The Development of the Port of Fremantle,

Australia's Western Gateway, 1903-1939

by

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I declare that this thesis is my own account
of my research and contains as its main content
work which has not previously been submitted
for a degree at any university.

....
Malcolm Thomas Tull

ABSTRACT

Although Australia is the world's largest island, her economic development has been based on the exploitation of the land rather than the sea. One consequence of this has been that historians have neglected Australian maritime history and, in particular, the history of Australian ports. Ports are vital links in the transport chain and, for an island nation such as Australia, assume a special importance as gateways to the rest of the world.

The development of the Port of Fremantle, located on the edge of the Indian Ocean, provided the British Empire with a western gateway to the vast Australian continent. After the opening of the Inner Harbour in 1897, Fremantle quickly replaced its rival Albany, some 250 miles to the south, as Western Australia's premier port. However, there is, as yet, no detailed history of the Port of Fremantle. The objective of this thesis is to help rectify this deficiency by charting the history of the port between 1903 and 1939, a period commencing with the formation of the port authority, the Fremantle Harbour Trust, and terminating with the outbreak of the Second World War.

The thesis examines the evolution of the Fremantle Harbour Trust's powers and functions; the growth of port activity as measured by trade, passenger and ship flows; cargo-handling practices, working conditions and industrial relations on the waterfront; the physical evolution of the port; and the financial performance of the Fremantle Harbour Trust. The thesis reveals that port development was the outcome of a complex process of decision-making and adjustment in which a large number of organisations and actors played a part, amongst whom the most important were the Fremantle Harbour Trust, government, shipowners and

importers and exporters. An attempt is made to assess whether or not the port adapted efficiently to changes in port activity. In view of its role as main controller, operator and planner, an assessment of the development and management policies of the Fremantle Harbour Trust is a major objective of this thesis.

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ABBREVIATIONS

AOTA	Australian Overseas Transport Association
ASOF	Australasian Steamship Owners' Federation
FHT	Fremantle Harbour Trust
FPA	Fremantle Port Authority
HL	Harbour and Lights Department
L.A.	Legislative Assembly
L.C.	Legislative Council
P.D.	Parliamentary Debates
P and O	Peninsular and Oriental Steamship Navigation Company
PWD	Public Works Department
SSS	State Shipping Service
WA	West Australian
WASA	West Australian Shipping Association
WASN	West Australian Steam Navigation Company
WWF	Waterside Workers' Federation

PREFATORY NOTE

Contemporary units of measurement have been used throughout the thesis. Thus monetary amounts are expressed in pounds, shillings and pence. When decimal currency was introduced in 1966 conversion was on the basis of one pound equals two dollars.

The following are the metric equivalents of other measures used in the thesis:

1	foot	=	30.5	centimetres
1	mile	=	1.61	kilometres
1	ton	=	1.02	tonnes
1	bushel	=	0.0364	cubic metres
1	gallon	=	4.55	litres
1	acre	=	0.405	hectares

The Location of the Port of Fremantle
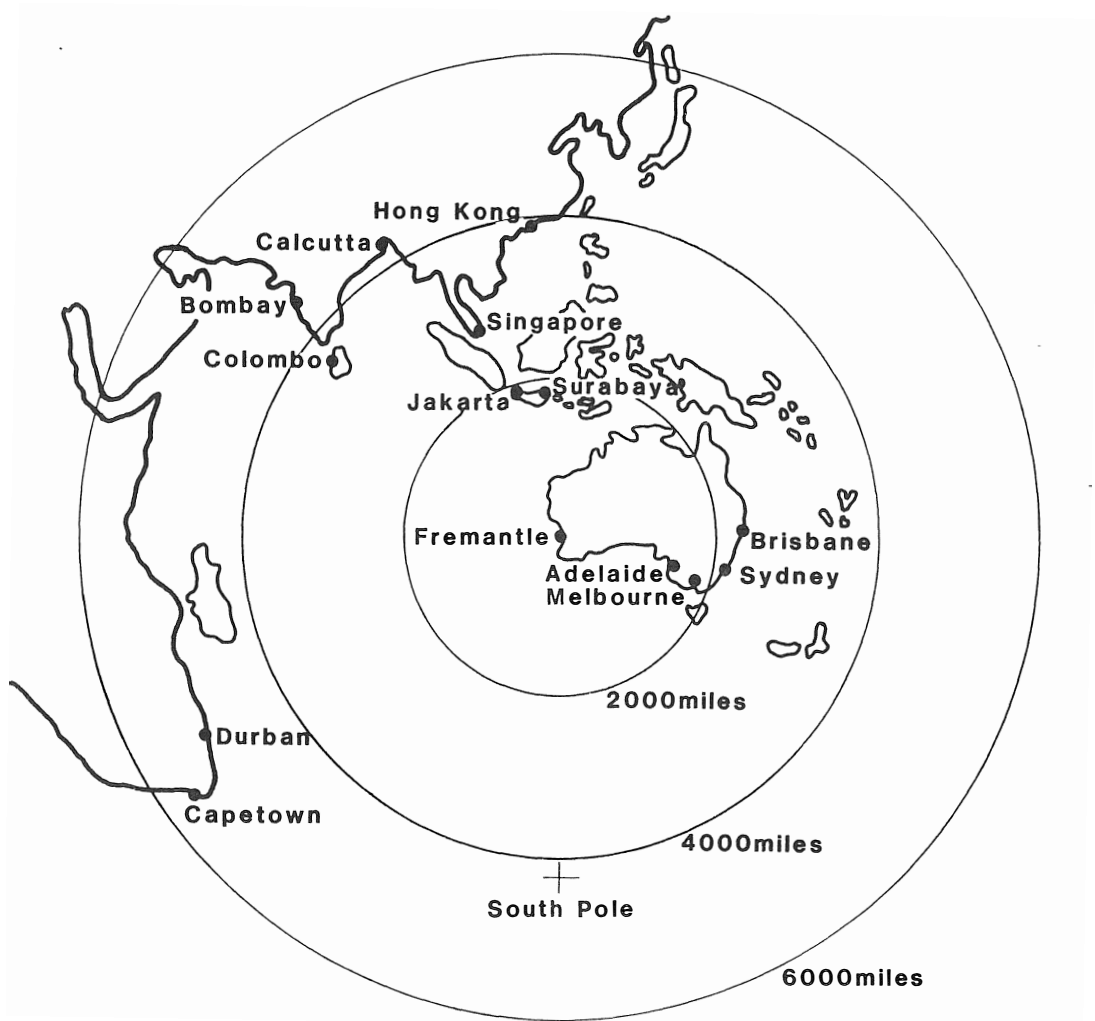
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CHAPTER 1

Introduction

Although Australia is the world's largest island her economic
development has been based on the exploitation of the land rather than
the sea. Australia lacks a strong tradition of maritime enterprise
despite the fact that she is 'the off spring of a mighty sea-power'.[1]
One consequence of this is that for a long time historians neglected
Australia's maritime history. In the late 1960's, the state of the
literature led an English geographer to observe that 'Australia is a
maritime nation and scarcely knows it'.[2]

However, interest in maritime history was stimulated by the
publication in 1966 of G. Blainey's The Tyranny of Distance. Blainey
was the first historian to give prominence to the role played by
distance and isolation in shaping Australia's history. It is now widely
recognised that Australia's large area and limited population, with
major industrial centres widely dispersed along its coastline, has meant
that the cost of transport, both on sea and on land, has had a major
influence on the development of the national economy. The cost of ocean
shipping is particularly important, affecting the competitiveness of
Australia's primary exports and providing a 'tariff wall' for her
manufacturing industry. Writing almost twenty years after The Tyranny
of Distance was first published, F. Broeze identified a number of flaws
in Blainey's book but still acknowledged that it was epoch-making in
that it brought together 'a remarkable array of aspects of the
development of Australia's transport history'.[3] Another landmark in the
development of maritime history was the publication of John Bach's A

Maritime History of Australia in 1976. It was followed two years later

by the formation of the Australian Association for Maritime History.

However, despite the growing interest in maritime history there is still

considerable scope for further research, particularly into the history

of Australia's ports.

Ports are vital links in the international transport system and,

for an island nation such as Australia, assume a special importance as

gateways to the rest of the world. The basic function of a port is to

provide a link between land and sea transport and to furnish means by

which transfers of freight and passengers between the two systems can be

made efficiently. In the words of one geographer, a port is

> the place of contact between land and maritime space, and
> it provides services to both hinterland and maritime
> organisation. It is, therefore, a knot where ocean and
> inland transport lines meet and intertwine.[4]

But a large port is not always just a place where land and sea transport

are linked: it can also be a centre of population and political,

economic and social activity. A recent study of the modern Indian Ocean

ports has shown that these ports formed the hearts of cities which

constituted the meeting places of European and indigenous cultures.[5] In

short, the ports facilitated western economic penetration into the less

developed parts of the world. Australia's capital city ports were

established between 1788 and 1837 in order to provide the British Empire

with gateways to the vast Australian continent. Yet inspite of their

importance, ports have generally been neglected by historians.

The study of port history has often been undertaken by

geographers or economists rather than by historians. This means that

port histories tend to vary widely in focus and scope. The classic port

history is probably R.G. Albion's The Rise of New York Port (1939). A

valuable study of an Asian port is K. Dharmasena's The Port of Colombo 1860-1939 (1980). There are a number of useful studies of British ports, including J.G. Broodbank's History of the Port of London (1921), J. Bird's The Major Seaports of the United Kingdom (1963), F. Hyde's Liverpool and the Mersey (1971), G. Jackson's Grimsby and the Haven Company, 1795-1846 (1971), G. Jackson's Hull in the Eighteenth Century, (1972) and D. Farnie, The Manchester Ship Canal and the Rise of the Port of Manchester 1894-1975 (1980). G. Jackson's The History and Archaeology of Ports (1983), provides an invaluable survey of the development of British ports. A.H. McLintock's The Port of Otago (1951) and W.H. Scotter's A History of Port Lyttleton (1968) are both sound contributions to New Zealand port history.

By contrast with overseas scholars, Australian academics have neglected port history. One exception is G. Lewis' A History of the Ports of Queensland (1973). R.J. Solomon provides an interesting account of the development of Hobart in Urbanisation: The Evolution of an Australian Capital City (1976). But where academics have studied Australian ports this has usually been as part of a wider study of shipping or freight rates.[6] However, there are a number of useful descriptive histories of ports including O. Ruhen's Port of Melbourne 1835-1976 (1976), P.R. Stephenson's The History and Description of Sydney Harbour (1966), H. Shore's From the Quay (1981) and R.A. Ferrall's The Story of the Port of Launceston (1983).

In recent years historians have shown increasing interest in the history of Western Australia, but the history of West Australian ports remains relatively unexplored. V.G. Fall's The Sea and the Forest (1972) records the history of the once flourishing port of Rockingham,

and D.S. Garden has provided a history of Albany and its port in his
Albany: A Panorama of the Sound from 1827 (1977). However, as yet,
there is no comprehensive history of the Port of Fremantle, the main
western gateway to the Australian continent. The main study of
Fremantle and its port is J.K. Ewers' Western Gateway, a popular history
first published in 1948. It could be that the absence of a detailed
economic history of Western Australia makes it difficult to produce a
'micro' study at the port level.[7] However, it can be argued that a
general 'macro' study can be written only after detailed 'micro' studies
have been completed. Furthermore, some indicators of the state's
economic development are now available.[8] Thus it appears that a
detailed study of the Port of Fremantle is long overdue.

The objective of this thesis is to help rectify this deficiency
by charting the history of the Port of Fremantle between 1903 and
1939. The choice of time-period was partly dictated by the need to
produce a manageable topic but mainly by the fact that both dates
represent significant turning points in the port's history, albeit in
markedly different ways. The Fremantle Harbour Trust became the central
administrative authority for the port from 1 January 1903. The late
19th century and early 20th century saw the establishment of port
authorities in most Australian colonies: for example, Melbourne
acquired a harbour trust in 1876, Sydney in 1901. The difficulties of
private interests in meeting the necessary financial outlays, the need
to prevent preferential treatment and discrimination between the various
port users, the desirability of co-ordinating the activities of a port
with state needs, especially those of its hinterland: all underlay
moves towards public administration of Australian ports. Thus the

creation of the Fremantle Harbour Trust in 1903 can be seen as a major turning point in the port's history. The outbreak of the Second World War provides a convenient terminating date because the post-1945 years were both quantitatively and qualitatively different. Port trade reached record levels and shipping was revolutionised by technological changes which created a whole new set of demands on the ports.

All of Australia's seaports were involved in basically the same task of coping with trade, passenger and ship flows. But differences in state politics, geography, the nature of hinterlands and the types and volumes of cargoes handled have produced numerous variations in port administration and cargo-handling procedures. Some cross-references will be made to the experiences of other ports in order to place Fremantle's development in perspective. One obvious area of comparison is the original decision on port location.

The choice of location is, of course, one of the first decisions made for any port. The choice would normally be a rational one, made after assessing the relative advantage of other locations though in Australia reliable information on alternative locations was not readily available to the first settlers. The choice of Botany Bay, for example, was influenced by the reports of Captain Cook's expedition, which proved to be inaccurate. Instead of a safe harbour Governor Phillip found a shallow and exposed bay. However, Port Jackson, a few miles to the north, offered sheltered mooring for ships, deep water close to the shore and access to the interior, water supplies and building materials.[10] In these respects, Port Jackson was an almost perfect choice for the site of the first settlement. In Western Australia, however, the search for access to potential agricultural areas and water

and building supplies led to the choice of Perth, twelve miles upstream from the mouth of the Swan River. A rock bar blocked the river mouth so it was impossible for ocean-going vessels to proceed directly to Perth. The town of Fremantle was established at the mouth of the Swan River and in the early years grew faster than the capital Perth.[11] Ships were forced to anchor in the exposed Gage Roads and lighter their cargo ashore. It then had to be transferred to boats and ferried up-river or transported overland by bullock cart. It hardly needs to be said that Fremantle was originally a very poor location for a port. Until the end of the 19th century, Albany, with its natural harbour and closer proximity to shipping routes, was the only port of call for mail steamers.[12]

The passage of time can significantly alter the viability of locations: what was once an ideal location can become an inferior one; a poor location may become more favourable. So it was at Sydney and Fremantle. In Port Jackson the nature of the terrain limited the availability of land physically suitable for port development. The presence of deep water close to the shore became, paradoxically perhaps, a further constraint on port expansion. The steep foreshores and limited flat land at the waters edge meant that expensive rock blasting and/or reclamation was required in order to create sufficient space for terminal facilities. Even if reclamation was undertaken it was restricted by the need to retain an adequate area of water for the safe manoeuvring of ships. These physical constraints became very important after the Second World War: Port Jackson was 'precociously supplied with deep water, yet now hemmed in on all sides not only by a great city but also by its beautiful and unyielding sandstone'.[13] By contrast, at

Fremantle political action helped overcome the port's locational disadvantages. In 1891 C.Y. O'Connor's scheme for the development of the Inner Harbour was accepted by the government. This scheme involved the construction of breakwaters, the removal of the rock bar, dredging of the river channel and the construction of wharves. The Inner Harbour was officially opened on the 4 May 1897 when the Sultan, a vessel of 2,062 tons, entered port. In 1901, for the first time, the tonnage of shipping entering Fremantle exceeded that entering Albany.[14] Henceforth, Fremantle was to be the state's major port of call for overseas ships. Thus Fremantle's history demonstrates how man's engineering capability can succeed in creating a viable port even when georgraphical conditions are not immediately favourable. It is a tribute to O'Connor's foresight that the basic structure of the Inner Harbour remains unchanged to this day. What Fremantle lacked at the turn of the century was a sound system of administration and therefore tracing the evolution of formal port administration is a major task of this thesis.

Although the FHT was the major public organisation responsible for the development and operation of the port and hence occupies a central place in this thesis, other organisations and actors, both public and private, were involved in the working of the port. These included overseas and interstate shipowners, shipping agents, consignees, stevedoring companies, tug operators, bunkering agents, oil companies, baggage handlers, haulage contractors, ship repairers, waterfront businesses, waterfront unions, the Fremantle Council, police, railway, customs, immigration and other state and federal public servants. The profusion of organisations and actors, and the

interconnections between them, created a complex network of relationships extending throughout Western Australia and, indeed, Australia as a whole. In a very real sense the port was 'a community enterprise'.[15] Although we concentrate on the FHT, the activities of these other organisations and actors will be brought into the discussion where appropriate.

The large number of organisations and actors involved in the working of the port is indicative of the economic importance of the port activities. But the contribution of the Port of Fremantle to the Western Australian economy was, of course, dependent on the efficiency with which the port was run. In the chapters that follow we will examine the organisational, technological, economic, political and social factors, underlying the port's response to changes in trade, passenger and ship flows between 1903 and 1939. Thus it is hoped to cast some light on the question as to whether such adaptation was efficient or whether the port was a bottleneck on growth. In view of its role as main port controller, operator and planner, an assessment of the development and management policies of the FHT is a major objective of this thesis.

Broadly speaking, the development of the port will be analysed from the perspective of maritime history.[16] In view of the enormous range of influences on port operation and development a narrow approach, based, for example, only on economic history, would leave many interesting questions unanswered. Thus this thesis considers a variety of issues in technological, economic, business, social and political history.

It has been observed that studies of ports and port cities tend to fall into two extremes. On the one hand, there are works dealing with the minutiae of port activities such as shipping, trade and cargo-handling; and on the other hand, there are works dealing with the city as a whole but neglecting maritime activities.[17] In the latter case, the port city becomes 'little more than a city that happens to be located at the shore line'.[18] A comprehensive analysis of a port city requires a multidisciplinary approach which recognises the links between port and city development.[19] It should be stressed at the outset that this thesis falls into the first category, that is, it provides a detailed study of the Port of Fremantle and makes no claim to provide an urban history. Unfortunately, there is no comprehensive urban history of Fremantle in our period let alone estimates of 'gross city product' which could clarify the working of the urban economy.[20] Further research is required into the economic, political and social structure of the city before the contribution of the port can be disentangled. It is hoped, however, that this thesis offers a useful first step in identifying the port's contribution to Fremantle's emergence as a port city.

