exceeded a month. A seaman could not earn an economical wage at these rates and so must have been paid a lump sum for each leg of the voyage. The ships stayed in port at London for, on average, about six weeks and those who remained might have negotiated a lump sum, or if the owner knew how long the average stay was likely to be he could have paid by the month. At Bristol, the crew were all paid-off and there is no evidence of regular crew being employed as ship-keepers during the discharge and loading period. It is difficult to obtain an exact figure of the lump sums paid to the men due to a lack of documentation, but there was a high degree of stability of wages, including lump sum payments, in the eighteenth century.¹⁴⁰

It is also wrong to consider coastal shipping round the British Isles to be less strenuous than in the Atlantic trades as on average the weather is generally worse, especially in winter when the men would be constantly adjusting sails near the coast and in shallow waters. Appendix 2.039 shows that Deane's medium size brigs, all of about the same tonnage, were regularly replaced, a sign that they suffered at least the same wear and tear as vessels on the Atlantic runs.

¹³⁹ Ville, *English Shipowning*, pp. 92-93.

¹⁴⁰ Davis, *Rise of the English Shipping Industry*, p. 134.

Vessels trading with Liverpool.

Using the same series of musters and criteria as for London, it was established that the *Bristol*, master and owner Edward Prust, was the only Bristol registered ship trading regularly with Liverpool between 1785-87, and so research is limited to this vessel. The ship was a brig of 127 tons built in 1784, slightly smaller than Deane's ships, and made seven voyages during the time period including her maiden voyage. The chronology of these is tabulated in Appendix 2.040.¹⁴¹ There were two other ships listed as constant coasters at Bristol, the *Liverpool* and the *Mayflower*, but as there are no entries in the musters they must have been registered elsewhere, probably Liverpool.¹⁴²

Data from the appendix points to short sea voyages from 7 to 26 days on the way out and similar figures on the way back except for two difficult trips lasting over a month. Time spent at Liverpool varied between a few days and nearly three months and it was a comparable pattern at Bristol. Apart from a short first voyage, their average length was 144 days or nearly five months. In a similar fashion to the London ships, crew were taken on at Bristol and at Liverpool all were discharged except the master, and for six out of seven voyages, the mate.¹⁴³ There is no doubt that the pay of these men was by a lump sum for the sea trip as otherwise they would have found it uneconomical. One stay there was covered by the master alone, and bearing in mind that he was also the owner, it would be likely that he would take the responsibility for assembling the new cargo and ship-keeping.

Appendix 2.041 gives the crew disposition per voyage and it shows that the numbers remained the same inward and outward as did that of ship-keepers. More men stayed on the vessel for the return trip than occurred with Deane's ships but in general half the crew left and had to be replaced at Liverpool. Whether Bristol owners' paid for victuals for discharged crew remaining onboard on any run has

¹⁴¹ SMV 9/2/1/13. Thomas Rothley's Account Book 1747-1787. (An index to the Muster Rolls).

A vessel's maiden voyage can be found from the Muster Roll Index as the entry in the column 'to what time paid' is 'first payment'.

¹⁴² *Bristol Directory*, 1785, p. 74.

¹⁴³ Although again rank does not feature in the muster rolls, the same man listed second stayed on board with the master for four out of six of the voyages.

not been discovered during the research, but given their frugality it is unlikely and may have been a reason for having to replace men. The general conclusion is that when crew were discharged at Liverpool most left the ship even though the time in port was relatively short, somewhere between 6 days and a month. This is an indication that many men were actually from Liverpool but as usual the master did not fill in the musters 'abode' column accurately.

Apart from the master, 12 men sailed more than one leg of a voyage and are listed in Appendix 2.042. Only one of them, apart from John Moon, assumed to be the mate, showed any allegiance to the ship, he sailing on six out of seven voyages. However, according to the details in the musters 'last ship' column, he also regularly worked on the *Mayflower*, one of the constant traders to Bristol from Liverpool. Similarly, other crew members sailed on the other two Liverpool constant traders between voyages and on three Irish traders whilst one worked for one of Deane's London ships. Again, the master was lax in filling out the 'last ship' columns so it is not possible to examine all voyages.

The conclusions based on the data in this appendix are that the crew worked less regularly on this ship than their colleagues on the London ships. However, this was a single ship owned and run by the master, and the lump sum payments would not be enough to keep a man making an occasional trip even though he had work ashore. More likely, the men on this run had the opportunity to work on the many coasters trading between all west coast ports and Ireland and took whatever vessel was available when they needed work. Nevertheless, they seem to have remained on the coast and as at London, they may have formed an informal fraternity exchanging information about what ships were available and the general pay and conditions.

The general coasting trade.

As is described in Chapter 1, the majority of ships using the port were coasters or Severn Estuary traders, but when the research criterion was applied for this section, only three Bristol ships were found to meet the parameters, two trading

with Cowes, and another with St. Ives. Subsequently, when their crewing and trade arrangements were investigated they were dissimilar to the extent that each had to be considered in its own right.

The first was the *Elisabeth*, a sloop of 60 tons built in 1782 and trading mainly with Cowes though on three of her seven voyages she went to other ports, an indication that the owner would send her wherever there was freight to be earned. Unlike the London and Liverpool ships, she retained her four man crew throughout the voyages so it is not possible to reconstruct her movements chronologically from the musters although the times of arrival and departure from Bristol were obtained from the dates her crew signed on and off (Appendix 2.043).

The length voyage ranged between 1 month 20 days to nearly three months so economically it is possible that the crew could have been paid either by the day or the voyage, but it is likely that it was the latter. The ship sailed to Cowes on four out of seven trips, almost constant trading, but alternated with one to Portsmouth and two to Ireland. Coasting vessels were not included in the *Bristol Presentments* so the cargoes are unknown.

Unfortunately there is nothing in the musters to say if the ship called in at other ports as the crew was unchanged during each voyage, they paying off immediately on return to Bristol. On two musters there is a pre-voyage entry for two additional days worked by the crew just before the new voyage began, probably because the ship needed seamen to move her to her loading berth and this was normal for the incoming crew. Administratively it was probably the easiest way to record the payments, but another unusual feature regarding this ship was that the master remained on articles throughout the entire period, signing off and on the same day. He may have owned the ship and lived on board.

As usual, there was no change of master during the seven voyages and as for the crew, out of the 15 men employed during the period, one man did four voyages, two three, and one two, which negates the idea of a permanent crew (Appendix 2.044). There are too many 'unknowns' in the previous ship column to trace the

mens' movements, or to confirm they were actually Bristolians, information that the master must have had as some of the men had sailed with him before. The surnames of a few of the men employed are similar indicating family connections.

This occurrence may be more widespread as the second ship, the *Cams Delight*, also trading to Cowes, was captained by a Henry Morris possibly related to the William Morris of the *Elisabeth*. Appendix 2.043 gives details of her movements. According to the musters her voyages lasted approximately two to three and one half months, taken from the signing on and off dates but, as with the *Elisabeth*, she could have visited other ports in between. The whole crew including the master, signed on and off together and a considerable period between voyages was spent in port at Bristol without any crew onboard. This was similar to the refit period of foreign-going ships, but the most likely reason would be a lack of freight. The crew were not discharged during the voyage which means that either they had short stays at ports other than Bristol, where it would be uneconomical to discharge them, or they had an agreement to stay the whole voyage. The method of payment is open to conjecture but the fact that they were not discharged points to monthly wages, although if they followed the model set by Henley and Sons on the northeast coast then it would be payment by lump sum for the entire voyage.¹⁴⁴

Appendix 2.044 gives data on the allegiance of men to the ship. The same master was employed for all five voyages but there was no sign of consistency by crewmen as only one man returned for further voyages. The period in port at Bristol would be mainly responsible for this, but four of the crew on this vessel also served on the *Elisabeth* so this was another connection between the Cowes ships.

The third ship was the *Nancy*, a small 30 ton burden ship built in 1785 manned by a crew of two or three men including the master, he being employed for all the ship's voyages to St. Ives. The constant changes of crewmen showed that the ship was either putting into other ports during each voyage or more likely, as it was only a short distance from Bristol to St. Ives, sailing back and forward between the

¹⁴⁴ Ville, *English Shipowning*, pp. 102-103.

ports. Technically, this ship's musters probably do not represent distinct voyages but record several on each submission. Appendix 2.043 records the ship's 'voyages'. The master appears to have made a number of errors in his first entry for the second voyage and been forced by the authorities to resubmit the following year.¹⁴⁵

It is not possible to calculate the number of voyages the ship made as there were constant changes of crew which could have taken place at any port, but most men stayed nearly three months although some only a few weeks. This again leaves the system of payment in question, the most likely being by the month with possibly advances being dolled out by the captain. There was no sign that any crewmen were aligned to the ship, the maximum stay being two men for two voyages, a total of about 4 and 5 months respectively. Only one man had sailed on either of the other two ships.

The conclusions regarding these three ships is that they were manned from a floating population of coastal seamen, but as regards payment the most likely method is monthly wages.

Trade with Ireland.

Ireland was in such close proximity to Bristol that the ships trading there should have been considered coasters but even though it was under British rule, they were designated foreign under the Navigation Acts which were strictly enforced until the Act of Union in 1800. The Bristol merchants themselves fought to maintain the status quo.¹⁴⁶ Bristol's trade with Ireland's southern ports had been consistently high during the centuries and by the end of the eighteenth there were between 100 and 120 ships involved.¹⁴⁷ Previous research by the author provided the figure of 121 in the period September-August, 1791-1792, but many were not registered at

¹⁴⁵ SMV 9/2/1/13. Thomas Rothley's Account Book 1747-1787. First submission was 1785-86, no. 129 and second 1786-87, no. 12.

¹⁴⁶ MacInnes, *Gateway of Empire*, pp. 219-222.

¹⁴⁷ Minchinton, 'The Port of Bristol' p. 129.

Bristol and did not fit the criteria for the present research.¹⁴⁸ However these ships being classed as foreign was an asset to the research as they were included in *Lloyd's Register*.

From the musters, eight ships were found to be regularly voyaging to Ireland (Appendix 2.045). Four traded to Dublin; one to Cork; one with Irish and English ports; another to various Irish ports; and although the last made only two voyages out of six to Ireland – with the rest being to a mixture of continental and British ports – it was included as it was useful to compare the manning arrangements, see Appendix 2.046 for the movements of these vessels.

The four Dublin ships were of comparable tonnage, 100-130t, with their voyages and time spent in Bristol similar, that is of six to eight weeks away on average and four to six weeks at home although the *Warren*, possibly because it was a newer ship, operated to a faster schedule (Appendix 2.047). The port time at Dublin was available only for the *Bristol* and could be anything from two weeks to a month, but was deemed long enough for most of the crew to be paid off there on four out of seven voyages. On the other three trips the reason for retaining the crew could have been that the owners believed there would be a quick turnaround. At Bristol the entire crew including the master was paid off.

On all voyages most of the crew returned to the ship after the break in Dublin, so payment by lump sum must have been the arrangement for them if not for the master, but even he was laid off on one occasion. However the other three Dublin ships kept their crews on and as the *Draper* had the same owner, the *Bristol* may have been an anomaly. There is data for two of the *Draper's* voyages giving the same length of stay there as with the *Bristol*, so there is no rational behind keeping men on as money could have been saved on wages and victuals. There was one other inconsistency regarding one of the ships and that is the master of the *Warren* was continually employed even during the stay at Bristol. Lump sum wages were

¹⁴⁸ J. G. MacMillan, 'The Port of Bristol during the latter part of the Eighteenth Century: An In-Depth Review of its Operations and of its Limitations as a Functional Port' (University of Bristol MA thesis, 2003) p. 41.

probably the means of payment, but apart from the *Bristol*, the ships were run on foreign crewing lines and payment by monthly wages possible.

In yet another arrangement, the *Juno* trading to Cork kept the master and two crew on permanently, but hired four more men each voyage who were laid-off in Ireland but came back for the return voyage to Bristol and paid off on arrival. It is probable that the payment of individual crewmen's wages was by both methods, the permanent men being paid monthly and the others by lump sum. The length of the ship's voyages were similar to those of Dublin, but on average the time at sea was less due to Cork's proximity and this would have to be accounted for in the lump sum.

Concerning the allegiance of the crews to their ships, Appendix 2.048 gives full details of the crew movements for the larger Irish ships and the data in Appendix 2.049 shows that more men committed themselves to consecutive voyages in the Irish trade than any other area dealt with so far. This is probably due to the regularity of the ships' sailing schedules enabling men to get home whilst the ship was in port, especially in Ireland where it was the tradition of farming families to call upon their relatives in times of harvest and suchlike.¹⁴⁹ However, only two seamen actually worked on another ship in the same trade. Again, there were few men recorded in the musters as being other than from Bristol but the likelihood is that many were Irish and interchanged with Irish owned ships.

The three smaller ships included in this research were probably typical examples of many of the coasters which plied their trade from and to Bristol to wherever they could find freight. The *Denizen's* first voyage was to Lisbon, followed by two Irish ports, a short trip to Milford, Ireland again and then to Rotterdam. She may have visited others during those voyages but this is not clear from the Muster Rolls. She had seven crew for the foreign voyages and six for the rest, with the men paying off each time at Bristol. The master left at Bristol after the first two voyages, but from then on was permanently on the ship. One man, probably the mate, did five

¹⁴⁹ Discussion with Mary O'Loughlin, Irish social historian.

voyages and another man three, but the general trend was to get a completely new crew after each voyage. There was little allegiance to the ship.

The *Elisabeth* was registered at Bristol and made two long voyages during which she must have been picking up and delivering cargoes wherever her owner-master could find them. In modern parlance this was a tramp ship. Two trips taking the same time period as the others were made to Ireland, but on her second voyage she must have been sailing to ports other than Exeter as that run was only a few hours sail from Bristol and she was away nearly three months. In a similar way to the *Denizen*, most of the crew stayed with the ship for an entire voyage, all including the master paying off on return to Bristol. One man other than the master was onboard for all voyages and another for four, so there was some stability but with only five men this cannot be taken as the ship having an established crew.

The last ship in this section, the *Endeavour* made only three voyages in the period and all to Ireland. However the time away on the first two voyages was such that it is likely she went to other ports as well, an indication that it must have been difficult for these ships to find regular work out of Bristol and so probably took to tramping. The crew was stable for two out of three of the voyages but as she was a small ship carrying only four men, this cannot be seen as showing allegiance to one ship.

Conclusions.

The most important result of the research was to show that as with foreign shipping, the coastal trade showed no signs of movement towards a new way of operating to break with tradition. The individual shipowners had established their own operating systems and method of paying crew, some taking men on for the entire voyage, but others signing off all or part of the crew at the outward port and taking on a fresh set of men – or a mixture of old and new – for the return voyage. During their stay at Bristol most ships, though not all, discharged their men, but again there were anomalies, and the only factor common to all ships was the continuous employment of the master although he too could be temporarily

discharged for a period at the home or outward port. Some masters appear to have spent their entire time on articles, a system not replicated on foreign-going ships.

The likelihood was that wages were paid by a mixture of lump-sum and monthly arrangements, depending very much on what was most economic for the owner. There was little sign of allegiance to one ship or owner although on the London run men appeared to be willing to sail there whenever wanted by the company. This leads to the conclusion that they might have mixed coastal seafaring with regular work at home. There was also no indication that men moved from one vessel to another on the same trade, but were more likely to be part of a vast pool of coastal seamen who knew the logistics of the trade and made themselves available when they needed work. This could not be proved without research beyond the scope of this thesis as most of the coastal vessels plying their trade to the port were registered elsewhere. Finally the musters, as filled out by the coastal masters, were more accurate than those completed for foreign ships, but again they cannot be seen in this period as being suitable for establishing residency figures.

Chapter 3.

The management of shipping operating from the port of Bristol.

General Introduction.

It was established in the last chapter that the purpose behind shipowning at Bristol was to enable merchants to service the needs of their own commercial affairs and that their ships earning freight money was simply a useful appendage. To understand how this translated into ship management, it is essential to comprehend the administrative and organisational structure of the port itself, the hub of all mercantile affairs. All shipping using the port was subjected to the same systems so ideally every trade area should be investigated, but as shown in Appendix 2.003 there were eleven and it would be impossible to do so within the confines of the thesis. One area was chosen for analysis, the West Indian, and although in terms of ship numbers it was not the greatest – the Irish, coastal and Severn being larger – it was certainly the most consistent and lucrative.

It will be shown that in the organisation of the port the shipowner had very little control over its structure or administration, except through the various merchant organisations, and so he had to adapt to its regime. He did have some choice over the routing of his vessels' passage through the harbour, but this was limited by competition for the use of its facilities – although the experienced owner could always plan ahead to ease the way. While a merchant had only limited leeway to overcome the complexities of the port, he was master of his own business and his judgement would decide whether or not he made money, and in fact many became rich men so there must have been a structure in place that worked, although the underlying issue for this thesis is whether or not it could have been improved. As well as examining the port operations, this chapter will investigate how shipping fitted into the fiscal system, the rationale behind operational decisions, and the extent to which a ship itself was capable of making a profit.

Section 1. The transit of a vessel between arrival and departure at the port.

Introduction.

Before attempting to examine the underlying principles behind the management techniques of the shipowners, it is necessary to consider the mundane, but vital issue of the logistics and costs of getting a ship in and out of a port having the extreme tidal conditions found at Bristol. As will be seen, this not only involves pilotage fees but also preparation costs and inevitable time delays.

Incoming procedures for an incoming vessel and the accumulated costs.

A vessel returning to Bristol was required by law to pick up a pilot to take it onwards to its destination, but an examination of pilots' itemised bills shows that for West Indian ships bent on berthing at the Bristol quays the voyage would be completed in stages, the first being to stop at the anchorage at Kingroad to be boarded by customs officials, and to discharge the crew – see Appendix 3.001 for details of customs officers.¹ On arrival there, a tide-surveyor and two tide-waiters from Pill would go onboard to 'clear' the ship for entry into port, a process referred to as 'clearing at Pill' in the account books, and although Customs² generally had the use of its own fleet of water boats, there appears to be a system particular to Bristol of boats being hired from pilots at the shipowners' expense to ferry the surveyors out.³

He and his officers would examine the ship's papers (Appendix 3.002), check that the cargo was as listed in the manifest, rummage the ship, and then the surveyor would depart leaving the two tide-waiters to guard it until customs duties were paid. The ship's details would be entered in their Day Book, and if the vessel was to be quarantined it would be placed off Portishead under guard, but without tide-

¹ BRL: 21258, Account book of the *Sybil* and *Success*, 1779-86, pp. 81, 145.

² His Majesty's Customs. It will be abbreviated to Customs from now on.

³ BRO: 39654/3 Voyage accounts for the *Triton*, p. 120. Specifically, the account book of the *Triton* has the costs for clearing ship surveyors and boatmen, but there are similar examples throughout ships' account books.

waiters.⁴ The entire crew were paid off at Kingroad, but although the signatures on the musters was usually only the master's, a combined set of articles and musters for the slave ship *Recovery* in 1791 was endorsed at the beginning of the voyage by the tide-surveyor making it likely that customs were also involved in the discharge of the crew.⁵ They would certainly have checked the roll as details from it were entered in their Day Book.

The initial clearance of the ship at Pill was the defining point of the vessel's return because at that stage the master had to leave the ship within twenty four hours of arrival as it was his duty to go ashore to report at Custom House at Bristol – his ship would almost certainly be remaining at the mouth of the river. On the other side of the river from Pill at Shirehampton, there was a well-known hostelry and staging post, Lamplighter's Hall, frequented by masters and other personnel from the ships lying at the river's mouth. Receipts show the Lamplighters was a centre for the hiring transport to Bristol and it was from here that a newly returned master would travel onwards.⁶ It was also used by the Committee to examine and discipline pilots and on one of these occasions fighting between the pilots broke out giving some indication of the general lack of unity between them.⁷

The essential entry papers being obtained, and with the tide-waiters onboard, large ocean going vessels not discharging all or part of their cargo into lighters could move into the river to begin their passage up to the quays at Bristol. Nevertheless, many were forced to moor at Hungroad and it has been generally assumed that this was due to an insufficient depth of water in the river caused by the Avon's tidal condition.⁸ However, this was not the only reason because a correlation of contemporary tidal data with details of the ships' movements taken from the account books, shows that navigating the river was postponed at times when tides

⁴ BRO: 04399 Richard Neal Daybook, 1761-64.

⁵ BRO: SMV 9/3/1/10 Muster Roll 1791-1792. Ship *Recovery*, Captain Kimberly, 10 April 1791 to 2 January 1792.

⁶ BRL: 21258 Account book of the *Sybil* and *Success*, pp. 24, 81, 145; BRO: AC/MU 3 (8)b, 1780. Account, Thomas Richards, Captain of the ship *Fanny* with Samuel Munckley & Co, owners, for costs of disembarkation and other charges. (Master's disbursements *Fanny* 4th Voyage).

⁷ McGrath, *Merchant Venturers of Bristol*, p. 166.

⁸ See Minchinton, 'Port of Bristol' pp. 138-139.

were favourable.⁹ On her third voyage, the *Sybil* arrived at Kingroad on 4 July, 1785, and the tide was favourable from at least the 6th, weather conditions were good, yet the ship did not arrive at the quays until 9 September.¹⁰ At the end of her fourth voyage, she arrived at Kingroad on 12 September, 1786, with three days of suitable tides, but spent four days at anchor at Hollowbanks at the mouth of the river before being towed to Hungroad and so losing the tide to Bristol. Eventually she arrived there on the 21st, a loss of nine days, although again weather conditions had been favourable.¹¹

The difficulties in navigating the river were serious enough to require ships to have insurance, and one of the reasons for the delays was the necessity to prepare them before they made the attempt.¹² Whilst at Kingroad at the end of her third voyage, the *Sybil* brought aboard men who spent three days 'tending the ship' at the roads and on arrival from her fourth voyage she reported as usual at King Road and then moved to anchor at Hollowbacks where 'Pillmen', who will be discussed later, were put on board for three days to complete work which required the use of a boat.¹³ The ship then moved to Hungroad where again men came aboard for the purpose of drying and unbending the sails and clearing the decks. The names of these men are recorded, and as they were not crew members, they must have been waterfront labourers, their work being described in bills as 'labour at Hungroad'.¹⁴ There is no record of cargo being unloaded into lighters in the mate's disbursements.

With regard to the *Success*, men were brought aboard at the roads for five days in May 1779 to 'attend to' the ship, and again no purpose is given, but on her return from her voyage of 1779-1780, her mate's disbursements show that the workers

⁹ Tidal prediction system TotalTide, 2003 edition, Admiralty Charts and Publications. The accuracy of this software to predict the tidal range at Avonmouth in the eighteenth century has been thoroughly assessed and a correlation between the conditions pertaining to the River Avon then and now, has established that the levels of water at the quay at Bristol would be the same if the floating harbour had not been built. J.G. MacMillan, M.A. Dissertation Bristol, 2003.

¹⁰ *FBJ*, 4 August 1785.

¹¹ *FBJ*, 1 September 1786.

¹² Elkin 'Aspects of the Port of Bristol', p. 30.

¹³ BRL: 21258 Account book of the *Sybil* and *Success*, pp. 22, 81.

¹⁴ BRL: 21258 Account book of the *Sybil* and *Success*, p. 82.

actually slept onboard for nine days and were employed 'clearing' the ship before it arrived at Hungroad and then discharging into a trow at Sea Mills. Another bill was for men designated as riggers whose task was described as 'assisting the vessel, striking yards and topmast, and other necessary work in order to ease the vessel in the river'. The mate's disbursements of May, 1779 also records a payment to 'riggers'. The costs of labour at the river's mouth is recorded in Appendix 3.003 and the conclusion must be that after lengthy voyages, these vessels needed a considerable amount of work done before they could face the River Avon. The implications of this are important as the expense incurred by Bristol shipowners due to delays and the cost of hiring men must have been considerable compared to ports without such a hazardous river passage.

Apart from the financial aspects, the information taken from the workers' wage bills reveals a method of ship-working at Bristol which may be peculiar to there. It is clear from the *Sybil's* wages book that the crew's pay stopped when they arrived at Kingroad on 13 September, 1786,¹⁵ and from that time until they received their wages on 3 October, there were no further payments to them. The question is whether they actually continued to work without pay as part of their articles of agreement or whether they simply left the ship and received their pay later.¹⁶ The names of workers brought aboard at the mouth of the river are on the bills and none were crewmen, making it unlikely that the crew were still aboard. The master had died during the voyage and the mate was retained, but this was normal as he would oversee cargo handling anyway and as he was paid separately for this then he cannot be labelled as a crewman.¹⁷

Similarly, the *Success* on arrival at Kingroad also signed off all but the master and a seaman on 14 November, 1780, and they left the next day when the ship moved to Hungroad. The mate remained on the ship at least until the cargo was discharged, but again there is no record of the crew earning wages between signing off and 8 December when they were actually paid. The four men named as

¹⁵ BRO: SMV 9/3/1/9 Muster Roll, No. 58.

¹⁶ See Chapter 2, Section 2a, for details of the system of crew payments.

¹⁷ BRL, 21258, Account book of the *Sybil* and *Success*, pp. 81, 150; BRO, 39654/4, Account book of the *Druid*, 1790-91, pp. 18, 37.

working on the ship at the mouth of the river were not crewmen. The musters provided additional confirmation that the crew were paid on arrival at port as the hospital payments were deducted at that point.¹⁸

The wage of a seaman was £1.10s per month, which was less than the 2-3s per day earned by the workers had they completed a month, so the rationale behind discharging the seamen must have been that it was cheaper to hire men for a few days at a time. There were a number of examples of fresh beef and potatoes being sent down to meet ships in the roads which could only have been used to feed the workers who slept onboard and the shipkeeper. It must be inferred from this evidence that on arrival at Kingroad the ship simply became a floating warehouse in the charge of the mate and shore workers and the voyage continued under the pilot and hobblers (towboat men).

A ship-keeper, or in modern parlance, watchman, was put onboard Brights' ships when they reached Hungroad remaining until they was ready for sea again, a practice in which other ships probably participated, although it is not detailed in the *Fanny's* account books. The account book of the *Druid* for 1790 also records Pill men working on the ship at the roads and although it seems logical that there might have been considerable numbers of skilled riggers and waterfront labourers at Pill, little has been written of this, possibly because the village has always been seen as being the home of pilots and hobblers, equally renowned for their skills and notorious conduct. The only other explanation is that the men were brought down from Bristol by boat. Appendix 3.004 gives details of the incidental expenses incurred as the ship progressed into the river.

Process and costs of incoming pilotage.

An analysis of the bills presented to shipowners by pilots reveals their working practices and the process by which they took large foreign-going vessels such as the *Sybil* and *Success* to and from the quays at Bristol. For incoming ships nearing

¹⁸ BRO. SMV 9/3/1 Muster Rolls.

Lundy, the first stage was to pick up a mandatory pilot for the trip up to Kingroad. These men were generally described in account books as Channel pilots but if they came from the small port of Ilfracombe they were abbreviated to 'Comb' pilots.¹⁹ There was an argument at the time concerning the number of pilots that should be aboard a ship on its way in as more than one increased the shipowner's bill. For example, when another pilot joined the *Success* at the Holmes in 1780, the original pilot was paid his full fee of £3.3s whilst the new was paid £1.1s.²⁰ The matter of two pilots being aboard was discussed at the Hall, an indication that this had been an ongoing problem caused by Comb, or channel pilots, who were not endorsed by the Society, boarding ships when no fully qualified pilots were yet onboard. This was discussed at the Hall with the following conclusions:

The committee consider the rule respecting pilotage is that the Channel pilot is paid for the pilotage of the vessel till the Branch pilot comes on board and that the Branch pilot is to be paid for the pilotage from the time of his coming on board. Clerk to be directed to acquaint them therewith.²¹

After the clearance of a ship by customs at Kingroad and it entered the river, the onboard pilot either handed over control of the ship to a river pilot or, if they were so qualified, assumed that role themselves. Pilots' bills clearly show that they had the sole responsibility for taking the ship up river, for determining the number of tow boats and men necessary, and for all material. They had to provide their own tow boats, clearly numbered, with their names painted in white letters, and mooring boats had to have rollers at each end. If they failed to comply with these rules then they were reported to the Hall. In the Hall Book in 1788, it was recorded that the 'Haven Master to give pilots notice that such of them that have not towboats and yawls will be discontinued at the next licence day...'²²

¹⁹ BRO: AC/MU 3 (8)b Master's disbursements *Fanny*, fourth voyage; BRO: 12162 Account book of the *Fanny*, p. 56.

²⁰ BRL: 21258 Account Book of the *Sybil* and *Success*, p. 145.

²¹ BRO: SMV/2/1/1/12 Hall Book 12, December 1790.

²² BRO: SMV/2/1/1/11 Hall Book 11, September 1788.

As has been described above, the river passage for the larger ships would be completed in stages, the first being river preparation work or possibly discharging into lighters, but most ships, unless they arrived at a spring tide, would need to moor to chains in Hungroad to await suitable tidal conditions. Nearby Pill was not regarded as an anchorage for trading vessels but there is evidence that it could be occasionally used as such. In 1791 the master of a ship wished to be moored at Pill where another ship lay, but the pilot persuaded him to go on to Hungroad incurring greater expense. A complaint to the Hall found in favour of the owner.²³

The term 'mooring' is used in all pilot bills, and in strict nautical terms it means that the vessel rides between fore and aft anchors or is attached so to chains on the bottom.²⁴ This is necessary in strong tidal waters such as the Severn and River Avon as otherwise there would be chaos and damage to ships as the tide turned, and so a picture of Kingroad would have shown the ships lying roughly parallel to each other. It is confirmed in the log book of the *Africa Queen* which describes her as being towed down to Kingroad 'and came to anchor with the best bower to the westward and the second bower to eastward with 90 fathom of cable in 10 fathoms of water'.²⁵

The pilots could not move the ships from Hungroad until a licence had been obtained from the harbour master and the tidal conditions were right, at which point the pilot set off relying upon the brute force and skill of the hobblers to carry the ship through the obstacles in the river in time to moor to chains at the Quays. The process of arrival, preparation and passage, could take weeks to complete although it was usually a matter of days. There is no record of pilots staying aboard a ship during any waiting period on bills, but the same man returned later to take the ship onwards.

When comparing the cost of pilotage at Bristol with that of other ports, it would be a mistake to simply correlate charges because pilots were not paid a flat rate for

²³ BRO: SMV/2/1/1/12 Hall Book 12, January 1791.