The sources used in this thesis include archive material, government reports and publications, parliamentary papers and debates, newspapers and periodicals. The Fremantle Port Authority allowed access to their surviving records for the period 1903 to 1939 and these were the main primary source used in the thesis. In addition, considerable use was made of the records of the Harbour and Lights and Public Works Departments, which are located in the J.S. Battye Library of West Australian history. The Federal and Fremantle Branch records of the

Waterside Workers' Federation located in the Australian National University's Archives of Business and Labour History were an indispensable source for Chapter 5. Limited use was also made of the records of a number of federal government departments.

Outline of thesis

Because some aspects of the port's history, such as cargo-handling, do not lend themselves to a strictly chronological approach, the thesis is organised on a topical basis. Chapter 2 charts the evolution of formal port administration and control at Fremantle. Changes in social and economic conditions led to changes in port administration; thus the Fremantle Harbour Trust Act 1902 which established the FHT, was amended in 1906, 1911 and 1913. The government's desire to preserve revenue led it to keep a tight control over port finances and there were complaints about the port being used as a 'tax-collecting machine'. However, the FHT was given power to undertake cargo-handling, an unique responsibility for an Austalian port authority. The men responsible for guiding the destiny of the Trust are considered, although surviving port records provide few clues as to their personalities.

The next two chapters discuss the growth and changing composition of port activity as measured by cargo flows and passenger flows (Chapter 3) and ship movements (Chapter 4). Port trade mirrored developments in the state as a whole so Chapter 2 charts the growth of the West Australian economy between 1903 and 1939. Western Australia remained a basically primary producing state, with a small manufacturing sector, throughout this period. The result was that Fremantle's export trade was dominated by grain, wool, timber and other primary produce and

the import trade by manufactured goods originating from both overseas and interstate. However, from the 1920's onwards imports of oil and petrol also became important. Fremantle, aided by its geographical location and favourable railway connections, remained the state's premier port throughout the period. However, after the gold rushes subsided it experienced relative decline as a gateway for the nation's trade. From an international point of view Fremantle remained a minor port serving a sparsely populated corner of the British Empire, yet it achieved some wider importance as a port of call and bunkering port.

The implications of trade for the port varied not only according to its volume and pattern but also according to the nature of the ships in which the cargo was carried. Thus in Chapter 4 considerable attention is given to changes in the types, sizes and technology of vessels calling at Fremantle. One of the most striking changes was the tendency towards increased ship size: between 1903 and 1939 the average vessel calling increased from about 1,800 to 5,000 net registered tons. But the port had to cope with vessels of 20,000 tons and above, usually mail steamers and passenger liners. These large vessels required costly deep-water channels and berths.

Chapter 5 deals with cargo-handling practices, working conditions and industrial relations on the waterfront at Fremantle. A wide range of people derived employment opportunities from the operation of ports but probably the most important single group of workers were the wharf labourers who undertook the physical handling of cargo. As late as 1939, their task remained a basically manual one, requiring considerable physical strength; moreover, it was often undertaken in arduous and hazardous conditions. The wharf labourers were employed on

a casual basis, a system of employment associated the world over with low and irregular earnings, poor working conditions, industrial unrest and restrictive practices. The latter, designed to provide additional employment through over-manning, spinning out work and similar practices, reduced labour efficiency and, together with the unique problems Fremantle faced as a port of call (for example, awkwardly stowed cargo), helped her acquire a reputation of being a 'slow' port.

Chapter 6 traces the physical evolution of the port in response to changes in trade, passenger and ship flows. The FHT's endeavours to make Fremantle a 'first class port' led, amongst other things, to the deepening of the harbour, an abortive attempt to provide a dry-dock, and the development of bulk oil and grain handling. But as we observed earlier, the port's basic physical lay-out remained relatively unchanged as late as 1939, thereby testifying to the soundness of C.Y. O'Connor's scheme.

In view of the impact of the FHT's financial capabilities on the port's response to change, it is necessary to examine port finances in some detail. Thus Chapter 7 examines port income and expenditure patterns, charging practices, sources of capital funds and the profitability of port operations. The FHT's finances and in particular its tariff policy, were shaped by a variety of pressures including revenue requirements, political bargaining, state development policies, as well as historical inertia.

Finally, in Chapter 8 we examine a number of yardsticks of physical, financial and administrative efficiency, in order to assess the performance of the port and its administrators between 1903 and 1939. We find that the FHT generally managed to keep the port's

physical facilities ahead of the requirements of trade and shipping, although there were complaints about slow turnround and labour inefficiency during the 1920's. However, the development of Australia's western gateway was a complex affair, involving a large number of organisations and actors, not just the FHT. The multiplicity of decision-makers affecting and affected by port development gives ports a unique complexity. It is this complexity, in particular, which ensures that ports are more than passive links in the international transport chain and are worthy of serious consideration by historians.

Footnotes

1. J. Bach, <u>A Martime History of Australia</u>, (Melbourne, 1976), p.2.

2. J. Bird, <u>Seaport Gateways of Australia</u>, (London), 1968), p.234.

3. F. Broeze, 'The Tyranny of Distance: a flawed paradigm', in A. Markus and M.C. Ricklefs, <u>Surrender Australia? Essays in the study and uses of history</u>, (Sydney, 1985), p.72.

4. G.G. Weigend, 'Some Elements in the Study of Port Geography', <u>Georgraphical Review</u>, vol.48 (1958), p.185.

5. F.J.A. Broeze, K.I. McPherson and P.D. Reeves, 'Engineering and Empire: The Making of the Modern Indian Ocean Ports', a paper prepared for the Asian Studies Association of Australia, Fifth National Conference, Adelaide University, May 13-19, 1984.

6. See K. Burley, <u>British Shipping and Australia 1920-1939</u>, (Cambridge, 1968), ch.5; and K. Trace, 'Australian Overseas Shipping 1900-60', (Ph.D thesis, University of Melbourne, 1965), ch.6.

7. For this point see R.T. Appleyard, 'Problems in Writing a History of Fremantle', in C.T. Stannage (ed.), <u>Local History in Western Australia</u>, (Perth, 1974).

8. See C.T. Stannage (ed.), <u>A New History of Western Australia</u>, (Nedlands, W.A., 1981), chs.5-8.

9. S. Glynn, <u>Urbanisation in Australian History 1788-1900</u>, 2nd ed., (Melbourne, 1975), p.29.

10. Bird, <u>op.cit.</u>, p.27.

11. <u>Ibid.</u>, p.29.

12. F.K. Crowley, <u>Australia's Western Third</u>, (Melbourne, 1970), p.24.

13. Bird, <u>op.cit.</u>, p.67.

14. Crowley, <u>op.cit.</u>, p.130.

15. M.L. Fair, <u>Port Administration in the United States</u>, (Cambridge, Maryland, 1954), p.4.

16. See R. Davis, 'Maritime History: Progress and Problems', in S. Marriner, (ed.), <u>Business and Businessmen. Studies in Business, Economic and Accounting History</u>, (Liverpool, 1978), pp.169-97.

17.   F. Broeze, P. Reeves and K. McPherson, 'Port Cities in the
       Indian Ocean Region 1815-1939: Functional and Methodological
       Issues', paper given at the International Conference on
       Indian Ocean Studies, Perth, Western Australia, 5-12
       December 1984, p.2.

18.   Ibid.

19.   Ibid., pp.10-5 outlines a possible framework for such an
       analysis.

20.   A useful contribution to the urban history of Fremantle is R.
       Reece and R. Pascoe, A Place of Consequence. A Pictorial
       History of Fremantle, (Fremantle, 1983). The suggestion
       that 'Gross City Product' aggregates could be used to
       clarify the working of the urban economy was made by F.
       Broeze in 'Port Cities: The Search for an Identity', Journal
       of Urban History, vol.11 (1985), p.212.

CHAPTER 2

The Development of Port Administration at Fremantle
1903 to 1939

The objective of this chapter is to chart the evolution of formal port administration at Fremantle. This discussion of administrative arrangements is an essential background for later chapters which deal with trade, shipping, cargo-handling, port development and port finances.

Although the primary focus is on the Fremantle Harbour Trust (FHT) which commenced operations on 1 January 1903, it is first necessary to consider earlier forms of administration in order to explain the reasons for its creation. We then examine the development of the FHT's powers and functions between 1903 and 1939. Detailed attention is given to administrative reforms in the areas of cargo-handling and pilotage services. Finally, we consider the personalities responsible for guiding the destiny of the Trust during the first forty years of this century.

1. Physical and organisational development of the port to 1902

In 1829 Captain James Stirling founded a settlement on the banks of the Swan River. He later wrote:

> On our arrival here with the expedition the imperfect
> knowledge which I had of the country was of course soon
> extended and it was found in consequence that a Town at
> the mouth of the Estuary would be requisite for landing
> goods and as a Port Town, while another sufficiently high
> on the River to afford easy communication between the
> Agriculturalists on the Upper Swan and the Commercial
> Interest at the Port would tend much to the speedy
> occupation of that useful District. In selecting a site
> for this purpose, the present position of Perth seemed to
> be so decidedly preferable in building materials, streams
> of water and facility of communication that I was induced
> on these grounds to establish the Town there.1

The port town was named Fremantle, after Captain Charles H. Fremantle, who took possession of this part of the continent in the name of His Majesty King George IV on 2 May 1829.

Although it appeared natural to Stirling to site the colony's port at the mouth of the Swan River, it was far from an ideal location because a rock bar blocked the mouth of the river, preventing the entry of ocean going vessels.[2] Ships had to anchor in the exposed Gage Roads and lighter their cargoes ashore. It was then transferred to river craft and ferried up-river or carried by horse and cart over a rough road to Perth.[3]

The first port facility was a small jetty built near Arthur's Head in 1832. By 1875 there were three lighterage jetties, one in the river in five feet of water and two south of Arthur Head in eight and twelve feet of water.[4] In order to cater for the increasing size of ships one of the latter jetties, known as the Long Jetty, was extended into 20 feet of water in 1893. This was, at best, only a makeshift arrangement, because the jetty was unusable in heavy weather. A south-westerly gale did so much damage to one ship that the Captain declared:

> It is certainly the worst place I or anyone else ever saw. No place to send a ship of this size ... I would not come to this port again and be obliged to discharge at this wharf, if they made me a present of the vessel.[5]

Bad weather also interrupted cargo-handling causing ships to spend a long time in port. The barque Catalina, which arrived in March 1886 with 600 tons of cargo, took five weeks to unload even though she was equipped with steam winches to help unload her cargo into lighters.[6] Not surprisingly, shipowners considered Fremantle 'a port to avoid' and demanded high freight rates in order to compensate for the risk of

calling.[7] The overseas mail steamers preferred to call at Albany, located some 250 miles to the south, because it offered a safe deep-water harbour.[8]

Administration of Fremantle harbour was divided between four government departments: the Harbour Master's Department, Customs, Railways and Public Works.[9] The first Harbour Master, Commander M.J. Currie, was appointed by Stirling whilst enroute to the colony on the Parmelia. From that time onwards the Harbour Master's Department controlled shipping movements, pilotage and other navigation services. The Customs Department's responsibilities included jetty and shore activities associated with cargo-handling until the jetties were connected to the railway system in 1891, when control of these activities was transferred to the Railway's Department. All construction work in the port was undertaken by the Public Works Department. We will see later that this divided control led to a lack of coordination and delays in port administration and development. According to G. Henderson, poor port facilities at Fremantle and the north-west outports contributed to:

> a high incidence of shipping casualties, higher freight rates and insurance rates, slower turnround potential, and consequently an absence of larger vessels on the coast. The lack of facilities was also to delay for a time, but not prevent, the introduction of steam on the various routes to Fremantle.[10]

From the 1830's onwards various proposals were made to make Fremantle into a safe and efficient harbour.[11] In 1839, for example, J.S. Roe, the Surveyor General, submitted a design for a harbour constructed under the shelter of a breakwater off Arthur Head. The first proposal for a harbour in the river was made by W. Phelps, Assistant Surveyor, in 1856. This involved dredging a 300 feet wide

channel up-river and reclaiming land on both sides of the channel. Some experts on harbour construction even suggested abandoning Fremantle and building a new port at Cockburn Sound. In 1870, W.T. Doyne, for example, recommended against the development of Fremantle because of 'the numerous natural difficulties to be contended with, and the consequent great cost and uncertainty of works undertaken for such a purpose.'[12] It appears that he reached this conclusion after studying timber transport in Western Australia.

Timber was cut east of Fremantle in the Darling Ranges and Drawn by horse and cart to 'the muddy dyke called the "Canning River"'. It was then ferried downstream to Fremantle by river boats. In rough weather these boats could not go out to Gage Roads so the timber had to be transferred to more seaworthy craft. Doyne argued that this multiple handling could be avoided by sending the timber by rail to Cockburn Sound. In 1872 timber companies built a railway from Jarrahdale to Rockingham; the timber trade flourished until the opening of the Inner Harbour in the 1890's.[13] But it was over 70 years before any major port facilities were located at Cockburn Sound.

Between 1877 and 1891 an eminent British engineer, Sir John Coode, submitted several schemes for a harbour outside the mouth of the Swan River. But his schemes, like those of Doyne and others, never reached fruition. There were basically two reasons for this. Firstly, reports from all engineers, including Sir John Coode, advised that the lack of tidal currents at Fremantle would cause the rapid silting up of any harbour constructed in the river. Secondly, and probably most importantly, the cost of most of the proposals was beyond the economic resources of the fledgling colony. For example, in 1887 Coode proposed

a scheme for a port at the river mouth at an estimated cost of £495,000, more than three times the amount the government proposed to spend.[14] Money for developmental works was limited until the granting of responsible government in 1890; henceforth, the governments of Western Australia were free to borrow money on their own account, without reference to the British Government.[15] But, above all else, it was the gold rushes of the 1890's that provided both the means and the incentive for investment in harbour and other transport facilities.

Gold transformed the economies of the eastern colonies in the 1850's; it produced a similar transformation in Western Australia in the 1890's. The population of Western Australia grew from about 48,500 in 1890 to 180,000 in 1900; a fourfold increase within a decade.[16] Government revenue rose from £1.2m in 1894-95 to £3.08 million in 1899-1900. External trade leapt from £1.55 million in 1890 to £12.81 million in 1900.[17] The tonnage of shipping calling at Fremantle rose from 44,000 tons in 1888 to 66,000 tons in 1891; by 1900 shipping tonnage had passed the million mark. This massive expansion of port activity overtaxed the capacity of the port's facilities, echoing the experience of the ports of Sydney and Melbourne, forty years or so earlier.[18] There was an urgent need for investment in harbours, railways, water supplies and other infrastructure required to service the needs of a growing economy.

Western Australia's first premier, John Forrest, 'a man of forthright rectitude, robust commonsense, and homely hardheadedness',[19] embarked on an extensive programme of public works. During the decade in which he was premier the public debt increased from £1.4 million to £12.2 million.[20] In 1891, in what proved a particularly astute move,

Forrest appointed C.Y. O'Connor as engineer-in-chief. O'Connor, who was born and trained in Ireland, had acquired extensive experience of public works projects in New Zealand, and provided the professional skills necessary to translate Forrest's plans into reality. He was an outstanding example of 'the general practitioners' of the engineering profession, men who could turn their hands to a wide range of projects, including in his case railways, a water pipeline and harbour works.[21] M. Tauman, in her book The Chief, C.Y. O'Connor described him as 'a man of brilliant genius and remarkable foresight.'[22] R.T. Appleyard has said that 'in this trilogy of circumstances - discovery of gold, responsible government and political leadership - lies the key to understanding the nature of economic change in the decade prior to federation.'[23] Doubtless, Appleyard would also acknowledge the contribution of dedicated public servants such as C.Y. O'Connor.

The Premier, John Forrest, was determined to attract the mail steamers to Fremantle. From the 1840's onwards the quest for adequate steam communications and mail services with Britain had generated considerable rivalries between the Australian colonies. The first comprehensive mail contract providing a weekly service from England to Albany, Adelaide, Melbourne and Sydney was not, in fact, developed until 1888.[24] However, as early as 1852 mail steamers had began calling at Albany, some 250 miles to the South of Fremantle. Mail for Fremantle and Perth was off-loaded and sent by small coastal steamers to Fremantle. Fremantle and Perth interests agitated for the mail steamers to call at Fremantle but they refused to do so until a secure harbour was available.[25] Thus the first task that Forrest gave O'Connor was to provide a suitable harbour at Fremantle.

After detailed investigation, O'Connor rejected the notion that sand drift would prevent the opening up of the river and recommended the construction of a commercial port inside the river. The scheme involved the construction of two moles to protect the entrance to the river estuary, the blasting and dredging of a channel through the rockbar to a depth of 30 feet, dredging of the river channel to 30 feet, reclamation of land for quay and warehouse space, and the levelling of Arthur's Head for railway sidings and the provision of a graving dock and slip.[26] After some initial opposition Forrest accepted his plan, and construction of the North Mole began in November 1892.[27]

By 4 May 1897 enough of the rockbar had been cleared to allow the first ocean going vessel, the Sultan of 2,062 tons to enter the new harbour. The first mail steamer to enter was the Norddeutscher Lloyd's Gera of 5,005 tons on the 10 August 1898. But the Peninsular and Oriental Steam Navigation Company and the Orient Line, the holders of the government mail contracts, delayed the switch to Fremantle until their representative Captain T.S. Angus had had a chance to inspect the new harbour. In 1899 he visited Fremantle and expressed concern that steamers might be unable to leave Victoria Quay in rough weather. Forrest authorised construction of a special mail boat jetty on the north quay despite O'Connor's claim that it was unnecessary.[28] In fact, the jetty was never used by mail boats and was eventually demolished in 1915.[29] As further inducement to the mail steamers, the government agreed to provide tugs free of charge until the Inner Harbour was completed, much to the chagrin of local tugowners.[30] Furthermore, a concessionary rate of £30, introduced in 1892 to cover all dues paid by mail steamers at Albany, was extended to Fremantle for the life of the

current mail contract.[31] These concessions suggest that the government was determined to attract the steamers to Fremantle, regardless of cost, and that the British shipping companies were not slow to exploit their bargaining power.

In August 1900 Captain Angus reported that the harbour was safe for mail steamers; Albany's days as the colony's mail station were effectively over. The first British mail steamer to enter was the Orient-Pacific Line's Ormuz which arrived from the eastern states on 13 August 1900; the first British steamer outward bound from London to enter was the Peninsular and Oriental Company's Himalaya on 13 September 1900.[32] O'Connor's scheme and the government's concessions had finally succeeded in establishing Fremantle as the colony's leading port.

Construction work on the harbour was largely finished by 1903, with the exception of the graving dock. Although a major subject of discussion in parliament and the press from 1900 onwards, work on the dock did not commence until 1908. The ill-fated dock project will be discussed in detail in Chapter 6.

The layout of the Inner Harbour remains fundamentally unchanged to this day: a striking tribute to the soundness of O'Connor's scheme. Opening up the river cost, however, almost £ 1 $\frac{1}{2}$ million, testifying to the advantages of a port such as Albany, which was endowed with a natural deepwater harbour. However, it was claimed that Fremantle was now 'a model of what a modern harbour should be.'[33]

Once a sound physical infrastructure had been created, the next task was to provide for its efficient operation and future development. We have seen (p.18) that control of the harbour was divided between four government departments: Harbour Master's, Customs,

Railways and Public Works. Port users complained that this divided control led to a lack of coordination and delays. The goldrushes of the 1890's put increased pressure on the port. In January 1896, when inflows of migrants and goods were particularly heavy, a meeting of merchants and shipping agents claimed, for example, that the railway system was completely disorganised. Railway trucks were loaded indiscriminately, with 'potatoes and onions at the bottom, with machinery on top; boxes of butter were exposed to the hot sun so that their contents melted and spread over the wharves.'[34] The resultant public outcry eventually led to the dismissal of H.W. Venn, the Minister of Railways and Public Works.

Captain Laurie, a leading stevedore, later complained that the Harbour Master could berth a vessel where he liked but that the Railway Department might refuse to take cargo away from the vessel.[35] The Railway Department adhered to a strict schedule: trucks were placed alongside a vessel at 8 o'clock in the morning and removed at 12 o'clock, regardless of the needs of shipping. It was necessary to travel to Perth in order to appeal to the Head of Department. The Public Works Department appeared to be unaware of the specialised needs of port operators: for example, it designed some sheds with a gap of 166 feet between them and the wharf edge, unnecessarily increasing trucking and handling costs. Even minor improvements were made only after long delays. In 1899 it was claimed that London brokers were threatening to revert to the old practice of lightering goods ashore, rather than tie up at Fremantle's wharves.[36] A local merchant complained that freight rates between Europe and Fremantle were 25 per cent higher than those between Europe and the eastern states. The main reason for this was the

slow discharging at Fremantle.[37]   The Hon. J.J. Higham, M.L.A. for Fremantle, complained that the Railway and Works Departments' administration had been characterised by 'want of system, want of proper appliances, and ... conflict of interests.'[38]   Clearly, there was a pressing need for a more unified system of port administration and control.

2.   The formation of the Fremantle Harbour Trust

The departure of the Premier, John Forrest, for federal politics in 1901, led to a short period of political instability which appears to have delayed attempts to reform port administration. However, in July 1902 Walter James' Government assumed office and the following month the Colonial Secretary, the Hon. W. Kingsmill, introduced a bill in Parliament designed to establish a harbour trust at Fremantle. After considerable debate over the details of the bill, it was passed on the 11 December. From 1 January 1903 The Fremantle Harbour Trust Act vested exclusive control and administration of the harbour in a body corporate, the Fremantle Harbour Trust, with common seal, power to hold land and perpetual succession.[39] Although some modifications have been made to cope with changing circumstances, the Fremantle Harbour Trust, renamed the Fremantle Port Authority in 1964, continues to guide the destiny of the port to this day. Such longevity suggests, at least superficially, that the 1903 Act must have incorporated sound principles of maritime administration.

The beginning of modern harbour management and control can be traced back to 1857 when the Mersey Docks and Harbour Board was formed.   Subsequently, similar forms of organisation developed throughout the British Empire.[40] Melbourne acquired a harbour trust as

early as 1876 and the Fremantle Harbour Trust Act was largely based on The Sydney Harbour Trust Act 1901 and a New Zealand Act of 1878.[41] Throughout Australia, a large variety of port authorities have evolved with varying powers and systems of control, reflecting the impact of a multitude of factors, including geography, the nature of the hinterland, the type and volumes of cargoes, and national and state politics. By the 1960's there were about 90 major ports in Australia administered by 35 different sorts of authorities: 'a system that grew up topsy-turvey from the days of pioneer settlement and sailing ships communications, developed during the days of State separatism and regional pride and jealousy and was never consolidated when the fragments became the Commonwealth.'[42] With this background, we will now turn and consider the detailed provisions of the Fremantle Harbour Trust Act. It is helpful to examine them under the following three headings: areas of jurisdiction; administrative structure; and statutory powers and responsibilities.

(a)   Areas of jurisdiction

The FHT was given jurisdiction over the Inner Harbour from the seaward ends of the moles up to the railway bridge - an area of about 152 acres of land and 250 acres of water. .The land area, on both banks of the river, provided ample space for berths, wharf sheds, railway lines and other port facilities.

The Trust was also given control over an Outer Harbour, bounded by a line extending from a point about seven miles north of Fremantle; then in a south-westerly direction to Bathurst Point on Rottnest Island; thence along the eastern shore of the island and Garden Island to John Point on the mainland. This Outer Harbour covers a vast area of 114,000

acres of water. No land in the Outer Harbour was vested in the FHT but in 1911 the Commonwealth decided to establish a naval base at Cockburn Sound and acquired a strip of land along the coast six miles long by one and a quarter miles deep. Plans for the naval base were abandoned in 1918 and the land remained largely undeveloped.[43] Thus in the 1950's when the state government attempted to attract industry to Western Australia, through a quirk of fate there was ample land in the Outer Harbour for port facilities and waterfront industry - an attraction not readily available in cramped metropolitan ports in the eastern states.

(b)   Administrative structure

The control of the FHT was vested in five part-time Commissioners appointed by the Governor in Council. Their appointment was for a three year term, and they were eligible for reappointment at the end of that period. The day-to-day administration of the harbour trust was placed in the hands of a secretary, who did not have a seat on the Board. Ministerial responsibility for the FHT resided with the Colonial Secretary.

The decision to appoint five part-time Commissioners was arrived at only after long debate. The Colonial Secretary cited the view that the ideal harbour commission should consist of one man; he expressed a desire to avoid the situation at Melbourne where there were 17 Commissioners, representing a wide range of port and city interests. As a consequence, it was difficult for the Melbourne Commissioners to reach a consensus, long and sometimes extremely acrimonious debates resulting. By contrast, at Sydney there were only three full-time Commissioners and 'for the purposes and in the circumstances of the Sydney Commissioners the constitution of the Sydney harbour trust is the

ideal constitution'.[44]   Nevertheless, for a less wealthy port such as Fremantle, the government favoured five part-time commissioners.   It is interesting that Frank Tydeman, General Manager of the FHT between 1950 and 1965, looking back on a life-time's experience of constructing and operating ports, claimed that the best arrangement was a 'dictator who knows his job'.[45]   However, few governments, except in war-time, have followed such a course, indicating perhaps that benevolent dictators with the necessary qualifications and experience are in short supply.

Regarding the selection of commissioners, it appears that Australian authorities have tended to favour government appointments rather than the idea of elective user representation.   This may be due to the fact that Australia lacked an overseas fleet and so elective user representation would have given foreign shipowners, a principal group of port users, an undue influence on port policy.[46]   Another possible reason was the fact that Australian ports were mainly state financed; Australia lacked the private harbour companies which were common in Britain.[47]   Nevertheless, West Australian governments usually consulted the principal interest groups such as merchants, shipowners and even, on occasion, waterside unions, before making an appointment.   The question of staffing and details of personalities will be considered later in the chapter.

(c)   Statutory powers and responsibilities

The powers and duties of the Commissioners were summarised in Section 24 of the Act:

> The commissioners shall have the exclusive control of the harbour, and shall be charged with the maintenance and preservation of all property vested in them under this Act.

In addition, the Commissioners were to provide and control the pilotage service and maintain the lights, buoys and signal systems of the port.

Although the FHT Act vested sole control of the harbour in the hands of the Commissioners, there were significant limitations on their autonomy, especially in financial matters. All revenue had to be paid to an FHT account controlled by Treasury, and was chargeable in each year with interest, sinking fund, and all costs of operating the port. Any balance remaining was paid to Consolidated Revenue. All expenditure, other than purely maintenance work funded from the Trust's own revenue, had to be approved by the government: the Trust complained that it could not even promote a man from fireman to engine-driver of a steam launch, 'without bringing into operation the whole paraphernalia of the process of approval by His Excellency the Governor in Executive Council, and publication in the Government Gazette.'[48] Furthermore, although the Trust was responsible for the maintenance of the port all works of construction and extension were still to be carried out by the Public Works Department. Section 25 of the Act provided for this as follows:

> The completion and extension within the harbour of all harbour works shall be deemed Government work within the meaning of the Public Works Act, 1902, and may be undertaken by the Minister for Works on the recommendation and under the advice of the Commissioners.

Thus as far as capital works were concerned, the Commissioners were merely an advisory body, with the government having final say.

Initially, there was some disagreement over the value of the capital works to be vested in the Trust. For example, the Public Works Department wanted to charge the Trust £71,157 for the cost of the old sea jetty.[49] Following the opening of the Inner Harbour this was useful

only as a public promenade, and the Trust argued that it was unreasonable to charge it for a structure which was now earning no revenue. The jetty eventually became unsafe and was demolished in 1921. The Commissioners stressed to the government that they were 'striving by all their power to cheapen the port and to provide efficient and rapid services', but that heavy capitalisation could only result in high port charges.[50] In 1905 the Trust complained that despite its continuous efforts, no schedule of property had been produced by the government: 'the Government have simply preserved a stoical silence, which seems as impenetrable as it is incredible.'[51] However, the following year it was finally agreed that the Trust assets be valued at £1,377,541.[52]

The 1902 Act made no provision for the creation of reserves for the renewal of assets and in February 1905 the FHT requested the establishment of a Renewals Fund.[53] The Treasury argued that a Renewals Fund could lead to loss of government control over port finances and that its creation would require an alteration to the existing Act.[54] The 1902 Act was something of a 'half-and-half'[55] measure, particularly in financial matters, and in 1906 an amending bill was introduced into parliament.

Captain Laurie, the first chairman of the FHT observed that 'the original Act was an experiment which it is admitted has worked well, but the time has arrived when full power should be given to the Harbour Trust.'[56] According to the West Australian, the Amendment Bill was designed 'to raise the status and increase the active usefulness of the Trust, and to make harbour work matters, so far as possible, politically non-contentious'.[57] However, once the implications of the bill became

apparent there were moves to modify it to ensure that harbour works remained firmly within the domain of parliament and party politics. The original bill proposed to give the Trust powers to borrow money on its own account and undertake harbour works, including the construction of a dock. The West Australian complained that in the 16th year of self-government, the present government planned to invite 'Parliament to lay aside its authority', and that an item of such importance as a dock should remain under parliamentary control.[58]   Opposition was also expressed to increasing the Commissioners' term of office from three to five years. These controversial proposals were eventually dropped, but the Amending Act granted the Trust power to construct harbour works subject to a limit of £2,000 on anyone undertaking (Section 35).[59] This provided a legal basis for expenditure on maintenance repairs. The Act provided for the establishment of a Renewals and Replacement Fund to provide for the replacement of assets. However, the appropriations to this fund were limited to £2,000 per annum, a sum which remained unchanged until the late 1960's. Thus the Trust was prevented from building up substantial internal reserves; this move appears to have been designed to ensure maximum government access to port profits. The Amending Act did allow the Trust to levy a Harbour Improvement Rate not exceeding one shilling per ton on all goods discharged or shipped from the port (Section 43). This provision was based on arrangements at Wellington, New Zealand, where a similar rate was introduced specifically to pay for the construction of a graving dock.[60]

However, once again control was retained in government hands because Section 55 of the Amending Act gave the Governor power to revise dues if port revenue was considered excessive or insufficient to meet

the needs of the Commissioners. The Amending Act generally clarified the Trust's financial arrangements and stated that interest of $3\frac{1}{2}$ per cent was to be paid on loan funds, together with a sinking fund for redemption purposes at the rate of one per cent of the capital debt.

The Amending Act provided the Trust with the power to employ labour and handle cargo (Section 31), a unique move which contrasts markedly with the severe restrictions placed on the Trust in the financial sphere. We will consider the reasons for this important provision in some detail below. Other general provisions of the bill dealt with the estimation of cargo tonnages, licensing and regulation of boatmen, porters, carriers and cab-drivers on the wharves, and limitations to the liability of the Commissioners for loss or damage in certain cases.

3.   The acquisition of cargo-handling powers

During the 19th century, as we saw above, the Railway Department was responsible for handling cargo to and from ships. But in 1902, when new wharf sheds were erected on Victoria Quay, the Railway Department arranged for shipping companies to handle cargoes through the sheds, apparently in order to save putting in their own labour.[61] The shipping companies received 1s 3d per ton for performing this service, a sum which was not always adequate to cover the costs involved.[62] In addition, they collected wharfage on all general cargo for which they received $2\frac{1}{2}$ per cent commission. The FHT continued this practice but reduced the commission to $1\frac{1}{2}$ per cent in May 1903. In November of that year the steamship companies decided that this commission was not sufficiently remunerative and discontinued the collection of wharfage charges. The Trust undertook the collection of charges itself and

estimated that this led to a halving of collection costs.[63] However, the change precipitated considerable controversy over responsibility for cargo. The shipping companies argued that in the past they had collected charges as agents for the FHT and while they would continue to handle cargo from ships for a fee they would take no responsibility for losses or damage. The Trust responded that it was acting only as a wharfinger, that is, as a body in charge of a wharf. It collected a charge to cover the cost of wharf facilities but left the question of who was to do the handling to be settled between the shipowners and the owners of the goods. But neither shipowners, stevedores (contractors in general for loading and discharging cargo) nor consignees would accept responsibility.[64]

In an attempt to find a solution, the government called for a 'Report as to the best method of providing Appliances and Accommodation for dealing with Cargo and Vessels at Fremantle', in June 1903. This report, prepared by W. Leslie, at that time resident engineer for the Harbour Trust, was ready within a month. Leslie declared

> that the present system of permitting the stevedores to
> own and use plant on the public wharves for handling cargo
> is to be condemned, as tending to build up private
> monopolies at the public expense.[65]

His report upset the FHT Commissioners because they felt that it should have been obtained from them and not one of their officers. Moreover, they were critical of the report, particularly as Leslie exceeded his terms of reference by making comments on general port administration.[66] For a variety of reasons, relations between Leslie and the Commissioners were very strained, a question we return to later in this chapter. In respect of cargo-handling, the FHT's public policy was to

> ... hold aloof from the work of handling cargo on the wharves ... it being their contention that the Harbour Trust Act did not place upon them the onus of this work ...[67]

However, in 1904 a conference of commercial and shipping interests formally requested the Trust to take over cargo-handling on the wharves. The Fremantle Chamber of Commerce even went so far as to say they were willing to pay higher rates to get the protection they desired.[68]

The FHT examined the situation at Sydney and Melbourne and found that cargo-handling was a matter of private agreement between the shipowners and merchants, 'with the result that at both ports great dissatisfaction existed.'[69] The situation was better at leased wharves because the companies holding the leases accepted responsibility for the cargo.[70] But the Trust rejected this solution for Fremantle owing to the shortage of accommodation at the port.[71]

Frank Stevens, Secretary of the FHT, wrote to William Ferguson, his counterpart on the Wellington Harbour Board, requesting details of arrangements at that port. Stevens, a New Zealander, was a journalist in Wellington earlier in his career and knew Ferguson. In his reply, Ferguson claimed that he remembered Stevens 'as one of the band of Pressmen to be dodged as far as was possible.'[72] The Wellington Harbour Board successfully handled all cargo on the wharves; Stevens was impressed by the 'perfect unanimity' at Wellington compared with the turmoil in Australian ports.[73] This evidence appears to have swayed the FHT Commissioners because, after obtaining permission from the government, the Trust commenced cargo-handling operations on 1 May 1904. Given that the Chairman of the FHT, Captain Laurie, also ran the port's main stevedoring business, the decision was remarkable. We will

consider staffing and the role of the Commissioners in more detail later in the chapter.

The 1906 Amendment Act provided a legal basis for the FHT's new role:

> The commissioners may provide servants and labourers for loading and unloading goods on the wharves vested in the commissioners, and for working cranes, weighing machines, or other machines and conveniences erected or provided by the commissioners for such purpose.[74]

The FHT introduced the custom of fixing the point at which the ship's responsibility ended and its began, at the moment when a man from the ship unhooked goods from the ship's gear. A similar custom was adopted in other Australian ports but with private stevedores assuming responsibility for the goods on shore. It is unclear why private interests at Fremantle were unwilling to do this; presumably if the Trust had not intervened they would have had to reach an agreement. No Australian port followed Fremantle's example, although there was some agitation for Melbourne to do so on the grounds that Fremantle's system was 'the most advanced in Australia'.[75] In 1907, the President of the Sydney Harbour Trust, Mr. Hickson, declared that he was strongly in favour of private enterprise doing cargo-handling.[76] One can only surmise that Fremantle's system may have followed from the appointment of a New Zealander, Stevens, as the first Secretary of the FHT. It was natural for Stevens to look for guidance from his home country, where the state was already involved in cargo-handling. A hint about Stevens personal views on this matter can be gauged from a talk he gave on the radio station 6WF in April 1925. He stated that 'Fremantle is the only port in Australia where vested interests have not been permitted to get their clutches on to this great national asset.'[77] Port authority

control of cargo-handling led to a greater share of the profits from the port accruing to the community, rather than to private interests.