²⁴ Smyth, *Sailor's Word Book*, p. 484.

²⁵ NMM: Log/M/64 Log Book of the *Africa Queen*, 1790.

making a passage, but submitted an itemised bill recording the cost of each manoeuvre, and at Bristol these were determined to a large extent by tidal conditions.²⁶ Similarly, the pilot's decision regarding the number of men and boats required to tow a ship would not depend on its tonnage, but on the existing rate of flow of the river and weather conditions. The number of men per boat could vary but for the larger ships there were approximately ten men per boat, and depending on the state of the river six to ten boats were usually necessary, the cost being between 20-25s per boat. This added considerably to the overall costs and there was no difference between incoming and outgoing vessels.²⁷

Appendix 3.005. lists the pilot rates per manoeuvre and Appendix 3.006 the average costs of boat work, which apart from towing included such tasks as rowing the master out to his ship and the use of a chain boat to fix mooring buoys to the chains at the quays.²⁸

Appendix 3.007 records the total yearly cost of incoming pilot fees paid by two ships in the period 1777-1789 and for both ships the costs were similar as they were roughly the same size and carried the same cargo. There were some anomalies, such as the costs to the *Fanny* were below average in 1777 when she was on her maiden voyage and under charter. In 1780 the bill for the master's disbursements shows that she had picked up a Comb pilot and when his fee is added to the branch pilot's, the payment is again average.²⁹ Similarly, the amount paid by the *Triton* in 1778 was well below average, but if the channel pilot was paid by the master, then the combined payments would again bring the sum to the average.

In 1789 the inset account is more detailed and shows that the river pilot joined at the Holmes and acted as assistant to the Comb pilot, the former's costs being paid by an agent and the latter's by Brights, which can be interpreted as the channel

²⁶ McGrath, *Merchant Venturers of Bristol*, p. 165. There were books of rates which had been agreed between pilots and the Society.

²⁷ BRO: AC/MU/3/7a-c. Voucher for pilotage Blaze Castle, 1773; BRL: 21258 Account book of the *Sybil* and *Success*, pp. 49, 81, 118, 148; J. Rich, *The Bristol Pilots*, p. 55.

²⁸ BRL: 21258 Account book of the *Sybil* and *Success*, pp. 49, 81, 118, 148.

²⁹ *Fanny* fourth voyage, 1780. BRO: AC/MU3(8)b Captain Thomas Richards disbursements in Bristol.

pilot being joined by the river pilot who was taking the ship from 'the Holmes up'. There is a record of this happening with another of the company ships in 1785 and so it could be that it occurred from time to time, something that must be taken into account when using the account books for research.

In 1778 and 1779, the pilotage costs for the *Fanny* were considerably above average, a fact that cannot be put down to any annual variation in rates as the *Triton's* charges did not change. The account book has entries in both years for payments for lighterage, an item that does not occur in any other year, and therefore there is a strong possibility that this was the reason for the extra cost. The pilot did not supervise or provide lighterage, but he would be onboard the ship whenever she was re-moored to facilitate discharge, which would account for his increased earnings.

Included in Appendix 3.007 are the two voyages of the larger Brights' ship *Druid* in 1790 and 1791. The pilot fees are slightly more, but again there is little difference between the two years. Finally, a correlation of the names of the pilots attending the vessels of both companies shows no preference, and therefore the master of the incoming vessel must have had to take whatever pilot was available at the time.

The method by which shipping was moved around the harbour at Bristol is not documented, yet it must have been a daily occurrence as ships were not supposed to accumulate at the Quays. Also, repairs were necessary after each voyage, usually done at the various shipyards and dry docks which necessitated movement after discharge, but again this is not usually recorded. None of the account books or bills show payments for pilotage across the inner harbour, but there are entries for 'halling' and on one occasion for 'halling the ship' – 'halling' being the term used for haulage or transportation of goods but also for moving a ship. Without further evidence, the conclusion must be that no pilot was necessary, and that local boats and labourers were hired to shift the vessels.

On her tenth voyage, a number of entries in the account book imply that the *Fanny* went aground on her way out and had to be 'piloted from the Hole to the Dock', the dock being Hillhouse's, and there her cargo was discharged into lighters and taken to a warehouse whilst the ship was surveyed. This was a commonplace scenario which could occur at any port and shows that the steps taken in the eighteenth century were the same as would be carried out in this day and age.³⁰ At the end of her last voyage for Munckley entries give the cost of towing her to lie at Tombs Dock, and as it was necessary to buy a rope to do it, it would not have been carried out by the usual well equipped hobblers.³¹

The discharge and lading of ships.

The account books show that a ship's discharge was generally overseen by her mate who was also responsible for supervising and paying the men, and when she was clear of goods, he made her ready to lie up between voyages unless outgoing cargo was to be taken in immediately (Appendix 3.008). For example, when the *Sybil* arrived at the quays in 1786 it was necessary to clear her decks and remove working gear such as anchors from her hold before unloading. After discharge the ship was cleaned, her cables, anchors and guns sent down into the hold, and finally the water casks were discharged and sent ashore to be repaired and filled for the next voyage.³² If cargo was taken in at the same time as discharging a special licence was necessary.³³

As has been previously mentioned, some ships discharged part of their cargo before attempting the river passage, and in 1780 the *Success* moored at Sea Mills for 7 days in order to clear the ship and discharge part of its cargo into a trow before continuing up river to unload at the quays at Bristol. After this the holds were cleaned, brick ballast trimmed, wooden dunnage sent ashore, fenders constructed from faggots, and finally, after the ship was moved to a fresh mooring

³⁰ BRO: 12162 Account book of the *Fanny*, p. 148.

³¹ BRO: 12162 Account book of the *Fanny*, p. 175.

³² BRL: 21258 Account book of the *Sybil* and *Success*, p. 82.

³³ BRO: 12162 Account book of the *Fanny*, p. 48,

to lie up, the cables were coiled and sent down to the hold.³⁴ It is of interest that Sea Mills was being used in 1781 for discharging cargo, because it was reputed to have been closed long before this date. W. E. Minchinton believed that it had been used as a base for privateers in the Seven Years War and after it closed in 1763 no further use for it was found, it being utterly abandoned by 1779.³⁵ Other historians have agreed with Minchinton but the evidence is that it was still useful, if not operational.³⁶

Appendix 3.008 also details the costs and time taken to carry out the above tasks and it can be seen that ships could be loaded and discharged in a relatively short period compared to the length of their stay in port even when preparation is taken into consideration. The *Sybil* was a large ship for Bristol, but the actual number of days loading were just 13½ although the calendar period was 26, and similarly on discharge she took only 3½ days to discharge the 130 tons she had onboard. The *Success* discharged her cargo in 10 days through a calendar period of 15 days and both used only a small workforce. This shows that the cause of the notorious congestion on Bristol's quays was not due to the practical difficulties of cargo handling.

An example of the outbound process of loading cargo is detailed in the mate's disbursements of the *Sybil* in 1785.³⁷ He used shore workers to provide the labour necessary to service pumps and windlass; to clear the hold and then take in and stow the cargo. At the same time minor repair work was done and the ship rigged for sea. The ship's carpenter, boatswain and two crewmen were employed at times during this period and were paid for this labour before actually being signed on the ship, showing that sea wages did not begin until the vessel arrived at Kingroad.³⁸

This is confirmed by all outsett accounts of the *Fanny* which all record extraordinary payments to the mate and six out of eight name the carpenter, so the

³⁴ BRL: 21258 Account book of the *Sybil* and *Success*, p. 150.

³⁵ Minchinton, 'The Port of Bristol', p. 139.

³⁶ Damer Powell, *Bristol Privateers*, p. 151.

³⁷ BRL: 21258 Account book of the *Sybil* and *Success*, p. 43.

³⁸ BRL: 21258 Account book of the *Sybil* and *Success*, pp. 23, 43, 44.

likelihood is that he too was in attendance on all occasions during preparation work, and was paid circuitously.³⁹ At times selected members of the crew of the *Fanny*, the mate, carpenter, boatswain and steward, were employed on pay some weeks before its sailing date, but this does not appear to have been the practice on Brights' ships. A comparison between discharging and loading expenses is made in Appendix 3.009 using the mate's disbursements regarding two of Brights' ships.⁴⁰ It can be seen that the outgoing costs of his work on all but one occasion were greater and more varied than the incoming, possibly due to the diversity of export goods and containers and the disparity of their weights and measures.

The process and costs of outgoing pilotage.

Outward bound, pilots boarded at Bristol having the usual tow boats ready to move a ship when the tidal conditions were right and as bills show the vessel would normally be taken directly to Kingroad. A ship could remain there for some time simply making preparations for its voyage or awaiting suitable conditions, as was the case when the *Africa Queen* was towed to Kingroad from Bristol on 3 February, 1790 and remained there for three weeks.⁴¹ The pilot's bill for the *Sybil* in 1785 shows that after the original mooring, he returned on two occasions take up anchors and sail the ship with the captain onboard, presumably to carry out the modern equivalent of sea-trials, before finally coming again to pilot the ship to Lundy to start the outward voyage.⁴² Ships could also leave the anchorage towards the wider stretches of the estuary to allow themselves more sea-room in the event of gales as Kingroad could be dangerous in an onshore NE wind, but on this occasion the weather conditions for the *Sybil* were good.⁴³

Appendix 3.007 records similar data regarding outgoing pilotage as previously given in for incoming vessels. Year by year the payments for the *Fanny* and *Triton*

³⁹ The mate's attendance is recorded on all outsetts, and carpenter on outsetts for voyages. BRO: 12162 Account book of the *Fanny*, pp. 2, 3, 9, 10, 11, 12.

⁴⁰ BRO: 39654/3 Voyage insett accounts for the *Triton*, pp. 16, 34, 48, 68, 86, 98, 108, 120, 144. No entry in insett accounts for the 2nd, 6th, and 7th voyages; BRO: 39654/4 Voyage insett accounts for the *Druid*, pp. 18, 37.

⁴¹ NMM: Log/M/74 Log Book of the *Africa Queen*, 1790.

⁴² BRL: 21258 Account book of the *Sybil* and *Success*, p. 49.

⁴³ *FFBJ*, November to December, 1785.

are similar and the reason for any anomalies is probably the same as discussed above for incoming ships. Awaiting escorting ships or convoys in a war period would increase the pilotage costs. As far as the use of pilots is concerned, there was a tendency on the part of the owners of the *Fanny* to favour certain pilots, but those of the *Triton* seem to be taken at random. When the incoming and outgoing pilotage costs averaged for both ships, they are remarkably similar considering the differences in the processes.

The average cost of pilotage for the *Fanny* was £14.4.0d incoming and £15.13.0 outgoing, and for the *Triton*, £13.3.0d and £13.7.0d respectively, to the nearest shilling. There was one other expense associated with pilotage and that was the awarding of pints of ale to the hobblers. Brights conformed to this but they appeared reluctant to make it universal, preferring that the pilot gave only to those who deserved it. Henry Tudor, pilot to the *Sybil* in 1785, comments on his bill that he 'gave (ale) the best of the men as the other ships give ale to all' and the cost was 5s for 70 men.⁴⁴ These payments are not recorded separately in the account books.

Conclusions.

Although this section has mainly illustrated processes, it is obvious that the shipowners of Bristol were subject to costs brought about by the conditions set by the tidal river which were beyond their control. Apart from ships being delayed until a suitable spring tide arrived, preparation was needed before a large ship could attempt the river and this in itself meant additional pilotage costs as the vessel was manoeuvred from one mooring to another. Similarly the tow up or down river added to costs not incurred at other ports. The bills appeared to be similar in peace and war.

The outgoing shipping costs were greater than the incoming, probably due to the nature of the cargoes, the export having a greater diversity of containers and

⁴⁴ BRL: 21258 Account book of the *Sybil* and *Success*, p. 49.

disparity of weights and measures, but the available documentation indicates the process could be completed quickly if necessary.

Section 2. Clerical and administrative interactions between the merchant shipowner and the harbour agencies

Introduction.

Ralph Davis described the various tasks which the managing owner, or ship's husband, faced during the period a ship was in port between voyages (Appendix 3010).⁴⁵ These will be discussed later but absent from the list was the task of dealing with the complex and dissimilar clerical and taxation systems of the various harbour agencies, which must have added to the burden of merchant ship owners both in financial terms and in time expended, the latter an important factor when considering efficiency. This would be a relatively simple matter to investigate with regards to any port if in each there had been one agency dealing with all dues, fees and taxation, but in every port particular systems had evolved over the centuries which included the establishment of local organisations as well as governmental.

At Bristol there were three main agencies, the Society of Merchant Venturers, the Corporation of Bristol and the Board of Customs (as well as interactive systems between the merchants themselves and traders) and the obvious way to carry out research would be to systematically examine the documentation of each port agency and its operating practices, and then evaluate the resources that the ship manager would need to put in to comply with its regulations.

However at Bristol this option would not give a clear picture of the structure as a whole, because in reality the working practices of the various agencies were inextricably interwoven, sometimes counterproductively, and as will be explained below, ship managers appear on occasions to have farmed out some responsibilities for dues payments to what can only be seen as agents.⁴⁶ Again, although the manager paid a ship's port dues, other taxes were the responsibility of

⁴⁵ Davis, *Rise of the English Shipping Industry*, p. 160.

⁴⁶ BRO: 39654/3 Voyage accounts for the *Triton*, pp. 105, 116, 136; BRO: 39654/4 Voyage accounts for the *Druid*, 1790-91, pp. 12, 37.

the merchant shipping goods and if merchandise was carried on behalf of individual owners, then payment of these dues was their own responsibility. Most of the required documentation was statutory and unavoidable, as without it being completed a ship could not proceed through its home and foreign ports, and indeed could be seized at sea by naval vessels. This could result in fines or confiscation of the ship or goods, but even if these were remitted on investigation, the delays could ruin the profits of a voyage.

An examination of the procedures affecting incoming vessels.

To give some idea of the extent of the bureaucratic tasks a shipowner faced before cargo could be discharged, the following details the process that had to be followed. First the ship had to clear through customs, initially at Pill and then at Bristol, whereupon, if its papers were correct, it was free to pass into the port and then the discharge of its cargo became the priority. On arrival at customs, the master had to present the ship's manifest which detailed goods carried, their containers with individual markings, the name of the shipper, and to whom they were consigned. He would also have a copy of the bills of lading, receipts given by him at his port of loading stating that the ship had taken on specified merchandise to be delivered to an individual at a stated port on payment of the stipulated freight. A copy of each bill was retained by the shipper and another sent on by faster ships to the consignee together with invoices for the goods placed on board. Invoices gave a description of the goods shipped, freight payments, and sundry costs, and when a merchant knew that a ship on which he had goods had arrived, he attended at Customs House presenting these documents as evidence to claim his shipment.

A warrant was issued which would authorise the landing of the cargo after payment of duties and this contained the kind and quantity of cargo together with the marks, numbers and weights of the containers. If he had no invoices or bills of lading, then a 'bill of sight' was made out in which his estimate of the quantity of cargo was noted and a deposit for the payment of duty taken. From the warrant, the clerk made out a transcript called the 'bill of entry' and after this was completed the

importer took his warrant and bill of entry to the Clerk of the Rates who calculated the duty payable. After payment the warrant passed through the custom's internal administration system and was then forwarded to the land surveyors and landwaiters to allow them to start work on the vessel.

As the ship was unloaded, customs officials kept a 'blue book' listing the goods unloaded per consignee to provide a check against the warrants and other internal customs documents. Each container had its own markings and the contents were checked and recorded together with the exact weight, measurement, or quantity depending on the type of goods. An allowance called tare was made for the weight of the container, and another, draught, for the addition to the weight due to the turn of the scales.⁴⁷ The ship's husband or representative kept an almost identical volume known as the discharging book, but in this case it also recorded the freight and average charges. Ship's accounts tended to refer to this book rather than listing the goods item by item as was done with exports. A copy of the discharging book of the *Sybil* for the year 1786 survives and will be referred to below.

The above process was initiated by the Board of Customs Commissioners in London, which Hoon believed had become disorganized and unable to cope because high duties had created a situation where fraud and smuggling were financially attractive, leading to counter measures involving rigorous checks and a complicated system of calculating and collecting duties.⁴⁸ According to Ashworth, trade had outstripped the capacity of the London Customs House due to the sheer number of clerks and suchlike all vying for space to do paperwork leaving frustrated merchants to complain that their business was being ruined due to the delays.⁴⁹ On top of these delays was the problem of Customs House opening hours as there had been no alteration for 150 years during which time trade had increased considerably. In London, the Long Room, where all documentation was handled, opened for three hours from nine to twelve and although minor officers

⁴⁷ E. E. Hoon, *The Organisation of the English Customs System, 1696-1786* (Newton Abbot, 1968) p. 33.

⁴⁸ Hoon, *English Customs System*, p. 36.

⁴⁹ W. J. Ashworth, *Customs and Excise: Trade, Production and Consumption in England, 1640-1845* (Oxford, 2003) p. 135.

had two additional hours, these could easily be ignored. At Bristol the Long Room hours were the same as London, but with an additional two in the afternoon.⁵⁰

The merchants of Bristol regularly complained about the time their deputies wasted at Customs House, and at a meeting of the Hall agreed to write to the Treasury asking for a change in the laws relating to fees and hours of attendance. They did not want to negotiate with Customs, rather for parliament to produce a tabulated scale and they recommended that 'Custom's officers should attend the Long Room of Custom House from 9am to 2pm. Waterside officers 6am-6pm from 10th March – 10th September and from sunrise to sunset 10th September till 10th March. Holidays should be abolished except for four days over Xmas; three days Whitsuntide; three at Easter, Good Friday and the birthdays of the King and Queen.⁵¹ In 1793 there were still 45 Custom's House holidays listed in Matthew's, *Bristol Directory*.⁵² This problem probably affected Bristol more than most as the larger ships would arrive en masse during the spring-tide periods.

The overwhelming bureaucracy that developed in London was passed on to the outports because of the former's insistence upon centralisation and it affected Bristol shipping. The negative effect was obvious, but looking at the positives as far as Bristol was concerned, customs were responsible for overseeing the navigation acts and without them goods could have been shipped directly by Bristol ships from anywhere in the world to Europe, thereby avoiding the port and reducing its income.⁵³ Bristol merchants fought to uphold the laws against overseas direct trade to Ireland and again were reliant on customs oversight. There is another factor that writers have generally ignored, and that is the sheer amount of documentation that accumulated which had to be processed by hand in the counting houses adding considerably to the clerical wage bill.

To get some understanding of the extent of the paperwork, an ordinary ship's export manifest like that of the *Fanny* in 1783 had seven pages and 39 entries,

⁵⁰ Hoon, *English Customs System*, p. 221-222.

⁵¹ BRO: SMV/2/1/1/11 Hall Book 11, 17 September 1787.

⁵² Matthews, *Bristol Directory*, 1794, p. 101.

⁵³ Rupert Jarvis, 'Critical Historical Introduction' in Hoon, *English Customs System*, , pp. xxv-xxvi.

some with over ten items, and this manifest had to be exact and at least three copies of it made.⁵⁴ This, with its copies, had to be correct in every detail and every item taken on board as cargo recorded on it. The bills of lading had to record the same details, but they could consist of a bill made out for one or two items⁵⁵ or, as in the case of the *Swift* in 1759, the whole cargo was minutely printed on it.⁵⁶ Three copies were made of these bills and they were each accompanied by invoices which detailed goods, price and shipping fees. Another factor was the cost of each document exchanged at customs, and using the bill of lading as an example, the cost in 1774 was 9d⁵⁷ and in 1787, 1s1d,⁵⁸ which appears small, but when multiplied by three and for possibly numerous parcels of goods, plus postage, it could be a significant sum to be added to the general administration costs.

Under the wharfage agreement, the Society had the right to impose various taxes and these could be a source of irritation to the merchant. Cannage was payable for the use of can hooks which were no longer provided, and plankage was charged for running a plank out from the shore to the ship. These were combined with wharfage, which will be dealt with below, and so could not be avoided. Two other taxes, anchorage and moorage, remained the same throughout the century apart from coastal shipping going from 40 to 30 tons, and are listed in Appendix 3.011 together with the criteria for assessing payment.⁵⁹ Severn traders were exempt. Although the cost to coasting vessels was much less, the large foreign-going vessels which carried out lucrative yearly voyages to the Americas, but spent a great deal of time in port, annually paid far less than foreign-going ships on other trade routes which regularly came into the port. These taxes were collected for the Society by Customs.

Tons burthen was used for calculation of dues until the passing of the Ship Registry Act of 1786 after which each ship's tonnage, as registered, was the figure

⁵⁴ BRO: 12162 Account book of the *Fanny*, pp. 105-111.

⁵⁵ BRO: AC/MU/2/22a-b Bill of Lading, *Fanny* 11th Voyage.

⁵⁶ BRO: 39654/2 Voyage accounts for the *Snow Swift*, 1759. (No page numbers)

⁵⁷ BRO: Microfilm FX/20 Bristol Shipping Account books courtesy of William L Clements Library, Ann Arbor, Michigan, USA. Volume 2. Invoices *Neptune*, 1774. (No page numbers)

⁵⁸ BRO: 39654/3 Voyage accounts for the *Triton*, p. 114.

⁵⁹ BRO: SMV/7/1/1/78 Wharfage Book, 1792-93. (No page numbers)

used in all official documents.⁶⁰ This act created a permanent register of all British owned ships and a copy of the registration had to be carried on board. For most ships this meant an increase in payments, an example being that the *Fanny* when she was registered at Lloyd's in September 1777 was 230t, but her burden of 160t was the figure entered for calculation in the moorage section of the Wharfage Books for 1778 and she was still being rated at this tonnage for moorage charges in February 1786, but by 1788 after being re-registered the figure used for calculation of dues was her new registered tonnage of 207t and payments had increased from 13s4d to 17s3d, an increase of 30%.⁶¹

Ships' anchorage and moorage payments were entered in the Wharfage Books on a daily basis and when the dates are correlated with other sources,⁶² it is obvious that collection of the Society's dues were carried out by custom's officials as soon as the vessel arrived. Indeed, when these five duties were finally established by the 1807 Wharfage Act, it stated that a ship was not to be entered inwards or cleared outward by customs officers until a certificate of payment was produced.⁶³ None of the ships' account books record these payments in their own right and therefore the probability is that the shipowner settled them when 'entering in', or through an agent. Ships husbanded by Brights used agents, including themselves, to pay some port duties whilst the owner of the *Fanny*, Munckley, always paid his own.⁶⁴

Wharfage was a more complex duty levied on goods themselves and therefore settled by the shipper, but again collected by customs officials acting for the Society. Imports were taxed according to a schedule of payments which depended upon the type and quantity of specific goods. The schedule for this period was

⁶⁰ 26 Geo. III c.60. An Act for the further increase and encouragement of Shipping and Navigation.

⁶¹ The 1787 Wharfage Book is missing and her re-registry in that year cannot be confirmed.

⁶² Ships account books, Muster Rolls, *Presentments* and contemporary newspapers all give ships' arrival dates.

⁶³ 47. Geo III. c. 33. An Act for ascertaining and establishing the rates of Wharfage Cannage, Plankage, Anchorage and Moorage to be received at the lawful Quays in the Port of Bristol: for the regulation of Crane keepers in the said port; and for the better regulation of pilots and pilotage of vessels navigating the Bristol Channel, 1 August 1807, p. 4-5.

⁶⁴ BRO: 39654/3 Voyage accounts for the *Triton*, 1777-1790; BRO: 12162 Shipping account book of the snow *Fanny*, 1777-1791.

attached to the 1764 lease and appears ongoing with no changes being found when the 1785-1786 Wharfage Book⁶⁵ was compared to the schedule contained in the 1807 Wharfage Act. Unlike customs duties which were constantly changing, wharfage charges were stable.

Wharfage on exports was more complicated as the goods were converted by a scale into standard measurements of barrels and hogsheads, the former charged at 1d and the latter 2d. No trace of this scale has been found, but it appears to be a rare example of efficiency among contrary methods of fees collections. Settlement of these dues probably took place as the goods were unloaded because in the case of the *Sybil*, the dates of payments by individual shippers, as recorded in the books, spanned the cargo discharge period and not beyond.⁶⁶ Although wharfage payments were not recorded in the ship's account books, as they were the shipper's responsibility, copies of invoices for goods imported for sale by the owners themselves on which the charge of wharfage was recorded are available.⁶⁷

It was the duty of the ship's master to keep the ship's muster roll⁶⁸ and of the owners to deduct each crewman's one shilling per month contribution from his wages. Nationally the seaman's contribution was 6d but at Bristol an equal amount was deducted for the Seaman's Fund overseen by the Society. Receipts from the account book of the *Sybil* show that the monies for the Greenwich Hospital and the Society were both collected by Customs, the former endorsed with the stamp of the Register Office of Seamen, a subsidiary of the Board of Customs, and the latter carrying no endorsement but signed by the same customs official Thomas Rothley under his title of Receiver for the port of Bristol.⁶⁹ Again Customs are used as a collection agency which might or might not be an efficient way of working but every task they undertook would certainly increase their income. As trustees for the Corporation, the Society had the right to appoint its own receiver, but followed the

⁶⁵ BRO: SMV/7/1/1/73 Wharfage Book, 1785-1786.

⁶⁶ BRL: 21258 Account book of the *Sybil and Success*, together with BRO: SMV/7/1/1/73 Wharfage Book, 1785-1786.

⁶⁷ BRO: 39654/3 Voyage accounts for the *Triton*, pp. 104, 140 ; BRO: 39654/4 Account book of the *Druid*, p. 36.

⁶⁸ 2. Geo II. c. 36.

⁶⁹ BRL: 21258 Account book of the *Sybil and Success*, p. 47.

general convention of the outports by having the dues collected by customs officers.

According to Hoon, there were attempts by some masters to avoid payment and so regulations were made prohibiting the clearance of a vessel inwards until receipts were produced showing that the duties had been paid, thus the receipts for the last voyage were carried onboard.⁷⁰ This order does not appear to have been enforced in the case of the *Sybil* which arrived at Bristol in July 1785 as hospital money would have been deducted when the crew were paid off, but was not paid into the fund until November, even though it is on record that the cargo had been discharged by the end of July.⁷¹ Although this may be a minor point, it is an example of the discrepancy between actual practice and the course ordered by the regulations. Customs also used the document to check the composition of the crew in line with the Navigation Laws and so it was in the form of a muster roll.

Bristol Corporation retained three fees for themselves, quay warden and water bailiff's, mayor's, and town dues. Quay warden and water bailiff's fees were ancient taxes dating from the reign of Henry VII, but although mentioned, they were not included in the lease to the Society in 1690. The income from the mayor's dues, a tax levied on ships arriving in the port, was used to fund mayoral expenses and again gave no maritime services in return.⁷²

These taxes were collected each time a vessel arrived in port and were a flat rate irrespective of its burden, which during the period covered by this research was £1.19s.0d for the mayors, and 6s for the other two. The surviving receipts for these dues show that they were collected simultaneously by customs officers and in the shipowners' account books they are always recorded together. As will be seen below, these taxes were unpopular and opposed by the shipowners well beyond

⁷⁰Hoon, *English Customs System*, p. 41.

⁷¹ BRO: SMV9/2/1/13 Thomas Rothley's Account Book 1747-1787. This document serves as an index to the Muster Rolls and gives dates of payments; BRL: 21258 Account book of the *Sybil and Success*, p. 22. Mates disbursements.

⁷² The Corporation gained parliamentary title to collect these taxes by 28 Geo. III. J. A. Kington, *City and Port of Bristol: Letters, Essays, Tracts and other Documents, Illustrative of the Municipal History of Bristol and of the Trade of its Port, Written Collected and Arranged by 'A Burgess' with a Dedicatory Preface to the New Town Council* (Bristol, 1836) pp. 16-18.

the eighteenth century, one example given being that on a yearly basis a small coaster visiting the port on twelve occasions would pay £27 compared to a large West Indiaman whose annual visit cost £2.5s.0d; all for no marine purpose.⁷³

The Corporation was given parliamentary title to these taxes in 1788 and considering that their *raison d'être* was the same as that of anchorage and moorage, the conclusion must be that they were taxes retained simply for the benefit of the Corporation.

An examination of the procedures affecting outgoing vessels.

Before a ship could sail on its next voyage, another complex administration process had to be completed. The master would attend at Customs House to register on oath before the Collector Outwards that his ship was ready to accept cargo, whereupon the name of the ship and master, together with the port of destination, would then be recorded in the Ship's Entry Book Outwards, the information being made available to the public in the same way as with an incoming vessel, that is by way of local newspapers and by the publishing the bills of entry in the *Presentments*.⁷⁴ Eventually, when the process described below was complete, a cocket was delivered to the master for the voyage and the ship was cleared to leave.

The exportation of goods was complicated by the fact that the Navigation Acts stated that certain goods bound for foreign ports must firstly be imported into Great Britain with normal duties being paid; but a percentage of this could be refunded under a system of drawbacks if the goods were then re-exported. Most direct exports, but not all, were not subject to duty but still had to be recorded. Merchants with goods to be directly exported would attend at Custom House to make out their

⁷³ J. Latimer, *The Annals of Bristol in the Nineteenth Century* (Bristol, 1893; reprinted 1970 edition, Bath) p. 103.

⁷⁴ The two local newspapers generally used to obtain this information were, BRL: BH7HI/BL8G, *Felix Farley's Bristol Journal*, 1752-1800 and BRL: BL9F, *Bristol Mercury and Universal Advertiser*, 1790-1798; Both the import and export sections of the *Bristol Presentments* lists ships when they are first 'entered out' and continues to list them until the ships are 'cleared'.

bills of entry outwards recording port of consignment, exporting merchant's name, and the quantity and description of goods. After presenting the bills to the Collector Outwards and paying the duties, he received a warrant, the authority for the goods to be taken onboard.

For merchants re-exporting goods the process became more complicated as firstly they had to obtain a certificate to say that the import duties had been paid, upon which they would be granted a cocket which permitted the goods to be shipped provided a bond was taken out repayable when landed at the designated port. They would also have to complete the same process as for direct export in order to obtain a warrant which, combined with the cocket, authorised loading. All of these transactions were made on oath and when complete the papers were given to the searchers who began the process of loading. After they had loaded the ship and checked that all goods were correct, they certified the accuracy of each cocket and delivered them to the Collector Outwards as authorities for the ship to sail. Once a ship had sailed, the exporter had to swear on oath that his goods had gone to foreign lands, and he was then given an order for the payment of the drawback.⁷⁵ All of this took time and effort with the costs being borne by the merchant.