The Trust found that 'difficulties that were anticipated at the outset were more imaginary than real';[78] it received praise for 'the smooth and satisfactory' working of cargo.[79] It was claimed that tighter control over handling operations led to lower levels of cargo pilferage,[80] but as we will see shortly the Trust eventually needed to request additional policing powers. The Trust quickly became the main employer of wharf labourers, with whom they appear to have enjoyed good relations.[81] Wharf labourers were employed on a casual basis and preferred working for the FHT because it 'has always something in hand'.[82] We will examine cargo-handling practices and the organisation of the wharf labourers in Chapter 5.

The honeymoon with port users appears to have lasted until about 1910. The FHT refused to accept responsibility for losses or damage to cargo handled at night owing to the difficulty of obtaining accurate tallies after dark. A dispute arose when it refused to compensate a consignee for damage to his goods and the inter-state shipowners offered to take over cargo-handling. However, this was resisted as it would have led to the elimination of the Trust from a profitable area of business. Between 1904-05 and 1909-10 the FHT made total profits of £30,000 from cargo-handling.[83] The Trust eventually agreed to accept responsibility for cargo handled at night for an extra charge of 3d per ton.[84] The Trust realised that night handling, although slower and less profitable than day time working, was beneficial, as it speeded up turnround and reduced the pressure for further port expansion.[85]

On the whole, merchants appear to have been satisfied with the Trust's work. In 1916 the Perth Chamber of Commerce declared that merchants prefer Trust control which 'under no circumstances should be abandoned'.[86] But two years later Mr. Griffiths, M.L.A. for York, introduced an unsuccessful motion calling for the FHT to withdraw from the handling of goods.[87] However, little more was heard about this matter until the 1920's when the Overseas Shipping Representatives Association (OSRA) formally expressed disatisfaction with the system of dual control at Fremantle.[88] Stevens asked for concrete statements of complaint as so far he had received only 'nebulous nibbling and grumbling'.[89] However, local companies claimed they were reluctant to make individual complaints for fear of reprisals.[90] It appears that OSRA recognised that dissatisfaction was not wholly due to matters over which the Trust had control; its push for privatisation appears to have been more a matter of principle than a result of deep-seated dissatisfaction with the Trust's performance. As we will see in Chapter 7, shipowners were more concerned about the level of port charges. Certainly powers once gained are not readily relinquished and, to this day, the Trust undertakes cargo-handling operations.

4.   Further development of the FHT's powers and functions

The Trust's powers were further extended by an Amendment Act of 1911.[91] The Amendment Act had three major provisions. Firstly, it provided the Commissioners with the power to remove goods left on the wharves or in the harbour area. The Commissioners had requested this because the previous season a quantity of wheat had been left in the wharf sheds and it had become infested with weavils. The weavils became so bad that they were being blown across the wharves and the Trust was

forced to clean up the mess.[92] The Amendment Act enabled the Trust to recoup the costs of the clean-up from the owner of the goods. Secondly, the Amendment Act gave the Commissioners the right to charge extra for night handling of cargo. As we have seen, they required this in order to cover the extra claims likely to arise because of the difficulty of obtaining accurate cargo tallies at night. Finally, the Act gave the Commissioners power to appoint special constables who, within the limits of the harbour, could exercise the powers of police officers. This power was necessary to combat pilfering of the cargo. There was a saying that wharf labourers wages were 'twenty quid a week and half the cargo',[93] though as we will see in Chapter 5 pilfering does not appear to have been a major problem at Fremantle.

An unsuccessful attempt to extend the powers of the FHT was made by Scaddon's Labor Government in 1912. The Scaddon Government established a large number of state enterprises, from brickyards to butchers' shops, and saw state intervention as the only means for 'the salvation of the masses against their exploiters.'[94] However, the conservative controlled Legislative Council 'blocked' many of the government's bills, including the proposed amendment to the Fremantle Harbour Trust Act.

The 1912 bill proposed to give the FHT power to undertake stevedoring (cargo-handling on board ship) at the request of the shipowner, to enable reserves to be created out of the revenue of the port, to remove the Trust's liability for damage or loss to cargo handled at night, and to extend the powers of the FHT police beyond the Trust's property boundary. The clauses relating to stevedoring and cargo liability were the ones which encountered most opposition.

The Trust was already doing stevedoring on vessels of the State Steamship Service and this Bill was intended to provide a legal basis for this. The State Shipping Service had been formed by the Scaddon Government earlier in 1912 to provide shipping services to outlying areas of the state. The Bill also proposed to give the Trust the power to do general stevedoring, a move that private stevedores resisted strongly. They feared that shipowners would prefer to deal with the port authority and much of their business would be lost.[95] One employer feared that 'if the men have a grievance it will be the easiest way out of the difficulty for the Trust to give the lumpers exactly what they want in the matter of wages or hours of working, because they have the power to make regulations and charge the shipping companies just exactly what they like.'[96] Ironically, the Fremantle Lumpers (wharf labourers) Union also opposed the new power: they feared that if the FHT acquired a monopoly their members would not get work if they ran foul of the Trust's foremen.[97] It is possible that the Bill was designed to counteract attempts by commercial interests to regain control of all cargo-handling in the port.[98] Shipowners claimed that if cargo-handling reverted to them, rates would fall by 3d per ton.[99] In the Legislative Council the Bill was condemned as 'one more advance, and a very large one, on the road to State socialism.'[100] The Council passed an amendment restricting the Trust's stevedoring to state-owned vessels.

As regards the proposed clause removing liability for damage to cargo handled at night, this was opposed on the grounds that the Trust was trying to wriggle out of its responsibility as wharfinger. It was claimed that the Trust paid out claims averaging £109 per annum but that this was well below the level paid by private stevedores.[101] Clearly,

local importers and merchants rather than shipowners would have suffered most from the proposed change, and the Legislative Council struck the clause out of the Bill. The government rejected the Council's amendments so the Bill was eventually lost. Other measures of the Labor Government met less determined opposition; not surprisingly, the degree of opposition appears to have depended upon the relative threat to established private interests.102

In 1927 the Trust considered asking again for the power to do stevedoring. A Commissioner, Mr. Taylor, himself a lumper, said that the lumpers' opposition to the 1912 Bill was led 'by the argument of interested parties' and they now realised they would get better terms from the Trust than from private employers.103 But the matter lapsed as not all Commissioners were in favour of such a move.

In 1913 the government requested the FHT to take over administration of the State Shipping Service (SSS), on the grounds that the existing administration was far from satisfactory. The State Shipping Service, as we saw earlier, had been formed to provide shipping services to outlying areas of the state. Mr. Allnutt, then Chairman of the FHT, opposed the move on three grounds.104 Firstly, that the Secretary and staff were fully occupied with the affairs of the Trust; secondly, that the Trust would not have full control of the SSS; finally, that it would be preferable to engage a separate shipping man for the job. In part, opposition appears to have been based on the fear that such an arrangement would give the SSS advantages over other shipping lines. However, Allnutt was outvoted and the Commissioners agreed to give the scheme a six month trial. Allnutt resigned in protest.105 So from 1 September 1913 Stevens became Acting Manager of

the SSS for which he received an additional £350 per annum. The arrangement was continued after the six month trial period. In 1917 Mr. Nicholas, a Commissioner, argued that the administration of the Trust was suffering but the Commissioners eventually rejected his motion for separation of the two institutions.[106] The Liberal Government, elected in 1916, appears to have been unwilling to make any changes which would increase administrative costs.[107] Stevens had stressed that the existing arrangement was the cheapest and, not surprisingly in view of his extra emoluments, he was happy for it to continue.[108] He argued:

> that the line between the two concerns has been honestly drawn and is being rigorously maintained ... In my opinion the Harbour Trust is largely the gainer by the amalgamation as the first-hand information we now have of the actual running and working of ships trading to Fremantle has immensely assisted the Trust's staff in carrying out the Trust's work, and this the outside shipping companies have recognised as is largely evidenced by the complete cessation of aggravating criticisms and the continuous striving for doubtful points of advantage which went on previously.[109]

However, not all of the Commissioners shared Stevens' enthusiasm, and in 1919 the government finally established a separate management structure for the SSS. Mr. Glyde, the Trust's accountant was appointed manager and Mr. Hetherington, a chief clerk with the Trust, was appointed Treasurer.[110] The SSS has survived into the 1980's despite a number of setbacks and persistent losses but, regrettably, no-one has as yet written a comprehensive history of its activities.[111]

A minor amendment to the Fremantle Harbour Trust Act, the last before the Second World War, was made in 1913. This allowed the FHT to provide a bond to the Customs Department as security against payment of duty on cargoes in its possession.[112] This was a machinery clause only and passed without opposition.

5.   The reorganisation and operation of the pilotage service

When it was established in 1903, the FHT found that pilots based on Rottnest Island were guiding ships to the Inner Harbour where they handed them over to shore-based pilots: a cumbersome and costly system.   Reorganisation of the pilotage service was clearly necessary. Before discussing the FHT's reforms, it is useful.to briefly examine the development of pilotage services in the 19th century.

Prior to the 19th century pilotage tended to be a private arrangement between the shipowner and a local mariner practising the calling of a pilot.   The shipowner might hire the services of a pilot where he thought local knowledge of tide action, shoals and currents, was necessary to safeguard his ship.[113]   At Sydney, as late as 1813, pilotage was determined by bargaining between the pilot and ship's captains.   Pilots were known to refuse all inducements to go out on stormy nights.[114]   As ship size increased and the extent of harbour facilities grew, pilotage tended to come under government control 'not so much for the protection of the ships ... as for the protection of commercial ports that had cost large sums of money to construct, and for the protection of other shipping using such ports.'[115]   At Fremantle, a government pilot was available from 1835 onwards.[116]

In 1848 it had been found necessary to establish a pilotage station on Rottnest.   This was because of difficulties in communication between Rottnest and the mainland, the poor quality of the Rottnest Light and the lack of pilot boats capable of taking pilots out from Fremantle in headwinds and calms.[117]   During the 19th century

communciation with Rottnest was by boat, fire, flag and, after 1879, heliograph.[118] These rather primitive communications contributed to the wreck of the City of York in 1899 when the lightkeeper gave a non-standard signal which lured the ship too close to the dangerous shore. The FHT later claimed that

> Almost every wreck which has taken place on and around
> Rottnest Island is directly attributable to the fact that
> the pilots were to be looked for there.[119]

The Premier, John Forrest, promised improved communications, and in March 1900 opened a telephone link with the mainland. Later the same year a second lighthouse was brought into operation at Bathurst Point, supplementing the main one which had been operating since 1851. Finally, in 1903 the FHT took delivery of a modern steam boat, the Lady Forrest, which had been built in England at a cost of £6,800.[120] Thus by the early years of the 20th century the Rottnest pilotage station was obsolete and in August 1904 the Trust transferred all pilotage services to Fremantle. A look-out and signal station remained on Rottnest; once a vessel was sighted the news was telephoned to the mainland and a pilot boat despatched. The reorganisation was estimated to save about £2,000 per annum.[121]

Despite 'a great outcry from persons who considered themselves as special authorities on the subject',[122] the new system worked well. When the Orient-Pacific Line's Orizaba was wrecked on the five fathom bank some 36 miles outside Fremantle on 16 February 1905, visibility was very poor owing to coastal bushfires. The master declared that a pilot station on Rottnest would have made no difference as those in the lookout station could not have seen his ship or heard the siren.[123] Although the accident occurred outside the port limits, the FHT decided

to instal a fog signal on Rottnest to help prevent future accidents. This commenced operation on 1 June 1906 and exploded a charge every seven minutes during foggy weather. However, because of atmospheric variations its effectiveness varied. For example, on one occasion it was heard by fishing boats off Mandurah some forty miles south of Rottnest, but not heard by ships' much closer to the Island.[124]

Generally, the Trust's pilots provided a safe and reliable service. However, one pilot, Captain Tait was eventually retired, owing to accusations that he was navigating ships while under the influence of alcohol, though there is no record of him damaging any ships.[125] The first serious accident in the Inner Harbour occurred in 1916, nineteen years after it was first opened to shipping; in that time over 30 million tons of shipping had entered the harbour without mishap. On 8 March 1916 the troopship S.S. Ulysses ran aground just south of the entrance channel. A Court of Marine Inquiry found the pilot, Captain Williamson, guilty of careless navigation and he was promptly dismissed. However, he appealed against the Court's finding on the grounds that the charts were inaccurate and the government appointed a Royal Commission to inquire into the matter. It confirmed that the pilot was guilty of an error of judgement.[126]

The S.S. Ulysses was owned by the leading British shipping company, Alfred Holt and Co., and formed part of its Blue Funnel service between Britain and Australia. Alfred Holt and Co. informed the FHT that because of the accident they would limit the drafts of their ships using Fremantle to 27 feet, 'until circumstances enable us to repose greater confidence in the port'.[127] The Trust considered this accident, 'the most serious thing that has happened in connection with Fremantle

Harbour in all its history.'[128] It responded by sending an explanation

of the accident, and proposed harbour deepening, to Lloyd's of London.

Clearly, such events represented a severe body blow to the port's

prestige.

Another accident occurred on 24 February 1924 when the

Peninsular and Oriental Company's S.S. Benalla ran aground outside the

north mole. The pilot, Captain Morris, was blamed but subsequent

evidence suggested that the helmsman put the helm to starboard instead

of port as ordered by the pilot.[129] Any doubts about Fremantle's

ability to handle large ships were reduced later the same month when

ships' of the Special Service Squadron of the British Navy called at

Fremantle. The Hood of 45,000 tons drawing 33 feet of water and the

Repulse of 26,500 tons drawing 30 feet of water were handled without

difficulty.[130] The Commander of the Squadron, Admiral Sir F.L. Field,

praised the ability of Captains Clack and Rivers who piloted the Hood

and Repulse respectively.[131]

Ironically, the abilities of the Trust's pilots, especially

Captain Rivers, were later questioned in parliament during debate on the

Harbour and Jetties Act 1928. This Act was designed to ensure that

shipowners paid for the repair of port facilities damaged by their

ships, except when pilot negligence was proved. Previously, shipowners

had successfully avoided liability on the grounds that they were not

responsible for accidents occurring while their ships were under the

command of compulsory pilots. This applied even if the accident was

clearly due to a defect in the ship or to the negligence of the ship's

crew. With the growing size of ships, the potential for extensive

damage to port facilities was increasing and the FHT was anxious to

reduce the costly repair bills. For example, between 1926 and 1928 there were four minor mishaps involving ships crashing into wharves, which cost the FHT a total of £3,139 in repairs.[132]

The Commonwealth Navigation Act provided that shipowners should pay for damage except where pilot error was proved. However, the relevant section of the Act had not been proclaimed owing to opposition from the states to the transfer of pilotage services to the Commonwealth. The Commonwealth Navigation Act will be discussed in more detail in Chapter 4.

The Harbour and Jetties Act met with considerable opposition, mainly on the grounds that shipowners could not be held responsible for any damage done, for whatever reason, while their ships were under the command of the Trust's pilots. The Trust privately acknowledged that this 'was a phase of the matter which is hard perhaps for the layman to understand, but it is of course quite reasonable and practical in shipping and port management.'[133] During the course of the debate, the safety records of the Trust's pilots received some criticism. The Hon. A. Lovekin, accused the FHT of appointing 'cheap' pilots, 'in that the salaries are not sufficiently high to attract the best men.'[134] In three out of the four accidents between 1926 and 1928 Captain Rivers was the pilot; the other accident occurred with a ship piloted by Captain Clack. On all four occasions the pilots were exonerated. But in the five years to 1928 Captain Rivers had averaged one accident for every 95 ships handled, compared to an average of one accident for every 332 handled for three of the Trust's other long serving pilots.[135] Rivers' run of bad luck eventually affected his health and nerves and he resigned in 1928. There was no evidence, however, that Fremantle's safety record was worse than that of eastern states' ports.

The FHT strongly defended its pilots against claims that they were not competent seamen and 'could not handle a rowing dingy.'[136] Fremantle's appointment procedures were amongst the strictest in Australia.[137] Only men with the highest navigation qualifications and who had an exemption certificate from pilotage at Fremantle were accepted. They were appointed on six months probation and had to undergo annual medical and visual tests. When the State Arbitration Court made the first award for pilots in 1935 they were granted a maximum of £700 per annum plus quarters or an allowance of £65 per annum in lieu of quarters.[138] The award conditions did not exceed those already given by the Trust, with the exception that pilots were allowed two days off per week whereas previously they could be called when required. Thus the accusation that the Trust appointed 'cheap' pilots was unfounded. The FHT argued that the men who counted - the ship's captains - had never complained about their pilots. The Trust's arguments were effective and the Act was eventually passed without amendment.

6.   Organisation and staffing of the FHT

So far in this chapter we have said a lot about port administration but little about the port administrators themselves. The objective of this section is to examine the organisation and staffing of the FHT. It is commonplace to historians that changes in social and economic conditions alter the viability of institutions; but it is also true that the quality of the staff counts as much as the institutional framework in which they have to operate.[139] Thus it is necessary to give due attention to the organisation and performance of the Trust's staff. As we described earlier in the chapter, control of the harbour

was vested in five part-time Commissioners. Each Commissioner was appointed by the government for a three year term and was eligible for reappointment at the end of that period. The Commissioners were paid 2 guineas per meeting subject to an annual limit of 150; the Chairman got 4 guineas per meeting with an annual maximum of 300. A list of Commissioners who served between 1903 and 1939 is given in Appendix A.

The FHT's permanent staff were employed on the same terms as public servants.[140] In 1903 the Trust employed 56 permanent staff; in 1918 126 permanent staff; and by 1936 the number of permanent employees had grown to 232.[141] In 1918 the FHT's permanent staff were allocated as follows:

Head Office	7
Wharf Manager's Staff	24
Pilots	5
Staff of Pilot Boats and Launches	12
Electricians	9
Engineers	2
Maintenance (General labourers)	50
Maintenance (Skilled workers)	9
Detectives and Patrol Staff	8
Total	126

Wharf labourers (lumpers) were hired on a casual basis. By the late 1920's the Trust employed about 50 per cent of the lumpers in the port or up to 800 men a day.[142] In view of their vital contribution to cargo-handling and port activities we consider the employment of lumpers separately in Chapter 5. We will now consider the appointment of Commissioners and the role of permanent staff in more detail.

Although the government appointed the Commissioners it was customary, at least until the 1920's, for the major interests involved in the port to nominate representatives. The Fremantle and Perth Chambers of Commerce and the Kalgoorlie Chamber of Mines nominated representatives until 1912 when the Scaddon Labor Government ended this practice.[143] The Labor Government appointed two public servants and a lumper to the Trust. The public servants were the Engineer-in-Chief, J. Thompson and the Chief Harbour Master, Captain Irvine. This move met with criticism on the grounds that the two men would be in the position of commenting on their own advice; instead of having a board dominated by public servants the government might as well abolish it and administer the port as an ordinary government department.[144] The appointment of a lumper, Mr. John Taylor, was criticised on the grounds that 'there is no need for their representation on the Trust in order to protect them, any more than there is need to appoint a railway porter co-commissioner in order to protect the railway servants.'[145] However, not all business interests were strongly opposed to the appointment of a lumper. In 1911, Mr. Moxon, a steamship manager and President of the Fremantle Chamber of Commerce, stated that he was not opposed providing 'a suitable man' could be found.[146]

The election of a Liberal Government in 1917 led to a change of policy in the appointment of Commissioners. Thompson and Irvine were instructed to resign 'as a matter of policy'.[147] The government revived the practice of requesting nominations for Commissioners and was flooded with requests for representation. Nominations were received from the Fremantle and Perth Chambers of Commerce, the Kalgoorlie Chamber of Mines, the Farmers and Settlers Association, the Chamber of

Manufacturers and the Wharf Lumpers Union.[148]   The Colonial Secretary, H. Colebatch, pointed out that the FHT Act did not allow for the representation of special interests: 'directly a man was appointed to the Trust, no matter who nominated him, his duty was to the Trust and the Trust only.'[149]   The Chairman of the FHT had stated this principle as early as 1908 when he criticised Frank Viles, a fellow Commissioner, for claiming he was acting as a representative of mining interests.[150] Viles had submitted details of handling facilities for bunker coal to the Colonial Secretary without consulting the rest of the Board; significantly his appointment on the Board was not renewed.

Colebatch eventually appointed three men who had been nominated by the Perth Chamber of Commerce, which provoked protests from those groups whose nominations were ignored. The West Australian Chamber of Manufacturers refused to submit nominations to any other government appointments until there was a change of attitude or government.[151] However, all commercial groups were united in opposition to the re-appointment of the lumper, John Taylor.[152] This opposition appears to have been prompted by the 1917 strike; the Fremantle Chamber of Commerce argued that if a labour representative was appointed he should be a member of the National Volunteers, who had worked during the strike. Colebatch replied that Taylor had served satisfactorily in the past and had been reappointed for that reason.[153] During the labour difficulties in 1919 Taylor attacked the shipping companies for desiring 'to starve into submission to their wishes the members of the Fremantle Lumpers' Union', but despite threatening to do so, said nothing of this outside the confines of the FHT.[154] Taylor's appointment was renewed until his death in 1931. The wharf troubles will be discussed in detail in Chapter 5.

From the 1920's onwards the practice of calling for nominees was dropped in favour of direct selection by the government. Commissioners appointed included businessmen, public servants, a member of the labour movement and an ex-Labor politician. W.C. Angwin, who had served as M.L.A. for North East Fremantle between 1904 and 1937, was appointed to the Trust to replace H.W.A. Tanner who died in January 1934. Tanner had 'represented' primary producers and his replacement by a member of the Labor Party provoked a strong protest from the Primary Producers' Association.[155] Angwin was later appointed Chairman of the Rural Relief Trust and did not re-nominate for the Trust. However, he was replaced in 1936 by Frederick Mann, Secretary of the Fremantle Trades Hall, a move which was attacked by Mr. Keenan, leader of the Country Party, on the grounds that rural interests were still not represented on the Trust.[156] Between 1924 and 1939 there were only three years (1930-33) in which a non-labor coalition governed in Western Australia; thus the Labor Party had a dominating influence on appointments to the Trust. However, T. Carter and L. Bateman, both with business backgrounds, were re-appointed by Labor governments. Tom Carter served as Chairman from 1917 to 1944 and had the distinction of being the Trust's longest serving Chairman.

The reliance on part-time Commissioners, meant that each member, 'for a few hours in each week, must idealistically endeavour to suppress both his private interests in relation to the port, in addition to the internal clash of interests which arise between representatives of various commercial sectors.'[157] Not surprisingly, Commissioners were sometimes accused of lacking the necessary 'idealism'. For example, the first chairman of the FHT, Captain Laurie, M.L.C. also ran the port's

main stevedoring business. The Sunday Times claimed that the Bill setting up the Trust was amended specifically to allow members of parliament, principally Laurie, to be appointed to the Trust.[158] Moreover, when incoming steamers were competing for berths Laurie was accused of giving preference to ships' stevedored by his firm. However, as we saw earlier he agreed to the FHT undertaking cargo-handling, a move which would seem to be detrimental to his own commercial interests. Laurie complained that 'the moment a man takes any public position in this State he has to put up with all the mud that may be slung by anyone in the street.'[159] No doubt the memory of C.Y. O'Connor, driven to suicide by public criticism, was still fresh in his mind.[160]

Other Commissioners did not escape attack. One of the first actions of the Trust was to lease new premises from Dalgety and Company. One of the Commissioners, Mr. A. Leeds, was Dalgety's Fremantle Manager, a fact which led The Sunday Times to conclude that 'the transaction ... emits a powerful odor.'[161] Another Commissioner, Mr. W. Hudson, an insurance agent, was given the job of arranging accident insurance for the Trust's employees, and thus 'experienced the material advantages of belonging to the Fremantle Harbor dis- Trust.'[162] There is no doubt that part-time commissioners are particularly vulnerable to such criticism although the newspaper was clearly going too far when it called them 'a crass, covetous cabal.'[163] In 1911 The Sunday Times, which appears to have had a long standing vendetta against the Trust, claimed that the Commissioners tried to hold as many meetings as possible merely to boost their fees.[164] But in 1910 the five Commissioners averaged 83 meetings each;

in order to obtain the maximum income they had to attend only 71 meetings per year.[165] So this claim appears to have been unfounded. The Sunday Times was well known for its wild and often inaccurate invective, so that its claims cannot be taken too seriously.[166]

The FHT's permanent officers, responsible for day to day administration, were not represented on the Board, which created some potential for internal conflicts. Frank Tydeman, General Manager of the Trust between 1950 and 1965, claimed that the Board always backed him up and was merely 'a rubber stamp'.[167] However, whatever the position in Tydeman's time, pre-war Board's did not always 'rubber stamp' management decisions. For example, we have seen that the Secretary, Stevens, and the Commissioners disagreed over the appropriate form of administration for the State Shipping Service.

For most of our period the day-to-day running of the port was in the hands of Stevens. Consequently, it is useful to give a brief biographical sketch of this man.

Frank William Buck Stevens was born in Wellington, New Zealand, on December 16 1867.[168] At the age of 17 he became a law clerk but after five years he switched to journalism, working for The Evening Press newspaper. He rose to become Chief of the Reporting Staff. In 1892, when he was only 25, Stevens was offered the post of private secretary to C.Y. O'Connor, and arrived in Western Australia the same year. For the next ten years Stevens worked closely with O'Connor on his public works programmes. They would often work together late into the night and Stevens would sometimes spend the night at O'Connor's house.[169] Stevens must have got to know O'Connor very well; it is a pity that he does not appear to have left any diaries or personal papers

which could have yielded additional insights into the personality of Western Australia's most famous engineer.

When the FHT was formed the government appointed Stevens, by then a well known figure in the community, as Secretary. He was paid a salary of £400 a year for the onerous task of establishing this new organisation. One of Steven's first acts was to ask for guidance from a man he knew from his days' as a pressman: William Ferguson, Secretary of the Wellington Harbour Board. As we saw earlier, Ferguson outlined administrative arrangements at Wellington where, significantly, the port authority was involved in cargo-handling. The New Zealand connection was to exert a considerable influence on Fremantle's administrative history. Unfortunately, few clues to Stevens' personality emerge from the Trust's files. However, he appears to have been a stickler for detail. When Captain Cleary was appointed Wharf Manager Stevens wrote a lengthy memo setting out his responsibilities. Cleary was told to always have 'in view a fair deal to the public in conjunction with the protection of the interests of the Trust and the revenue of the country.'[170]

In 1911 Steven's administrative abilities were criticised by The Sunday Times: 'the wharves are rotting, the secretary is utterly incapable of handling his responsibilities, the accountant is inefficient, and revenue is being lost, while nepotism and injustice is driving old hands out of the service.'[171] Stevens 'in the plenitude of his wisdom and zeal leaves everything he deals with in a worse condition than it was before.'[172] It was claimed that Stevens kept aloof from the clerical staff and that 'he was not once during the past seven or eight years even walked through the office to make an inspection of what is

going on.'[173] He reportedly reorganised the office without consulting the staff resulting in the resignation of seven long serving clerks. Perhaps it was a desire to improve relations between staff and management that led Stevens to inaugurate an annual staff picnic in October of the same year.[174] The Sunday Times complained that Stevens' lack of supervision of the accountant, Mr. Glyde, reputedly enabled this man to secure a relative 'inordinate increases and much promotion'.[175] Glyde was accused of spending too much time teaching at the Perth Technical School and neglecting his duties. However, the Auditor-General, Mr. Toppin, investigated the charges and declared 'that the system [of financial control] was sound, and if carried out should safeguard both the revenue and the expenditure of the Trust.'[176] Mr. Glyde was 'an extremely able officer' and only minor clerical errors were found.[177] The Commissioners expressed to the Colonial Secretary, 'their abhorrence at the publication of articles bristling with mis-statement and untruth, and aiming at belittling, in the eyes of the general public two valued officials.'[178] The newspapers' source appears to have been a disgruntled Trust employee[179] and given its record of attacking the Trust such criticisms cannot be taken very seriously. The following year, the Hon. J. Connolly M.L.C., declared that Stevens was 'a most competent man'[180] and, as subsequent chapters will reveal, this was a fairer assessment of his performance.

Stevens' served the Trust for 26 years; he was granted six months leave from 31 August 1929 and officially retired on 28 February 1930. He lived in retirement at Claremont where he died, after an illness, on the 2 August 1934.[181] He had spent almost two-thirds of his 67 years in Western Australia and in contributing to a sound system of

port administration helped ensure the success of C.Y. O'Connor's harbour works.

It had long been apparent that the Secretary shouldered an onerous workload and following Stevens' retirement the administrative structure was altered. Mr. G.V. McCartney, the Wharf Manager, was appointed Manager, and Mr. Cox, previously Treasurer, was appointed Secretary and Accountant. This reorganisation separated the managerial and secretarial functions which had previously been combined in the person of Stevens.

One difference between Fremantle and some other ports was the absence of a large engineering staff. The government insisted that the Public Works Department be responsible for construction works and that the Engineer-in-Chief act as consulting engineer for the Trust. This saved the cost of a separate engineering department and in theory avoided conflicts over technical issues. However, the Trust was responsible for commercial decisions and, as we will see in later chapters, had some major battles with Engineer-in-Chiefs' over port development. But, on the whole, they claimed to have 'quite an amicable relationship'.[182]

In the first year of its existence, the Trust had the loan of Mr. William Leslie, a Public Works Department Engineer. He was appointed Acting Engineer at a salary of £700 per annum from 27 January, 1903. However, he did not 'pull' with the Board and got into numerous disputes with the Commissioners.[183] The first major dispute occurred when Leslie advocated the use of departmental labourers for construction work while the Commissioners favoured putting it out to contract. Disputes also occurred over his wharf designs and their potential cost

and his desire for a separate engineering department within the Trust. The Commissioners complained to the government that he refused to go across the river in a rowing boat but urged the Trust to provide him with a special launch. His 'arrogance and over-bearing conduct' was bad enough but his secret report to the Premier on cargo-handling, referred to earlier in this chapter, made him 'guilty of gross disloyalty not only to the Commissioners and the Minister controlling the Trust, but to his superior officer the Engineer-in-Chief and the Minister of his Department, the Minister for Works'.[184] Consequently, after about three months he was returned to the Public Works Department. Leslie stood for the Legislative Assembly seat of Swan in the general election of 1904 and further enraged the Trust by attacking it in an election speech.[185]

The FHT asked for a permanent engineer of their own over whom they could have full control. But the government insisted that works paid for by the government should be supervised by the Public Works Department and refused to agree to such a proposal.[186] However, the Trust was eventually allowed to hire Mr.Carlin as a maintenance engineer.

The Trust employed the port pilots, as we saw earlier in the chapter. The pilotage service was controlled by the Chief Harbour Master, who was Harbour Master for the whole state, not just Fremantle. When Captain Irvine, the Trust's first Harbour Master, retired in 1917, the Trust attempted to obtain a separate Harbour Master for Fremantle but the government refused to allow this.[187] His successor, Captain Morrison served until July 1921. After Morrison's retirement his duties were divided between Captain Nicholas (Wharf Manager and Berthing Master) and Captain Clack (Senior Pilot).[188]

Captain Nicholas was given the post of Harbour Master in addition to his other duties while Captain Clack was given the title of Chief Pilot. In practice, however, Captain Clack acted as Harbour Master. The object of this reorganisation was to save the employment of an additional pilot because the Harbour Master's position did not include an obligation to pilot ships; as Chief Pilot, Clack was not exempted from piloting ships. In 1927 Captain Nicholas was relieved of responsibility for wharf administration and was able to devote more time to the duties of Harbour Master; the position of Chief Pilot was abolished. This arrangement lasted until 1938 when Nicholas died and Clack was finally promoted to the position of Harbour Master.

An important back-up to the pilots was provided by the Trust's workers on Rottnest Island. These were the signalmen responsible for sighting incoming vessels and telephoning the details to the mainland. As early as 1921 they were using a home-made radio to pick up signals from ships.[189] They were allowed the use of aboriginal prisoners for odd jobs such as painting, collecting firewood and tending for the horses, until the practice was stopped by the Rottnest Board of Control in 1932.[190] Doubtless, the depression led to pressure to use 'free' labour.

The FHT's permanent staff had a tradition of long service with internal promotion to executive positions. For example, Mr. G.V. McCartney joined the Railway Department as a cadet in 1900, transferring to the FHT at its inception in 1903. He worked in the wharf and cargo-handling section, eventually rising to the position of Wharf Manager in 1927. Following Stevens' retirement in 1929, he was promoted to Manager of the Trust and served in this capacity until his retirement in May

1950. In all, he had spent 47 years in the service of the Trust. Another man who joined the Trust in 1903 was Mr. L.A. Hancock; he eventually reached the position of Secretary three years before his retirement in 1948. Such lengthy service undoubtedly made for continuity in decision-making but, possibly, also ossification.

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This completes our review of the evolution of formal port administration between 1903 and 1939. In different circumstances and at different times, the appropriate form of administration varies. So it was at Fremantle. The 1902 Act established a basic institutional framework which has survived relatively intact to this day. But the passage of time exposed inadequacies in the original Act and it was modified in 1906, 1911 and 1913.

Several features of Fremantle's administrative structure stand out. Firstly, although the act of formation failed to specify explicit financial objectives, it appears that the government was not prepared to grant the port authority large discretionary powers in the area of finance. The government's desire to preserve revenue led to occasional political interference in the running of the port and, as we will see in Chapter 7, port users complained about the port being used as a 'tax-collecting machine'. Secondly, the FHT was given power to undertake cargo-handling making it, at that time, unique amongst Australian

ports. The implications of this power for cargo-handling practices, labour relations and port revenues will be explored in subsequent chapters. Finally, the FHT was given control over a vast Outer Harbour, providing an alternative area for port development. Although the Outer Harbour remained commercially dormant in our period, we will see that its existence cast a substantial shadow over port planning and development from the 1920's onwards.

The port's administrators, from Commissioners downwards, had a long tradition of lengthy service. Commissioner Bateman served for 36 years (11 years as Chairman), Commissioner Carter for 17 years (all as Chairman) and Commissioners McMahon, Taylor and Wilson for 19 years each. McCartney, who became Manager in 1929, served the Trust in various capacities for 47 years; Stevens served as Secretary for 26 years. In the following chapters we will see how the port developed under the guidance of these men. It is impossible at this stage to evaluate the success or otherwise of port administration; we will attempt this task in the final chapter, using some guidelines developed to assess the efficiency of ports.

FOOTNOTES

1. Stirling to R.W. Hay, Permanent Under-Secretary for the Colonies, 7 January 1932, cited in M. Uren, Land Looking West, (London, 1948), p.99.

2. For an account of the choice of the site for the capital and port see F.K. Crowley, Westralian Suburb: The History of South Perth, Western Australia, (Perth, 1962), ch.3; and J. Bird, Seaport Gateways of Australia, (London, 1968), pp.19-21.