From 1701 the Customs Commissioners were directed to keep a register of trading ships, overtly to keep a watch on Britain's trading position, but the main purpose was to make sure that the criteria laid down in the Navigation Acts compelling British merchants to use British built ships with predominantly British crews was being enforced, and as part of the enforcement process shipowners were required to give details of their vessels on oath before the local collector of customs and these details would be passed on to the Board of Customs in London.⁷⁶ However, the information in this register was not concise enough to deter fraud, hence the passing of the Registration Act of 1786, mentioned above, which at the same time established the Register General of Shipping, again under the Board of Customs.

⁷⁵ Hoon, *English Customs System*, p. 260.

⁷⁶ Hoon, *English Customs System*, pp. 117-119.

A copy of the registration details was a compulsory inclusion in ship's papers after 1786 and the sworn details on this were used as evidence for the issuing by Customs of a Plantation Certificate without which a vessel could not trade with the plantations, and as this was the most lucrative trading area for Bristol, it was obviously essential. As well as details of the vessel and its crew, it listed the goods enumerated in the various Acts that could only be brought back to a port in Great Britain.⁷⁷ According to Hoon, bonds to the value of £1000 for ships under 100 tons and £2000 for those over had to be given for vessels trading with the plantations.⁷⁸ Although this could be recovered, it was capital that the owner could have used elsewhere.

On arrival at a plantation port, the appropriate duty was paid for goods shipped out by cocket and a bonds discharge certificate issued by Customs addressed to the master for the purpose of reclaiming the surety on return to Great Britain. Merchants shipping goods back to Bristol from Jamaica had to swear on oath that their goods were from the island, and give the exact location on the island where the goods were produced. They also had to give an assurance in the form of bonds if they were taking enumerated goods back to England, and when they arrived, to produce a certificate to prove that this had been done.⁷⁹

To ensure that a ship 'entered in' at a port in the plantations and remained in the customs area, movement between ports required a let-pass, which in the case of Jamaica kept it within sight of the island. It was again a sworn certificate and when a ship was ready for the return voyage another let-pass was obtained certifying the same sworn details, but stating that all customs and other duties had been paid. This gave the master authority to leave Jamaican waters and bade all to accept that the ship was on its lawful affairs. It also had to be produced when a ship was stopped at sea by the Royal Navy as evidence of the legality of the voyage. They were not issued by Customs but by the Secretary's Office of the Governor. One other document used in the plantation areas was the List of Men, which was a

⁷⁷ BRO: F/D/T/2/1 Town Dues; Collectors Accounts 1790-1791, 1 September 1791.

⁷⁸ Hoon, *English Customs System*, p. 259.

⁷⁹ Hoon, *English Customs System*, p. 246.

customs document giving the name of the ship and master, the burden and listing the crew by name, station, age, stature and facial appearance.⁸⁰

Two Acts of Parliament allowed a certain amount of ships' provisions and stores to be exempt from customs duty for a voyage.⁸¹ The ships' masters had to attend at Customs House to be issued with what was known as a Victualling Bill giving the usual details plus the number of crew, where bound and the likely duration of the voyage. A surviving example from the *Success* at Bristol dated 1781 has a printed list of provisions each with a standard measure, on which the master has handwritten the quantity carried onboard. The document was addressed to the Surveyor and Searcher and signed by the Collector, Comptroller and Customer and dated. It is again an example of the extent of the bureaucracy surrounding the Custom's service. Lists of provisions onboard were copied into the account books of ships husbanded by Brights and were endorsed and signed for by the master when receiving his instructions. Lastly, when the ship sailed it carried receipts for the mandatory payment of light dues, 10s10d for the two lights at Milford and St. Georges Channel. The *Sybil*, paid these duties to Customs whilst the vessel was at Kingroad waiting to sail.⁸²

Conclusions.

When set out in detail, the extent of the bureaucratic administrative tasks becomes clear and it would be impossible for any merchant to survive without the backup of a busy counting house to process his ship through the port, never mind to handle the other business of a traditional shipowner. It must also be remembered that much of this administration had to be done by the ship's master away from the owner's writers and clerks. Unlike Royal Navy vessels, a clerk was rarely carried on a merchant ship let alone a purser, so the task fell to the master to ensure that all the documents accumulated during his voyage were accurately completed and

⁸⁰ BRL: 21258 Account book of the *Sybil and Success*, pp. 51, 53.

⁸¹ 1. William and Mary. c 22: 13 and 14 Charles II c 2.

⁸² BRL: 21258 Account book of the *Sybil and Success*, pp. 47-48.

ready to be handed over on his return to Bristol. Mistakes by the master, or any shore clerk, when dealing with the various agencies could involve fines or delays.

All of these tasks took time and effort but also added to the costs of a voyage. Every document had to be paid for and many had additional stamp duties. The shipowners of all ports had similar expenses but Bristol with its emphasis on trade with the West Indies probably paid more than most.

Section 3. The strategy employed by the managing owner to pass his ship through the port

Introduction.

An axiom that can be applied to modern shipping is that the longer stay a vessel has in port, the less money it makes. This also applied in the eighteenth century and the managing owner would stress to the master in letters and instructions⁸³ the need to turn around quickly,⁸⁴ but due to seasonal cycles, especially in the West Indies, there were times when it was more realistic to stay. In general terms though, the aim was to get a ship through the harbour as quickly as possible whilst incurring the minimum of expense.

Achieving this at Bristol depended upon the ability of the shipowner to overcome a multitude of tasks and problems arising out of competing with other ships for port facilities, whilst dealing with a number of agencies which at times appeared to be working at cross-purposes. To a certain extent good planning could alleviate some of the problems, but an owner could never be certain as to the return date of his vessel or be sure what facilities would be available, especially in wartime when convoys of ships would arrive en masse.

Before examining the actual operations, it is necessary to consider the role of the shipowner whilst his ship was on transit through the port. Firstly, he would be working to dual purposes; that is, it was his duty to oversee all the tasks associated with getting the ship into port, discharged, refitted, loaded and then sent out again; and secondly, he had to manage his own commercial activities related to the cargo and possibly that of the subordinate owners. Also, as has been described in the last chapter, he would be carrying on his normal business interests which would probably include ownership of other ships, local and overseas investments, perhaps an insurance brokerage, and indeed any venture where there was money

⁸³ In order to be more concise the word 'shipowner' in this chapter will in future infer 'managing owner' unless otherwise stated.

⁸⁴ For example, in BRO: 12162 Shipping account book of the snow *Fanny*, p. 121; BRO: 39654/3 Voyage accounts for the *Triton* p. 144; BRO: 39654/4 Voyage accounts for the *Druid*, p. 37.

to be made. The centre point of all his activities was his counting house, or 'house', as it was referred to in the eighteenth century and from there he controlled his activities in Bristol and overseas.

The arrival of a shipowner's vessel.

The first hurdle was that a shipowner had no means of knowing exactly when a foreign-going vessel would arrive, although letters from its last port of lading carried by the faster packet ships would give him some idea, and there was also the possibility that his ship would have been seen and its position reported by other vessels. The Bristol newspapers published short reports on local ships such as:

Captain Coates of the *Expedition* arrived in the Downs from Honduras on the 9th April in Lat 43 North, Long 30 West spoke the *Roebuck*, Bliss, from hence for Philadelphia out 30 days, all well.' He also talked to the *Druid* and all was well.⁸⁵

So some preparations could be made such as alerting those with an interest as to its likely arrival and obviously he would take note of the physical conditions of the river, the present position in the port regarding congestion and the likelihood of docking facilities and suchlike being available. His clerks would have the vessel's documentation ready and be prepared to deal with the various harbour agencies when the time came. However, until the ship had been cleared at Pill and the master could come ashore to report, the owner could not finalise his plans as he would not know the true state of the ship or its cargo.

The first indication that his ship had arrived would be the appearance of the 'Warner', a gentleman whose express purpose was to lookout for newly arrived vessels and then, for a fee, ride to Bristol to inform the owners of the arrival and apparent condition of their vessel. Warners were originally appointed by the Society but not paid by them, their income being derived from their fees. There is

⁸⁵ *FFBJ*, 30 April 1792.

very little documented information about these men, but in the nineteenth century the pilots complained that they were not being paid enough by them for information. The Society refused to act claiming that warners were appointed by the 'merchants at large'⁸⁶ and the presumption is that there was possibly more than one warner and that he or they got their information from the pilots rather than their own observations.⁸⁷ Their half-guinea fees were recorded in the account book insets of both Munckley and Brights' ships.⁸⁸

From whatever source the information came, it would give owners an indication of the likely progress of their ships, but in the initial stages control of an incoming vessel was still completely in the hands of the master. He would be following the standard incoming procedure unless diverted by weather or some other problem, as within the Bristol Channel any deviation would be likely to be seen and reported to the owners.

Minchinton published details of a voyage of the *Parham* in 1731 where the master was berated by the owner in a series of letters for being late leaving his last port. Another ship had departed at the time this ship should have and arrived at Bristol with the information that the *Parham* was still there, and later a fisherman reported the vessel to be way out of position. Finally, the owner found that the vessel was at St. Ives⁸⁹ and believing a month had been lost in passage due to a basic mistake, he rebuked the captain. It is obvious that despite the distance between ports, there was a well established intelligence network in the eighteenth century, however informal, operating on behalf of the shipowners.

Clearing through Customs.

Provided that a ship was not quarantined or an embargo placed on it during the initial clearance procedure at Pill, its future movements from this juncture were

⁸⁶ McGrath, *Merchant Venturers of Bristol*, pp. 76, 319.

⁸⁷ However, on Poet's Walk at Clevedon today, there is a shelter re-erected by the Clevedon Civic Society in the belief that the Finzel family in 1835 built it for the Warner.

⁸⁸ BRO: 12162 Shipping account book of the snow *Fanny* all voyages; BRO: 39654/3 Voyage accounts for the *Triton*, p. 144; BRO: 39654/4 Voyage accounts for the *Druid*, p. 37.

⁸⁹ Minchinton, ed., *The Trade of Bristol*, p. 110-116.

directed by its 'house'. The report of the arrival of a ship at Customs was an anxious time for the shipowner as all future movements through the port depended on obtaining clearance. The customs service was involved at all levels of port operations and shipowners were extremely conscious of their power, especially after the passing of the Manifest Act in 1786.⁹⁰

This act was designed to check smuggling, but was seen by the Bristol merchants as being heavy-handed and the Hall petitioned the House of Commons in 1788, asking for 'immediate relief' for merchants whose goods had already been seized. They claimed that petty mistakes by crew and others were severely punished and cited the confiscation of a puncheon of rum because it was marked with chalk instead of being inscribed, and that five puncheons had been seized due to being marked with what looked like a 'U' instead of a 'V'.⁹¹ These are examples of the acrimonious relationship between shipowners and merchants on one side, and an agency they saw as deliberately thwarting their ability to trade.

Their concern was shown in the written instructions to their captains where they invariably insisted on scrupulous adherence to all customs regulations and to keeping accurate documentation. The following is an extract from the letter of instructions from Brights given to John Honneywell, master of the ship *Triton*, at the commencement of her eighth voyage to Jamaica in March, 1787.

The late acts of parliament respecting the entry and manifests of ships, require such great exactness that you must be very careful that the officers of the customs in Jamaica fill up every article of your clearances in the manner herein directed for upon the least omission or irregularity on their part or on yours, your ship upon her arrival here may be for a long time detained or perhaps not admitted to an entry at all. You must likewise remember that under certain circumstances the late Act requires that you should deliver manifests of your cargo to officers of the Customs who may come on board you before your arrival in the Port of Bristol. It will therefore

⁹⁰ 26 Geo. III c. 40.

⁹¹ Minchinton, ed., *Politics and the Port of Bristol*, pp. 163-164.

be necessary that you should have always two of the manifest ready and complete in every part exactly corresponding with your Customs House clearances with the manifest to be delivered into the Customs House here as those copies of the manifest will be forwarded by post to the collector here by the officer who may come on board and receive them from you.

For the same reasons it will be requisite that you prevent any of your people from bringing home with them any larger quantity either of coffee or rum than what is just sufficient for expenditure on their homeward passage. The heavy penalties under the late Acts rendering very small quantities of either sufficient to confiscate the ship provided they are not in legal packages and are not included in the manifests. For your further guidance we give herewith abstract of the Acts and some blank manifests which you will have only to fill up according to the printed directions thereon.⁹²

Other shipowners gave similar instructions to their captains, an illustration being Munckley stressing to Captain Richards of the *Fanny* in 1782, that 'the great severity of the laws make it absolutely necessary that the utmost attention should be paid to this particular'.⁹³ It was vital, therefore, that a ship carry a complete and accurate set of ship's papers and the Bristol account books show that these were supplied by the shipowner before the start of a voyage and had to be signed for by the master.

However, the owners themselves do not appear to have been as stringent with their personal goods. John Pinney actively avoided paying duties on small luxuries by storing them inside barrels of other goods and writing to the recipient giving details of their markings. He was outraged at the duty on sweetmeats and was determined to deny them to his children as a matter of principle, but after losing that domestic battle he had them sent home concealed in a barrel of bread – and this was after the Manifest Act had been passed.⁹⁴ Lowbridge Bright also appeared

⁹² BRO: 39654/3 Voyage accounts for the *Triton*, p. 112.

⁹³ BRO: 12162 Shipping account book of the snow *Fanny*, p. 80.

⁹⁴ MacInnes, *Gateway of Empire*, pp. 328-329.

to be flouting the rules in 1774 when he included brass hinges in a case of ironmongery with the initials of the recipient marked on the package.⁹⁵ It might seem like hypocrisy to demand that their employees observe total obedience to a statute whilst breaking it themselves, but the shipowners seemed genuinely afraid of losing or having their ships delayed so the most likely explanation is that they were as parsimonious in their personal expenditure as they were careful with that of their business.

When a ship cleared Customs, its details and those of the cargo were made available in the *Bristol Presentments*, printed bills of entry and clearance, published twice weekly from 1770 in the form of a leaflet,⁹⁶ and this information was repeated weekly in the local newspapers. These were published by a 'sub-patentee' by authority of the Board of Customs,⁹⁷ again reflecting their status in the port. This information was of particular importance to merchants with cargo aboard a vessel, and also it alerted business people and tradesmen not directly involved but whose services might be called upon. *FFBJ* also recorded all goods imported to Bristol each week.⁹⁸

Appendix 3.012 gives the costs for inward custom's fees, and shows that they were relatively low for clearing at Pill and so could be paid on the spot and included in the master's disbursements, but the more expensive Custom's House fees were paid for by the firm, evidence that the owners had taken over the ship from the master.⁹⁹ As the appendix shows, the cost to each ship remained consistent year by year, the increase in the period 1787 onwards being due to the Ships Registration Act altering tonnage.

⁹⁵ Morgan, ed., *Bright – Meyler Papers*, p. 461.

⁹⁶ *Bristol Presentments*.

⁹⁷ Grahame Farr, *Records of Bristol Ships: 1800-1838* (Bristol Record Society, 15, 1950) p. 18.

⁹⁸ For example. *FFBJ*, 5 December 1791.

⁹⁹ BRO: 39654/3 Voyage accounts for the *Triton*, p. 120; BRO: 12162 Shipping account book of the snow *Fanny*, p.72.

Factors concerning the owner when considering his ship's further progress.

After consultation with the master, the shipowner of a large foreign-going vessel, whose priority would be to get its cargo unloaded, had to make decisions as to its further progress. Two factors predominated, time and as always, cost. In an ideal situation the ship would go straight to the quays as most facilities were centred there and they were 'legal quays' where by law enumerated cargoes could be discharged. Following the harbour improvements around 1770, there was more quay space, but at Bristol there was always congestion and indeed the state of the quays themselves added to it. An entry in the Hall Book dated 13 August, 1785 stated:

The committee viewed the Back and the Quay and found that the same are greatly encumbered with timber, anchors and other things, particularly at the lower end of the back opposite the south side of Queen Square and at the Grove where a great quantity of deal balks are laid and as the committee were informed have lain a long time. And the committee directed that a complaint be sent thereof to the magistrates.¹⁰⁰

Additional complications for the shipowner arose following the Society's purchase of the Floating Dock and the passing of the Merchant Dock Act in 1776,¹⁰¹ because it became mandatory for naval stores, that is timber, deals, staves, tar, pitch, turpentine and the like to be unloaded and stored there. Also, in 1789 a Tobacco Act¹⁰² was passed which allowed Customs to commandeer the Mud Dock containing the four deepest berths in the harbour for the discharge of tobacco. In 1791, the Hall petitioned without success the Commissioners of the Customs asking that the berths be released to general shipping when not being used to unload tobacco.¹⁰³ It did not affect the West Indian ships, but the problem for those

¹⁰⁰ BRO: SMV/2/1/1/11 Hall Book 11, 13 August 1785, p. 163.

¹⁰¹ 16 Geo. III. cap 33. Act to remove the danger of fire amongst the ships in the port of Bristol by preventing the landing certain commodities on the present quays, and for providing a convenient quay and proper places for landing and storing the same, and for regulating the said quay, and the lighters, boats, and other vessels, carrying goods for hire within the said port of Bristol; and for other purposes therein mentioned. 1776.

¹⁰² 29 Geo III c. 68.

¹⁰³ Minchinton, ed., *Politics and the Port of Bristol*, pp. 177-178.

trading with the Chesapeake and other naval stores areas was that the shipowner might find that he could unload quickly in one place only to face delays due to the lack of water to take the ship on to its new berth.

In 1786 Customs directed four ships with some tobacco, but mainly naval stores, to unload firstly at the Mud Dock whereupon the Society threatened to sue if they unloaded naval stores there. The ships' masters wrote back and requested to discharge in situ because there would not be water to move the vessels for ten days, pointing out that the two acts covering tobacco and naval stores were in conflict. Eventually the Society agreed and allowed discharge provided the goods were immediately removed.¹⁰⁴ Apart from this incident showing the intransigence of the Customs – and later the Society had to complain that Customs were unlawfully giving permission to ships to unload naval stores at the Quay – it is an example of the complexities the shipowners faced when dealing with a tidal harbour and obstinate agencies. To lose ten days at least was expensive for the owners involved and this must have made them consider whether it was worthwhile to load these commodities for freight, especially small quantities.

The same problem could arise for ships forced to unload at Merchants' Dock as this was the only place in the harbour where dues were charged on a weekly basis and without sufficient tide a ship couldn't leave. Also, the cost of transporting cargo from there to the city could mean the difference between profit and loss and when timber merchants brought a case before the Society the example they used was of a cargo of staves and timber unloaded at the Dock making a loss of £77, whereas if it had been unloaded at the quay it would have made £22.10s profit.¹⁰⁵

The operations at Merchants' Dock appear to have caused friction between Customs and the Society as the Hall Books record arguments over landing naval stores in 1790, and in 1792 Customs contentiously disputed it being a legal quay.¹⁰⁶ Arguing from the other point of view, a letter to the Committee pointed to

¹⁰⁴ BRO: SMV/2/1/1/11 Hall Book 11, 29 July 1785, 2 August 1785, pp. 236-38.

¹⁰⁵ Minchinton, 'Port of Bristol', p. 140.

¹⁰⁶ BRO: SMV/2/1/1/11 Hall Book 12, 30 December 1790, 24 January, 1792.

the considerable expense and trouble of moving a ship from the Mud Dock to Merchants' Dock as tow-boats and a pilot¹⁰⁷ were required, and finishes by saying that the tobacco could have been carried to the Mud Dock by lighters.¹⁰⁸

Another factor that had to be considered was that the delays at the mouth of the river might be reduced if part of the cargo was loaded into lighters for the passage up river. This could be worthwhile to a shipowner if his cargo was seasonal and he wanted to reach markets early, or if a slight reduction in draft allowed the vessel to move sooner. However, it would incur the extra expense of discharging at anchor or moorings using shore workers and a ship's own tackle, plus the costs of lighterage, and finally of discharging the lighter at Bristol. In 1780 part of the cargo of the *Success* had to be unloaded into a trow before the ship moved on up to the Quays which involved not only the costs of separate lading and discharging, but of coopers attending the discharging of the trow as well. An extra week was added to the *Success's* inward voyage.¹⁰⁹ The *Fanny* used lighters on two of her voyages but unfortunately there is no indication whether this was at the mouth of the river or at the Quays.¹¹⁰

Before an owner decided on the discharge of cargo and its movement from the quay, he had to be aware of the state of the quays, warehousing, and the situation regarding the ship repair wharves. Arguments with crane operators were ongoing with disputes frequently arising over payment of crane duties. Sugar hogsheads, for example, needed cranes but they could be difficult to come by. A list of outstanding debts in 1779 included an owner's refusal to pay because he had unloaded his ship using its own tackle, and also a report of another owner declining to pay because he had discharged his ship into his own trow without any assistance from the shore.¹¹¹ Intransigence was not confined to the Customs and a shipowner was forced to juggle with the various agencies even though, in the case of the Society, he himself might be a member.

¹⁰⁷ This is the only reference to using a pilot to move ships in harbour that has been found.

¹⁰⁸ BRO: SMV. Loose letter dated 21 July 1789. Not catalogued.

¹⁰⁹ BRL: 21258 Account book of the *Sybil* and *Success*, pp. 147-150.

¹¹⁰ BRO: 12162 Shipping account book of the snow *Fanny*, pp. 20, 48.

¹¹¹ BRO: SMV. Loose letter dated 8 April 1779. Not catalogued.

Once cargo had been discharged, the shipowner orchestrated refitting and re-provisioning (see Chapter 4) and would have been working on the logistics of the next voyage. However, ships' account books show that most voyages followed a pattern based on the past with few deviations. Appendix 3.013 gives the routine costs incurred by the ship *Fanny* passing through the port after her voyages.¹¹² The following section examines these arrangements and comments on the value of adhering to this system.

Conclusions.

For the West Indian shipowner, the arrival of his vessel at Bristol began the process of clearing his ship through Customs, bringing it upstream and discharging its cargo. He could have difficulties with Customs, because at times an acrimonious relationship existed between them and shipowners generally, leading to the former being obstructionist when it came to the matter of berths. The shipowner's ability to plan ahead was limited by this and having to compete with other owners for the facilities at the quays among which was the use of cranes, which could in turn lead to friction with the Society.

¹¹² When consulting Appendix 3.013 it should be noted that these expenses may not have been incurred every year and that sometimes the information was missing.

Section 4. The logistics and economics involved in a West Indian voyage.

Introduction.

The larger Bristol merchant houses, as described in Chapter 2, ran their ships as constant traders and provided there were no technical hitches during their time in port, they would dispatch a ship on a similar voyage giving the master detailed, written instructions as to how it was to be carried out. These were copied into every ship's account book and are an important source of information when considering the logic behind the owner's directives to a particular vessel as they cover all aspects of the voyage including the management of the ship, its ports of call and the arrangements for cargo. They are remarkably consistent in layout but show considerable differences in content during times of peace and war. Unfortunately the information in the surviving Bristol books lends itself only to the West Indies, the slave trades and a few ships sailing to North America.

It is not intended to examine the wider issues of Bristol's trade with West Indies, the macro-economics, the processes or the personnel involved, as this has been more than adequately covered elsewhere by prominent historians,¹¹³ but to look at the way a shipowner planning the next voyage of his vessel expected it to function and to comment on whether his methods appear to be efficient and cost effective; or alternatively, if he was simply maintaining an entrenched structure, which could be the case since close examination of his instructions voyage by voyage shows that he repeats the same orders even though some have proved optimistic and others unachievable.¹¹⁴

The role of the master of a West Indiaman.

First and foremost, the shipowner addressed his plans to the master and not to a representative or factor, although they might get covering letters, because a

¹¹³ For examples see Minchinton, ed., *Trade of Bristol*; Morgan, *Bristol and the Atlantic Trade*; Pares, *West India Fortune*.

¹¹⁴ The former generally referred to the master having enough provisions onboard for the voyage and the latter the likelihood of the ship accomplishing two voyages in one year. See Chapters 4 and below.

system had developed whereby the success of the whole venture depended on having a ship's master whose skill as a seaman was overshadowed by his ability to act as a factor or agent for the House at the ship's ports of call. He had many responsibilities, not least that he was accountable for amassing a homeward cargo for the vessel and for negotiating the freight rate to be paid by the West Indian planters. Success in these areas could only be achieved by his ability to negotiate personally with planters shipping cargo back to Bristol, and to do this he had to know them and their geographical area well, and above all to be respected and astute.¹¹⁵

As will be shown below, the extent that a firm used a master varied, but he was always the most important component in the venture and indeed many masters had shares in their vessels. Samuel Munckley's *Fanny* will feature significantly in this part of the thesis and the ship's master for most voyages, Thomas Richards, owned one eighth of the ship and it was an indication of the family alliances of the West Indian trade that his brother James owned a similar share, and at its regular port of Barbados, the firm's agents were T&S Richards, one partner being the captain and the other a brother.

Two masters might have identical skills and experience, but an intimate knowledge of an area was the predominant asset when it came to deployment. On her seventh voyage, the owners of the *Fanny* feared that the crop at Barbados would be poor and directed the master to sail for Jamaica if he found that to be the case, but in anticipation of this, John Sims, a master with Jamaican experience, sailed as a passenger ready to take over.¹¹⁶ The cost of sending two masters on one ship not only increased the wages bill, something that ship owners constantly carped about, but the perks associated were considerable. Mackenzie-Grieve says that Liverpool shipowners had little respect for their compatriots at Bristol who they saw as poor businessmen:

¹¹⁵ Pares, *West India Fortune*, pp. 220-221.

¹¹⁶ BRO: 12162 Shipping account book of the snow *Fanny*, p. 98.

The Bristol Merchants treated their captains like young gentlemen on the Grand Tour. Cabin privileges, port allowance and primage. They ate ashore in the West Indian ports and drank imported Madeira. Captains did not pay at five shillings a day.¹¹⁷

This may have been true in 1750, but by 1793 the Bristol captains were complaining in a round-robin to the Society of West India Merchants that their privileges had dropped behind Liverpool and London.¹¹⁸ As an indication of costs, Appendix 3.014 records the personal account rendered by Captain Mattocks of the *Sybil* after her third voyage in 1785. The crew wages bill is not available for this voyage but some idea of the relative cost of a master's expertise under this system can be seen by comparing his £88 earnings to that of the rest of the crew's £195.17.5d in 1786.¹¹⁹ It is approximately 45 percent.

Ships' masters could be replaced, but when they were they had to have experience of the same trade area. James Henderson of Bright's *Industry*, a constant trader to Jamaica, replaced William Mattocks of the *Triton* when the latter was moved to the newly built *Sybil* in 1782, and again in 1786 when Mattocks died at sea, it was Henderson who followed him.¹²⁰ Shipowners needed a pool of experienced captains. In the event of a master's death, his instructions included a section promoting his chief mate to master, although in some circumstances there were caveats such as the appointment being approved by the house's 'friends', that is agents at the port of destination.¹²¹ The appointment of a chief mate to master was a common occurrence, continuity, experience and industry being the relevant factors and these led Lowbridge Bright to insist on promoting the mate of the *Milford* in 1774, despite being lobbied to select another man.¹²²

¹¹⁷ Averil Mackenzie-Grieve, *The Last Years of the English Slave Trade; Liverpool 1750 - 1807* (London, 1941) p. 4.

¹¹⁸ Pares, *West India Fortune*, p. 361.

¹¹⁹ BRL: 21258 Account book of the *Sybil and Success*. From the detached wages book. Pages are not numbered.

¹²⁰ BRO: Microfilm FX/20 Bristol Shipping Account Books 4. No page numbers; BRL: 21258 Account book of the *Sybil and Success*, p. 86.

¹²¹ BRO: 39654/3 Voyage accounts for the *Triton*, p. 41.

¹²² Morgan, ed., *Bright – Meyler Papers*, p. 460.

The role of the Bristol ship's master in the West Indies is well documented and will not be gone into at depth it being sufficient to say that when a ship arrived at its port, the day by day work of maintenance and cargo handling was left to the mate whilst the captain carried out his primary purposes of assembling a return cargo, collecting debt from previous voyages and disposing of goods dispatched by the owners.

The omnipotence of the master has been established¹²³ but there were also times when the owners could be critical of him. William Mattocks, a long serving captain of Brights, was master of the *Sybil* in 1785 when his instructions included a rebuke concerning his expenditure on provisions during his last voyage and the state in which his ship arrived home. They admonished him by saying that he had been supplied with as much if not more stores than any other captain and asked the question, 'Why the *Sybil* is in so much worse condition than the other ships you alone can know?', finishing by telling him that he would get his customary wages and such like but 'nothing beyond'.¹²⁴ Mattocks died during this voyage and his ship returned without a full cargo. The other problem for masters was that they were subject to the whims of the planters and found it impossible to please all of them, but at the same time if they combined against a captain the owner would have no alternative but to change him.¹²⁵

To revert to the unfortunate Captain Mattocks of the *Sybil*, he wrote a series of letters to his owners apologising for what was in effect a succession of minor disasters culminating in sailing with a short cargo, but stressing that he was following the advice of Duncomb and Savage, the agents. Savage had had to visit the ship to sort things out and by the fifth letter it is obvious that the master was following his orders as he fearfully assured the owners that he took the weekly advice from the agents. Finally, in his last letter just before sailing, he again pleaded that he had followed their orders 'in every respect weekly'.¹²⁶ It is hardly the usual image of the omnipotence of a West Indiaman's master, especially as

¹²³ See Pares, *West India Fortune*, pp. 220-222.

¹²⁴ BRL: 21258, Account book of the *Sybil* and *Success*, p. 48.

¹²⁵ Pares, *West India Fortune*, pp. 221-222.

¹²⁶ BRL: 21258 Account book of the *Sybil* and *Success*, pp. 56-59.