3. Crowley, op.cit. pp.18-19.

4. F.W. Tydeman, Report on Port of Fremantle, 3 vols., (Perth, 1949), vol. 2, p.53. Henceforth referred to as the Tydeman Report.

5. J.S. Battye Library of West Australian History, Deposit 2602, A/1-3, letter from Captain D.B. Shaw to his owners (Messrs. Simpson and Shaw) in New York, 8 November 1892. Also cited in J.K. Ewers, The Western Gateway, 2nd ed., (Perth, 1971), Appendix 16.

6. West Australian (WA), 13 July 1903. Captain Pilkington recalling an earlier visit to Fremantle.

7. M. Tauman, The Chief, C.Y. O'Connor, (Nedlands, W.A., 1978), p.56.

8. F.K. Crowley, Australia's Western Third, (Melbourne, 1970), p.24.

9. J.S. Battye Library Deposit RN90, 'Fremantle Harbour: Notes on departments etc. responsible for activities in the Port of Fremantle prior to 1902'.

10. G. Henderson, 'From Sail to Steam: Shipping in Western Australia 1870-1890', (M.A. thesis, University of Western Australia, 1977), p.23.

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12. J.S. Battye Library Deposit CO/18/165, W.T. Doyne, 'Report Upon Proposed Harbour Works at Fremantle, and Improvements in the Navigation of the Swan River', 28 February 1870.

13. For details see V.G. Fall, The Sea and the Forest: A History of the Port of Rockingham, Western Australia, (Nedlands, W.A., 1972).

14.   Ewers, op.cit., p.93.

15.   F.K. Crowley and B.K. de Garis, A Short History of Western
        Australia 2nd ed., (Melbourne, 1970), p.46.

16.   R.T. Appleyard, 'Western Australia: Economic and Demographic
        Growth, 1850-1914', in C.T. Stannage (ed.), A New History of
        Western Australia, (Nedlands, W.A., 1981), p.219.

17.   Ibid., p.222 and Appendix 6.3, p.236.

18.   See N.G. Butlin, Investment in Australian Economic Development
        1861-1900, (Cambridge, 1962), pp.299-305, for a discussion
        of the transport crisis of the 1850's.

19.   F. Crowley, 'Sir John Forrest, the Statesman', in L. Hunt (ed.)
        Westralian Portraits, (Nedlands, W.A., 1979), p.84.

20.   Ibid., p.86.

21.   In this respect, colonial engineers appear to have differed from
        British engineers, who became increasingly specialised. See
        R.A. Buchanan, 'Institutional Proliferation in the British
        Engineering Profession, 1847-1914', The Economic History
        Review, vol.XXXVIII (1985), pp.42-60.

22.   Tauman, op.cit., p.245.   The quotation is from Frank
        Stevens,O'Connor's secretary and later Secretary of the FHT.

23.   Appleyard, op.cit., p.219.

24.   For a discussion of the development of mail services see J.
        Bach, A Maritime History of Australia, (Melbourne, 1976),
        chs.V and VII, passim.

25.   Tauman, op.cit., p.55.

26.   For a detailed description of the harbour works, see the Western
        Australian Yearbook, 1902-04, pp.1083-91.

27.   See Ewers, op.cit., ch.10 for a more detailed discussion of
        events leading up to the acceptance of O'Connor's plan.

28.   FPA 31/03, letter to Premier from FHT, 16 May 1903. Also FPA
        18/14/2, memo from FHT to Under Secretary for Lands, 30 July
        1914.

29.   Ibid., 92/16, 'Fremantle Harbour Works. Progress Report for
        Year - 1915.'

30.   W.A., L.A., P.D. vol. XIV (1901), p.1183.

31.   FPA 153/03, copy of letter to Sir J. Forrest from Agents of P &
        O and Orient Company, 23 December 1903.   The FHT had

attempted to increase the dues but the shipping companies claimed that there was an unwritten agreement they would not be increased during the life of the current mail contract. Sir John Forrest confirmed that this was the case.

32. Ibid., 20/27/1, letter from FHT to E.S. Barker, Esq., 9 February 1927.

33. Evening Mail, 29 October 1906.

34. W.B. Kimberly, History of West Australia: A Narrative of Her Leading Men, (Melbourne, 1897), p.333.

35. W.A., L.C., P.D., vol. 21 (1902), pp.1534-6. The following comments about government departments are also from this source.

36. Ibid., vol. 14 (1899), p.1140.

37. FPA 31/03, copy of letter from W. Sandover (in England) to the Perth Chamber of Commerce, 27 November 1902.

38. W.A., L.A., P.D., vol. 21 (1902), p.1113.

39. Fremantle Harbour Trust Act 1902 (No. 17).

40. F.J.A. Broeze, K.I. McPherson, P.D. Reeves, 'Engineering and Empire: The Making of the Modern Indian Ocean Ports', a paper prepared for the Asian Studies Association of Australia, Fifth National Conference, Adelaide University, May 13-19, 1984.

41. For a general discussion of Australian port administration see Bach, op.cit., chs.XII and XVIII.

42. Australian Financial Review, 18 June 1963.

43. See M. Berson, Cockburn the Making of a Community, (Cockburn, W.A., 1978), ch.13.

44. W.A., P.D., L.A., vol. 21 (1902), p.867.

45. Interview with Mr. Tydeman on 17 February 1983. Typescript available on request.

46. M.T. Tull, 'The Development of Port Administration at Sydney 1901 to 1936', The Great Circle, vol. 4 (1982), pp.98-9.

47. See, for example, H.J. Dyos and D.H. Aldcroft, British Transport. An Economic Survey from the Seventeenth Century to the Twentieth, (Leicester, 1971), chs.7 and 8.

48. FHT, Report for half-year ending 31 December 1903, p.5.

49. _The Mail_, 17 April 1905.

50. FPA 15/03/3, letter from FHT to Hon. Mr. Taylor, 5 December 1903.

51. FHT _Report_ for half-year ending 30 June 1905, p.5.

52. These were made up of the following:

	£
Land	40,154
Entrance moles	325,188
Inner harbour and channel	663,521
Wharves and jetties	226,112
Sheds and buildings	61,855
Slipway	21,644
Miscellaneous	52,309
Total	1,390,783

53. FPA 32/05, letter from FHT to Under Secretary, Colonial Secretary's Department, 1 February 1905.

54. Ibid., 40/06, memo from Under Treasurer to Colonial Treasurer, 19 December 1906.

55. W.A.. L.C., _P.D._, vol. 21 (1902), p.1101.

56. _Ibid._, vol. XXIX (1906), p.1528.

57. _WA_, 11 September 1906.

58. _Ibid._, 12 September 1906.

59. _Fremantle Harbour Trust Amendment Act_ 1906 (No. 35).

60. FPA 78/06/2, letter from FHT to Hon. Premier, 24 April 1906.

61. Ibid., 147/03, 'Report of Conference between Trust, Shipping Assocation and Fremantle Chamber of Commerce', 28 October 1903.

62. Ibid., 127/03, 'Notes for Interview with Hon. Premier and Ministers', 25 June 1903.

63. Ibid., 34/04/1, 'Cost of Collection by Trust's Officers as Compared with the Old System of Commission to Shipping Companies'. Undated memo.

64. FHT _Report_ for half year ending December 31 1903, pp.3-4.

65. W. Leslie, 'Report as to the best method of providing appliances and accommodation for dealing with cargo and vessels at Fremantle', W.A., _Votes and Proceedings_, vol. 2, (1903-04), pp.5-13.

66. _Ibid._, letter from FHT to Colonial Secretary, 10 August 1903.

67.   FHT _Report_ for half year ending 30 June 1904, p.3.

68.   _Ibid._, p.4.

69.   _Ibid._

70.   _WA_, 9 January 1905.

71.   FHT _Report_ for half year ending 30 June 1904, _loc.cit._

72.   FPA, uncatalogued letter from W. Ferguson to Stevens, 17 February 1903.

73.   FHT _Report_ for half year ending 30 June 1904, _loc.cit._

74.   _FHT Amendment Act 1906_ (No.35).

75.   FPA 18/03, cutting from _The Age_ (Melbourne), 24 November 1904.

76.   Ibid., cutting from _Sydney Daily Telegraph_, 2 December 1907.

77.   Ibid., 56/25, typescript of talk broadcasted on 6WF on 30 April 1925.

78.   FHT _Report_ for half year ending 30 December 1904, _loc.cit._

79.   See _WA_, 13 September 1904 and 9 January 1907.

80.   _Ibid._, 27 July 1912.

81.   _Ibid._, 9 January 1907.

82.   FPA 18/03, cutting from _The Age_, (Melbourne), 24 November 1904.

83.   See Chapter 7, p.294. Also FPA 2/07, memo from Accountant to Secretary of FHT, 21 January 1907.

84.   For details see FHT, _Annual Report_, 1910-11, pp.7-8.

85.   FPA 86/11/2, internal memo from Accountant to Secretary of FHT, 24 May 1911.

86.   _Ibid._, 102/24/1, letter from Perth Chamber of Commerce to FHT, 24 October 1916.

87.   W.A., L.A., _P.D._, vol. 59 (1918), p.1207.

88.   FPA 105/26/4, letter from OSRA to FHT, 19 June 1925.

89.   Ibid., Circular No. CIV, 2 June 1925.

90.   Ibid., letter from the Australasian Steamship Owners' Federation to the FHT, 24 June 1925.

91.   _Fremantle Harbour Trust Amendment Act_, 1911 (No.25).

92.   W.A., L.C., <u>P.D.</u>, (1910-11), pp.3278-9.

93.   W. Lowenstein and T. Hills, <u>Under the Hook: Melbourne Waterside Workers Remember Working Lives and Class War: 1900-1980</u>, (Prahran, Victoria, 1982), p.16.

94.   J.R. Robertson, 'The Foundations of State Socialism in Western Australia 1911-1916', <u>Historical Studies: Australia and New Zealand</u>, vol. 10 (1962), p.324, cited by D. Black, 'Party Politics in Turmoil', in C.T. Stannage (ed.) <u>A New History of Western Australia</u>, (Nedlands, W.A., 1981), p.383.

95.   W.A., L.C., <u>P.D.</u>, vol. XLIII (1912), p.1844.

96.   <u>Ibid.</u>, vol. 44 (1912), p.3070.

97.   <u>Ibid.</u>, p.1845.

98.   <u>WA</u>, 17 August 1912. The Fremantle Chamber of Commerce expressed a desire for shipowners to do cargo-handling.

99.   <u>Ibid.</u>, 29 October 1912.

100.   W.A., L.C., <u>P.D.</u>, vol. XLIV (1912), p.3354.

101.   <u>Ibid.</u>, L.A., vol. XLIII (1912), p.1848.

102.   Black, 'Party Politics in Turmoil', <u>op.cit.</u>, pp.383-4.

103.   FPA 125/12/2, minutes, 15 July 1927.

104.   Ibid., 141/13, minutes, 19 August 1913.

105.   <u>WA</u>, 27 August 1913.

106.   FPA 97/17/1, minutes, 2 February 1917, 6 February 1917, 11 April 1917 and 27 July 1917.

107.   Ibid., letters from Colonial Secretary to FHT, 22 June 1917 and 8 August 1917.

108.   Ibid., memo from Stevens (Acting Manager of SSS), to Colonial Secretary, 23 August 1916.

109.   Ibid., 681 Pt. 1, vol. 1/1 (New Series), 'Administration of State Steamship Service'. Undated memo by Stevens.

110.   FHT, <u>Annual Report</u>, 1919-20, p.17.

111.   For a brief history see A.M. Stephens, <u>The Stateships Story 1912-1977</u>, (Perth, 1977).

112.   <u>Fremantle Harbour Trust Amendment Act</u>, 1913 (No.4).

113.   This discussion draws on a legal opinion of N. Keenan K.C., cited in W.A., L.C., <u>P.D.</u>, vol. 80 (1928), pp.2327-8.

114.   H. Shore, _From the Quay_, (Sydney, 1981), p.114.

115.   W.A., L.C., _P.D._, vol. 80, _loc.cit_

116.   Bach, _op.cit._, p.38.

117.   FPA 40/03/1, memo from Captain Irvine, Chief Harbour Master to FHT, 19 March 1903.

118.   See J. Moynihan, 'Twelve Miles West of Fremantle', _Australian Post Office (Official House Journal)_, June/July (1970), pp.2-4; also the same author's 'Linking Rottnest and Fremantle', _Telecom News, (Official House Journal)_, June (1982), pp.12-13. The following discussion of Rottnest communications draws on Moynihan's articles.

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120.   FPA 91/20, minutes, 21 July 1922.

121.   FHT _Report_ for half-year ending 31 December 1905, p.15.

122.   _Ibid._

123.   FHT _Report_ for half-year ending 30 June 1905, p.14.

124.   FHT 68/12, letter from FHT to Fremantle Branch Manager of Orient-Pacific Line of Mail Steamers, 3 April 1912.

125.   J.S. Battye Library, Harbour and Lights Department Deposit, AN 16/3 Acc. 1056, vol. 39, memo from FHT to Harbour Master, 31 July 1903; memo from Harbour Master to FHT, 12 October 1905.

126.   FPA, 113/16/vol. 2/1, letter from FHT to Messrs. Alfred Holt & Co., Liverpool, 28 June 1917.

127.   _Ibid._, 113/16/5, letter from Messrs. Alfred Holt & Co., to FHT, 21 September 1916.

128.   _Ibid._, letter from FHT to Hon. Colonial Secretary, 12 May 1916.

129.   _Ibid._, 94/24/1-2. files entitled 'Grounding of S.S. "Benalla".'

130.   FHT, _Annual Report_, 1923-24, p.11.

131.   W.A., L.C., _P.D._, vol. 80 (1928), p.2341.

132.   _Ibid._, p.2071.

133.   FPA 102/29/1, letter from FHT to Secretary, Dept. of Navigation, Sydney, 3 July 1929.

134.   W.A., L.C., _P.D._, vol. 80, _op.cit._, p.2314.

135.   _Ibid._, p.2329.

136.   FPA 102/29/1-2, 'General Notes for the Minister'. Undated.

137.   W.A., L.C., P.D., vol. 80, op.cit., p.2332.

138.   FPA 109/35/1, minutes, 24 December 1935.   See also WA, 18
         December 1935.

139.   For discussions emphasizing the importance of organisation and
         management see R.M. Hartwell (ed.), The Industrial Revolution
         and Economic Growth, (London, 1971), ch.12 and S. Pollard, The
         Genesis of Modern Management: A Study of the Industrial
         Revolution in England, (London, 1965).

140.   FPA 126/11, minutes, 18 July 1911. In 1911 staff regulations
         were put on the same basis as the public service and made
         retrospective from the inception of the Trust.

141.   Ibid., 99/03, list of staff at 1 April 1903; FPA 126/17/1, list
         of staff 1918; (New Series) 302 vol. 1/1, letter from FHT to
         Under Secretary Colonial Secretary's Office, 3 July 1936.

142.   Ibid., 20/29/1, letter from FHT to T.R. Hall esq., Hon.
         Secretary and Treasurer of Cairns Tableland Publicity
         Association, 10 April 1929.

143.   Ibid., 35/18/1, copy of letter from J. Anderton, Acting General
         Secretary, Kalgoorlie Chamber of Mines, to H. Colebatch,
         Colonial Secretary, 28 September 1917.

144.   W.A., L.C., P.D., vol. 44 (1912), pp.3068-9. Criticism by Hon.
         J.D. Connolly speaking in debate over 1912 Amendment Act.

145.   Ibid., p.3069.

146.   FPA 147/11, transcript of evidence given to Royal Commission on
         Wharves and Water Frontage (South Australia), 2 June 1911.

147.   Ibid., 35/16/1, letter from Colonial Secretary to J. Thompson,
         Chairman of FHT, 13 October 1916.

148.   Ibid., 35/18/1, copy of Cabinet Submission by H. Colebatch,
         Colonial Secretary, on FHT, circa September 1917.

149.   Ibid.

150.   Ibid., 48/08/1-2, minutes, 26 June 1908.

151.   Ibid., 35/18/2, letter from W.A. Chamber of Manufacturers to
         Hon. H.B. Lefroy, Premier, 2 January 1918. See also letter
         from Fremantle Chamber of Commerce to Colonial Secretary, 3
         January 1918.

152.   Ibid., letter from Fremantle Chamber of Commerce to Colonial
         Secretary, 15 January 1918; letter from Perth Chamber of
         Commerce to Colonial Secretary, 14 January 1918; letter from

Kalgoorlie Chamber of Mines to Colonial Secretary, 22 December 1917.

153.   Ibid., letter from Colonial Secretary to Kalgoorlie Chamber of Mines, 28 December 1917.

154.   Ibid., 109/24/2, minutes, 2 May 1919.

155.   WA, 17 February 1934.

156.   Ibid., 10 January 1936; The Daily News, 2 January 1936.

157.   A. Bonds, 'The Economics of Outer Harbour Development in the Port of Fremantle', (M.A. thesis, University of Western Australia, 1969), p.126.