Mattocks was a very experienced captain, but he had been warned about his ability and behaviour before the voyage. His ineptitude is confirmed by the account books of the *Triton* and *Fanny*, as they show these ships sailed fully loaded that year taking a full income from freight so there could not have been shortages. In freight money alone, compared to the *Triton*, his incompetence probably cost the owners £598.¹²⁷

Ships were also diverted from their usual route for technical reasons. The *Druid* replaced the *Sybil* in 1790 when shipments increased at Jamaica due to the latter no longer being able to carry hogsheads and so having to load smaller tierces. This would mean less cargo overall due to stowage problems.¹²⁸ However, diversion was usually due to a change in conditions at the ports of destination such as severe weather, crop failure or the ship being delayed elsewhere. Normally, though, the ships stayed as constant traders to the same locality, again confirming Bristol was not moving away from traditional practices.

A ship's income from freight.¹²⁹

It was established in Chapter 2 that Bristol West Indian merchants owned ships as adjuncts to their business, but in London and other areas new ways of working had been taken up as quoted in a letter from the House of Pinney in 1789:

Shipowning at this port is a much more serious affair than it is in London where the merchant seldom holds more than a sixteenth, and often no part at all; whereas our ships are entirely owned for ourselves, which in the first place ties up a large sum of money which might be more profitably employed in procuring consignments and in the next place makes it absolutely necessary that we should find freight both out and home for them without which they must prove very sinking funds indeed.¹³⁰

¹²⁷ BRO: 12162 Shipping account book of the snow *Fanny*, p. 138; BRO: 39654/3 Voyage accounts for the *Triton*, p. 109.

¹²⁸ BRO: 39654/4 Voyage accounts for the *Druid*, p. 1.

¹²⁹ The word 'freight' can either mean goods transported commercially or the charge made for this.

¹³⁰ Pares, *West India Fortune*, p. 209.

This is useful as it not only confirms the changes taking place in London, but the reference to freight is important. In terms of professional shipowning, the purpose of a merchant ship was to make a profit for its owner by earning income only from freight¹³¹ and the Pinney letter implies that he at least believed it was of prime importance at Bristol. It indicates a divergence from traditional trade methods in the minds of some shipowners.

The account books show three reasons for goods being carried. Firstly, those shipped on the owner's account; secondly, merchandise shipped on the personal account of one or more of the owners; and thirdly, commodities carried for others for freight. Considering the last: if these ships were being used to make money in their own right, it follows that there should have been enough profit to make it a viable business. An initial study of ships' manifests in account books shows that freight was paid on all goods carried including those exported on the owners' account, although they did not pay primage to the master if the goods were consigned to him.

As they cover the same period, the account books for the *Fanny* and *Triton* are particularly useful tools with which to analyse freight as both ships were involved in the same trade, albeit the *Fanny* sailed to Barbados and the *Triton* to Jamaica. This investigation compares the income from freight alone from each ship with the costs voyage by voyage, and if freight was of prime importance then there should have been a considerable profit. The relevant sections of the account books are the outsetts giving all outgoing transactions, and the insetts dealing with the incoming.¹³² Appendix 3.015 records the results.

Fanny's first voyage was on charter to the Baltic and so is not valid for this analysis but overall she completed two voyages more than the *Triton*. To compensate for this in the analysis, *Fanny's* 6th and 10th have been deleted, these randomly

¹³¹ From now on, the single word 'freight', as used in ships' account books, will indicate freight charges or income.

¹³² BRO: 12162 Shipping account book of the snow *Fanny*; BRO: 39654/3 Voyage accounts for the *Triton*. See Appendix 3.026 for page numbers of outsetts and insetts.

chosen. It is apparent from the data that the outgoing costs of both ships, except on one occasion, were higher than the income from outgoing freight due to the costs of refitting. Except on two occasions, insett costs were lower than income from freight and therefore a profit was made. The total profit from freight is therefore the inset profit less the outset loss. The actual profit is freight plus any transactions directly related to the ship such as the sale of ship's material.

The evidence is clear that under the one voyage per year system, neither ship could have been operated for freight alone as the *Fanny* averaged £476, a reasonable return and the *Triton* £100 profit per annum, but on their own these sums were not enough to compensate for the effort, especially as they had to be split amongst all partners. The addition of the two missing voyages of the *Fanny* increases the annual freight income to only £480 further confirming the figures. The actual profits, that is freight profit plus any ancillary business done by the ship itself, barely improved matters with the former increasing to £581 and the latter to £209, and indeed on two occasions the *Triton* operated at a loss. Clearly, reducing the costs of the outset would increase the profits but these are thoroughly examined in Chapter 4 and there are no items that could be removed or even significantly reduced.

The reality was that these ships were following the traditional way of operating and the profits they made from freight charges did not give the owners a sufficient return for their investment. That is not to say that they were adverse to freight, rather the opposite, but their main concern was receiving the commission on sugar which will be described below. Pares quoted Charles Pinney as saying that 'the commission is in no consequence in comparison to the freight' but he was an exception as most owned ships for consignments.¹³³ Freight was essential, however, to offset the costs of a voyage and immediately a ship had been entered out and was ready to take cargo, adverts were placed in the local papers advising its intended departure and capability of accepting cargo. Prospective shippers were

¹³³ Pares, *West India Fortune*, p. 209.

advised to contact the owners or master, again showing that the latter had many facets to his work outside of seamanship.

The importance of freight is reflected in the masters' instructions, but when comparing those of Brights and Munckley, the former appears to be the more insistent that their masters stick to their guidelines. Before most voyages they gave the *Triton's* master particular orders concerning his freight negotiations and generally tried to set prospective rates by giving him what were probably over optimistic recommendations to follow; although they temporised this by insisting that at least he should get the full current rate at the port of loading.¹³⁴

Amassing a cargo was a complicated business and any possible loss of freight money was taken seriously by owners who usually had long experience at the business. On her second voyage, for example, the *Triton's* owners advised the captain against taking on sugar at a certain port because it was contained in small casks which were never well filled, and as freight was calculated by weight small barrels would take up more room than large giving lower returns.¹³⁵ Another saving that could be made was by charging freight on goods that could be used as ballast,¹³⁶ and again the master was generally instructed to try to get wood for dunnage on freight rather than paying for it. Small savings, but the eighteenth-century merchant believed in them.

Samuel Munckley was also concerned about freight and if he knew the state of the crops at Barbados was affecting freight rates he advised his masters accordingly, but the tone of his instructions indicated he was more prepared to trust the masters' discretion than were Brights. Freight was obviously important enough to give permission to Captain Richards to get it at another island if Barbados fell short, but again it was left to his discretion.¹³⁷ For her 9th voyage, the *Fanny* had a new master and advice was more detailed including a warning about not waiting

¹³⁴ BRO: 39654/3 Voyage accounts for the *Triton*, p. 39.

¹³⁵ BRO: 39654/3 Voyage accounts for the *Triton*, p. 20.

¹³⁶ BRO: 39654/3 Voyage accounts for the *Triton*, pp. 39, 111.

¹³⁷ BRO: 12162 Shipping account book of the snow *Fanny*, p. 96.

around for freight, something that was not said in instructions to more experienced captains.¹³⁸

Outward and inward goods shipped on behalf of the owners.

One of the assets associated with traditional shipowning was the profit made by the owners on the sale of goods they shipped to the West Indies for their own benefit. The *Fanny's* account books record the income from these transactions which was then sent back either in bills of exchange or in actual goods shipped home, although the latter were not necessarily dispatched on the same ship. Her third voyage insett shows 69 hogsheads of sugar, payment for goods brought out on one ship, being sent home on three others as well as the *Fanny*.¹³⁹

The following advice taken from the master's instructions for *Fanny's* fifth voyage elucidates this process and how owners would use the proceeds to invest in merchandise for the return trip.

Enclosed you have invoice of sundry goods consigned you for our account which we hope will come to a good market. These you will dispose of in the best manner you can for our interest, and remit a good part in good bills of exchange, the remainder in sugars by your own ship to assist her lading. We should prefer an assortment of clayeds to musco, even if you were to pay a trifle more in proportion for them, as the loss in weight is generally considerably less on clayed sugar than musco, and the quantity not to exceed twenty-five hogsheads, unless you find it necessary to put more on board to forward the loading of your ship. This we leave to you not doubting that you will act in the best manner.¹⁴⁰

¹³⁸ BRO: 12162 Shipping account book of the snow *Fanny*, p. 20.

¹³⁹ BRO: 12162 Shipping account book of the snow *Fanny*, p. 49.

¹⁴⁰ BRO: 12162 Shipping account book of the snow *Fanny*, p. 63.

The invoice shows that the outward goods consisted mainly of provisions, soap and salt being the only non-foodstuffs,¹⁴¹ and on this occasion they were bought in England but the southern Irish ports Cork and Waterford were regularly visited to load these items. Heavy items like bricks and iron hoops could be included and from the quantities there is no doubt that Munckley intended to make a profit on these goods and they were not simply for ballast. The eighth and ninth voyages had small invoices listing only the heavier goods, an indication that provisions were cheap on the island and not worth carrying, but on that occasion ballast was needed.

The instructions given to their masters by Brights regarding owner's goods were not as detailed as Munckley's as they were generally consigned to their agents in Jamaica. However, on *Triton's* ninth voyage, the master was given goods to sell at his own discretion to cover disbursements, though he could seek advice from the agent if necessary. When all *Triton's* voyages are examined, it is noticeable that unlike Munckley's *Fanny*, the owners appear to have little interest in owner's account goods, there being few items on their invoices and these usually weighty, like bricks, coal and iron hoops indicating shipment for ballast.

Goods belonging to the owners were usually consigned to the captain and freight was paid, but no primage. However, on her eighth voyage, possibly due to the captain's ill health, – it was his last voyage as master – the owner's goods were consigned to T&S Richards for disposal and primage was paid.¹⁴² Again, the instructions detail how the proceeds are to be remitted home after helping pay the ship's disbursements.¹⁴³

When the instructions given to both ships are compared, there seems a clear variation in the way each owner treats their captains. Munckley sent trade goods to make a profit rather than simply to cover disbursements and allowed the master more leeway, although less so after Richards was replaced after which for three

¹⁴¹ BRO: 12162 Shipping account book of the snow *Fanny*, p. 64.

¹⁴² Richards health is discussed in a letter to T&S Richards in Jamaica at the outset of the ninth voyage when he was replaced. BRO: 12162 Shipping account book of the snow *Fanny*, p. 127.

¹⁴³ BRO: 12162 Shipping account book of the snow *Fanny*, pp. 112, 114.

out of four voyages the owner's cargo was consigned to their factors. Kenneth Morgan acknowledges Munckley's willingness to tolerate initiative, and also points out that with the proceeds from outward goods, he was buying sugar and other merchandise to be shipped back for sale by himself and not relying completely on the commission trade.¹⁴⁴ This would increase his profits, but the market for exports to the West Indies was too unpredictable to be relied on.

Appendix 3.016 compares Munckley's expenditure with Brights and there is no doubt that goods sent out by Munckley could be ten times the value of Bright's. The *Triton's* manifests were checked to see if there was an increase in cargo consigned to the agents but that was not the case. It could be that Barbados was a more lucrative market for exports than Jamaica, but the significant difference in expenditure is more likely to indicate diverse attitudes to business. However, Appendix 3.015 shows that the *Fanny's* profits from freight were consistently higher than those of the *Triton*, so it may be that Munckley's business acumen was better than Brights or that the latter was concentrating more on land-based enterprises. Certainly, the former appears to have put more thought and effort into trading and given more advice to his captains. Nevertheless, had these owners been involved in professional shipowning, it is unlikely that these differences of income would have occurred between two almost identical ships.

The process by which goods sent out on the owner's account were sold can be deduced from the examination of a letter with attachments sent from Barbados in 1762 by the master of Munckley's ship *Clifton*. The letter itself gives details of the master's financial dealings (Appendix 3.017). One attachment is a complete list of all merchandise that was imported and the dates when parcels of each item were sold, to whom, and the price. Another is a list of debts that remain uncollected on the island. There is an invoice for sugar bought by the proceeds and finally the master's account current. The sale took place over a period of two and a half months and all goods were sold except those eaten by rats. Few items went

¹⁴⁴ Morgan, *Bristol and the Atlantic Trade*, pp.198-199.

particularly quickly, except some that may have been specially ordered, and eventually the remainder had to be auctioned.¹⁴⁵

Data from this letter can be analysed to understand the economics of this type of trading but, unfortunately, the initial cost of the goods is unknown. The total income from selling them minus portorage and stowage was £1476 out of which £309 remained unpaid, and on the master's account current with the owners it was noted that he had collected in debts of £288 left from the sale of goods on the last voyage. He himself was paid £87 as his 5% commission on the sales and for collecting debts and was returning with £1214, in bills of exchange. He purchased 24 hogsheads of sugar for £496 for the owners, and paid all expenses concerned. The total weight of the sugar was 33401 lbs, which, using the English 112 lb per cwt measure rather than the West Indian 100 lb, calculates to 298 cwt, and a rough estimation using the price of sugar in 1762 as 35s per cwt in England, grosses £522.¹⁴⁶ The invoice gives the cost of sugar and all inward expenses as £496, so the profit would be about £522 - £496 or £26. This sum is small but sugar prices fluctuated month by month and a rise of 5s could increase the profit to £100, less duty of about £4.10s, on a relatively small batch of sugar.

Merchants like Munckley and Brights took the unpaid ship's husband role because it meant that their goods would get priority and, more importantly, they could dictate a ship's movements. Although the *Fanny* sailed regularly to Cork and Barbados, Munckley diverted her to Madeira on her eighth voyage to examine the business prospects and the possibility of setting up a permanent trading arrangement. However, he could not have deemed it profitable because after one more try the experiment was discontinued. As ship's husband it was his prerogative to do this.

¹⁴⁵ BRO: AC/MU/1/8b Letter from John Smith, Commander of the ship *Clifton*.

¹⁴⁶ This price was estimated by using Table 7.8 in Morgan, *Bristol and the Atlantic Trade*, p. 206.

Shipping goods on behalf of other merchants.

Part of the business of the merchant shipowner was to prepare and ship packages of goods for overseas correspondents to order, and for this they charged a commission of 2½ percent on the total cost.¹⁴⁷ This charge was not recorded anywhere on the ships' account books as the work was not carried out on behalf of the owners, but by the merchant involved. However, as the purpose of this section is to investigate the profits made by ships' husbands such as Munckley and Brights, it would be useful to have some idea as to the profits to be made from this part of their business and whether this service was financially rewarding.

Since few invoices of goods prepared and dispatched by merchants on behalf of others survive, there is not enough data to produce a figure for commission income, but it is possible to approach the matter indirectly. The names of Munckley and Bright's overseas correspondents are listed on ships' manifests and it can be assumed that any goods sent out to other than their own agents would be subject to this commission; and although the sum is unknown, the freight charges per correspondent can be found from the manifest and used as a factor for assessing commission.

The problem is that the cost of goods and the expenses involved was not included on manifests, data necessary for the calculation of commission. Nevertheless, invoices for owners' goods are available for most voyages that include both freight charges and this data, so a ratio of freight to cost and expenses can be calculated for a package of goods for a specific voyage. This ratio can then be applied to all commission freight carried on the voyage to find its value and the commission income calculated from that sum. It gives only an estimated figure but accurate enough to provide a rough assessment commission income.

The invoices for the *Triton's* voyages show that commission charges were calculated not just from the cost of goods, but in addition all associated expenses

¹⁴⁷ Morgan, *Bristol and the Atlantic Trade*, p. 108.

such as freight and primage, custom's dues, halling, shipping (craneage), and supplying bills of lading. It did not include insurance as this carried its own commission of ½ percent. The *Fanny's* invoices were similar but no charge for insurance was even listed. Appendix 3.018 gives the export commission for a sample of four voyages of Munckley's ship *Fanny* and three from Bright's *Triton*.

The commission earned by the *Fanny* for preparing and shipping goods for others averaged £12 per voyage, but this did not include a charge being made on goods shipped on the owner's account such as was entered on Bright's invoices. Technically, Brights were correct to implement this charge because they performed this service on behalf of the partners as distinct merchants. If Munckley had entered this charge then his income would have nearly trebled.

Whatever the procedure used, the commission did not substantially increase the profits, but most West Indian shipowners were sugar factors in Bristol and the purchasing and shipping of goods out to their planters was a recognised part of the business arrangement.¹⁴⁸ On its own, however, the effort Munckley put into earning outward commissions was hardly worth the trouble.¹⁴⁹

As is shown in Appendix 3.016, the *Fanny* carried a substantial amount of owner's goods on every voyage compared to the *Triton* and this trait is shown to be repeated on commission goods. On three voyages only was the *Triton* carrying enough commission goods to allow income assessment which when calculated was slightly less than the *Fanny* per voyage so the same comments apply as above (Appendix 3.018). The indications are that during wartime Brights shipped very few of their own goods or on behalf of others, but relied for income on chartering or freight from merchandise sent by their partners. However, the eighteenth-century business methods meant that Brights had interests in associated firms: for example, on the second voyage the main shippers were Bright, Baillie and Bright, and Richard Bright owned two-twelfths of the vessel in his own right whilst L&R Brights had seven-twelfths.

¹⁴⁸ Morgan, *Bristol and the Atlantic Trade*, p. 193.

¹⁴⁹ Pares, *West India Fortune*, pp. 186-187.

This network of 'interests' meant that there were hidden profits connected to traditional shipowning. Brights were connected to Bright, Farr and Davis, rope-makers, and their partners in the *Triton* were Bush, Elton and Bush, coopers, so goods or services were available from their own sources. An invoice from the eighth voyage of the *Triton* detailing goods shipped on the owner's behalf included the purchase of casks, their filling and transportation (halling) to the vessel and, as Bush, Elton and Bush were responsible for both the incoming and outgoing cooerage, it is likely they also did this work.¹⁵⁰

The invoice shows that Brights also arranged the payment of fees of entry, wharfage, town and patent dues, prepared the bills of lading and arranged the actual loading of goods. Samuel Munckley had a haulage division as part of his business¹⁵¹ and was also a general merchant supplying the *Fanny*, and no doubt his other ships, with assorted goods such as bread bags, pilchards, tar, firkins and butter. Butter was extensively imported from Ireland and a letter from a business woman in Youghal in 1773 solicited him buy this and other commodities direct from her.¹⁵²

Lastly, the above invoice shows another shipowner's sideline, the provision of individual insurance for each package of goods he sent out. This entailed a separate policy on each arranged for a service charge of ½ per cent. Again, using the *Triton's* invoice as an example, the commission on £200 of insurance was £2 per hundred, the policy 9s, and the commission 20s.

Provision of insurance.

The negotiation of insurance for land-based and mercantile purposes was among the tasks of a shipowning merchant house; the former being on behalf of the firm or

¹⁵⁰ BRO: 39654/3 Voyage accounts for the *Triton*, pp. 114, 120.

¹⁵¹ Referred to in all outsetts except for the 10th and 11th voyages. BRO: 12162 Shipping account book of the snow *Fanny*.

¹⁵² BRO: AC/MU/1/22a-c. Catherine Roberts, Youghal to SM regarding shipments of oats and butter, 25 August to 7 September 1773.

owner, their business associates or trades people, and interests overseas; whilst the latter was for ships, the owners' goods, and the commodities exported and imported by overseas clients. Insurance premiums were taken seriously by merchants, some of whom appear to have scrupulously guarded every investment with policies. Lowbridge Bright writing to his agents in Jamaica in 1777 devoted most of his letter to the subject, admonishing them for not stating whether the sum of insurance they wanted was in currency or sterling, there being a 40 percent difference, and also pointing out that rather than them advising him of the value of goods they wished to insure, they should say how much cover they wanted because the cost of the policy itself was high and a return on the value of lost goods would not include this sum unless added to the document.

This is a prime example of the detail that an assiduous merchant like Bright would go to in order to maximise profits, and he went on to say that he felt the need to guarantee the underwriters themselves at another ½ per cent due to the 'prodigious losses' they had suffered that year.¹⁵³ There are many similar examples, but to illustrate the actual systems being used, the accounts of Samuel Munckley's *Fanny* need be examined alone as Brights did not include insurance details in those of the *Triton* (or in their other contemporary ships' accounts). However, there is sufficient information to be found in the twelve voyages detailed in the account book of the *Fanny*, the first seven of which were for war years (Appendix 3.019).

The first voyage of the newly built *Fanny* was to Petersburg under charter for the return trip as she was finished too early for the West-Indies run. No cargo was loaded for the outward voyage and Munckley used Bristol brokers to obtain ship insurance. However, for the return voyage the charter conditions insisted on insurance being obtained from London associates of the charterer. Munckley's letter to a London firm survives and as he was making an indirect request to them to approach London brokers, it illustrates the initial process of a customer seeking insurance. Munckley gave them the value of the insurance he wanted, advised that

¹⁵³ Morgan, ed., *Bright – Meyler Papers*, p. 492.

he had a suitable captain, and that the ship already had a report of her forthcoming outward voyage published in *Lloyd's List*.¹⁵⁴ He gave the value of the ship as £2500, which agrees with that recorded in the outset, and suggested that the premium might be £2.10s percent but allowed them to go to £3. He claims that he had heard it could be as low as £2.2s but believed this might be 'neighbours fare', that is, special prices for London ships. Eventually the cost was £2.10s percent. Insurance was also taken out on his homeward freight.¹⁵⁵ In this letter, Munckley was at pains to stress his ship and captain were sound, indicating the cost of insurance depended on a range of factors rather than just the monetary value.

Concerning insurance on the ship itself, Appendix 3.019 shows that outward and inward insurance could vary but not to any great extent, and also that the owners gradually reduced the ship's value from £2,400 to £800 as the years passed. After the 12th voyage she was actually sold for the lower amount. There were upturns, but this probably represents slight increases in value due to wartime. However, Lowbridge Bright considered an older ship to be worthwhile because it cost less to insure 'as there is not so great a capital to cover when premiums are high in wartime'. He lamented the loss of the *Rebecca* bought in 1774 when her value, £1335, was about half its original price. Associating the *Rebecca* chronologically to the value of the *Fanny* on her fifth voyage when the outward insurance was £126, as compared to new at £189, a difference of £63, and the inward £158 to £316, difference £158, it makes a total saved of £221 which is not an inconsiderable sum and as there is no sign that cost of goods insurance was increasing with the age of the ship, one can follow Bright's reasoning.¹⁵⁶

There were substantial differences between rates of insurance of ships in wartime and in peace. In 1777, on her first voyage to the West Indies the *Fanny's* insurance for the trip out was £189 and in the last year of the war it was £101, the reduction being due to the owner insuring the ship for less as she had aged. In the first year of peace, the same insurance was reduced to £31, but that was for £1200 for an

¹⁵⁴ BRL: *Lloyd's List*, Greg International Reprint, 1760-1777. Early commercial newspaper issued by Lloyd's of London from 1740 onwards.

¹⁵⁵ BRO: 12162, Shipping account book of the snow *Fanny*, pp. 3, 5-6.

¹⁵⁶ Morgan, ed., *Bright – Meyler Papers*, p. 492.

older ship. If the owners had insured her at her original value, £2400, the cost would have been about double, the comparison between war and peace being £189 to £62.

There were, however, return premiums on both ship and goods insurance in wartime provided the ship sailed in convoy. On the aforementioned voyage the total insurance was £652 and the return premium £340, but as the war continued returns became less and for the ship's third voyage the total insurance paid was £695, the return £169, or 24 percent. Munckley insisted on sailing in convoy in all his wartime instructions and in that of the seventh and last ordered the master to sail with another vessel as far as Cork 'as it makes a difference in the premium'. This is an indication that some rebate was due if a vessel kept company with another ship even if not in a convoy.¹⁵⁷

Brights were much more explicit in their orders to the *Triton* on this subject even though it had been fitted out as a Letter of Marque. On the first voyage the master was ordered to sail with two other ships for mutual protection and come to an agreement with them over signals, and later for the return voyage from Jamaica he was to wait for the first convoy and take orders from the man of war 'remembering to bring all sailing orders or agreements and signals with any other ships of force home with you that we may get our return premium from the underwriters'.¹⁵⁸

Similar instructions were given for the second voyage with the owners insisting that by sticking to the convoys or ships of force they will get a return of 4% on insurance.¹⁵⁹ The instructions for the next two wartime voyages were similar giving the impression that the loss of rebates to Brights was a particular anathema. The orders, compared to Munckley's, gave the master little leeway to act on his own account and from their tone it is difficult to decide whether they were being parsimonious or simply timid.

¹⁵⁷ BRO: 12162 Shipping account book of the snow *Fanny*, p. 96. Master's instructions.

¹⁵⁸ BRO: 39654/3 Voyage accounts for the *Triton*, pp. 3-7. Master's instructions

¹⁵⁹ BRO: 39654/3 Voyage accounts for the *Triton*, p. 19. Master's instructions.

Even more confusing was their rationale regarding privateering. The *Triton* was equipped as a privateer yet she was given strict orders that her Letter of Marque was not intended for taking action – he must not ‘endanger his ship in any degree’ – but to enable the firm to claim a share in any prize taken whilst in company. The instructions then spelled out the administrative action to be taken in such a case.¹⁶⁰ The expenses incurred included the Letter of Marque, £22; guns, £56; gunpowder throughout the five voyages, £33 minimum; gunsmith, £5; a total of £116. nonetheless, the main cost was for extra crew and provisions, the *Triton* carrying 4 or 5 more crew than the *Fanny* including a gunner for three trips.¹⁶¹

The *Triton* has been recorded by Damer Powell as having a Letter of Marque from 1777, but the details are inaccurate or possibly the owners recorded incorrect information in the register.¹⁶² However, the Bright family had a history of privateering, the famous *Tryall* taking six prizes in the previous war, and in the current they had Letters of Marque for at least four other vessels, but none of whom appear to have been successful.¹⁶³ This is not surprising if the same instructions were given to all ships and it is difficult to understand why they continued in this field. There is no indication that Munckley had any interest in privateering during this war.

In both war and peace, insurance on goods or ships could be split between insurers. Referring again to Appendix 3.019, on voyages 1, 2 and 10, outward, 2 and 3 inward, the *Fanny* itself carried two sets of insurance possibly because an individual insurer refused to cover the entire value, or perhaps the owners wished to spread the risk. Similarly cargo insurance could be split to cover losses of freight income, the actual goods, or as in voyages 9, 10 and 11, deck cargo. Another wartime insurance covered a ship for a year whilst it was in port, as with the *Fanny* on voyages 3, 4 and 6, the premium being relatively low at £6 per £1000.

¹⁶⁰ BRO: 39654/3 Voyage accounts for the *Triton*, pp. 4, 20. Master’s instructions.

¹⁶¹ See Chapter 2 for crew breakdown and Chapter 4 for provisions.

¹⁶² Apart from wrongly naming the owners, Damer Powell says the ship was 230 tons, not 100, her crew a maximum of 24 not 30, and it is unlikely that she carried 12 guns and 6 swivels as even the smallest gun needed a crew of 3 or 4 and there simply would not be enough men handle the ship and fire six guns per side or even single side. Damer Powell, *Bristol Privateers*, p. 299.

¹⁶³ Damer Powell, *Bristol Privateers*, pp. 246-299.

An outlay shipowners tried to avoid was the increase of insurance premiums during the hurricane season levied from 1 August till the end of October, which caused a scramble to be loaded by the end of July. Although most publications refer to 'doubling' of insurance there is an entry in the *Fanny's* insets for her third voyage where Munckley paid an extra premium for sailing after 1 August, but it was £105 as compared to the initial insurance of £460, less than one quarter so this premium may have been negotiable.¹⁶⁴ Finally, there were numerous insurance brokers in Bristol and although Munckley used twelve of them, on most voyages they used Schimmelpenning and Co, and less frequently Greasley Blake & Co., both of the Exchange, confirming the tendency of shipowners to return to known and trusted companies (Appendix 3.019).

Homeward passage.

There are no *Bristol Presentments* or legible Port Books for the period 1782-89, but there was little change in the shipping patterns at the end of the century and for an approximate figure of the proportion of cargo belonging to individual partners of ships, information from the *Presentments* for the year 1792 will suffice. They show that a ship's principal owner was usually the predominant shipper with about 75 percent of the goods on board consigned to himself, and that the main commodity was sugar, with rum, cotton, spices and timber produce next. Compared to the outward cargo, the assortment of goods was far less as was the number of shippers. There were basically three categories of cargo; those items owned by planters and consigned to a factor in Bristol for sale, the latter usually the principal owner of the ship; goods being shipped on the owners' account; and finally those belonging to other merchants with no connection to the carrying ship, some of whom were shipowners in their own right.

¹⁶⁴ Davis says that insurance was doubled after 31st July and gives his source as PRO: BT 6-189 (1788). Davis, *Rise of the English Shipping Industry*, p. 279; Morgan, *Bristol and the Atlantic Trade*, p. 202; BRO: 12162 Shipping account book of the snow *Fanny*. Inset account p. 48.

The Bristol West India merchants believed their fortunes were dependant on the commissions they earned as factors on the sale of homeward cargoes of sugar, and as Pares says 'his main business in life was to sell sugar, and his main revenue – or so he thought – was the commission upon these sales.'¹⁶⁵ Unlike the freight charges on outward bound goods, which were fixed at meetings of the Bristol West India Society,¹⁶⁶ those on sugar homeward bound were negotiated between the planters and ships' captains or agents and could be a source of friction or indeed a battle of wills.¹⁶⁷ This could delay a vessel adding to its costs and time spent in the islands. Direct purchasing of sugar by merchants' factors or supercargoes had given way in the second half of the eighteenth century to the commission system whereby planters shipped their sugar home to be sold for a 2½ percent commission on the gross sale price by sugar factors such as Munckley and Brights.¹⁶⁸

Examining the financial aspects of the return voyages is more difficult than the outward because owners rarely entered details of homeward cargoes in their account books – the costs and final sale prices being accounted for in folios which have not survived. However the *Fanny's* third voyage accounts do contain information not recorded for her other voyages. The owner's instructions ordered Captain Richards to sell the outward goods consigned for the owners' account 'for our best advantage and remit the proceeds partly in bills of exchange and the remainder in produce by your own ship'.¹⁶⁹ In fact, Richards was only able to bring back part of the produce in his own vessel and the remainder was carried on three other non-company vessels. The inset account details a remittance of five bills value £520 and four batches of sugar which were shipped home and sold for £1023, the bills of sale for the latter being included in the accounts.¹⁷⁰ This makes a total of £1543 as compared to the cost of the outward goods, £1306.

¹⁶⁵ Pares, *West India Fortune*, p. 187.

¹⁶⁶ McGrath, *Merchant Venturers*, p. 238.

¹⁶⁷ Pares, *West India Fortune*, pp. 220-221.

¹⁶⁸ The commission system is described in Davis, *Rise of the English Shipping Industry*, pp. 193-198; Morgan, *Bristol and the Atlantic Trade*, p. 202; and Pares, *West India Fortune*, pp. 254-257.

¹⁶⁹ BRO: 12162 Shipping account book of the snow *Fanny*, p. 28.

¹⁷⁰ BRO: 12162 Shipping account book of the snow *Fanny*, pp. 34-36, 45-49.

If these were the final figures then the profit was £237, or 18 percent. However, seven hogsheads were payment for unpaid goods from the second voyage, which would have been worth about £174, diluting the profit to £63 or 5 percent. Nevertheless, there was generally a residue of goods left unsold from each voyage so the actual profit would be somewhere in between the two sets of figures.

Appendix 3.020 is a typed copy of the invoice for the sale of 5 hhds of this sugar remitted to the owners of the *Fanny* and shipped home on the *Britannia*.¹⁷¹ An examination of this document shows the total weight of sugar minus an allowance for tare is entered together with the selling price per hundredweight which when calculated gives the gross income. The expenditure involved in processing the sugar to its selling point is listed and when this total, £164.15s.8d in this case, is added to the gross income, the figure from which the factor calculated his commission is reached.¹⁷² This was not included on the invoice because Munckley was selling for the owner's account, but if he had been acting as factor he would have made £4.1s.2d. The cost of sugar per cwt in the West Indies at this time would have been about 28s currency or 20s sterling,¹⁷³ and therefore the profit that had actually been earned on this batch of sugar by buying directly would be about £48, that is the net proceeds £95.7s.11d minus the cost of the sugar, approximately £47. The weight of the sugar would have been greater when bought as there was always a loss during the voyage back.

The bill of sale shows deductions came to 27 percent of the gross and most of these were for customs duties and freight charges; but the sugar still had to be sold and therefore incurred minor expenses for haulage to a cellar; brokers fees – which in this case had 7d abated in negotiations between the broker and buyer; emptying and refilling the hogsheads during weighing; cellarage; and finally a commission of ½d of the gross was deducted by the broker. Homeward insurance is not on this invoice, but it was a major item and was listed on the other three. Munckley

¹⁷¹ BRO: 12162 Shipping account book of the snow *Fanny*, pp. 35, 49.

¹⁷² Morgan, *Bristol and the Atlantic Trade*, p. 193; Pares, *West India Fortune*, p. 186.

¹⁷³ Morgan, ed., *Bright – Meyler Papers*, p. 503.

charged ½ percent and on two of these the same for pursership, that is the administrative work.

The lack of *Bristol Presentments* for the peacetime years makes it difficult to calculate the factor's commission ship by ship by referring to the return cargoes of the *Fanny* and *Triton* as this data is not recorded in the account books. The Wharfage Books do have some details, but the problem is that only the name of a merchant and the date and payment he made for his goods was recorded, the name of the ship that brought them in is not. For example, the *Fanny* arrived about 15 August, 1786, and on four occasions between 6 to 23 September, goods such as sugar, cotton, ginger, rum, ebony and pimento were entered in the books, but they were not necessarily all from the *Fanny* as Munckley also imported on other ships. Brights had even more entries during the same period.¹⁷⁴

Data regarding imported cargoes for the *Fanny* and *Triton* replacements, the *Charlotte* and the *Hero*, was available from the 1792 *Presentments* and is suitable for the research. The *Charlotte* was built in 1788 by Munckley¹⁷⁵ and was slightly smaller than her predecessor at 183 to 207 tons. The *Hero* was also newly built in the same year for Brights, but at 328 to *Triton's* 230 tons she was nearly a third bigger.¹⁷⁶

On 25 April, 1792, the first West Indian ship of the season to return was in fact the *Charlotte* from Barbados carrying a cargo dispatched to Munckley consisting of 202 hhds of sugar, 6 puncheons rum, 73 bags cotton and 1300 staves, the rest of the cargo belonging to three other shippers and carried for freight. The *Hero* arrived on 5 September with 370 hhds sugar, 42 puncheons of rum, 20 tons of logwood and various small packets all consigned to the owners. Again, there was freight cargo belonging to five other shippers including 60 hhds sugar for Munckley showing that merchants relied at times on other peoples' vessels. Similarly on 11 September another Munckley vessel, the *Hope*, arrived with part of its cargo being

¹⁷⁴ BRO: SMV/7/1/1/74 Wharfage Book, 1785-1786.

¹⁷⁵ Now trading as Munckley, Gibbs and Richards but will continue to be referred to as Munckley.

¹⁷⁶ *Lloyd's Register*, 1772; G. Farr, *Shipbuilding in the Port of Bristol*, p. 29.

sugar and rum for Brights. These two entries show that any calculation of a merchant's imports cannot rely solely on knowing the contents of their own vessels.

The early arrival of the *Charlotte* would have found favour with the owners because first cargoes, especially sugar, meant a better sale price and also that there was a possibility of completing two voyages in one year, the holy grail of the West Indian shipowners.¹⁷⁷ The ship was quickly loaded again and sailed on 3 May with a short cargo and arrived back from Barbados on the 15 September with sugar, cotton and ginger for Munckley.¹⁷⁸ However, early ships were few and far between and although in 1785 the *Fanny's* master's instructions specifically said that they wanted him to return as soon as possible because they had 'immediate occasion for an early ship', and she did manage to get back in July, she did not leave until the following February due to the vessel grounding.¹⁷⁹

As distinct from their dealings as ships' husbands, Appendix 3.021 records the data used to calculate the commission that Munckley and Brights would have received for selling the consignments of sugar and carrying out associated tasks. The ship *Sybil* is included because her cargo discharge book is available and contains the exact number and weight of her hogsheads, minus tare, and so provides a figure for the weight of a hogshead that can be used as a yardstick for the other vessels.¹⁸⁰ The sale price of sugar is known month by month, but the commission for both ships has been calculated using the prices for 1787 to get a realistic figure because by 1792 the price of sugar had risen high above the norm due to the possibility of war, making the data misleading.¹⁸¹

Considering again the income of the individual companies, for his half-ownership of the *Fanny*, Munckley's share of the profits for the return trip in 1787 was £700. The

¹⁷⁷ Pares, *West India Fortune*, pp. 227-228.

¹⁷⁸ *Bristol Presentments*, Imports and Exports, 1792.

¹⁷⁹ BRO: 12162 Shipping account book of the snow *Fanny*, pp. 120, 147.

¹⁸⁰ BRL: 21258 Account book of the *Sybil and Success*. *Sybil's* Discharge Book, p. 1-8.

¹⁸¹ Morgan, *Bristol and the Atlantic Trade*, p. 210.

ship's outfit plus share of owners cargo cost him £667 giving a total profit of £33¹⁸² and if the commission fee for the sale of sugar £172 was added – the quantity taken as the same as the *Charlotte* if she had been sailing at that time – it would increase the profit to £205. Bright's share of the profits for the return voyage of the *Triton*, of which they owned three-quarters, was £279. Their contribution to the outfit plus owners cargo was £726, making their loss for the voyage £447,¹⁸³ but with the commission for the sale of sugar, £314 added, the firm's loss was reduced to £113 (Appendix 3.022).

The difference between the two merchants is illustrated by this data which shows that although the *Fanny* made a loss for Munckley on three occasions, payments for goods sent out were collected and brought back on following voyages. As was shown above, Brights did not invest in owners' account goods until the 8th and 9th voyages and even though they owned between seven-twelve's and three-quarters of their ship, the *Fanny's* profits were greater, that is £176 to £99 per annum averaged for all voyages, and if her profit for 11 voyages is equated to the *Triton's* eight, it was still £117 ahead.

The extent of the income from each voyage varied, but the commission from sugar sales made a considerable difference even after a poor voyage like the *Triton's* whilst other goods loaded in the West Indies as part of a factor's consignment again added to the commission income. Using the same criterion as for sugar, Appendix 3.023 gives an estimation of the commission earned from secondary goods imported on the *Charlotte* and *Hero* showing that although they were less valuable, they contributed to the overall profits.

An estimated yearly income for the commission taken on the sales of sugar by the two shipowners can be made for the period 1775-1780 by using the same criterion as above and data from the period (Appendix 3.024). Similarly, the commission income for the year 1792 was calculated using information from the *Bristol*

¹⁸² BRO: 12162 Shipping account book of the snow *Fanny*, pp. 144, 147.

¹⁸³ BRO: 39654/3 Voyage accounts for the *Triton*, pp. 117,120.

Presentments giving the number of hogsheads imported by each merchant and the number of ships each used (Appendix 3.025).¹⁸⁴

To put these figures into perspective they need to be compared with the profits earned by Munckley and Brights solely from their husbandry of the *Fanny* and *Triton* (Appendix 3.022). Throughout the period 1777 to 1792, Munckley husbanded three ships whilst the Brights appear to have lost interest in shipowning towards the end of the period, reducing their fleet from seven in 1778 to six in 1787 and finally all their ships were sold in 1792. If, as is likely, these ships all had a similar income then combined they still would not match that from the commission trade.

Conclusions.

It is relatively simple to calculate the profits of a ship belonging to a professional shipping company as they are to be found by simply deducting the running and maintenance costs from the sum earned from carrying freight. The problem with the ships examined above is that they and their contents were only one part of a complicated financial system designed to accumulate profit from both land and maritime branches of the business as a whole.

The last section looked at the various branches and computed profits against costs and it can be seen that when income from freight was compared to costs for the two ships, *Fanny* and *Triton*, an average annual profit of £476 and £100 respectively was made (Appendix 3.015). This was a reasonable sum, but the yearly depreciation of the ships was about £133, which means that this income alone did not justify shipowning. The system of the master selling the owner's goods on the West Indian market and then buying goods for the return trip was favoured by Samuel Munckley, and the example of the *Clifton's* voyage showed that a small quantity of sugar brought in somewhere between £25 and £100 depending on current prices. Most of his profits were remitted in bills of exchange,

¹⁸⁴ *Bristol Presentments*, pp. 24, 32, 52, 57, 68, 70, 74, 77, 83.

though. The Brights did not put the same effort into this, but sent produce to their agents for direct sale in Jamaica. However, due to the system of extended credit being in force there, they had difficulty in obtaining remittances for the sale of their goods and by the end of the century were actually owed £72,820.¹⁸⁵

Similarly, the commission income from shipping goods for others averaged £12 to £23 per annum and was probably not worth the effort (Appendix 3.018). The mainstay of the business was commission on the sale of sugar, but when looking at the profits made by a single ship on its own (Appendix 3.021), it brought in a profit but even with other income included, it was not excessive. The annual profits from commission sales were substantial (Appendix 3.024-3.025), but these were divided between income earned from direct imports carried by company ships and batches of sugar brought on other vessels so the totals were not strictly from a company's own ships.

Both Munckley and Brights were prosperous merchants but made their money from a number of interests and not just shipowning. This was the traditional method of shipowning and it obviously brought in profits. Nevertheless, the freight returns, as recorded Appendix 3.017, were also profitable although made from only one voyage per year. If the ships had been working for freight alone, then at least three to four trips would have been made per year to various trade areas and the outgoings reduced as they would spend less time lying in infected waters. This makes it likely that professional shipowning would have brought in more profit, but the conversion to another system would make so many facets of their business redundant that it is unlikely that change was even considered. After all, they were making a profit.

¹⁸⁵ Morgan, ed., *Bright – Meyler Papers*, p. 103.

Chapter 4.

Congestion.

Section 1. Overcrowding and cargo handling at the quays.

Introduction.

The first real anxiety expressed by the Society regarding the capabilities of the harbour was recorded in 1755 when a committee asserted that there was a need for further room as ships were sustaining damage daily.¹ Thus began a long process involving plans being produced, discussions between the Society and the Corporation, and copious letters to newspapers and pamphlets from a divided public before the Floating Harbour was finally opened in 1809.² Several important improvements had been completed to the harbour (see Chapter 1) but the reality was that from the end of the American war, it struggled to cope with an increase in trade and in October 1791, the Society passed nine resolutions the first of which was as follows:

That the state of the harbour of Bristol is by nature so inferior to many other ports of Great Britain that the ship holders are not on equal terms with those of other ports either in respect to the security of the ships whilst in port or the ease and expedition with which they may be discharged, loaded and proceeded again to sea.³

The remaining resolutions note that the adverse river conditions are discouraging 'stranger' trade; that the prosperity of the city depends on the port; the steps that might be taken to dam the river; and how the money for this could be raised (Appendix 4.001). However, the Society saw their own financial contribution to the

¹ Latimer, *History of the Society of Merchant Venturers*, p. 207.

² The arguments around this produced copious documentation which will be referred to throughout this section of the thesis.

³ BRO: SMV/2/1/2/5 Index 5, p. 71.

floating of the harbour terminating with the expense of having produced plans and estimates and believed it was now up to the Corporation to take the matter forward, although they expressed a willingness to cooperate

The purpose of this section is not to debate the politics of the situation – Section 3 below will consider the floatation of the harbour from a practical perspective – but firstly to examine the dynamics of the actual congestion to see if it could have been eliminated or reduced other than by altering the environmental structure of the port.

The layout of the quays with their amenities has already been described in Chapter 1, but to determine how proficient or otherwise these were, it is imperative that two questions be answered; firstly, were there enough of them, and secondly were they readily accessible to shipping. A negative answer to either of these means the port could not service its shipping effectively and that congestion was inevitable.

Regarding the first, the simple explanation could be that the undeniable increase in the numbers and size of ships using the port⁵ led to insufficient space at the quaysides and the Society had failed to provide enough resources to service the increased tonnage. However, considerable improvements had been made during the latter part of the century so it may be that that the amenities in place were not being used effectively causing loading and unloading to be delayed and the quaysides blocked by the slow removal of goods.

The tidal conditions of the river have been detailed in Chapter 1 and it is obvious that this must have had an effect on the ability to work ships at the quaysides. This will be examined and the extent determined, but associated with it is the question of whether shipowners, merchants and authorities cooperated to overcome the problem or selfishly guarded their own interests. It is known that shipping was being damaged due to overcrowding and this might have been unavoidable, but it is also possible that it could have been mitigated had there been a better arrangement of allocating berths. Again, there was a wide range of shipping using

⁵ Morgan, *Bristol and the Atlantic Trade*, p. 31.

the port; foreign vessels of various sizes, coasters and the ubiquitous trows. This leads to the question as to whether overcrowding affected all or simply larger ships of the more influential shipowners.

The extent and effect of congestion at the quaysides.

The simplest method of assessing the extent of congestion is to correlate the shipping arriving at the quaysides with the numbers of berths available to them. There is no single item of contemporary documentation showing this, but the movements of the various types of vessels over a set period of time can be established by combining information from newspapers and official records. Similarly, an accurate plan of the quaysides detailing the berthing facilities together with depths of water can be drawn from the available data and shipping can be superimposed for analysis. Due to the space available it would be impossible to examine the entire half-century, and so a sample year, 1792, was chosen to correspond with the publication of the Society's resolutions and the last full year before the economic crisis of 1793.⁶

A great many plans, proposals and counter proposals for creating a floating harbour were produced between 1755 and 1809⁷ and especially active in the project was the merchant Richard Bright whose family archive contains many contemporary records.⁸ Included in these papers is a document tabulating shipping data for all vessels entering the port of Bristol for the years 1789 -1791 and compiled by him for the purpose of establishing prospective dock dues – and thus the future income – should the floatation of the harbour go ahead.⁹ It is a useful document as it shows how shipping was demarcated into trade areas in the eyes of the local merchants, and as the dues were to be in proportion to the registered tonnage, this data is recorded as well.¹⁰ Its statistics will be used as a starting point for analysing the extent of congestion and are recorded in Appendix 4.002 to which

⁶ Morgan, *Bristol and the Atlantic Trade*, p. 29.

⁷ For a list of these see Williams, 'Bristol Port Plans and Improvement Schemes', pp. 182-188.

⁸ BRO: 11168 Records of the Bright Family.

⁹ BRO: 11168/31 Tonnages of ships into Bristol.

¹⁰ Bright's system was eventually used for the tariff scale when the floating harbour was opened.

has been added the research year. It illustrates the breakdown into trade areas and because the figures for the four years are more or less consistent, it confirms trade was still thriving during this period.

Appendix 4.003 breaks down the year into monthly periods using the same designations, but with ships of the African trade area split into those involved in slavery and those trading directly. Examination reveals an irregular traffic flow, the numbers of ships entering the port being lowest in the winter and spring periods, peaking during the summer and early autumn, and falling again as winter approached. As far as congestion was concerned, it was the peak times that caused the problem and had the ships of all the major trades arrived at once in the summer months the port would have been overwhelmed. However, closer examination shows this was avoided because each trade area either had its own peak arrival time for shipping or its vessels arrived ad hoc. However, there were overlaps and the reasons for this will be discussed below.

The most difficult month was November, when 89 vessels arrived simultaneously as compared to a maximum of 60 during the height of summer. In this month, as in the previous, shiploads of wool arrived from the north of Spain whilst from the south came fruit and nuts. Cargos of wine and fruit also came inwards from Portugal, and from beyond the Straits currants, plus the only goods from Egypt that year, natron, a soap making alkali. This sudden influx would take place annually due to the harvest in Europe and the oncoming Christmas market.

Newfoundland ships added to this glut following the end of their fishing season, and although there was an increase in vessels from Russia due to ships leaving there before ice set in, this can be discounted as they discharged at Hungrood. Nevertheless, they added to the congestion indirectly as their cargoes would increase the numbers of rafts and lighters converging on the harbour. Early in the following month when most of the November ships would still have been in harbour, ten ships arrived from the Low Countries carrying grain. However, the greatest single influx came from Ireland when their average monthly ship numbers doubled, again due to grain imports. Ten shiploads of oats arrived from Youghall

alone whilst Wexford sent four, the first imports from there that year and this commodity continued to arrive in the following month.¹¹ Appendix 4.004 gives the average dimensions of shipping from the trade areas, and as can be seen most were smaller vessels, but the influx must have caused problems for the harbour officials. Their disposition will be examined below.

The West Indian ships and congestion.

In terms of size ships trading to the West Indies were the largest single group using the port, and their presence had a massive effect on it as a whole. Appendix 4.005 gives data for all ships trading with the West Indies in 1792 and Appendix 4.006 their statistics.

The West Indiamen mainly arrived between July and September putting a strain on harbour resources such as pilotage and tow boats. The majority of these vessels were of considerable tonnage and dimensions and had to be berthed at Narrow Quay and the Grove due to the limited availability of deep water in the harbour. Every ship trading directly with the various West Indian islands arrived back at Bristol carrying sugar as its primary cargo with a secondary consisting of any combination of rum, cotton, dyewoods and molasses. Coffee, ginger, hides and cocoa could supplement the main cargoes and some ships carried quantities of Madeira wine, although they may not all have traded there, an indication that there were facilities for warehousing this commodity on the islands.¹² Sugar, by far the most common item, was heavy and the use of cranes unavoidable in a tidal port, which meant ships could berth only at the Quays where they were situated. There was sufficient water at the Backs, but few cranes. As there was no appreciable difference in the nature of cargoes brought in from the various islands, the allocation of berths depended only on a ship's size.

¹¹ Details of incoming goods were obtained from the *Bristol Presentments*, Imports, 1792.

¹² Taken from the *Bristol Presentments*, Imports, 1792.

The numbers and dimensions of ships trading with the West Indies had increased throughout the eighteenth century¹³ and apart from the additional space they required, the cargo handling facilities would have had to have been efficient if the turnaround period, generally a major factor in congestion, was to be kept short. It would seem reasonable that if there was any emphasis on quick turnarounds at Bristol, then it should show up in a data analysis. For example, if speed was of the essence then logically this should be represented by smaller ships, which took less time to discharge and load, spending less time in port. However the data from Appendix 4.007 shows no correlation between the size of a ship and turnaround time. Nor does that from Appendix 4.008 give any indication that the island from which a ship arrived made any difference to time spent in port. The conclusion must be that a fast turnaround time was not a factor concerning shipowners even though it was a major aspect of congestion.

Another contributory factor could be that the harbour facilities were simply unable to cope with West Indian ships even though new cranes had been installed and portorage re-organised. According to Kenneth Morgan the large ships took a considerable time to load and unload and this led to congestion,¹⁴ but although it seems logical, the data in Appendix 4.009 contradicts this as eight ships of various tonnages managed a turnaround period of between 8 and 29 days.

Further examination revealed the significant factor was not the size of the ship but the fact that – apart from the *Druid* – they were all ‘early ships’ motivating their owners to get them out as fast as possible to achieve the elusive two voyages per year to which the shipowners aspired. All but two arrived fully loaded and four left in a similar condition, showing that when necessary any ship could be serviced quickly. This will be seen below as the norm at Merchants’ Dock, and will also be highlighted in the thesis when it occurs with other vessels. Ships may have got bigger, but not to the extent that they caused appreciable lading problems.

¹³ Morgan, *Bristol and the Atlantic Trade*, p. 39; *Bristol Presentments*, Imports and Exports, 1792.

¹³ Morgan, *Bristol and the Atlantic Trade*, p. 39

¹⁴ Morgan, *Bristol and the Atlantic Trade*, p. 31.

Significantly four of these ships left with an estimated half-cargo, a sign that the owners were prepared to lose freight on the voyage out in order to make a greater profit on the return goods. In all probability, this would have been due to the difficulty involved in quickly assembling a cargo. The anomaly regarding the quick turnaround of the *Druid* so late in the year might be explained by the fact that her inward cargo was from Maryland and would have been mandatorily unloaded at the Merchants' Dock which, as will be shown below, had fast discharge times. The point is that this demonstrates that the quay's cranes, portorage and other facilities were capable of turning a ship round quickly no matter its size and therefore congestion was not due to the port having substandard equipment or a second-rate workforce.

The problem was that the West Indiamen mainly carried home sugar, a seasonal cargo, and so voyage itineraries had to be carefully organised if a full cargo was to be loaded and the master obtain it against competition from other ships. Arriving at the islands too early increased the overall costs due to crew wages and victuals, and caused wear and tear on the ship's bottom because the sea was plagued by the teredo worm and marine growths. As has been shown above, seasonal cargoes from other trade areas did cause problems, especially in the month of November, but the majority of the small ships quickly turned round and left the port on the next voyage. Appendix 4.007 shows the West Indian ships had a mean turnaround time of 88 days, which was a considerable period when compared to most other shipping. It is arguable that some Bristol merchants could have branched out from the West Indian sugar trade into importing non-seasonal commodities from other areas or goods with diverse harvest times, but as Morgan says regarding the wealth accrued from the West Indies, 'many merchants rested contentedly on their laurels and became unwilling to diversify'.¹⁵

In Chapter 2 the shipping procedures at Bristol were examined to establish whether or not its merchants were moving away from the traditional system of merchant owned and operated ships towards chartering from dedicated ship

¹⁵ Morgan, *Bristol and the Atlantic Trade*, p. 217.

operators and concluded they had not. If a sustainable chartering system had been in operation, however, then the effect on congestion would have been considerable because the port's facilities were capable of achieving fast turnaround times. Time-chartered ships risked demurrage if they failed to unload in time and so it would be in the interest of the chartered ship's operator to finish one voyage and move on to the next, and as there were few vessels dedicated to carrying one type of goods in the eighteenth century – colliers and some timber ships excepted – they could easily be diverted to another port or other trade areas. This would free the quaysides to allow other ships to move directly alongside to use the cranes and other facilities rather than doubling or trebling up to other vessels.

The accumulation of goods on the quaysides would be less if a more effective distribution system had been put in place, and although some sheds and warehouses had been built and roads were improving it did not seem a priority for the merchants. The process of loading could have been more efficient if goods had been gathered together sooner for the next voyage, but it was the practice to buy when prices were right and this could be at the last minute. Traditionally the shipowner put his and his partners' goods onboard first and then advertised for goods to fill up the remainder of the space. The following is the form of a typical advert:

For Madeira, Cape Verde Islands and Honduras

The snow *Salter*, John Shortridge, Master, burthen 200 tons.

A fast sailer will be ready for sea in the ensuing spring (tide). A great part of her cargo being already engaged. For freight or passage apply to the master or William Chapman, No 2 Stephen Street.

Felix Farley's Bristol Journal. 27 January, 1792.

This ship was not cleared till the 9th April and actually sailed on the 21st. This is a fairly typical example of these adverts and it shows that if chartered ships had been used, a merchant would have to have a full cargo ready for a ship's arrival rather than be waiting for it to arrive piecemeal as it would be in his interest to avoid delay. No reference was found in any contemporary documents to indicate

shipowners had considered dealing with the congestion problem by chartering ships. At the time conservative-thinking merchants would have been unlikely to change their ways of working even to free up the harbour.

The American trade's contribution to congestion.

The other trade area involving large numbers of vessels was that of the United States. Appendix 4.010 gives details of the shipping involved. Out of 68 vessels trading between the United States and Bristol in 1792, 52 were registered in the United States and would not be dependant on the port for refitting and stores. This was fundamentally different to the West Indian all of which were British. Another dissimilarity was that in the course of the year, 18 ships out of 68 managed two trips and a further two, three voyages, a much higher proportion than achieved by those trading to the Caribbean. In fact, to examine these ships properly, the period needed to be extended backward into 1791 and forward to the first months of 1793. Appendix 4.011 gives statistical information and when data is compared with the West Indian (Appendix 4.006), it can be seen that they were on average smaller, but only by 57 tons, although in both cases the majority were in the 200-300 ton range.

When addressing turnaround times and their contribution to congestion, the nature of the incoming American cargoes must be considered. Most ships carried wood in the form of timber, board, planks, lathwood, staves and suchlike, together with ready-made roughly or fully fashioned ramrods, anchor shafts, and oars. These were mixed with naval stores such as turpentine, tar, and tallow, all of which were combustibles and had to be discharged at Merchants' Dock.¹⁶ Unfortunately for the researcher, the surviving dock master's documents only date from 1795 so the number of American ships that actually went into the dock in 1792 cannot be established with certainty because of the two-thirds rule;¹⁷ the probability is that all would have come up river as they would need to load return cargoes. The ships from Virginia and Charleston also carried tobacco and Customs insisted that this

¹⁶ See Chapter 1, Section 2 for details of the regulations.

¹⁷ Ships carrying less than two-thirds combustible cargo could unload at the quays.

was discharged at the Mud Dock. The ships also carried quantities of iron ore, probably as ballast.

Appendix 4.012 shows that as with the West Indian ships, the tonnage of the American had no influence on turnaround times. Appendix 4.013 illuminates the peaks in incoming shipping in the summer months and in November, but unlike the West Indian, these could not be caused by the entry of seasonal crops as only tobacco and rice from Virginia and Charleston were imported in any quantity, and no more than two of the seven ships trading there arrived at a peak period.

The American ships had an outward seasonal factor, the commercial need for goods to leave Bristol to arrive in America in time to be sold on for the spring and fall (autumn) seasons. According to Kenneth Morgan spring goods left Bristol in December or January, and the fall in June,¹⁸ but shipping adverts from owners claiming their vessels would be the first 'spring' or 'fall' ship only came out in January and June and the ships did not sail until over a month later.¹⁹ The seasonal factor, together with the desire of owners to miss the worst of the winter weather, would account for March being the peak spring leaving date and the fall, July to September.

However, when the turnaround times are investigated (Appendix 4.014) it is shown that despite having to share facilities at a time when the West Indian ships were arriving en masse, the stay of American ships in summer was less than in winter due to fall goods going out – an indication that the actions of the shipowner could lessen the effects of congestion if he were so determined. However, from September onwards the quantity of goods exported was significantly less, possibly due to missing the fall market, but economically it would make sense for the ships to return to America rather than have them spend the winter months at Bristol. It was noted that the size of cargoes exported after the winter months of 1791-1792

¹⁸ K. Morgan, 'Business Networks in the British Export Trade to North America, 1750-1800' in J. J. McCusker and K. Morgan, *The Early Modern Atlantic Economy* (2000), p. 39.

¹⁹ Adverts *FFBJ*, 17 January 1792; *FFBJ*, 2 June 1792.

were greater than those shipped in the summer. The most probable reason was that with ships being in port longer there was more time to assemble cargoes.

The direct African trade.

In Bright's classification (Appendix 4.002) there is no distinction between bilateral ships trading directly with Africa and those involved in the slave trade, yet the data shows that 7 out of 26, that is 27 percent were of this category.²⁰ Combining these figures conceals the growing trade in African goods. Known as 'wood' or 'produce ships', and mainly carrying an assortment of palm oil, bees wax, dye woods, ivory and Guinea grains,²¹ their cargoes were not numerically significant at this time but Richardson says it kept up the numbers of ships trading to Africa as the slave trade diminished,²² and led to Bristol developing an important role in general African commerce – especially palm oil – after the abolition of slavery in 1807.²³ As can be seen from Appendix 4.015, the ships were on average 101 tons and mostly owned by slave traders – the *Pilgrim* was not – who imported for their own business concerns.²⁴ None of the ships were consistently in the trade, being used as slavers or tenders from time to time, and as they had no peak time of arrival or departure they did not contribute significantly to the overcrowding. Out of the seven ships arriving only two returned to the same trade the following voyage.

The slave trade and its effect on overcrowding.

This thesis concentrates on the workings of the port of Bristol and it is beyond its scope to consider the numbers and conditions of enslaved Africans shipped from Africa to the West Indies,²⁵ but essential to the research is an analysis of the goods the ships imported to and exported from Bristol and the length of their stay in port.

²⁰ Richardson puts the figure at 23.3% for the period 1780 – 1807. Richardson, ed., *Bristol, Africa and the Slave Trade*, p. xvii.

²¹ Guinea grains. A form of pepper obtained from ground seed.

²² Richardson, ed., *Bristol, Africa and the Slave Trade*, p. xvii.

²³ Martin Lynn, 'Bristol, West Africa and the Nineteenth Century Palm Oil Trade' *Historical Research* 64.155 (1991) pp. 359-374.

²⁴ See *Bristol Presentments*, 1792 on given dates.

²⁵ This subject has been adequately covered in Richardson, ed, *Bristol, Africa and the Slave Trade*.

The common conception of the so-called triangular trade is that trade goods were exchanged for slaves in Africa and the proceeds from their sale in the Americas used to purchase a homeward cargo which in itself brought further profits. Although this had undoubtedly been the case historically, there is dispute among academics as to whether there was in fact a final leg to the triangle, that is, whether freight goods were in reality carried on the return leg after 1750 or whether the ships mostly returned in ballast.