158.   The Sunday Times, 14 June 1903.

159.   W.A., L.C., P.D., vol. XXIX (1906), p.1521.

160.   O'Connor committed suicide in 1902. See Tauman, op.cit. ch.11.

161.   The Sunday Times, 14 June 1903.

162.   Ibid.

163.   Ibid.

164.   Ibid., 14 May 1911.

165.   FPA 118/11/1, letter from FHT to Hon. Colonial Secretary, 27 June 1911.

166.   Tauman, op.cit., p.213-4.

167.   Interview with Mr. Tydeman on 17 February 1983. Typescript available on request.

168.   This survey draws on J.S. Battye, The Cyclopedia of Western Australia, (Perth, 1912), pp.721-2.

169.   Tauman, op.cit., p.244.

170.   FPA 75/10, internal memo to Captain Cleary from Stevens entitled, 'Position of Wharf Manager', 8 June 1910.

171.   The Sunday Times, 14 May 1911.

172.   Ibid.

173.   Ibid.

174.   FPA 144/11/1, file entitled 'Staff Annual Picnic'. The first one was held on Saturday 28 October 1911.

175.   The Sunday Times, 14 May 1911. See also editions of 21 May 1911 and 6 August 1911 for further criticisms.

176.   FPA 118/11/1, memo from Mr. Toppin, Auditor-General to FHT, 26 June 1911.

177.   Ibid.

178.   Ibid., letter from FHT to Hon. Colonial Secretary, 27 June 1911.

179.   Ibid., internal memo by Stevens for the Chairman and Commissioners entitled 'Article in "Sunday Times" of Sunday, August 6th 1911', 10 August 1911.

180.   W.A., L.C., P.D., vol. 44 (1912), p.3068.

181.   WA, 3 August 1934.

182.   FPA 20/28/4, letter from FHT to E.A. Farquhar, Esq., Chairman South Australian Harbours Board, 17 January 1929.

183.   Ibid., 127/03, 'Notes for Interview with the Hon. Premier and Ministers', 25 June 1903. The following examples are from this source.

184.   Ibid., 34/04/1, 'Mr. Leslie and the Fremantle Harbour Trust Notes for the Hon. Mr.Kingsmill', undated.

185.   Ibid., 127/03, 'Notes for Interview with the Hon. Premier ...'

186.   Ibid., 80/08/1, letter from Premier to FHT, 25 July 1903.

187.   Ibid., 120/17, memo from Under Secretary, C.S.O., to FHT, 20 June 1917.

188.   Ibid., 109/35/1, minutes, 24 December 1935.

189.   Ibid., 10/21, file entitled 'Maintenance of Rottnest Signal Station'.

190.   Ibid., 25/07/1, letter from FHT to Comptroller General of Prisons, 10 April 1907 asking for services of a native prisoner; 102/32/1, minutes, 1 July 1932.

CHAPTER 3

The Development of Trade at the Port of Fremantle
1903-1939

The Port of Fremantle has been a vital link in almost every phase of Western Australia's development. From the difficult early years of the colony, through the convict era, gold rushes, wars and depression, the port has remained a vital point of entry and exit for people and goods; its shipping and trade a barometer of the state's prosperity.

In 1903-04 Fremantle's import and export trade totalled 692,000 tons or about £16.9 million (1910-11 prices). This trade was carried in about 800 ships totalling 1.4 million net registered tons (nrt). By 1938-39 trade had grown to 1.8 million tons or £20.9 million (1910-11 prices). This larger volume of trade was handled by 847 ships totalling 4.0 million nrt. Therefore, by the eve of the Second World War trade had increased by 160 per cent in tonnage terms but by less than 25 per cent in real values. Moreover, the number of ships calling had risen by a mere 6 per cent whereas the tonnage of shipping had leapt by 186 per cent. During this period Fremantle remained Western Australia's leading passenger port, despite a drop from 46,000 to less than 28,000 passenger movements per annum. These summary statistics suggest that Fremantle experienced major changes in cargo and passenger flows and ship movements during the three and a half decades under review.

The objective of this chapter is to identify and explain the major changes in cargo and passenger flows; ship movements will be considered in the next chapter. In order to explain trade and passenger flows we examine a variety of factors, including economic ones such as the growth of population, incomes and industry and the state of overseas

trade, while political factors such as government tariff and trading
policies and industrial military cannot be neglected. It will be argued
that to a large degree, Fremantle's fortunes as a port were not
determined by local decisions of port operators and users, but by wider
forces emanating from the state, national and even international
spheres. But before we can consider these factors it is necessary to
briefly discuss the measurement of port activity.

There are a number of possible measures of port activity
including the tonnage of cargo handled; the value of cargo handled; the
capacity of ships using a port; and the number of ships calling. All
measures have limitations: tons weight favours bulk cargo ports; using
value data gives rise to the problem of finding an adequate price
deflator; net registered tonnage, the best measure of cargo carrying
capacity, varies with vessel type; and number of ships favours small
cargo ports.[1] No single measure is adequate, especially for ports such
as Fremantle which cater for a wide variety of cargoes and ships
types. From an economic point of view the value of trade is probably
most important, as it affects the willingness to invest in port
facilities. But as the FHT had the task of relating physical flows of
cargo to physical cargo-handling capacity it tended to be more concerned
with cargo tonnages. For the predominant part of this chapter
discussion of trade will be in terms of tonnages simply because value
detail is often lacking at the port level. For a more detailed
discussion of the FHT's approach to measuring cargo tonnages see
Appendix B.

Cargoes can be subdivided into bulk and non-bulk or general
cargoes. Although there is no hard-and-fast distinction between the two
types, bulk cargo is usually of a homogeneous character, has a low value

per ton and moves in large quantities; general cargoes are more heterogeneous and in our period consisted of individual parcels and packages all needing to be individually sorted and handled. Cargoes of a homogeneous character, such as coal and wheat, presented less obstacles to the development of mechanised handling than did general cargoes. As we will see in Chapter 5, as late as 1939 the handling of general cargoes remained a basically labour intensive activity.

1.   The trade of Fremantle, 1903-04 to 1938-39

Figure 3.1 illustrates the growth of total trade at Fremantle between 1903-04 and 1938-39, measured in tons and 1910-11 prices. Comparing the five year periods ending 1907-08 and beginning in 1934-35, the value of trade grew by 36 per cent and the tonnage of trade by 148 per cent. It is clear that Fremantle did not experience a major trade boom, particularly when the value of trade is considered. In fact, the value of trade fell steadily during the first decade of the 20th century, revived slightly for several years, only to plummet following the outbreak of the First World War. From the early 1920's the value of trade grew steadily at about 3 per cent per annum, but the 1903-04 level of trade was not passed until 1929-30. Trade slumped during the depression of the 1930's but recovered quickly and reached a record level of £ 22.1 million in 1937-38.

Trade tonnages were less volatile than trade values but generally moved in unison. However, after reaching a peak of 1,826,000 tons in 1929-30, trade tonnages slumped and, unlike trade values, failed to regain their pre-depression peak prior to the Second World War.

Table 3.1, which shows the relative importance of foreign and domestic trade, also illustrates a contrast in the behaviour of trade values and tonnages. Comparing 1910 and 1938, overseas trade slipped in

Figure 3.1

The Growth of Trade at the Port of Fremantle,
1903-04 to 1938-39
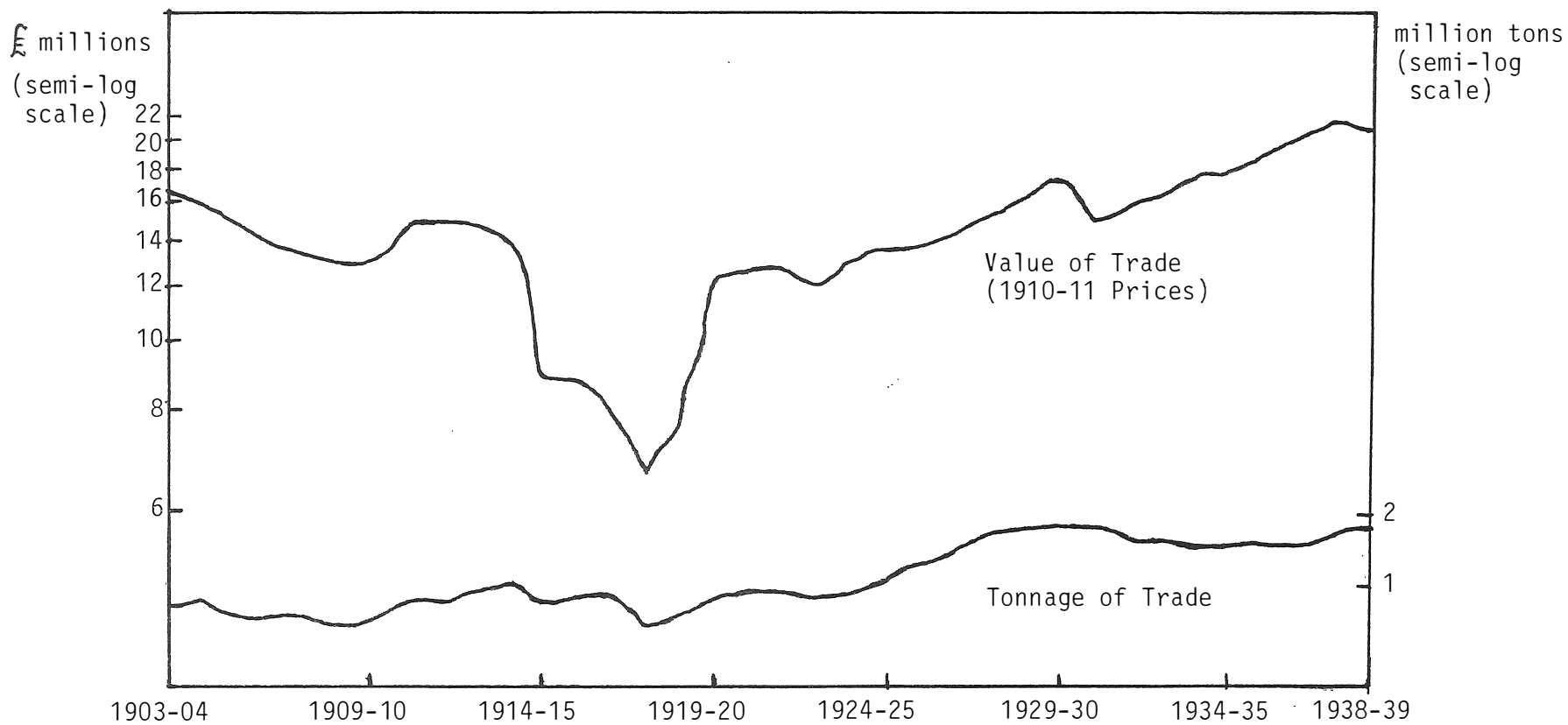
Source: Appendix A.

Table 3.1

Structure of Total Trade at Fremantle
1910 to 1938

(Percentages)

Period[1]	Tons			Values	
	Foreign	Interstate	Intrastate	Foreign	Domestic[2]
1910	45.7	46.2	8.1	62.9	37.1
1920	51.0	41.6	7.4	65.8	34.2
1930	77.7	19.2	3.1	69.3	30.7
1938	64.5	24.2	11.3	58.3	41.7

Note: [1] Averages of three financial years centred on the years shown.

[2] Separate value data on interstate and intra state trade is not available

Source: Appendix B and FHT, Annual Reports.

relative important when measured in values but grew in relative importance when measured in tons. However, both measures reveal that from the 1920's onwards Fremantle was predominantly an 'overseas' port. The opening of the Trans-Australia Railway in 1917 and the decline in imports of bunker coal from Newcastle, matters we discuss later in the chapter, helped reduce the relative importance of domestic trade especially in tonnage terms. The orientation to overseas trade reflected its importance to the Australian economy: in 1938-39, for example, exports equalled about 17 per cent of gross domestic product and imports about 15 per cent. Clearly, any discussion of trade must give due attention to the state of the economy, so we now turn to consider the economic circumstances surrounding major trade fluctuations between 1903 and 1939.

As Professor Appleyard has observed, it is difficult to write a meaningful port history without at least a basic knowledge of the state's economic history.[2] Unfortunately, no one has as yet written a detailed economic history of the state. However, since the publication of A New History of Western Australia in 1981 some preliminary guidelines to the state's development are available.[3] These guidelines will be used to help explain the port's growth. Estimates of Western Australia's gross domestic product are available only from 1912-13 so our knowledge of economic performance in earlier periods is less precise.

Table 3.2 provides a preliminary snapshot of economic progress in Western Australia in relation to the rest of Australia. The table reveals large relative increases in the area under crop, wheat production and gold production. In general, indicators of primary industry show relative progress while indicators of industrialization,

Table 3.2

Western Australia in Relation to
the Rest of Australia in 1901-02 and 1938-39

Indicator	1901-02		1938-39	
	Level	% of Australian Total	Level	% of Australian Total
Population	213,382	5.5	465,042	6.7
Area under crop (acres)	217,441	2.6	4,719,254	20.1
Wool production (lbs)	13,380,181	3.4	78,802,143	8.0
Wheat production (bushels)	956,886	2.5	36,843,600	23.7
Gold production (£'000)	7,948	53.7	11,796	73.7
No. of factories	586[1]	5.1	2,129	7.9
No. of factory employees	11,828[1]	6.0	23,211	4.1
Value of factory land, buildings, plant and machinery (£'000)	2,935	7.4	14,909	5.4
Consolidated revenue (£'000)	3,691	13.1	10,950	8.8
Exports (£'000)	9,051	20.6	23,006	16.4
Imports (£'000)	7,218	17.7	18,802	18.4

Note: [1] 1902-03

Source: Western Australia, Statistical Registers and Yearbooks

such as factory investment and employment, show relative decline. As we will see below, Western Australia remained a primary producing state as late as 1930, a fact of immense significance for the progress of the port.

Table 3.3 illustrates the growth of population and real gross domestic product (GDP) between 1913-14 and 1938-39. G. Snooks' data show that real GDP grew faster in Western Australia than in Australia as a whole, but so did population, with the result that real GDP per capita actually fell by an average of 0.03 per cent per annum. However, this was not markedly out of line with the national experience, because Australian real GDP per head grew by only 0.03 per cent per annum. Thus these years saw a general stagnation in per capita income growth. However, I. McLean and J. Pincus have suggested that the per capita GDP data failed to reflect increases in the standard of living due to unmeasured gains in areas such as life expectancy, leisure and housing quality.[4] Nevertheless, the over-riding impression remains one of, at best, extremely modest progress in living standards.

It might be expected that fluctuations in per capita incomes would be reflected in port trade, although clearly per capita incomes were not the only factor affecting cargo volumes at Fremantle. Over the period 1913-14 to 1938-39 Fremantle's trade grew by 3.8 per cent per annum in constant values and 4.0 per cent per annum in tonnage terms. Thus port trade grew about two and a half times faster than real GDP and population. However, there is no mechanical rule for translating growth in population and incomes into growth in port trade, so that the 1:2.5 ratio of population and incomes to trade may not hold for different time periods. In order to cast further light on the factors affecting Fremantle's trade we need to examine the progress of the state's major industries.

Table 3.3

Average Annual Rates of Growth of Population and GDP in Western Australia and Australia, 1913-14 to 1938-39

	Western Australia	Australia
Real GDP	1.51	1.40
Population	1.56	1.37
Real GDP per head	-0.03	0.03

Source: G. Snooks, 'Development in Adversity 1913 to 1946', in C.T. Stannage (ed.) A New History of Western Australia, (Nedlands, W.A., 1981), Table 7.1, p.238.

G.D. Snooks has used the leading sector concept as an aid to understanding Western Australia's economic growth.[5] A leading sector is a sector which 'initiates a process of change of substantial magnitude in an economy.'[6] It expands in response to autonomous factors (factors external to the economy) such as new inventions, new discoveries of natural resources and changes in overseas demand. According to Snooks, at various times the goldmining, agricultural and pastoral industries have acted as leading sectors in Western Australia. During the 1890's goldmining was a leading sector, dominating the rest of the economy. Between 1896 and 1900 Western Australia produced an average of £3.98 million of gold per annum or just over one-third of Australia's total production. Over the same period exports averaged £31 per head of population, and imports £37 per head of population compared to £19 and £17 respectively for the nation as a whole. In Chapter 2 we saw that the gold rushes created record levels of port trade and led to the opening of the Inner Harbour. Gold production and gold exports peaked in 1903, when gold accounted for a massive 83 per cent of the value of the state's exports. Subsequently, it declined in importance although as late as 1913 it accounted for 47 per cent of the value of exports and remained the major export earner.

As the gold industry waxed and waned, so did the fortunes of the state and its major port. The striking decline in the value of port trade in the first decade of this century, revealed in Figure 3.1, clearly testifies to gold's importance. A period of readjustment followed for state and port alike. Fortunately, agriculture emerged as a new leading sector, boosting trade values and raising trade tonnages to record levels by 1914.

Wheat was the major agricultural export. According to S. Glynn, 'in the first thirty years of this century, when the Australian wheat industry as a whole grew rapidly, Western Australia surpassed all other States in its rate of agricultural expansion, rising from an insignificant position as a net wheat importer to become one of the main wheat producing and exporting States.'[7] Between 1900 and 1930 the area under wheat grew from about 74,000 acres to about 4 million acres; the value of wheat exports leapt from virtually zero to about £6 million.[8] This growth was aided by government intervention, including the provision of cheap land, the development of an extensive railway system and the provision of credit to farmers.[9] In view of the importance of the wheat industry for the state and the port in our period, it is worth considering its growth in more detail.

The history of the wheat industry falls into four distinct phases, the first three of which were identified by S. Glynn.[10] Firstly, there was an initial expansionary phase between 1903 and 1914, which was ended by drought and the outbreak of the First World War. The industry entered a second and contractionary phase which lasted until 1919. During this period unprecedented levels of government assistance were given to farmers: 'a vast holding operation for the wheat industry until conditions improved.[11] The disruption caused by the war led to falls in real GDP throughout Australia; in Western Australia per capita GDP peaked at £140.9 million (1938-39 prices) in 1912-13, a level not exceeded until after the Second World War.[12] Thirdly, the wheat industry underwent a phase of rapid growth during the 1920's, which saw the extension of cultivation eastwards into marginal land areas. This expansion continued even though wheat prices fell steadily from the mid-1920's and that as the boundary of cultivation was pushed eastwards

farmers faced higher production and marketing costs. The industry's expansion contributed to a boom in economic activity: between 1923-24 and 1927-28 real GDP per head increased by 2.62 per cent per annum, compared to a decline of 0.02 per cent per annum in Australia as a whole over the same period.[13] But, according to G. Snooks, the state's heavy emphasis on rural expansion and on boosting population with the aid of assisted migration, led to an unbalanced pattern of development, with disastrous consequences in the 1930's.[14] The fourth phase in the history of the industry commenced in 1930-31 when wheat prices slumped to only 2s 3 $^1/_2$d per bushel or about one-half of the level in the previous year. The ill-conceived campaign to revive rural incomes by growing more wheat had 'turned a grave situation into complete disaster.'[15] The 1930-31 harvest was 37 per cent larger than that of the previous year but the gross return to farmers fell by 31 per cent.[16] The collapse of wheat prices led to a period of drastic reconstruction, but recovery was slow: the 1930-31 peak output was not reached again until the 1950's.