R. B. Sheridan believed the latter, his reasoning being that it was difficult for non-constant ships to obtain homeward cargoes; that the merchants and shipowners in evidence to the parliamentary investigation into slavery of 1788-1790 denied high profits; that ships could not stay in the West Indies long as they had already been ravaged on the African coast by the teredo worm and could not take much more; and the cost of maintaining a ship between its arrival in the West Indies and the start of the sugar and other harvests. His conclusion was that 'the physical transport of goods to Africa, slaves to the West Indies and sugar to England by the same ships was the exception rather than the rule'.²⁶

W.E. Minchinton disputed Sheridan's premise by presenting a detailed analysis of shipping returns and mercantile correspondence which he believed showed that the great majority of ships had some form of return cargo, and although most ships adhered to a 12 monthly voyage pattern, they would stay longer if there was the possibility of a consignment for home.²⁷ There was also the problem of West Indian finance. Money in the form of cash or bills of exchange was difficult to obtain in the West Indies and the proceeds from the sale of slaves frequently had to be at least partly remitted in produce, taking up the space in ships that might have been used for freight, in itself difficult to obtain due to the competition of the constant traders.²⁸

²⁶ R. B. Sheridan, 'The Commercial and Financial Organisation of the British Slave Trade 1750-1807', *Economic History Review*, 2nd Series, II (1958-9) p. 252-3.

²⁷ W. E. Minchinton, 'The Triangular Trade Revisited' in Gemery and Hogendorn, eds., *The Uncommon Market* (London, 1979) p. 340.

²⁸ Morgan, *Bristol and the Atlantic Trade*, p. 146.

Nevertheless, although shipowners might set limits to the time spent seeking a return cargo, they were always anxious to obtain one as it could mean the difference between loss and a profitable voyage. As quoted in Chapter 2, the Bristol merchant, John Pinney insisted freight out and in was an absolute necessity,²⁹ and an example of this was the slaving voyage of the snow *Africa*, which successfully completed the first two legs of a voyage from Bristol to the West Indies in 1775, but failed to find a cargo for the return trip resulting in an overall loss.³⁰

Statistically, the above becomes important when considering the disposition of ships at Bristol, as vessels in ballast or those carrying a minimum cargo, could proceed directly to refit or to load for an outward voyage. Appendix 4.016 gives the loaded condition of the ships arriving from slaving voyages and an analysis shows that 14 were either in ballast or were carrying a minimal amount of cargo, usually elephant's teeth, the contemporary description for ivory. Although most ships carried only a few teeth, this was a valuable item regarded as being almost on a par with slave purchase. The owners of the *Swift* in 1759 instructed the master that if there was plenty of ivory he should purchase all he could to the detriment of a full cargo of slaves and limited the amount officers could buy for themselves.³¹

Two ships returned with cargoes purchased for the owners on the African coast, one fairly substantial for the size of the ship, an indication that there was no intention of picking up goods in the West Indies. The other belonged to James Rogers and carried similar goods as with his direct trading ships, suggesting he was not expecting to load in the West Indies. Four ships had a mixed cargo of African and West Indian commodities and two ships loaded all their return cargo at the West Indies though neither ship had a full load.

²⁹ See Chapter 2; Pares, *West India Fortune*, p. 209.

³⁰ Minchinton, 'Voyage of the Snow Africa', pp. 195-196

³¹ BRO: 39654/2 Account book of the snow *Swift*, 5 March 1759.

The results of this analysis show that as far as Bristol was concerned, Minchinton was correct to conclude that the majority of ships carried some cargo home,³² but in 1792, 14 out of 22 ships would have needed full ballast to return and only one of the remainder could be considered fully laden. As trade was still improving at this time, it is unlikely that the previous years would have been otherwise unless there was an abundant harvest out there, facts that confirm Sheridan's premise was basically correct. The research also shows that the direct African imports by 'wood' ships was augmented by those of the slave trade, albeit the goods took longer to return to Bristol.

Most ships from the West Indies were allocated berthing facilities at the quays, but there is little reference in any documents as to where those involved in the slave trade were lodged. The only record of this says that they 'chiefly loaded and discharged at the wet docks' and as no other source has been found yet, the rationale behind this can only be conjectured.³³ Unlike other ships, the slavers required special fittings to lodge slaves in the middle passage and it is possible that these were either constructed or removed at the wet docks. They were an internal structure so dry-docking was not necessary and if little cargo had been brought back then it would have made sense to leave the fittings to be dealt with when the ship returned to Bristol.

The main wet dock belonged to Sydenham Teast, a ship builder with interests in the direct African and whaling trades,³⁴ but it was situated across from the Grove at Redcliffe, which would have made it difficult for the outward goods to be brought to the ships other than by the use of lighters. Nevertheless, Redcliffe Backs were nearby and its caves were later used by African merchants to store palm oil, tusks and ebony³⁵ so it is possible that outward goods for African ships were stockpiled there. The problem with this scenario is that there were no legal quays on the

³² Minchinton, 'Triangular Trade Revisited', p. 351.

³³ BRO: 11168/27 Plans for Improving the harbour of Bristol, 22 March 1796. The problem with this document is that the title is not specific enough to refer to by name. It will be referred to in this work as the 'Untitled Broadsheet, 1796'.

³⁴ Farr, *Shipbuilding in the Port of Bristol*, p. 2; David Richardson says that Teast was only occasionally involved in the finance of the trade and not a trader. Richardson, ed., *Bristol, Africa and the Slave Trade*, p. xxi.

³⁵ Lord and Southam, *The Floating Harbour*, p. 28.

Somerset side of the river and unless some form of dispensation had been granted to vessels in the slave trade, they could not have loaded or discharged goods there.³⁶

Statistical analysis of slave trading ships with regard to congestion.

Appendix 4.017 contains data regarding triangular trade ships at Bristol leaving for Africa in 1792. Again, 1792 is a viable year for data as the numbers of ships on the African trade had been growing since 1789, reaching its apex in 1792.³⁷ Appendix 4.018 shows that the majority of ships were between 100 to 299t averaging 204t which was slightly less than the American and about 70t smaller than the West Indian, meaning that the majority of these ships, if they did not load in the wet docks, would need berths at the quays.

Appendix 4.019 shows that the time they spent in port was calculated in months and not days and this negates the idea that they remained in the wet docks as the dock owners would have charged them by the week during their stay. The likelihood is that they were laid up in mud or taking up room at the quays. The shortest turnaround time was 42 days³⁸ and this ship had a record of fast turnaround times – it had managed two departures the year before. It carried the normal cargo for a ship of that size, 161t, and therefore the efficient use of time must be put down to good organisation on the part of its owner. Unfortunately it is the only example, but it does show that fast turnarounds for slave ships could be accomplished. Again, no correlation of time spent in port to ship's tonnage was found so the long turnaround times cannot be explained by size of ship.

Appendix 4.020 shows that at the end of 1791 there were 16 ships remaining in port and therefore taking up space either on the quays or in the harbour generally. However during 1792 more left than arrived with only four remaining. The congestion problem created by slave trade ships was not due to peak influxes but

³⁶ For details of the extent of the legal quays following the Commissions of 1724 and 1771, see Minchinton, ed., *Politics and the Port of Bristol*, pp. 14-21, 114-121.

³⁷ Richardson, ed., *Bristol, Africa and the Slave Trade*. Table 3, p. xx.

³⁸ See Appendix 4.017.

simply the time it took to organise their next voyage, and it was at times when the trade was slow that these vessels became a nuisance, which was a problem created by their owners and not harbour conditions. The logistics of fitting these ships into the available quayside will be visually represented in Illustrations 4.003-6.

It has been shown above that the port facilities were technically capable of turning ships around quickly, but the problem was that the traditional trading methods adhered to by the merchants themselves were not amenable to the efficient use of time. The West Indies trade could have been transformed by chartering; slave ships' voyages could have been convened faster; and with more planning seasonal peaks could have been reduced. However, there was one important amenity available that if used properly could have reduced overcrowding and that was the Merchants' Dock.

The contribution of Merchants' Dock to cargo handling and congestion at Bristol.

Although there is no single set of documents describing the daily movements and cargo handling procedures at the quays, the Dock Master's day book, ledger and journal have survived allowing a deeper understanding of the work practices at the dock.³⁹ Unfortunately these are for the last years of the century when the numbers of ships entering Bristol fell by 30 percent between 1792 and 1800,⁴⁰ and by 1795 the volume of shipping using the dock had dropped by 75 percent.⁴¹ Nevertheless, its purpose, organisation and structures remained the same throughout as can be seen from the journal which continued until 1807.

³⁹ BRO: SMV/7/1/3/13 Dock Master's Day Book, 1795-99; BRO: SMV/7/1/3/14 Dock Master's Ledger 1796-99; BRO: SMV/7/1/3/16 Dock Master's Journal 1799-1807.

⁴⁰ Minchinton, ed., *Trade of Bristol*, p. 177.

⁴¹ These figures could be misleading because, A.F. Williams, relies on the 'Untitled Broadsheet' whose creator has a political point to make and the author has established that some of his data is incorrect. However it is difficult to find information on the numbers of ships using Merchants' Dock before 1795. BRO: 11168. Untitled Broadsheet; Williams, 'Bristol Port Plans and Improvement Schemes', p. 173.

In a port like Bristol lacking space both on and at the quays, a fully equipped floating dock should have been an important asset, especially as Merchants' Dock had been designed to accommodate about forty vessels of the deepest draught, and had ample facilities for storing goods in warehouses and on the ground. Although its primary purpose was to handle ships carrying inflammable cargoes, the proprietors had anticipated a good income from servicing other vessels whose owners preferred the security of remaining afloat to the risk of damage due to the tides.

It also had the additional attraction of having berths available as soon as a ship was able to come upriver, avoiding the delays and sharing of resources, the norm at the quays. However, the extent to which the dock was of benefit to the port depended on it being put to full use, and that in turn meant a substantial number of ships other than those obliged to by law would have to use its amenities. The following research examines the use of the dock in the years 1795-1799 and compares it to the sample year 1792. The data for 1796-1798, the complete years, is recorded in Appendix 4.021.

As previously shown, ships carrying timber and naval stores from northern Europe were generally larger than those from the Atlantic and avoided the river passage by unloading at Hungroad; only one visited the dock during the entire research period. This was possible because they departed carrying a minimal cargo delivered by lighter and so for the purpose of this research they can be ignored although lighters will be dealt with later. The North Atlantic ships, however, had to come up-river for their return cargoes and, as discussed above, if their goods fell into the mandatory category they were obliged to use the dock. However, if mandatory goods consisted of less than two-thirds of a vessel's cargo then they could be unloaded on the quays⁴² and from now on these cargoes will be referred to as 'mixed'. This allows the attitude of the merchants to the dock to be examined. If they had considered it to be an asset then they would have made use of it to avoid

⁴² Geo. III, Cap 33. 1776. Section III.

overcrowding and damage; if not they would have avoided going in there as much as possible by evoking the two-thirds rule.

The data from 1795-1798 was analysed,⁴³ and 1792 included as a control factor presenting peace-time trade.⁴⁴ The results are in Appendix 4.022. It is immediately apparent that the volume of shipping arriving in 1792 was far greater than in any of the other years as trade suffered after this due to the 1793 slump and war conditions; a simple example being that seven ships arrived at Bristol from the Bay of Honduras in 1792, six of which went into the dock, but between 1796-1798 only one arrived and it came home via Charleston.⁴⁵ Shipping using the dock fell on average by almost three-quarters but the arrivals at the port with mandatory cargoes only halved. This was partly due to the dock being closed for repairs for six months in 1797, but there was another factor and that was the increase in ships carrying mixed cargoes to which the two-thirds rule applied and so could avoid the dock. In 1792, the ratio of ships arriving with mixed cargoes to those entering the dock with mandatory was 14-39 or 36 percent, whilst the average for the other years it was 8-17 or 47 percent.⁴⁶

Ships that had previously arrived with cargoes of pure timber or naval stores plus iron or ashes, now carried additional items such as tobacco and rice, probably due to the wartime economy, which allowed them to evade going in to Merchants' Dock. Unfortunately the author has not been able to establish if this was deliberate or not as nothing has been recorded in contemporary documents. However, it is obvious from the data that when possible the shipowners avoided the dock despite it having facilities dedicated to handling the bulk of their cargo.

⁴³ The *Presentments* for 1799 were mislaid at the BRL.

⁴⁴ The data from 1795 and 1799 was ignored as they were incomplete years due to the format of the documents.

⁴⁵ Honduras was technically Spanish, but by the Convention of London between his 'Britannick' Majesty and the King of Spain, London 1786, the British had cutting rights for mahogany and logwood. War with Spain broke out in 1797; See Appendix 4.005.

⁴⁶ This is a difficult figure to obtain due to the dock closing in 1797.

Details of the activities at the dock between 1795 and 1799 are recorded in contemporary documents from which the following information was computed.⁴⁷ Eighty-nine ships entered the dock between October 1795 and July 1799, the average number per year pro-rata was 28, far below the capacity of the dock, yet as Morgan says, 'it was abundantly clear by this time (1797) that Bristol's physical capacity as a port was too limited to cope with even a reduced level of overseas trade'.⁴⁸ Any ship entering during this period would have no difficulty in completing all its business, be it discharging, loading or shipping stores, without the necessity of moving to the quays yet the port was still overcrowded. The dock had been designed as an all-purpose facility, but its use as such depended on the shipowners being willing to participate.

The status of cargoes landed is shown in full in Appendix 4.023 which in turn provides condensed data for Appendix 4.024. Twelve ships arrived during the period carrying only mandatory goods and as would be expected they were simply discharged. Another 5 had full cargoes of general goods – exactly the type of ships that the dock needed if it were to perform effectively. However, only 3 ships were involved, an indication that their owners had a special connection with the dock, or alternatively, as two were West Indiamen they could have been discharging before being repaired there.

The remaining 19 had general as well as mandatory cargo, all of which could have been discharged at the dock, but although seven of the ships did this, the remainder retained their general goods for discharge at the quays.⁴⁹ These were typical imports from North America, cotton, horn, and seeds but not in great quantities. Pearl and pot ashes for the glass and soap making industries were generally discharged at the dock, but this may have been because they were destined for the nearby glassworks. The conclusion must be that the majority of shipowners and merchants still preferred to use the quays even after having paid to enter the dock.

⁴⁷ BRO: SMV/7/1/3/13 Dock Master's Day Book, 1795-1799; and BRO: SMV/7/1/3/14 Dock Master's Ledger 1796-1799.

⁴⁸ Morgan, *Bristol and the Atlantic Trade*, p. 29.

⁴⁹ All these ships took on cargo after leaving the dock. *Bristol Presentments*, 1796, 1797, 1798.

The mandatory use of the dock only applied to landing goods, but the same safe berthing and facilities were available to any shipowner for whatever purpose he required. It is apparent from Appendix 4.025⁵⁰ that the number of ships loading at the dock was considerably less than those discharging, an indication that shipowners were not keen on using it for that purpose; and a further breakdown shows that only 9 of these had landed cargo, 7 used the dock as a loading facility, 9 were re-exporting to the Channel Islands and 6 were coasters. Only 7 foreign ships loaded full general cargoes, but at least this showed that goods could be assembled at the dock. However, it is clear from these figures that the dock was not seen as a viable exporting facility by the majority of merchants and shipowners.

Finally regarding turnaround times, it is difficult to compare like for like with the quays because most ships entering the dock did not complete their business there and some part-loaded and discharged. However, 24 American ships discharged their goods in an average time of 10 days. Only one West Indian ship landed cargo at the dock, the *Levant* belonging to Walter Jacks who used the dock regularly for this vessel. There appears no reason why he should do this as none of his cargoes were legally obliged to be discharged there, but for four years out of five he both landed and loaded from the dock, the outward cargoes being suitable for the 220t ship and taking an average of 21 days loading time. No other West Indian ship discharged at the dock but 10 loaded at least part cargo in an average of 10 days.

When calculating the time taken to discharge cargo, a useful guideline might be that a ship could unload at least 70 hogsheads of sugar in one day⁵¹ which means that the largest West Indiaman could easily be discharged in a week. The Channel Island ships loading at the dock took an average of seven days. Fast turnarounds were possible – the actual working time of the *Levant* to load and discharge took 20 days in 1796 – but few ships took advantage of this indicating it was not a priority.

⁵⁰ Again compiled from data in contemporary documents BRO: SMV/7/1/3/13 Dock Master's Day Book, 1795-1799; and BRO: SMV/7/1/3/14 Dock Master's Ledger, 1796-1799.

⁵¹ The *Brilliant*. BRO: SMV/7/1/3/13 Dock Master's Day Book, p. 1.

Another function of the dock was to load and discharge stores. Appendix 4.025, shows 14 ships took on small amounts of provisions such as beer and beef, obviously to top-up those taken on in their home American ports. Nineteen British ships provisioned fully. Ships going for repair in local dry-docks landed and warehoused all stores, shipping them again before sailing and there are numerous entries in the accounts debited to James Hillhouse. The documents show that there were ample numbers of warehouses and open space to store goods landed from ships, or awaiting shipping, all within 'wheeling' distance of the ships. It was a self-contained secure dock well able to carry out any function available at the quays yet it was underused.

Guppy, Armstrong and Co.⁵²

The Dock Master's documents were analysed to see if any merchant had regularly employed the dock for normal trading purposes rather than under compulsion. The most prolific user of the facility in the years covered was the firm of Guppy and Co. who had a total of 30 individual entries recorded in the documents, all other merchants having less than seven. The first appearance of this company appears to be an advertisement in 1786 regarding their new warehouse on the Back, which stated that it would be supplied from their manufactory at Redbrook, Gloucester, with 'braziery, brass foundry, tin wares and suchlike' which they would sell wholesale, and that they would retail urns, plated goods and lacquered-ware. Also scrap metal would be bought or taken as payment.⁵³ No record has been found to show that the company were involved in shipping at that time, but trows regularly brought down similar produce to Bristol from the upper Severn.

Samuel Guppy (1755-1830) came from an extraordinary West Country family tracing their roots back to the 1400s. In 1795 he married Sarah Beach, a wealthy woman whose family had estates in the West Indies and who was an inventor in her own right, patenting a method of making piling for bridges safe that was later

⁵² Within the period of the Dock Master's papers, Guppy, Armstrong and Co. was referred to as such or Guppy and Co. For the purpose of simplicity the latter will be used in future or simply 'Guppy'.

⁵³ *Salisbury and Winchester Journal*, 4 September 1786.

used by Thomas Telford. Their son Thomas became an engineer working with Brunel on the Great Britain and was a founder member of the Great Western Steamship Company. Samuel Guppy was also an inventor, developing a machine for 'cutting, heading and finishing nails' in 1796, and a barbed copper nail for fastening copper to ships' bottoms. He eventually sold the patent for this to the government for £40,000. These were produced by his company, the Patent Sheathing Nail Manufactory of Bristol which also made copper tokens used at the end of the eighteenth century and beginning of the nineteenth to make up for a specie shortage. They could be redeemed for currency of the realm at his business addresses.

Nevertheless, for the purpose of this thesis it is his prowess as a merchant and his use of Merchants' Dock that is of importance. The growth of Guppy and Co. in the last two decades of the eighteenth century exemplifies the changes that were occurring in the business practices of the Bristol merchant. Unlike the port's established merchants, this company did not own or manage ships⁵⁴ and had no interests in the African trade, that is they shipped no goods there, unusual considering their basic business was the manufacture of copper, tin and ironware. Their products may have been bought and sent there indirectly by others, but possibly they themselves were against the trade because he was a Unitarian and his wife a Quaker.⁵⁵ Similarly, they did not ship goods directly to the West Indies even though Sarah Guppy's family had estates there.

Guppy and Co. opened their business on the Backs in 1786 and were exporting metal-ware and other goods regularly to the United States throughout the nineties, but no consignment left from the dock as they went mainly in American ships, which as described above, did not use it for exports (Appendix 4.026). However, it is important to note that notwithstanding wartime restrictions, their business increased during the decade as did the number of new ports to which they

⁵⁴ Perusal of *Lloyd's Registers*, 1792 and 1799.

⁵⁵ Not listed in Richardson, *Bristol, Africa and the Slave Trade*; See *Bristol Presentments*, Exports, 1792, 1796, 1797, 1798.

exported. Although trade was mainly with the North American ports, especially Boston and New York, by 1796 southern ports were also being serviced.

Guppy was also regularly exporting bricks, staves and earthenware to the Channel Islands, though most of the merchandise was their own metallic products.⁵⁶ The Channel Islands were experiencing a building boom in the last quarter of the century which stimulated a demand for building materials including bricks and glass. St. Peter Port, for example, was an entrepôt for wine, spirits and tobacco and so merchants and coopers required more bottles, iron, wooden staves and hoops to package alcohol and tobacco. The busier the harbour got, the greater demand for ironmongery for the chandlers trade and for staves to make containers for food, drink and textiles.⁵⁷ Guppy imported to Bristol four shiploads of old iron, glass and junk in 1792, but as business increased their trade with the Channel Islands became exclusively export.

By the time the surviving Dock Master's documents begin, Guppy had been exporting to the Channel Islands – Alderney, Guernsey, and Jersey – for over five years, the diversity of goods increasing so that a shipload resembled a standard colonial consignment, albeit of a lesser quantity.⁵⁸ Although there were ten shipments in 1796 none left from Merchants' Dock, but in 1797 four ships out of the 16 sent by them to the Channel Islands were fully loaded there, all with American staves except one with bricks – no doubt from the on-site brickworks. In 1798, five out of 14 ships loaded staves and other goods for the islands, all leaving from the dock.

Appendix 4.027 shows that apart from the few wares from the Channel Islands, Guppy was not an importer until 1793 when they began bringing in goods from the United States, mainly timber, naval stores and pot ashes. As these had no link with their manufactory, the presumption is that through their export trade they had made

⁵⁶ *Bristol Presentments, Exports, 1792.*

⁵⁷ Gregory Cox, *St. Peter Port. 1680-1830* (Bury St. Edmunds, 1999) pp. 23, 36.

⁵⁸ The staple metallic and coopers items had been supplemented by pipes, stationary, woollens, household furniture, porter, Hotwell water, salt, haberdashery and wearing apparel. *Bristol Presentments, Exports, 1796.*

connections in America and opened up another line of business using the Merchants' Dock as a base.

Guppy brought eight American ships to the dock between 1796-98 in which he was the sole importer apart from a few minor items belonging to others. This was the norm for incoming American ships discharging anywhere in the harbour, and even if there were several importers per ship, one always predominated.⁵⁹ Unlike other trades, most ships were not carrying their owner's goods and paying the discharge costs, but had a principal importer to administer them.⁶⁰

This shows that a system of agents was in place, but the same agent for imports did not necessarily deal with exports. For example, three adverts posted on the same day in *Felix Farley's Bristol Journal* in 1797, show that Guppy was acting for three ships at least at that time.⁶¹ For the first, the *Jerusala*, he was the sole importer of a mixed cargo from Charleston which was not discharged at the dock, but when the ship sailed back again there were ten exporters. As agent, Guppy posted the sailing advert, but was not the principal exporter, something that would not have occurred if they had been West Indian shipowners.

The second, the *Two Brothers*, came in from Portland with a sole importer, John Waring, who paid all dock duties, but it left again under Guppy who was by far the principal exporter among ten. The third, the *Patty* from New York had Guppy as the principal importer and they were also the main exporters and at the same time agents. This system of working shows that although the majority of Bristol merchants were still operating along traditional lines of ship-husbanding, Guppy and possibly others were carrying out most of the tasks associated with mercantile trading but without actually owning the ships.

⁵⁹ For example. In 1796, the principal importers on the *Merchant* were Guppy and Armstrong whilst the secondary was G. Sawtell, p. 6; In 1797, the principal importer on the *Philadelphia* was a J. Smith, and the secondary included Guppy and Co. bringing in only a barrel of bees wax, p. 6; In 1798, Guppy and Co. were principal importers on the *Patty*, with two other secondary importers. *Bristol Presentments*, Imports, 1775-1799.

⁶⁰ BRO: SMV7/1/3/13 Dock Master's Day Book and BRO: SMV7/1/3/14 Dock Master's Ledger.

⁶¹ *FFBJ*, 6 May 1797: *Bristol Presentments*, Imports, 1797, pp. 18, 19, 22; *Bristol Presentments*, Exports, 1797, pp. 110, 112.

As described previously, the dock had facilities for long term warehousing and storage, and although there were complaints about fees, which were charged on a weekly basis, the evidence is that many dock users had accepted the situation and used the facilities for indeterminate periods as they had been intended rather than shipping goods onwards as soon as possible. Once cargoes had been landed, they tended to remain until sold. There are numerous instances of this; for example tar from the *Philadelphia* was discharged in July, 1796, and then warehoused until sold in twelve assorted batches over the next seven months.⁶²

Guppy frequently landed goods which remained a matter of weeks or months before being sold, and he re-exported from the dock directly.⁶³ There was also a regular internal market amongst merchants. When Guppy needed staves in 1797 for Alderney, a batch was purchased from another importer which had been lying for almost a year. The system was that once goods had been purchased, the new owner took over the ground rent until they were removed.⁶⁴ Apart from items landed at the dock, Guppy hauled general goods by wagon from the city for onward shipment.⁶⁵

It is obvious from examination of the documents that he was making full use of the dock and that it contributed to the expansion of the original business into a diversity of profitable fields. A newspaper advert placed in his capacity as shipping agent shows that he was dispatching ships, goods and passengers, and was also retailing his own imports of naval stores.⁶⁶ No other merchant was using the dock to the extent of Guppy, but although many were not directly involved in shipping, like him they bought, sold and stored goods within the dock. Guppy was probably more imaginative than other merchants and his range of activities there showed that if the will was there the dock could be used profitably.

⁶² BRO: SMV7/1/3/14 Dock Master's Ledger, p. 2, 12.

⁶³ Staves per *Mary* together with locally made bricks. BRO: SMV7/1/3/14 Dock Master's Ledger, p. 11..

⁶⁴ BRO: SMV7/1/3/14 Dock Master's Ledger, p. 15.

⁶⁵ BRO: SMV7/1/3/14 Dock Master's Ledger, p. 19.

⁶⁶ *FFBJ*, 3/7/97.

Conclusions.

The above analysis of congestion at the port shows that it was a problem that was basically insurmountable without floating all or part of the harbour. However, it could have been alleviated to a certain extent if the shipowners had been willing to adopt new ways of working, especially the chartering of ships by merchants rather than owning their own. However, the decision to continue with the traditional ways of shipowning and trading meant that the problem could only get worse.

If Merchants' Dock had been used to its full extent it would have improved the situation but again this would have needed change beyond the mindset of the shipowners. Guppy and Co. showed that the facility could be used profitably and their overall business methods gelled with the new idea of professional shipowning, albeit from the consumer's viewpoint. They were manufacturers, importers and exporters, with a sideline of being shipping agents, possibly entrepreneurs ahead of their time.

Section 2. The effect of tide on the movement of shipping at the harbour.

Introduction.

It has been shown that it might have been possible for the facilities of the port to have been used more effectively, but nothing could be done about the tidal conditions which dictated all ship movements and in particular the larger foreign-going, except to float all or part of the harbour. The question facing the City was not so much about the obvious solution to the problem as to whether it was worth the expense, and if so how and when. The following describes the actual conditions prevailing in the harbour in the research year of 1792.

Congestion and tides affecting foreign-going shipping.

Richard Bright as part of his investigation into the harbour conditions, had requested one of his captains, James Jolly, to keep a diary of winds and tides at Bristol from March 1792 to March 1793.⁶⁷ Appendix 4.028 summarises the information he collected, and the remarkable statistic is that on 170 days of the year, or 48 percent, ships could not enter the harbour; and similarly on 241 days, or 68 percent, they could not leave. Mostly this was due to neap tides, although weather accounted for a proportion of these delays and this could apply to ships' manoeuvrings at any port. At Bristol, however, the long winding river down to the sea was particularly vulnerable to wind and tide and any strong wind between south and west could delay sailing. Jolly does not indicate the size of ships his calculations were based on, but it is likely that they would be for the largest, the West Indiamen belonging to merchants such as his patron, Richard Bright.

However, the vast majority of ships using the harbour were smaller and to have a clear picture of the problems faced by all, it is necessary to examine the tidal conditions throughout the harbour around a set period. The varying depths of tide-

⁶⁷ BRO: 11168/6a(i-iii) Diary of wind and tide taken at Bristol from 25th March 1792 to 14th March, 1793 by Captain James Jolly at the request of Richard Bright. Only 7 days were recorded in March 1792 and 14 in March 1793.

water throughout were calculated for July 1792, chosen as it was in the middle of the summer period when the first batch of seasonal shipping was arriving from the West Indies. The busiest month was November but data from that month would have given a distorted picture of average congestion.⁶⁸ There are no tide tables available for the period and although Captain Jolly included the time of high tides, he did not incorporate the actual height in his calculations. This difficulty was overcome using plans drawn by engineers during the contemporary investigations (Illustration 4.001); an extract from a modern Admiralty Chart (Illustration 4.002); and mathematical calculation and modern technology (Appendix 4.029).⁶⁹ The result of these computations was a tide-table for Bristol for July, 1792 (Appendix 4.030).

Using the same material, the depths of water throughout the harbour can be calculated relative to the 15ft mark on a marker post situated on the quay wall at the confluence of the Frome and Avon rivers, which was also referred to by contemporary engineers and port authorities when making their calculations (Appendix 4.031). By means of this data, water depths can be transcribed to a plan (Illustration 4.003) which when used in conjunction with the tide-table and the known shipping movements around July, creates a model of shipping in the harbour for any instance during this period.

The allocation of berths has been described in Chapter 1 and due to coasters and trows being more numerous they had more berths, congregating on the Backs, Head and Broad Quay leaving the deep water berths along Narrow Quay and the Grove for the larger foreign-going ships (Appendix 4.032 and Illustration 4.003). Cranes 3 to 4 could take most ships at high spring tides and therefore could be used for either foreign ships or large coasters, and the line between them at Grove was drawn at the end of the New Mud Dock. Regarding ships' draughts, they were

⁶⁸ See above Appendix 4.003.

⁶⁹ J. G. MacMillan. MA Dissertation Bristol University, 2003. Proof submitted then is reprinted in Appendix 4.029 of this thesis. BRO: 11168/59. A plan of part of the River Avon and Frome and also sections of the same with proposed dams, locks for the improving of the harbour of Bristol; BRO:11168/2e. Section of the river at Black Rock showing level of high and low water; BRO: 11168/3y. Letter from Dr Falconer to Richard White saying he had sent his opinion; Extract from Admiralty Chart International Series. The Port of Bristol, 1973, reprinted 1986. No 1859; United Kingdom Hydrographic Office: TotalTide software for tidal prediction, 2003.

built to individual owner's specifications and as a result the correlation with tonnage was not always linear. However the data given in Appendix 4.033 gives fairly accurate estimates as it is compiled from known contemporary shipping figures.⁷⁰ Illustration 4.004 gives the water depths at the various cranes at high tide.

As has been noted above, the large ships trading across the Atlantic required cranes and Appendix 4.032 shows that Cranes 1 and 2 were reserved for coasters leaving 15 cranes available including those at the Old Mud Dock for tobacco discharge,⁷¹ plus the two at the New Mud Dock. Each crane had a working area of 60-70 feet of quay,⁷² but most ships would take at least 100ft when bowsprits and space between vessels were considered. Also the length of ships had been increasing causing damage so in 1792 the Society petitioned the Corporation to commandeer 100 feet of space between Cranes 2 and 3 from what was known as the 'porter's births'.⁷³ There was also room for two ships between the mud docks, but serviced by only one crane. An absolute maximum of 17 ships could be accommodated alongside the quay walls and another ten bow-on at the mud docks, although due to the tobacco regulations those at the Old Mud Dock would be restricted.

It has been shown that very few of the ships carrying wood and naval stores from the Baltic came upriver, so when considering congestion they can be discounted although a few would make the passage from time to time. Those from Europe and the Mediterranean were generally smaller and will be dealt with below, so the situation regarding large Atlantic traders at the end of June was that there were 10 American, 8 West Indian and 10 triangular trade ships in the harbour (Appendix 4.034). Four of the American ships were recent arrivals and would have been

⁷⁰ Full details of ships dimensions are given in shipping registers but, unfortunately, most details of Bristol ships of the eighteenth century were destroyed when the Customs House was burned down during the riots of 1831. Graham Farr managed to put together the details of a few contemporary ships. Graham Farr, *Records of Bristol Ships 1800-1838* (Bristol Record Society, 15, 1949) pp. 1, 30-34.

⁷¹ As part of an Act of Parliament, 29 Geo. III c. 68, repealing the duties on tobacco, the Commissioners of Customs were allowed to fix the berths where tobacco might be unloaded in any port. At Bristol the entire Mud Dock was delegated for this and in 1791 the SMV petitioned against this saying it 'contained four of the best births for shipping' and that ships should be able to use it if empty of tobacco ships. See Minchinton, 'Port of Bristol', pp. 177-178.

⁷² BRO: SMV/2/1/1/8. Hall Book 8, 25 March 1758. Letting of Cranes.

⁷³ See Minchinton, ed., *Politics and the Port of Bristol*, pp. 180-181; BRO: SMV/2/1/2/5 Index 5, p. 26.

unloading at Merchants' Dock as they carried naval stores and no tobacco; the remaining six were due to leave in July or early August and would have been loading at the quays. Similarly four of the West Indian ships were preparing to go and two others probably still discharging. It is not certain as to whether the slave ships loaded at the quays or wet docks, but the three leaving in July would be at the quays to finish voyage preparations. Altogether, there were probably 15 ships at the quays.

On this assumption, 15 deepwater berths would have been occupied with the Old Mud Dock empty, but some space available at the New Mud Dock. The lighter goods were generally loaded last and this could be done without cranes. No contemporary document shows the precise location of ships and although a reasonably accurate list of ships in port can be drawn up from other documentation, it does not include ships for sale or those entering or leaving port without goods.⁷⁴ However, disregarding this for the moment, Illustration 4.005 shows that at the end of June the larger ships in port could have been allocated berths at the quays with some space remaining. There appears to have been no set area for the different trades in these areas of the quays, so depth of water would be the only criteria but, as will be shown next, the allocation of berths was complicated due to the tides.

Illustration 4.005 is a static representation of shipping in the harbour but to understand the effect of the tides on commerce, it is necessary to look at the matter in a more dynamic way. For example, Appendix 4.034 shows four American ships were entered in on 26 and 27 of June and should have gone into Merchants' Dock immediately, but the reality was that even if they had discharged part of their cargo at Hungroad, tidal conditions would not allow them to enter the dock until 2 or 3 July. As has been shown above, this was the only trade that accomplished fast turnarounds – they could discharge at the dock in 5-12 days – but these ships had already lost a week. Once discharged their owners or agents would wish to move

⁷⁴ Ship data and movements in the appendices in this chapter are compiled from the following documents unless stated otherwise. *Bristol Presentments*, Imports and Exports, 1792; *Lloyd's Register*, 1792; *FFBJ*, 1791-1792.

as soon as possible to the quays to load, but even a light ship would have to wait for sufficient water in the chamber before being released. It is likely that they would have been kept in until about the 18th before moving on. Two of these did manage to be cleared by the end of the month and to be able to sail two days later, but a third was not cleared till 10 August – but at a neap tide period and so was delayed another week.

As far as congestion was concerned, on the first spring tide these four ships were immediately berthed at the quays together with one triangular trade ship and five West Indian, a total of 10 additional ships. Three ships went out in this period. At the second spring a total of 20 ships were entered into the port of which 11 were West Indian, 3 triangular possibly bound to the quays and 6 American, 4 of which would go to the dock. In all 5 ships left making the total input to the quays for this period between 8 and 11 ships. Altogether, the increase in Atlantic shipping at the quays in July totalled 15 to 17 ships, or 100 percent, (Illustration 4.006). In the following month, the 4 American ships at the dock, together with 8 new arrivals, came to the quays and the West Indian increased by 28 at the end of September.

Doubling up at the quays – and it got worse in the following two months – meant that cranes were available only to the inside ship and considering that all West India ships required them for their heavy containers of sugar and other commodities, constant manoeuvring of ships in and out of berths was essential and that would have been difficult even without the addition of tidal factors. At neap tides, no large ship would be afloat at the quays so when the inner ship had discharged her cargo she could not be moved to allow in the outer.

The average draught of the West Indian ships when loaded was 15½ ft and about another foot was needed before they floated. This meant that there were 7 days during the first spring tide in July when this height was reached but none in the second. Towboats were needed to drag ships over the mud, and as has been previously mentioned, cranes were damaged when surreptitiously used to pull a ship onto a berth. There must have been constant minor damage to ships and indeed towboats. In July three ships with draughts of 17ft and one of 18ft arrived

on the second spring tide and could not have been taken alongside the quay. To bring these ships in at this time, the owners must have lightened them at the mouth of the river adding additional cost to their voyages.

The other problem with manoeuvring ships was that the Avon tide flowed and ebbed rapidly, and as shown in the tide-table the highest tide of 20.8ft ebbed to 16.5ft within an hour, and within two it would hardly float a barge. This meant that outgoing ships had to be shifted immediately they floated and if turning was necessary, it would have to be done rapidly as with the falling tide the width of the river decreased and they could be grounded.

Considering that the owners of ships lying at Hungroad would have wanted their vessels up-river as soon as possible, ships would have arrived en masse at the quays at the same time outgoing vessels were going downstream, creating a massive logistics problem for the Quay Warden which called for exceptional diplomatic and organisational skills. Damage was inevitable, not just from ships grating against each other due to tides, but also during the manoeuvring process. Most of these problems disappeared when the harbour was floated because once through the locks ships could be manoeuvred at any time, and when going downstream, they could be safely moored or anchored nearby ready for the locks to open.

Congestion and tides affecting other shipping.

In simplistic terms, it should be possible to illustrate the problems of congestion for ships other than those on the Atlantic trades by correlating the space available on the remaining quaysides; that is Broad Quay, Quay Head, the Backs and the market sheds, with the number of vessels requiring berths. There is adequate information to conclude that there were at least 23 foreign ships from other than the Atlantic trading areas (Appendix 4.035), 38 Irish (Appendix 4.036), 98 coasters and an estimated 48 trows and 83 market boats moving through the port in the

specimen month of July.⁷⁵ However, there were probably more ships than were recorded because unless a ship arrived or departed with cargo it was not documented unless paying anchorage or moorage.

Out of necessity Atlantic shipping had commandeered the central part of the continuous quayside relegating other shipping to the remainder. The berthing arrangements of the non-Atlantic foreign ships are not listed in the directories and Appendix 4.035 shows that at any one time in July about half, 12, were in port. By trade area, these ships could be separated into Mediterranean, Iberian, French, Newfoundland, north European and Channel Islands. In general they were smaller ships, but wine from Iberia and the Mediterranean was carried in butts and pipes roughly double the size of a West Indian hogshead of sugar; train oil from Newfoundland in hogsheads; and the Rouen vessels carried heavy building materials. It would have been difficult to unload these without the assistance of cranes as for at least eight hours of a twelve hour tide the ships would have been well below the level of the quay and would have difficulty using their own tackle. The probability is that most of these ships, except perhaps the smallest, which could have been discharged at Quay Head, would have had to wait in turn with the Atlantic and other ships to get to the cranes. At any rate, whilst waiting they would have to lie alongside other ships at the quay.

The addition of at least 12 ships to those at the central part of the quays would mean that many vessels would have to lie three abreast. Obviously, it would be best to service ships alongside a quay but most ports had to work ships lying abreast; but they did not have Bristol's tidal problem. Safety and the ability to work ships' tackle depended on wind and rate of ebbing tides, the latter at Bristol being extremely high, and even in the month of July there were strong south-westerly breezes at the beginning of the month which would have set the vessels at diverse angles to each other.⁷⁶ As wind changes could occur on a daily basis it would

⁷⁵ No records remain of the trows and market boats attending the port but the annual numbers for 1791, taken from payment of bridge dues, were listed in BRO: 11168/3/1 Tonnage of ships into Bristol. The figures, 572 and 1001 were divided by 12 to give an estimation but it is likely that Bright referred to all vessels from the Severn as Market Boats as he has no separate section for trows from that area.

⁷⁶ BRO: 11168/6a/ii Diary of winds and tides by Captain Jolly.

make it impossible for goods such as butts of wine and hogsheads of sugar to be lifted from the hold of a ship lying beam-on to the mud and then transported across planks towards the quayside. And even if the goods from outer ships could be carried to the inner, the wind could have made it settle too far from the quay wall for the cranes to reach.

Unfortunately, there are no surviving records of Bristol ships' cargoes being loaded or unloaded, and neither the time taken nor costs were recorded in account books due to it being the individual merchant's responsibility to pay the port taxes. The European ships were not large, yet the average time spent in port was 48 days which might have been acceptable for seasonal trades, but as discussed above, ships requiring short turnarounds like the American would have been hindered by being unable to get to the quays due to the jostling for berths. The combination of ships requiring quick turnarounds with those whose owners were ambivalent about it, would have caused delays and could have been a factor in Bristol losing their American trade to Liverpool. It would certainly not have attracted new trade to the port.

According to the directories, the area from the Drawbridge to the first slip was designated for the use of Irish shipping; the slips themselves being reserved for coasters trading to the south and southwest coasts of England; whilst Cranes 1-4 were used by London, Liverpool and Cork ships, the first two officially classed as coasters, but sometimes recorded as foreign by newspapers. Coasters from further afield in mainland Britain except for Lancaster and Chester were probably sent to wherever was available (Appendix 4.032).

Irish vessels were classed as 'foreign' and therefore information is available from the *Presentments* and newspapers (Appendix 4.036). Out of the total of 38 ships in port during July, 15 were from Cork, six from Dublin and six came from Waterford. Appendix 4.032 positions Cork ships at Cranes 1 and 2 whilst those from Dublin and Waterford were berthed near the Drawbridge.⁷⁷ There appears to be no

⁷⁷ *Bristol Directory*, 1785, pp. 73, 75; Matthews, *Bristol Directory*, 1794 lists constant traders but does not give locations.

practical reason for Cork ships at the cranes as Dublin ships were far larger and a check of incoming cargoes from Cork shows that over half came in empty, whilst all but two from Dublin were full as were five out of the six from Waterford. Outgoing cargoes consisting of general goods were similar to all ships and again, on average, more ships sailed light bound for Cork than the other two. This information is important as it could only mean that the cranes themselves were immaterial to the Cork ships but designated their location on the quay and this, as will be shown below, was the common practice when identifying coasters at the quays and backs.⁷⁸

The cargoes brought in by the Cork ships were mainly animal products and linen; the Dublin predominately linen but also animal products; Waterford mainly animal and tanner's waste. Examining the cargo containers, there was the occasional hogshead, but most goods were packed in bundles, barrels, boxes, bales and bags, all capable of being carried ashore by porters across other vessels after being brought up out of holds with ship's tackle by the crew or hired landsmen. Near the Drawbridge, the water was 5ft shallower than the depth at the Gibb, but even so that still left 15ft of quayside above the mud. In July, the Irish ships' average tonnage was 68, signifying a height of about 10 feet; so at low water a ship's deck would have been at least 5 feet under the quay edge. This did not present an insurmountable inclination, but it would certainly slow down the discharge and lading times considerably.

The average turnaround time in July for all Irish ships was 24 days and as the other vessels from Irish ports had roughly the same cargoes, the same conditions would apply. Matthews *Bristol Directory* denotes 16 constant traders out of which 12 came in during July, but throughout the year there was always a ship available from the listed Irish ports albeit it was not a constant trader. As is shown below, this was a common factor with all trades.

⁷⁸ Again, Irish ships were considered foreign when in reality they operated in a similar fashion to coasters.

Five Liverpool and six London ships came to Cranes 1-4 during July but unfortunately as they were not entered in the *Presentments* it is difficult to find the composition of their cargoes (Appendix 4.037). Matthew's *Bristol Directory* lists three constant Liverpool traders whilst there are five for London.⁷⁹ Only three of those were in port in July, but again there were other ships that could have shipped goods for these ports. A breakdown of the movements of these ships shows that not all could be classed as regular traders, never mind constant. One came from Ireland to load for Liverpool; another stayed only four days before moving to Liverpool; two appear to have been bought in London for the Straits and African trades. This may be an indication that direct trade with London was less than a straight count of vessels in and out, especially as many Bristol ships from the West Indies discharged their cargoes there and returned to Bristol in ballast. From such a small sample, it is difficult to examine turnaround times, but for the regular ships they appear to be short, probably due to the availability of cranes.

The use of the slips on Broad Quay.

The Backs at the other end of the quaysides were mostly frequented by Welsh coasters at specific slips but there was the anomaly that two of those were designated for use by Somerset ships (Illustration 4.003). The proximity of the Somerset market at the Exchange could be the reason but probably it was because Somerset shipped mainly agricultural goods to Bristol; grain, cereal crops and suchlike, and that the facilities for storage of these were on the Backs rather than at the quays. Also imports of meat and dairy produce brought in from Somerset could be sold immediately at the Exchange⁸⁰ and an increase in trade may have led to the creation of the new Bridgewater slip in 1785.⁸¹

Nevertheless, the cargoes from Somerset were analogous to those brought in from Gloucestershire to Quay Head to be sold at the Gloucestershire market adjacent to

⁷⁹ Matthews, *Bristol Directory*, 1794, p. 99.

⁸⁰ D. Hussey, *Coastal and River Trade in Pre-Industrial England: Bristol and its Region, 1680-1730* (Exeter, 2000) p. 91.

⁸¹ *Bristol Directory*, 1785, p. 73.

that of Somerset.⁸² And, as there was no real distinction between the merchandise arriving from England and Wales, it likely that each berth was traditionally given the designation of its trading port to suit merchants rather than to show it had special facilities for servicing that port's goods.

A number of the vessels attending the four slips on the quay were recorded in the Bristol directories as being 'constant coasters' with additional information on the frequency of their visits per month.⁸³ During the specimen month of July, 34 coasters came to the slips and according to Matthew's *Bristol Directory* about 29 of them could have been constant traders (Appendix 4.038). However analysis shows that none had kept to such a precise schedule in the previous year, six visits being the maximum (Appendix 4.039).

Nevertheless, vessels from the designated ports were always available each month at their nominated slipway. For example, five ships each from Padstow and from Plymouth arrived in July, none of which had regularly visited during the year although three were listed as constant coasters in 1793.⁸⁴ Whether there was an agreement at local levels to ensure that there was at least one ship from each nominated port, or two if that was the listing in the directories, is uncertain, but prospective shippers and passengers would have known that there was always a ship available even though it might not be the named vessel.

This highlights a difference between the foreign and coastal trade because the former ships listed by *Lloyd's Register* as constant traders did keep to their designated routes. The reality was that most coasters were owned by their captains,⁸⁵ or at any rate a small concern, and could not afford to wait for cargoes to be assembled unless on time-charter and so on return to their home port would take whatever work was available. In some cases, the captain not only navigated the ship but also ran the trading side of the business himself. As coasters could not

⁸² Minchinton, 'Bristol-Metropolis of the West', p.74.

⁸³ *Bristol Directory*, 1785, pp. 72-75; Matthews *Bristol Directory*, 94, pp. 98-100. Unfortunately there is no directory for 1792.

⁸⁴ *FBJ*, 1791-1793.

⁸⁵ Minchinton, 'Bristol-Metropolis of the West', p. 72.

depend on regular shipments – although these would have been welcome – there was more flexibility and faster turnaround times. Some ships arrived or departed in ballast.

Vessels would undoubtedly try to berth at their designated slip, but an analysis of inward goods showed little difference from one slip to another (Appendix 4.040). Extractive items such as copper ore, clay, tin and lead were common to all ships as were items for re-export, Bristol being the entrepôt for the area. The export cargoes of manufactured goods and other items are too numerous to list⁸⁶ although an atypical item to the southwest was mining equipment made in the local ironworks. These could all have been loaded at any slip. The conclusion is that there were no specialised facilities at these slips so no practical advantage in using one slip or the other although keeping to the designated one would help the delivery and collection of goods and assist port organisation.

There is a lack of information regarding the turnaround times at the quay slips but for those regular traders where data is available, 5 to 12 days is the usual figure (Appendix 4.041). Considering that coasters were of a similar size to Irish and European ships, then these ships were operating more efficiently. This could be due to better organisation but the fact that they used slips for working cargo must have had a positive effect. Illustration 1.012 shows a porter carrying goods down Broad Slip and it is estimated that the end of the slip is 5 ft down from the quay edge which would have the effect of bringing a 68 ton ship's deck almost level at low water.

The Backs

At the Backs, a similar situation existed as on the quay but with individual slips and ladders allocated to ships associated with ports from the same coastal area. Again the directories listed constant coasters with their frequency of visits. During July, 40 coasters came to the Backs and about 29 of them could have been constant

⁸⁶ When discussing outward cargoes from Bristol, Willan invariably uses the expression 'miscellaneous goods'. T. S. Willan, *The English Coasting Trade 1600-1750* (Manchester, 1938) for example, p. 163.

traders according to Matthew's *Bristol Directory* (Appendix 4.042). Analysis again shows that the majority of ships were not visiting monthly but all ports listed as having a constant trader, except Carmarthen, had at least one that visited at two month intervals, and where there were two, it appears they were timed to overlap ensuring a monthly visit.⁸⁷ Four ships that completed over six visits in a year must be classed as being regular if not constant traders, and when the service to the Back is taken as a whole, it was certainly more frequent than that to the slips on the Quay. Again, there were always ships arriving during the month from the ports using the Back, albeit they were not listed, so trade was never interrupted.⁸⁸

Appendix 4.043 gives an outline of the goods imported to the Backs and the slips could be interchanged if necessary. It is not clear from the contemporary maps as to where the ladders were placed, but there were two cranes upriver of the slips and they were probably situated there (Illustration 4.003). These cranes are not mentioned in any of the Society's documents but are clearly shown on Tomb's plan of 1797 and were still in place in 1828 (Illustration 1.007).⁸⁹ The reason for them being situated at that point is unknown but they may have been placed there to unload heavy items like coal although at that time there were few imports of coal from Cardiff.

Apart from coal, the emphasis here is on the import of agricultural and dairy products most of which would be destined for the nearby markets. The outward cargoes were again miscellaneous goods too diverse to detail.⁹⁰ As with the quays, these could have been loaded at any slip so slips could be interchanged if necessary.

⁸⁷ Unfortunately there is no directory for 1792 with the names of the constant coasters. Some ports had more than one and they could be overlapping.

⁸⁸ It must be accepted that the Cardiff trade would have been regular, but information as to numbers of shipping is not available, probably because Cardiff was situated between the Holmes and the mouth of the Avon and so its ships were not officially regarded as coasters.

⁸⁹ BRO: 41561/57 Minchinton papers. Photograph of Tombs plan of 1792 for keeping the ships afloat in the harbour of Bristol; John Plumley and George Ashwood, 1828.

⁹⁰ Minchinton says that 'cargoes of manufactured goods sent coastwise were so various as to defy description'. Minchinton, 'Bristol-Metropolis of the West', p. 78.

The given location of the coasters on the Back is probably the best fit that can be obtained from the information available, but there were other factors which need to be considered before congestion can be assessed. First, there were the market sheds built to store corn, the generic name for wheat, barley and oats, and they would be used by any ship bringing these items in be it foreign, coastal or market boat.⁹¹ There were seven almost identical slips and sheds and it is possible that each was reserved for a different type of grain. It is difficult to assign shipping to them as, for example, did a coaster from Carmarthen carrying a mixed cargo unload its grain at the sheds and then move to its nominated berth to discharge its other goods, or did it go to its nominated berth and have the grain carted down? The latter is the most likely scenario and bearing in mind that all shipping on the Back would be moving goods on, off and along, it paints a picture of an extremely busy quayside and one cluttered with merchandise.

According to Richard Bright, approximately 48 trows⁹² from below the Holmes, and 83 market boats⁹³ went through the port each month, the latter of which would have included the constant traders listed in Matthew's *Bristol Directory* (Appendix 4.044).⁹⁴ Again there is the problem of apportioning ships to berths, as the trows, being small vessels, were reputed to discharge at Quay Head⁹⁵, but in reality would have discharged at the same slips as the coasters from their area if they were carrying the same cargoes.

The data in Appendix 4.044 depicts 21 trows coming in twice per month at Quay Head totalling 42 visits; an additional 12 from the Wye would berth at the market sheds and 12 from southeast Wales at Slip 2 on the Back making a total of 66.

⁹¹ Martin Bodman, 'Some Evidence for the Coastal Grain and Flour Trade in the West Country, 1770-1900', *Bristol Industrial Archaeological Society Journal* 35, (2002) p. 21.

⁹² Trows in the late eighteenth century were open sailing ships with a tonnage of up to 100t and about 60-80ft long. There was a smaller type of about 40t but they would not normally leave the rivers. C. Green, *Severn Traders*, p. 63.

⁹³ It is unclear as to Richard Bright's definition of market boats. He writes that the figure for trows is for those making an entry at customs except market boats from the Wye, Severn or other port in the channel.

Unfortunately he does not split his figures into the *Directory* categories of Severn Trows, Wye Trows and Market Boats from Caerleon, Cardiff and Chepstow, but it must mean that combination as he lists no other category and his figures are for the total shipping into Bristol. BRO: 11168/3 (1) Tonnage of ships into Bristol.

⁹⁴ Matthews, *Bristol Directory*, 1794, p. 100.

⁹⁵ Henceforth referred to as the Quay Head.

However, it was noted above that constant traders did not always keep to their schedule although the slips always had ships in attendance from their designated ports. Those, together with irregular traders from the Severn would easily make up Bright's figure of 83.

Bright's total would probably be made up of Severn and Wye trows carrying a multitude of goods and bulk cargoes and it is doubtful if that figure is accurate as there were so many small vessels using the river and port that they would probably come in and out without notice.⁹⁶ For example, there were daily market boats from the Parish Wharf at Portishead taking foodstuffs to Bristol and returning with building materials.⁹⁷ It would be beyond the scope of this thesis to examine the enormous imports of agricultural and dairy products, industrial raw materials, and metallic goods that came down the rivers to the estuary and eventually Bristol. Outward cargoes consisted of all the usual Bristol exports and they would be distributed on by the river and canal systems to all parts of the country. As with the coasters, such goods did not need special facilities and could be loaded onto trows at any point on the quays.

Although the turnaround times for coasters at the quay was good, the ships on the Back did better as the height of tide was almost the same as at the Gibb throughout and allowed more time for cargo working (Appendix 4.045). The indications are that any ship on the Back could turn around within 7 days and so congestion there would be less.

There was one other regular trade from the Backs and that was the barge traffic to Bath. The Avon was tidal as far as Hanham Mills eight miles beyond Bristol, but before 1727 Bath could only be reached by low draft vessels at spring tides. An Act of Parliament had been passed in 1712 allowing the river to be cleared between Hanham and Bath⁹⁸ but it took a further 15 years to overcome landowner and

⁹⁶ Minchinton says that it was impossible to state how many vessels there were altogether were engaged in the coastal and river trade. Minchinton, 'Bristol-Metropolis of the West', p. 72.

⁹⁷ Farr, *Somerset Harbours*, p. 56.

⁹⁸ 10 Anne. Cap 8. An Act for making the River Avon in the Counties of Avon and Somerset, navigable from the City of Bath to or near Hanham Mills.

worker opposition before it was opened and the first barge arrived at Bath carrying deal boards, pig iron and corn meal.⁹⁹ As Bath was expanding, general household goods were shipped in and heavy goods such as iron and copper ores were delivered to the rapidly growing metal industries along the way above Bristol Bridge.

By 1793, Bath was seen as a 'proper inland port' being supplied by 60-80 ton barges.¹⁰⁰ The main cargo returning to Bristol was freestone dug from the hills above Bath and carried down to the river by tramways that followed an original design by John Padmore – the builder of the Great Crane – overcoming a 500 foot drop between the quarries and the quay where the barges were loaded using his advanced rat's tail crane. This crane needed a brake drum and ratchet and pinion system to be able to bear the load.¹⁰¹

The directories refer to constant trade barges voyaging between Bristol and Bath twice per week leaving from the market houses on the Back and from Queen Street upstream of Bristol Bridge. The entries refer to the 'Bath Barge', but do not give it a name or permanent location so at that time it must have been randomly located somewhere near the bridge.¹⁰² Only lighters and barges with folding masts could pass under it and the fact that the Bath vessels were located on either side of the bridge shows that this barge traffic was unimpaired by the new bridge. Wherries had taken passengers to and from Bath since before the waterway was built and afterwards they developed into more complicated vessels with enclosed cabin areas.¹⁰³ Towards the end of the century, the roads to the east of Bristol became safer and the journey more regular than water transport, but it was more expensive.¹⁰⁴

⁹⁹ Warren Berry, *The Kennet and Avon Navigation: A History* (Chichester: Phillimore and Co. Ltd, 2009) p. 6-7.

¹⁰⁰ Matthews, *Bristol Directory*, 1794, p. 33.

¹⁰¹ Berry, *Kennet and Avon Navigation*, p. 8-9.

¹⁰² *Bristol Directory*, 1785 p. 73; Matthews, *Bristol Directory*, 1794, p. 100.

¹⁰³ Latimer, *Annals*, p. 161.

¹⁰⁴ Minchinton, 'Bristol-Metropolis of the West', p. 73.

There are no surviving records of the number of vessels operating between Bristol and Bath, but there were many industries along its banks needing raw materials, coal to process them and finished articles taken away. The waterway must have been extremely busy, especially as there was no tow-path until well into the next century. The first Bristol register of vessels of 13 tons or over operating in inland waters was produced in 1795 following an Act of Parliament and showed that vessels were registered according to their trade route.¹⁰⁵ Examples of the trade routes in the document are:

Navigation from Hanham Mills on the River Avon in the County of Gloucestershire to Kings Road in the port of Bristol and the River Frome in the same city extending 14 miles or thereabouts.

Navigation from Bristol to Bath on the River Avon extending 20 miles thereabouts.

Navigation from Bristol to Bath occasionally into King Road extending 30 miles.

Vessels registered under the first provision could not trade to Bath whilst the other two could with the last able to trade the entire length of the river. There appears to be no system whereby ships could deviate from their routes unless re-registered. Appendix 4.046 gives details of the barges trading to Bath.

There were 13 lighters in the register but they could only operate between the extremities of Brislington and King Road. Six men were listed as crew to man them all, an indication that they were not all operating simultaneously and therefore would be taking up moorings in the harbour somewhere, the most likely place being somewhere above the bridge and not in the congested harbour. As shown in the appendix, there were 11 barges operating on the waterway and at least half of these would be berthed downstream from the bridge adding to congestion.

¹⁰⁵ BRO: 05077 Register of ships navigating within the City of Bristol exceeding 13 ton. 1795-1802; 35 Geo III cap. An Act requiring all boats barges and other vessels of certain descriptions used on navigable rivers and inland navigations in Great Britain to be registered.

It is likely that tolls were charged but so far no documentation has been found listing these. In 1810, after the Avon and Kennet were connected, the rates depended on the type of goods being carried per ton per mile, and this probably copied the original system, but gauging the amount of cargo became a source of conflict between the canal company and traders throughout the waterway's history.¹⁰⁶

Conclusions

The purpose of this analysis was to examine the effect of the tides in detail, not just where they affected Atlantic shipping – the main concern of the merchants considering change to the harbour – but on maritime trade as a whole. The tide-table when taken in conjunction with the plans of the quays and backs shows that no trade could work without regard to the tides. The largest ships, the West Indian, had an average draught of 15½ feet when loaded which meant that there were only seven days at the beginning of the month and none at the end when they would have been able to come alongside the quayside. Obviously they could do so by the use of lighters, but this added to the financial outgoings of the voyage, something that the merchants at other ports did not have to face. Also there were periods when they did not float at all – 19 in July – and therefore could not be manoeuvred even around their berths, which would affect their lading. Finally on only three occasions when they were afloat did they have more than an hour on either side of high tide to shift the ship.

These were the largest ships, but although the other vessels at the Quay were smaller, the water shallowed towards Quay Head and near the Drawbridge to the extent that a 68t Irish vessel with a draught of 9ft would not float at all on 15 days in the month unless cargo was removed. Even the trows with their 3ft drafts at Quay Head required 11ft at the Gibb and that was not available on six days of the month. The Grove had the deepest water of all and the mud docks were ideal for large ships but use of the Old Mud Dock was limited. The coastal shipping at the

¹⁰⁶ Berry, *Kennet and Avon Navigation*, p. 70.

Back had almost the same depth as the Gibb and if the coasters were moored in what Elkin calls 'Bristol Fashion', that is bow on to the quay wall, then they could have been afloat or able to be pulled off for 20 days of the month.¹⁰⁷ This would be a tremendous asset to the coasting trade.

Damage to ships has been discussed above and the problems of a tidal harbour compared to non-tidal can be visualised from Illustration 4.007. This picture from the Backs in the late nineteenth-century, after the harbour had been floated, shows orderly moorings in a line of small coasters, trows and barges lying together with masts still shipped. However, this would have been impossible in the eighteenth century as even with good fenders the masts would have tangled as the ships settled due to the incline near the quay walls. Ships would have dug their own mud berth, but this would not secure them in high winds and tide. Even more so, the large ships lying against each other at the crowded quays would be damaged unless sufficient space was left between them by the use of chains, and this in itself would reduce the numbers of ships in a line.

The Quay Warden and the Water Bailiff needed both skill and forceful personalities to marshal the ships into suitable berths and enforce harbour regulations. However, they could not be everywhere and masters, pilots and watermen must have cooperated to some extent to moor and manoeuvre ships about the harbour. The additional cost to the merchants must have been considerable compared to that encountered in other ports, but there was little they could do about it. New quays could have been built, perhaps on the other side of the Frome and along the river from the Merchants' Dock towards the quays, but the reality was that it might give more berths for shipping, but the same problems of manoeuvrability and potential damage would continue to exist. There could have been a reorganisation – which was what the author of the 1796 Broadsheet was really suggesting – but there is no record of this being taken seriously. As has been discussed throughout this thesis, the merchants and shipowners of Bristol were intent on maintaining

¹⁰⁷ Elkin, *Images of Maritime Bristol*, p. 14.

their long-established practices and it is unlikely that they would have changed even if it had been feasible.

Section 3. The floatation of the harbour from a pragmatic perspective.

Introduction.

In 1791 the Society produced resolutions regarding a scheme for keeping ships afloat in the harbour after accepting that due to the nature of the River Avon the prosperity of the port was suffering. As will be shown below, this was not the first time that the matter had been discussed or plans put forward, but the resolutions themselves are important as they emphasise the fact that due to the nature of its river, the port of Bristol had become inferior to many others in the country. In plain terms, ships were liable to be damaged and could not be turned around as quickly as at other ports due the tidal river, and the solution to this was that the Avon should be dammed below the port to keep ships permanently afloat so that they would be secure and easily worked – see Appendix 4.001.¹⁰⁹

The political analysis.

As noted above, this had first been mooted in 1755 and although discussed by both the Society and the Corporation, no constructive action had been taken by the end of the century. Scholars have been severely critical of this, seeing it as showing a lack of leadership and foresight. John Latimer, writing in the nineteenth century, was particularly scathing about the Corporation collaborating with the Society in 1764 to allow them to make relatively minor improvements rather than tackling the real problem of the floatation of the harbour.¹¹⁰ Patrick McGrath believed that the oversight of the port by the Society gave value for money, but criticised their lack of support for schemes to turn the river into a floating harbour and so to compete with rival ports.¹¹¹ Walter Minchinton notes that the ‘spirit of unambitious caution animated the discussions of port improvement’, and that ‘politics, parsimony, lethargy and conservatism’ hindered progress.¹¹² Even Alan Williams, in his outstanding, comprehensive history of the improvement schemes,

¹⁰⁹ Chapter 4. Section 1. Introduction; BRO: SMV/2/1/2/5 Index 5, 13 October 1791, pp. 71-72.

¹¹⁰ Latimer, *Annals*, p. 317.

¹¹¹ McGrath, *Merchant Venturers of Bristol*, p. 169.

¹¹² Minchinton, ‘Port of Bristol’ p. 156.

the content of which has provided much of the practical details for this thesis, concluded that that floatation was 'held back sometimes by lack of purpose, often by inability to raise capital, and constantly by the voice of 'non-progressives'.¹¹³ Latimer had also used the term 'progressives' to describe those who supported floatation when the first committee had been formed in 1757.¹¹⁴

The common denominator of the research carried out by previous historians was that it was done from a political and economic viewpoint and accurately determined that the motive foremost in the minds of the opponents of the dock plans was money, and they would probably agree that the contemporary participants in the various committees and debates could be divided into progressives, that is those who wished to invest in the floatation schemes; and those against, the non-progressives. However their assumption, by the very terms used, was that the progressives were fighting to implement dynamic, well-grounded plans for the improvement of the port and were being obstructed by niggardliness. Nevertheless, whether reluctance to spend money was a failing depends upon whether or not the investment was valid. The men who were taking these decisions were mainly merchants whose livelihood depended upon the river and who were aware of its vagaries and so qualified object to or even obstruct plans that they considered unsound. None of the authors recorded above appear to have considered that far from being the villains of the piece, the non-progressives may have been right and by blocking premature investment in projects that would have failed in the eighteenth century, they left the way open for success in the nineteenth.

The obstacles associated with floatation in practical terms.

The research in this thesis is aimed at investigating the contemporary structures, systems and operations existing at the port and therefore the subject of the floatation of the harbour is approached from that perspective. Chapter 1 has established the environmental conditions of the river and the first two sections of this chapter the nature of the congestion and the effects of the tides. This data will

¹¹³ Williams, 'Bristol Port Plans and Improvement Schemes', p. 180.

¹¹⁴ Latimer, *Annals*, p. 317.

be applied to the plans put forward by engineers and others to establish whether, in hindsight, they were feasible and ought to have had been implemented, or if it was fortunate that they did not come to fruition. Using this method, the motivation behind the actions of the participants becomes irrelevant. What is important is whether the harbour at Bristol could have been floated in the eighteenth century and so improving the conditions for shipping. This in itself would not have stopped the relative decline of the port,¹¹⁵ but it might have reduced merchants' costs and attracted shipping foreign to the port which apart from increasing income, might have made ships available for chartering that would not normally have risked the river passage.¹¹⁶

It will be shown below that there was never a consensus of opinion regarding the benefits of constructing the floating harbour and even after the work had been completed criticism continued well into the nineteenth century. It would be impossible to go into detail as there is enough archival material for a thesis in itself, but in the eighteenth and early nineteenth century a great many port users intuitively opposed spending what they saw as vast sums of money on a project which, in spite of the arguments of the engineers brought in as experts, they believed was doomed to failure. One such, Solomon Roach, a Superintendent of the Society with a lifetime's experience of the river had been asked by them in 1791 to record his objections to the engineers' plans¹¹⁷ and in his report he commented.

'Your engineers may be men of experience in erecting inland canals navigation, please to remember here is a great flow of tide and floods in the River Avon to encounter with'.¹¹⁸

This was the essence of the problem; the engineers were competent to construct the necessary dams and wet docks but they were unfamiliar with the conditions at

¹¹⁵ Minchinton says that the trade of Bristol did not recover when port improvement took place but only when new staples were found. Minchinton, 'Port of Bristol' p. 158.

¹¹⁶ BRO: SMV/2/1/2/5 Index 5, 13 October 1791, pp. 71-72.

¹¹⁷ BRO: SMV/2/1/2/4 Index 4, 3 November, 1791.

¹¹⁸ Williams, 'Bristol Port Plans and Improvement Schemes', p. 169.

Bristol, where any interference in the flow of the river not only affected the city as a whole, but industry on either side of it and crucially the access to the Hung Road and the estuary.

It is not intended to examine each plan individually, but to assign them to three categories, those where a wet dock was to have been created without damming the Avon; those involving the damming of the River Avon, and those where a cut was to have been dug to redirect the river around the port. The first plan was put forward by John Smeaton in 1765¹¹⁹ and involved damming the mouth of the River Frome to keep ships in this part of the harbour permanently afloat, entrance being by canal and lock through Cannon's Marsh.¹²⁰ This was a feasible project as it was similar to the creation of the wet docks at London and Liverpool,¹²¹ knowledge of which was available to engineers. It would not interfere with the day to day operation of the harbour and the cost was reasonable at £25,000-£30,000,¹²² but it was never attempted and there is general agreement amongst scholars that it was deliberately undermined by the Corporation and Society in order to bring in the new wharfage lease – see above. As part payment for this lease the Society agreed to build the dock at the Grove and put the final link between the quay and the backs.¹²³ The eventual cost was £9747, a relatively minor amount, but it is inconceivable that this work could have been left undone anyways,¹²⁴ so if the Frome River project and this had both been completed, the total cost of improvements would have been in the region of £40,000, a challenging sum to raise even if the participants had shown any enthusiasm.

Through research and hindsight, however, it is difficult to see how this project, if successfully completed, could have seriously effected the problems associated with the harbour by 1791 when the resolutions were made. It would have created a wet dock, but this would have only provided eight berths against the quay wall where the cranes were for large ships, about another eight for medium size vessels

¹¹⁹ John Smeaton, civil engineer, 1724-1792.

¹²⁰ See Illustration, 1.003.

¹²¹ See Introductory chapter, pp. 29-30, 31-33.

¹²² Williams, 'Bristol Port Plans and Improvement Schemes', p. 146.

¹²³ See Chapter 1.3 p. 80.

¹²⁴ See Chapter 1.3 pp. 82-84 and Appendix 1.012.

and about seven at the quay head for the smallest vessels.¹²⁵ The problem with the Frome was that its bed sloped upwards from the mouth to the head, the depth of water dropping from 15 to about 4ft.¹²⁶ To deepen it would mean digging out the river bed and would not only have been costly, but it would have been likely to damage the ancient quay walls. Obviously ships could lie abreast or even moor, but although that would reduce damage, it would not necessarily reduce turnaround times. William Jessop, a consultant engineer brought to advise, confirmed this in a report to the Society in 1788.¹²⁷ It would be possible to buy land and develop the other bank of the Frome, but compensation would have been extremely costly – it was not done until the late nineteenth century. Also, as the tide-table in Appendix 4.030 shows, the positioning of the entry canal was too far upstream as this would have reduced the tidal window controlling ship movements.

A similar project to dam the Frome and bring ships in through Cannon's Marsh was put forward in 1796 by an 'anonymous citizen' in an untitled broadsheet,¹²⁸ who believed that with trade being low at the time all foreign ships in the harbour could be accommodated using only a wet dock created in the Frome. It is doubtful if he was an active port user because he believed that 65 large vessels could be accommodated five abreast between the dam and the drawbridge and 31 smaller ships between the Drawbridge and the Stone Bridge. As Illustrations 4.003-6 show, the absolute maximum number of ships that could lie abreast would be five, leaving no room to manoeuvre or pass. Also, ships in this part of the harbour required cranes and these could only work one vessel at a time.¹²⁹ What the writer was trying to achieve was a reorganisation of berths for shipping at a time when trade was low in order to avoid implementing the more expensive projects.¹³⁰ He put the costs of his project at £20,000, but would be reduced to £10,000 if no canal was built. The latter would have meant that ships could only come in and out of the Frome wet dock through a lock on the dam which would then mean navigating

¹²⁵ See data detailed in Chapter 4.b and Illustration 4.003.

¹²⁶ BRO 11168/59. A Plan of the Rivers Avon and Frome.

¹²⁷ William Jessop, civil engineer, 1745-1814; Williams, 'Bristol Port Plans and Improvement Schemes', p. 155.

¹²⁸ BRO: 11168/27 An Untitled Broadsheet, 22 March, 1796.

¹²⁹ See Chapter 4.2 for an explanation of the shipping using the quay.

¹³⁰ Williams, 'Bristol Port Plans and Improvement Schemes', p. 172.

through massed shipping to reach their berths. It would have brought massive congestion similar to that at London.¹³¹

Apart from Seaton's, all the plans put forward by engineers¹³² in the eighteenth century advocated damming the River Avon and bypassing these dams with a lock and a basin, except for the Black Rock project detailed below which had no basin. In 1766, William Champion¹³³ proposed constructing a dam across the Avon at Redcliff, to be bypassed by a lock and basin situated at the beginning of the Avon Gorge and feeding into the chamber of his own wet dock at Hotwells,¹³⁴ which would have provided access for ships in and out of the now floating harbour. The cost was between £30,000 and £37,000. In 1788, Jessop himself suggested a scheme very similar to Champion's but with the dam slightly down river. Estimated cost £39,500. Another copy of Champion's plan was put forward by Smeaton in 1789, this time costing £74,000. None were accepted, possibly because the engineers were not consistent, but also the 'non-progressives' could not be convinced.

There is no doubt that if implemented all of these plans would have kept all ships in the port permanently afloat, but the engineers appear to have been unaware of the effects of fast, silt-bearing tides and rivers.¹³⁵ Smeaton himself, arguably the most experienced engineer, admitted he had never seen a dam erected in such conditions.¹³⁶ No matter how many sluice gates were put on the dams the rate of flow of water, which normally built up over a distance of ten miles, would inevitably be hindered leading to unavoidable deposits of silt.¹³⁷ Within the harbour it would increase and none of the engineers' plans included a means whereby it could be regularly cleared without interrupting trade, although one by Richard Tombs, a

¹³¹ See Introductory Chapter, p.28.

¹³² The term engineer will be used in this work to denote a professional civil engineer called in for advice. Civil engineering in the eighteenth century was still defining its scope and stature as a distinct profession. R. A. Buchanan, *Nineteenth Century Engineers in the Port of Bristol* (Bristol Branch of the Historical Association, Pamphlet No. 26, 1971) p. 3.

¹³³ William Champion, 1709-1789. Metallurgist rather than civil engineer.

¹³⁴ See Appendix 1.006.

¹³⁵ Williams, 'Bristol Port Plans and Improvement Schemes', p. 164.

¹³⁶ Ibid p. 156.

¹³⁷ See Chapter 1.1. for a discussion on the problems of silt.

local shipbuilder, was produced in 1792 with this facility in mind.¹³⁸ As shown above, Merchants' Dock was closed for long periods for this purpose, but there the dock could be closed if necessary, impossible with a sluiced river dam. Also, lock gates and chambers would suffer the same damage as occurred at Merchants' Dock but their failure in the river would be disastrous as it would stop the movement of ships through the harbour.¹³⁹ Debris too, both man-made and natural, would inescapably pile up behind dams and at times of flood cause damage requiring costly repairs.¹⁴⁰ At Hung Road, where berths had already been lost, the weakened ebb tide would not have been strong enough to remove estuary silt and debris from upriver precipitating a reduction of the number of berths and the port's effectiveness.¹⁴¹

Joseph Nickalls,¹⁴² another consultant engineer brought in by the Society, advocated damming the River Avon much further down at Black Rock¹⁴³ to allow ships to reach there even at neap tides. Another advantage was that little compensation would have been necessary. However, due to the physical constraints of the terrain, there would have been no room for a tidal bypass or basin and the entrance locks would have to be situated in the middle of the dam. Nickalls estimated an economical cost of £20,000 – £24,000, but its construction would have involved massive losses to the port users as it would have halted traffic to and from the port while it was being built.

If this project had been realised all the problems associated with the other schemes would have occurred, exacerbated by the fact that the dam with its central lock gates would have received the full force of the river, its debris and land floods without a bypass. It is also likely that ships arriving at the dam during springs would have had to confront a counter current caused by the river hitting the dam wall. This was raised by an opponent of the projects in 1791 who gave as proof the

¹³⁸ See Illustration 1.007.

¹³⁹ In 1790 it was closed for three months for this purpose. For details of lock gates damage see Chapter 1. Section 2. p. 77-78.

¹⁴⁰ To understand the extent of the problems see Chapter 1. Section 1. p. 55-61.

¹⁴¹ See Chapter 1. Section 1. p. 34

¹⁴² Joseph Nickalls. Engineer, 1725-1793. Former assistant to Smeaton.

¹⁴³ See Illustration 1.002.

counter current in the River Frome at the end of the quay.¹⁴⁴ Any ship failing to reach the dam due to this or adverse winds would have to anchor on a rocky shore risking damage.¹⁴⁵ The plan did not include chambers and it is difficult to see how the lock could cope in quiet periods never mind when there was an influx of traffic at times of fleet arrivals for although the dam increased the time available for shipping to proceed to the harbour, the incoming tide took a finite time to reach the water level on the other side.¹⁴⁶

In 1792 another scheme to dam the Avon at Rownham Meads was put forward by William Jessop and this was accepted by the Society and Corporation, in truth because their members were beginning to panic over the success of their rival ports.¹⁴⁷ There were vociferous objections from the non-progressives but the plan would have been carried forward had France not declared war and had trade not been falling. However, it again relied on simply damming the River Avon. The outlay was to be £57,836. Even Alan Williams, despite extensive research, does not appreciate the fact that none of these plans would have worked. In this case he infers that if the non-progressives had not caused a year's delay, Jessop's project would have been started and completed successfully for the benefit of the port.¹⁴⁸ The reality is that for the reasons stated above, and below, the port would have been left with a white elephant.

Jessop's scheme was not abandoned but there was no further action on it. In 1791, a clergyman, William Milton,¹⁴⁹ proposed the novel idea that a new river bed be cut to bypass the entire harbour leaving it flooded, but with locks at either end to control its water level and allow access to shipping. The new river would enter the old at Hotwells leaving its flow unaltered and therefore removing many of the objections put forward by the non-progressive party. However it had one major

¹⁴⁴ BRO: 11168/47 A Reply to the Answer to the Objections usually raised against the Embankment of the River Avon, 1791.

¹⁴⁵ See Chapter 1. Section 1 p. 56 for details of the river conditions.

¹⁴⁶ Data from Appendix 4.030, the tide-table, could be used to authenticate this.

¹⁴⁷ Williams, 'Bristol Port Plans and Improvement Schemes', p. 171.

¹⁴⁸ *Ibid.*, p. 171.

¹⁴⁹ The Reverend William Milton (1743-1824). Lived in Bristol for the last 25 years of the eighteenth century but with a living at Heckfield, Hampshire. Father of Frances Trollope and grandfather of Anthony Trollope, writers. [<http://www.oxforddnb.com/view/article/27751>, accessed 7 April 2016]

defect and that was the estimated cost was £159,627. What is significant, however, is that all the plans that followed into the nineteenth century, included a tidal bypass. Milton may have been an amateur but once he had pointed the way to overcome the tidal problem, the engineers followed suit.

Although the floating dock was not opened until 1809, some comment on the final plan is necessary. William Jessop accepted the idea of diverting the river and in 1802 brought out a plan which involved floating the harbour as far as the Frome, but it was not acceptable because it did not include the Grove or the Backs. The estimated cost was £150,840 exclusive of the purchase of land. Eventually he put forward a similar plan incorporating the entire port area which was more or less that from which the floating harbour was constructed. The initial cost was estimated at £212,470, but eventually this increased to about £600,000 which left the port with a financial problem that continued for the next forty years. The arguments for and against dockisation continued and even Richard Bright, a strong supporter, turned against it in the end; but without its construction the commercial port could not have continued for another 150 years. However, had one of the eighteenth-century plans that ignored the vagaries and power of the River Avon been tried and failed, it is highly unlikely that the merchants of Bristol would have supported another.

The situation at Bristol compared to other ports.

At the end of the eighteenth century, the environmental problems experienced by shipping at the port were far from being the only cause of its decline, but they were a factor and one which, arguably, in this sphere, was greater than faced by any other port in the country. Referring back to the data recorded in the Introductory Chapter, London had no access difficulties but had a serious problem with congestion which in turn led to large scale theft, damage to shipping and long turnaround times. However, there was a relatively simple though costly answer, the building of secure wet docks, and once the politics had been resolved and the

money made available it provided a permanent solution.¹⁵⁰ Structurally there were no engineering difficulties and wet docks were easily constructed in good ground.¹⁵¹ The cost of building the first, the West India Dock, was estimated at £258,345 but, as at Bristol, it went over budget eventually requiring £309,824. It is practically impossible to compare costs between ports as the conditions at each were incommensurate. A simple example being that at London it was difficult to keep up a constant supply of bricks whilst at Bristol they could be made on site.¹⁵²

Liverpool, like Bristol, had a turbulent estuary and dangerous foreshore but there were no real impediments to building wet docks on land as there was at Bristol; and a further advantage was that ground owned by the Corporation was suitable.¹⁵³ Costs cannot be compared with Bristol as the wet docks there were built piecemeal throughout the eighteenth century. Like Bristol and London, where the ports had developed over centuries and could not be easily transformed due to structural characteristics and entrenched vested interests, Hull's obstacle to progress was the opposition of merchant wharf owners. Trade was failing due to a lack of berths which brought on congestion, delays and damage. A long political argument developed before a wet dock was built at a cost of £73,229, funded by a private dock company, but it was too successful at attracting shipping and another political wrangle started over the building of a second. There were no serious environmental complications such as those recorded above at Bristol, and so when the political arguments were resolved the same technical solution could be applied to build a second dock.¹⁵⁴

Glasgow too was faced with an environmental obstacle, but it was the converse of Bristol's, that is the River Clyde was a slow moving, gentle river except at times of floods, but as a result was too shallow to allow ships to reach the city. The engineers brought in by its Corporation did not have the Avon's severe elements to face, but to a certain extent the problem of deepening the Clyde caused the same

¹⁵⁰ For details see the Introductory Chapter, pp. 27-30.

¹⁵¹ Jackson, *The History and Archaeology of Ports*, p. 57.

¹⁵² See Appendix 1.006. The Construction of Merchants' Dock.

¹⁵³ For details see Introductory Chapter, pp. 30-33.

¹⁵⁴ For details see Introductory Chapter, pp. 33-35.

confused contemplation as their colleagues at Bristol, because they had not had the experience of a problem of this type and scale. The result was the failure in the eighteenth century to deepen the Clyde enough to take large ships. However, eighteenth-century engineers were excellent at building canals and one such was constructed between the Clyde estuary and Grangemouth with a spur into the centre of Glasgow.¹⁵⁵ At Bristol in the late eighteenth century there was the possibility of investing in various canals proposed locally but the Society showed little interest, and anyway, none of them would have solved its environmental problem.¹⁵⁶ There were similar conditions to Glasgow at Newcastle, the River Tyne being too shallow to allow easy access to the city, but there, unlike Bristol, where at least the difficulties were debated and eventually resolved, the problem was ignored by its Corporation until well into the nineteenth century and so large, new ports developed on the coast in opposition.¹⁵⁷

Conclusions.

When the building of the floating harbour is considered from a purely political and economical point of view, the historic consensus to date is that in the eighteenth century the Corporation and Society at Bristol circumvented and delayed making positive decisions because of the substantial opposition to the scheme by a group of reactionary sceptics who were mainly concerned about costs, and that this was to the detriment of the port's advancement. Nevertheless, the above analysis of the plans put forward in the period, using data from other parts of the thesis and primary evidence, clearly shows that none of them would have provided a permanent solution to the port's problems and indeed, if attempted, would have failed and the costs encountered strengthened the case of the doubters to the extent that no further improvements might have been made at all. The reality was that the merchants and citizens of the city may have known the river better than the professional engineers. After all, it was a layman who produced the key solution to the overall problem, that is, the diversion of the river round the port.

¹⁵⁵ For details see Introductory Chapter, pp. 35-37.

¹⁵⁶ McGrath, *Merchant Venturers of Bristol*, pp. 230-232.

¹⁵⁷ For details see Introductory Chapter p. 39.

However, an important outcome of this section's research and the work done throughout the thesis, is that it clearly shows the extent the port suffered from being serviced by a fast flowing, tidal river which even after the floatation of the harbour remained an obstacle to easy access to the port. The other major ports, Liverpool, London and Hull found permanent solutions to their difficulties and could repeat them as necessary when trade increased; and whilst Glasgow and Newcastle had to wait till the nineteenth century, they were in the process of expansion whilst Bristol was in decline. The problems posed by the River Avon were never fully overcome.

Chapter 5.

Conclusions.

The aim of this thesis was to produce a model of the workings of the port of Bristol and its shipping in the eighteenth century, partly to fill a gap in its history, but also to provide an information bank from which the efficiency of its infrastructure, operational systems and management could be examined. Nationally, the port was declining compared to others it had previously surpassed and the overall question was whether at the end of the century its resources were adequate and being used effectively.

The technical particulars of the port's physical structure, cargo handling abilities and workforce were concentrated upon in Chapter 1, and throughout the thesis the operational systems that had developed around them were uncovered and analysed. Similarly the processes by which shipowners conducted their maritime operations within and without the port were examined and recorded. Together these provide a vade mecum for the way this port worked and the backdrop from which the wider issue of effectiveness could be assessed.

To return to the questions posed at the outset. The Society was the key organisation in running the port although the Corporation could intervene and legislative changes needed to go through the Quarter Sessions. So saying, the reality was that the port and its river functioned according to the systems the Society imposed and can be judged accordingly. Through their Standing Committee they maintained a system of centralised control and frugality was at the core of all their decisions, which is understandable as large profits were not being made and indeed the Society was generally servicing debt. However, penny pinching led to a delay in the resolution of mundane matters, which in particular reduced the effectiveness of Hungroad as a transit port and the navigation of the river by a failure to deal with obstructions as they occurred.

Nevertheless, it is difficult to criticise their administration of the city quays because although they suffered from congestion, which will be commented on below, there were effective systems of ship handling, portage and goods clearance in place. Frugality was practised here as everywhere else, but it did not have the same effect. Perhaps the central location meant the Committee, most of whom were merchants working in the port area, were able to see the problems as they arose and were more willing to intervene.

In the second half of the century the Society bore the cost of completing the city quays as part of the agreement over the renewal of the wharfage lease, but income from this, though considerable, was over a 99 year period and not in a lump-sum to refill their coffers. Their investment at Merchants' Dock may have been made partly for mercenary reasons, but it was considerable and provided the port with a first class wet dock which should have relieved pressure on its facilities. However it is unlikely that financially it ever broke even. This expenditure must be taken into account when judging whether the Society mismanaged the port by failing to lobby the Corporation for the floatation of the harbour at the end of the century, especially as at no time was there consensus that this would actually solve the problems within a reasonable budget. The conclusion reached – with caveats regarding frugality and delays caused by centralised control – was that the Society was successful in running the port under difficult circumstances.

The second question concerned the structure of the port and its amenities, which again was the responsibility of the Society. More berths for shipping would have assisted with congestion, but this would have meant developing the Somerset bank of the river or the area west of the city quays which would have incurred the prohibitive costs of building roads and bridges never mind the actual quaysides. A project like this would probably not win support for the same reason the Merchants' Dock was unpopular – the distance the new resources were from the centre of activity, the city quays. Research showed that there were adequate cargo handling facilities available, except for a few items like sheds, and that it was possible to provide a fast turnaround for individual ships, but they could not cope with the sheer numbers arriving at peak periods. No fault could be found with the main port

officers, Haven Master, Quay Warden, Water Bailiff and Dock Master or the systems they implemented.

The third question examined the men who actually used the port, the merchant shipowners. Chapter 2 established beyond any doubt that at the end of the century the majority of Bristol shipowners were running their ships along traditional lines, that is as an appendage to their businesses rather than for income from freight charges – a change that was beginning to occur elsewhere. This is important because it meant that there had been no alteration to the long-established approach by which they used the port and its facilities, yet trade and shipping had increased. An analysis of the problems of congestion was carried out in Chapter 4 and shows that it could have been partially relieved had the shipowners been more flexible about the areas they traded to, as this would have removed the effects of seasonal shipping allowing a reorganisation of the port. However there is no mention in contemporary documents that this was ever considered, and the entrenched practices of a less demanding period continued.

The costs of ship operations to the West Indies was examined in Chapter 3 and the conclusion was that ships could have been run more profitably if they had been operating under a more modern model. Crew wages and provisions were seen as a significant expense by shipowners, but for much of a voyage highly skilled seamen were involved in what was basically maintenance and labouring work. The expenditure on refits could have been reduced as the main expense was for dry-docking due to the damage caused by ships remaining in polluted waters for long periods. Under a time charter there would have been a greater incentive to turn the ships around quickly and their owners would have been able to choose an unseasonable refit time best suited to themselves. However, whilst ships continued to be run as an adjunct to a merchant owner's main business rather than as an autonomous concern, the efficiency of the port suffered. The reality was that the Bristol merchants were operating a system that brought in profits and were content to continue as they were.

The investigation of the fourth question, however, showed that no amount of reorganisation could alter the effect of tides on the port without a fundamental alteration to its corporeal structure. Delays to shipping in transit through the port were inevitable even for the smallest vessels where a matter of a few hours might make a difference to their market day sales, and although the largest might arrive when a suitable tide was in place, it could be lost by having to prepare for the river passage.

Bristol shipowners had to face additional overheads due to the extraordinary tidal conditions faced by their ships during the transit through the port. These expenses are examined in Chapter 3 with the conclusion that not only were they reducing profits, but they were a factor in the port's relative decline as they reduced competitiveness and thus its ability to attract foreign shipping. Apart from handling costs, the tide-table given in Chapter 4 shows that the period when ships could manoeuvre, even at high tides, was very short which interrupted cargo handling as well as delaying movement to and from their berths. This in turn led to additional clutter on the quays and as few sheds were available, goods open to the elements could be ruined. Ships lying in close proximity were easily damaged and so at Bristol they had to be built stronger than most, again adding to the costs borne by shipowners. The same destructive forces damaged port structures whose repair was the responsibility of the Society, the prime example being the closure of Merchants' Dock for repairs from time to time due to silt brought by tide.

Chapter 4 showed that in the late eighteenth century the Society had accepted the tidal problem and was actively looking for a solution but plans brought forward by engineers and others could not be agreed on and the problem continued into the nineteenth century. Data obtained whilst researching this problem when compared with that in the Introductory Chapter showed that whilst other ports implemented permanent solutions to their environmental problems, Bristol could not due to the force of its river flow. With hindsight it can be seen that even after floating the entire harbour the problems of the tidal river continued and eventually the harbour was restricted to smaller vessels and a new port built at the mouth of the river. In

the eighteenth century this was not feasible due to the logistics of moving goods from there to the city – it had to await the coming of the railways.

Lastly, as mentioned in the Abstract, Acknowledgements and Justification, little information is available about the day to day operations of merchant ports and shipping in the eighteenth century, so the data that has been accumulated in the preparation of this thesis is recorded in the appendices as the only supportive evidence of many of the conclusions reached. It has also been made available for general research as it could be adapted to any eighteenth-century port because it is probable that they all followed the same basic principles, albeit none had Bristol's specific environmental problem.