The vicissitudes of the industry were well reflected in the trade of Fremantle. In 1929-30 a record of 846,000 tons of wheat was shipped from Fremantle; thereafter wheat exports declined steadily to about 348,000 tons in 1938-39. But the depression had at least one far-reaching outcome for the port: the pressure to reduce costs led to the introduction of bulk handling of grain. Not surprisingly, the introduction of mechanisation in the midst of a depression proved controversial; we will discuss this important episode in the port's history in Chapter 6.

The depression led to a decline in economic activity throughout Australia but economic activity began to pick up in 1931-32 in Western

Australia, a year before the nation as a whole. This was mainly due to the remergence of goldmining as a leading sector, but also to the expansion of the dairying industries, and a general weakening of contractionary forces.[17] Goldmining began to expand in 1929 due to the introduction of more efficient production methods in the late 1920's, and was further stimulated by an increase in the price of gold after 1930. By the late 1930's Western Australia was providing about three-quarters of Australia's gold production. In 1938-39 gold accounted for 46 per cent of Western Australia's total exports of £ 23 million. According to G. Snooks, the goldmining revival provided Western Australia with a 'breathing space', allowing time 'to reconstruct an economy which had become badly out of touch with both national and international market forces.'[18]

In order to cast further light on fluctuations in per capita incomes and in trade flows, it is helpful to examine changes in the structure of Western Australia's economy. This is because modern economic growth is usually associated with rapid structural change; more specifically, as growth proceeds there is usually a shift away from rural activities to manufacturing and eventually to service activities.

Table 3.4 compares structural change in Western Australia and Australia between about 1913 and 1939. As far as Western Australia was concerned, apart from a decline in the relative importance of construction activities and a modest increase in the importance of the service sector, the structure of the economy changed little between 1913 and 1939. During the 1920's, rural activities increased in importance, largely at the expense of mining, but by 1939 each sector had reverted to its pre-first World War share of GDP. Western Australia remained a basically primary producing state, exporting agricultural and mineral

Table 3.4

Structural Change in the Western Australian
and Australian Economies

(percentages of GDP in current prices)

	Average of years 1912-13/1913-14		Average of years 1926-27/1927-28		Average of years 1937-38/1938-39	
	W.A.	Aust.	W.A.	Aust.	W.A.	Aust.
1. Rural	19.5	23.4	28.5	20.9	20.2	21.2
2. Manufacturing	9.8	13.8	9.0	15.8	10.6	17.7
3. Mining	12.0	5.6	2.4	2.3	12.4	3.2
4. Construction	12.3	9.9	13.0	9.5	6.2	6.7
5. Tertiary	46.5	47.4	47.1	51.5	50.6	51.2

Source: G. Snooks, 'The Arithmetic of Regional Growth: Western
Australia 1912/13 to 1957/8', Australian Economic History
Review, vol.xix (1979), p.69-70.

products and with only a small manufacturing sector. In general, Australia experienced slow structural change prior to the Second World War, although manufacturing industry made more progress in the eastern states than in Western Australia.[19]

A major reason for the slow progress of manufacturing industry in Western Australia was the removal of customs barriers between the states following federation in 1901.[20] Manufacturers in the more densely populated states enjoyed greater relative access to economies of scale and were able to make large inroads into the Western Australian market. Manufacturing industry in Western Australia was limited to the processing of primary produce before export and the production of goods where distance afforded a measure of natural protection. Resentment about the affect of federation on local industry was a major factor behind the vote for secession in 1933.[21]

Given the heavy reliance on imported manufactures, Western Australia tended to have high levels of imports per head of population. During the 1890's, when the gold rushes were underway, imports averaged £37 per head, about double the Australian average. By 1913 imports had declined to £31 per head but were still about double the Australian average. According to G. Henderson, in the 19th century many of these imports came from Britain via the eastern states and Singapore as direct overseas shipping services to this small, isolated colony, were naturally limited.[22] In 1900 overseas imports totalled £3,798,000 of which £511,000 or 13 per cent came via the eastern states. The practice of importing overseas goods via the eastern states continued throughout the first four decades of the 20th century, although it declined slightly in importance. In 1912-13 8 per cent of overseas imports came via the eastern states, while in 1938-39 the figure was 10 per cent.

As the 20th century progressed overseas imports were increasingly supplanted by interstate imports. In 1913 overseas imports totalled £5,898,000 or 60 per cent of total imports; by 1938-39 overseas imports were only £5,997,000 or 33 per cent of total imports. J. Hutton attributes this change to

> a number of developments which include the gradual integration of the State's economy within the Australian national market; the development since 1902 of the Commonwealth system of tariffs against cheaper overseas imports; the growing sophistication and range of Eastern States' manufacturing output; improvements in communications between eastern and western Australia; and the shortage of adequate overseas supplies during and following the two world wars.[23]

The United Kingdom was the main loser: its share of total imports dropped from 37 per cent in 1900 to 13 per cent in 1938-39.

As the state's principal seaport, Fremantle naturally reflected these changes in her own trade patterns. In 1907-08 overseas imports totalled £3.2 million (1910-11 prices) or 55 per cent of the total value of imports; by 1938-39 Fremantle's overseas imports had dropped to £2.9 million (1910-11 prices) or 30 per cent of the value of total imports. Further evidence of the changes at Fremantle is supplied in Table 3.5 which shows the geographical origins and destinations of overseas trade.

Comparing 1909-10 and 1938-39, the United Kingdom's share of Fremantle's exports was remarkably stable, averaging 52 per cent, but her share of Fremantle's imports slumped from 50 per cent to nine per cent. The slump in the United Kingdom's share of imports was, as we have seen, due partly to increased competition from eastern states producers sheltered by Australia's tariff wall. But the United Kingdom was also facing competition from other overseas suppliers, principally the U.S.A. and Japan. However, in 1932 the federal government signed the Ottawa Agreement giving preference to imports from Britain. In 1936

Table 3.5

Geographical Direction of Fremantle's Overseas Trade
1909-10 to 1938-39

(percentages)

	1909-10		1919-20		1929-30		1938-39	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
United Kingdom	52.3	49.7	57.4	21.5	33.2	17.2	47.3	8.6
British Empire (other)	-	-	-	-	-	-	19.4	35.5
Europe	7.3	18.9	6.4	3.3	12.4	3.1	12.8	2.8
U.S.A.	0.6	19.5	*	21.5	*	20.1	*	9.1
Far East	-	-	-	-	5.9	32.5	16.8	42.9
Others	39.8	11.9	36.2	53.7	48.5	27.1	3.7	1.1
Total per cent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total tons/'000	95.6	185	345	121	764.1	702	570.8	606

Notes: Unfortunately data on the geographical direction of trade are limited at the port level. Trade with the 'British Empire' and 'Far East' is included with 'Others' before 1938-39 and 1929-30 respectively.

* = less than 0.1 per cent.

Source: FHT, Annual Reports.

the infamous trade- diversion policy aimed at diverting trade away from the U.S.A. and Japan towards Britain was introduced. These, and other protectionist measures, helped halve the level of American imports at Fremantle.[24] Most imports from Japan entered Australia via eastern states ports: in the late 1930's only about two per cent of Fremantle's trade was with Japan.

Despite these protectionist measures, the United Kingdom's relative share of Fremantle's imports continued to fall. This was due to the growth of trade with the Dutch East Indies which during the 1930's emerged as a major supplier of oil to Australia. By 1938-39 imports from the Dutch East Indies reached 255,000 tons or 98 per cent of Fremantle's total imports from the Far East.

By 1932 Australia was the world's fifth largest importer of petrol; in per capita terms she imported 32 gallons per head, more than any other nation.[25] This trade was primarily due to the growing use of petrol in motor vehicles: by 1932 there was one motor car to every twelve Australians, giving Australia fourth position in world car ownership, after the U.S.A., New Zealand and Canada.[26] Oil was also increasingly used in industry and also by ships as a bunker fuel. The bunker issue will be explored in more detail later in the chapter.

In summary, Western Australia experienced slow rates of per capita growth and structural change between 1913-14 and 1938-39. Primary exports, particularly wheat, grew strongly in the 1920's but suffered severe setbacks during the 1930's depression. Industrialization proceeded even more slowly in Western Australia than in the eastern states. The proportion of Western Australia's imports from the eastern states gradually increased at the expense of traditional overseas suppliers such as the United Kindom. All these

changes were reflected in Fremantle's trade and help explain why the
period was one of slow growth for the port.

The variations in the economic performances of the states led to
geographical shifts in the location of production and consumption and
hence to alterations in the trade flows of the capital city ports.
Australia's capital city ports (Sydney, Melbourne, Adelaide, Brisbane
and Fremantle), enjoyed a natural monopoly over much of their states'
and did not generally compete for cargo. Indeed, K. Trace has argued
that the lack of competition caused Australian ports to be tardy in
adopting more efficient methods.[27] The European situation, with close
geographical clusters of ports struggling for a share of trade, provides
a striking contrast with Australia. For example, the Port of Hamburg,
which in 1926 handled about 21.9 million tons of seaborne trade, was
engaged in a commercial battle with other North Sea ports for the sea-
borne, river-borne and rail-borne traffic of central Europe:

> Compared with the distances the ships have to cover on the
> highroads of the oceans, those between the various North
> Sea ports are of no account whatever. International trade
> has caused the development of economic areas independent
> of political boundaries ... the close proximity to Hamburg
> of the other large seaports, however, has also given rise
> to a struggle for the possession of the industrial
> hinterland.[28]

Hamburg 'spared no efforts and no money' in attempts to capture
trade.[29] By contrast in 1926 Fremantle handled a mere 1.3 million tons
of cargo, served a sparsely populated, relatively un-developed region,
and was over 1,347 nautical miles from Adelaide, the nearest Australian
port of any size. In short, Fremantle was firmly on the periphery of
world trade and shipping activity.

Fremantle's share of the total value of Australian trade is
shown in Figure 3.2. It plummetted from 16.8 per cent in 1903-04 to 6
per cent in 1909-10. Fremantle's trade share at the beginning of the

Figure 3.2

Fremantle's Share of the Total Value
of Australian Overseas Trade, 1903-04 to 1938-39

per cent
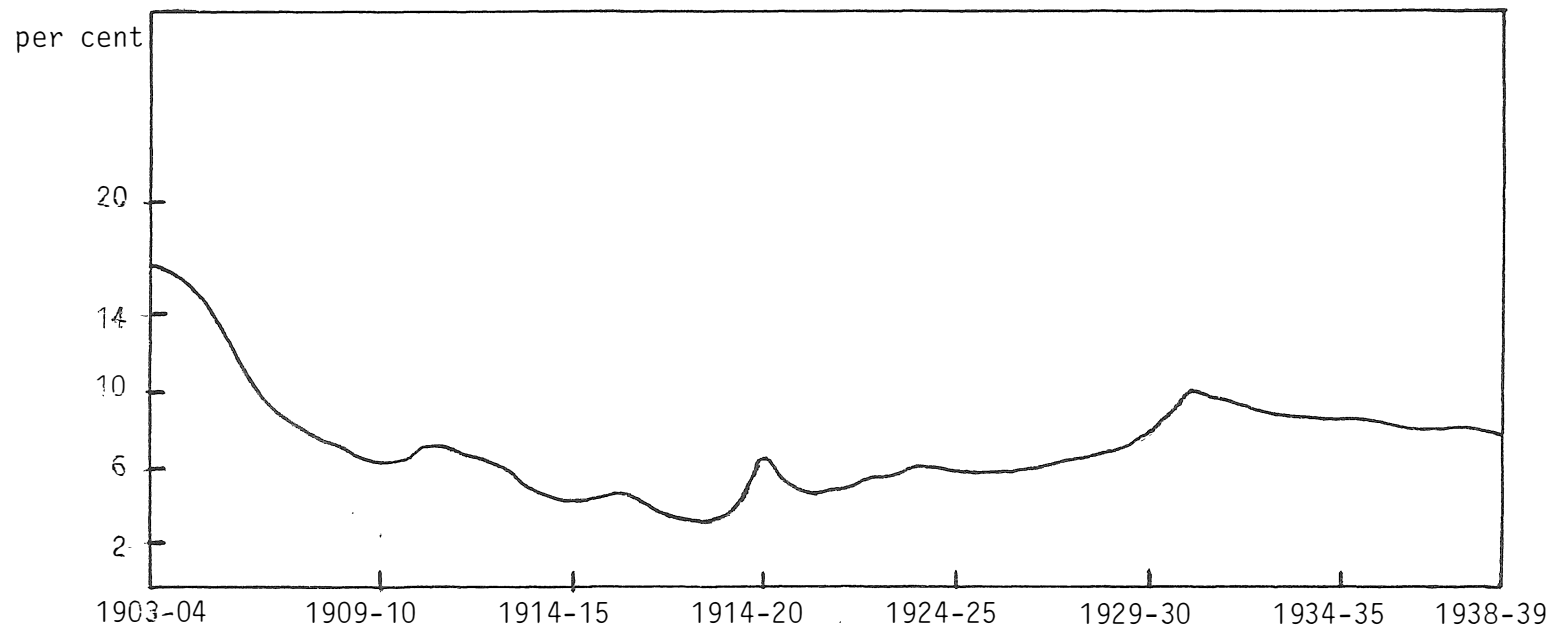
Source: Appendix A.

century was a result of the gold boom era and thus exceptional; subsequently, trade reverted to levels more appropriate to the state's population size and level of economic development. A slow recovery began in the 1920's with a peak share of 10.3 per cent of Australian trade in 1930-31; thereafter Fremantle's trade share declined slowly to 8 per cent in 1938-39. Thus Fremantle was declining in importance as a national port. To the extent that port trade reflected the economic performance of the state, such evidence would not have acted as a powerful magnet for attracting capital and labour to the port's hinterland.

2.   Fremantle's hinterland

The hinterland or area of production and consumption served by Fremantle was clearly a major determinant of its growth. The hinterland of a port is difficult to delineate precisely: it will wax or wane as the port develops or declines and as production and land transport alters; equally, as the hinterland develops or declines so will the port. This two-way relationship is dependent on a wide variety of factors, including geographical location, proximity to population and industry, and port efficiency. Table 3.6 illustrates the shares of principal ports in the value of Western Australia's overseas trade between 1910 and 1939. Fremantle consistently accounted for about 85 per cent of overseas trade. Moreover, by 1938-39 Fremantle handled about 1.8 million tons of cargo per annum or 72 per cent of the state's total of 2.5 million tons.[30]

Despite its dominance, Fremantle did not possess a monopoly of the state's trade. It shared trade with the adjacent ports of Geraldton, Bunbury, Busselton, Albany and Esperance; while Derby, Broome, Wyndham and a number of other tiny ports served the northern

Table 3.6

Shares of the Principal West Australian
Ports in the State's Overseas Trade

	1910[1]		1920		1930		1939	
	£'000	%	£'000	%	£'000	%	£'000	%
Fremantle	13,586	83.8	23,897	84.0	31,313	85.7	36,239	88.3
Albany	654	4.0	1,201	4.2	551	1.5	800	1.9
Bunbury	737	4.5	820	2.9	1,453	4.0	1,173	2.9
Geraldton	383	2.4	409	1.4	1,987	5.4	726	1.8
Broome	281	1.7	462	1.6	183	0.5	87	0.2
Others[2]	567	3.5	1,648	5.8	1,064	2.9	2,030	4.9
Total	16,208	100.0	28,437	100.0	36,551	100.0	41,055	

Notes: 1 Calendar year; all others are financial years.

2   Balla Balla, Busselton, Carnarvon, Cossack, Derby,
Esperance, Eucla, Port Hedland, Wyndham.

Source: Western Australia Statistical Registers

parts of the state. The latter ports developed during the 19th century to serve small, isolated hinterlands. A lack of adequate land transport and the great length of the coastline made localised port facilities a necessity.[31] As population, primary production, and transport facilities expanded, the hinterlands of some ports began to overlap.

As a rough approximation, Fremantle's hinterland can be defined by reference to major avenues of communication, particularly railways, and the grain collecting area of the port.[32] The approximate hinterland of Fremantle for bulk cargoes is illustrated in Figure 3.3. In the case of general cargoes Fremantle's hinterland effectively covered the whole state.

Fremantle's hinterland, as shown in Figure 3.3, covered 37,000 square miles, or only 4 per cent of the state's land area. However, it included the centres of population and industry: in 1911 the Perth statistical division contained 116,000 people or about 41 per cent of the state total. By the 1933 census the metropolitan region contained 230,000 people or 52 per cent of the state total. Thus the major port was developed in close proximity to the metropolitan area, although Western Australia differed from most other states in that the port (Fremantle) and administrative centre (Perth) were physically distinct, at least initially. From the mid-1890's onwards rapid suburbanization began to link the two towns.[33]

Figure 3.3 also shows that Fremantle benefited from a radial pattern of railway communications; this was also generally true of road communications. In 1939 about one-half of the port's cargo was directly transported to and from the port by rail.[34] However, if allowance was made for cargo which left the port by road or pipeline and was subsequently transferred to rail for shipment to the country, the proportion would have been far higher.[35]

Figure 3.3

The Hinterland of the Port of Fremantle
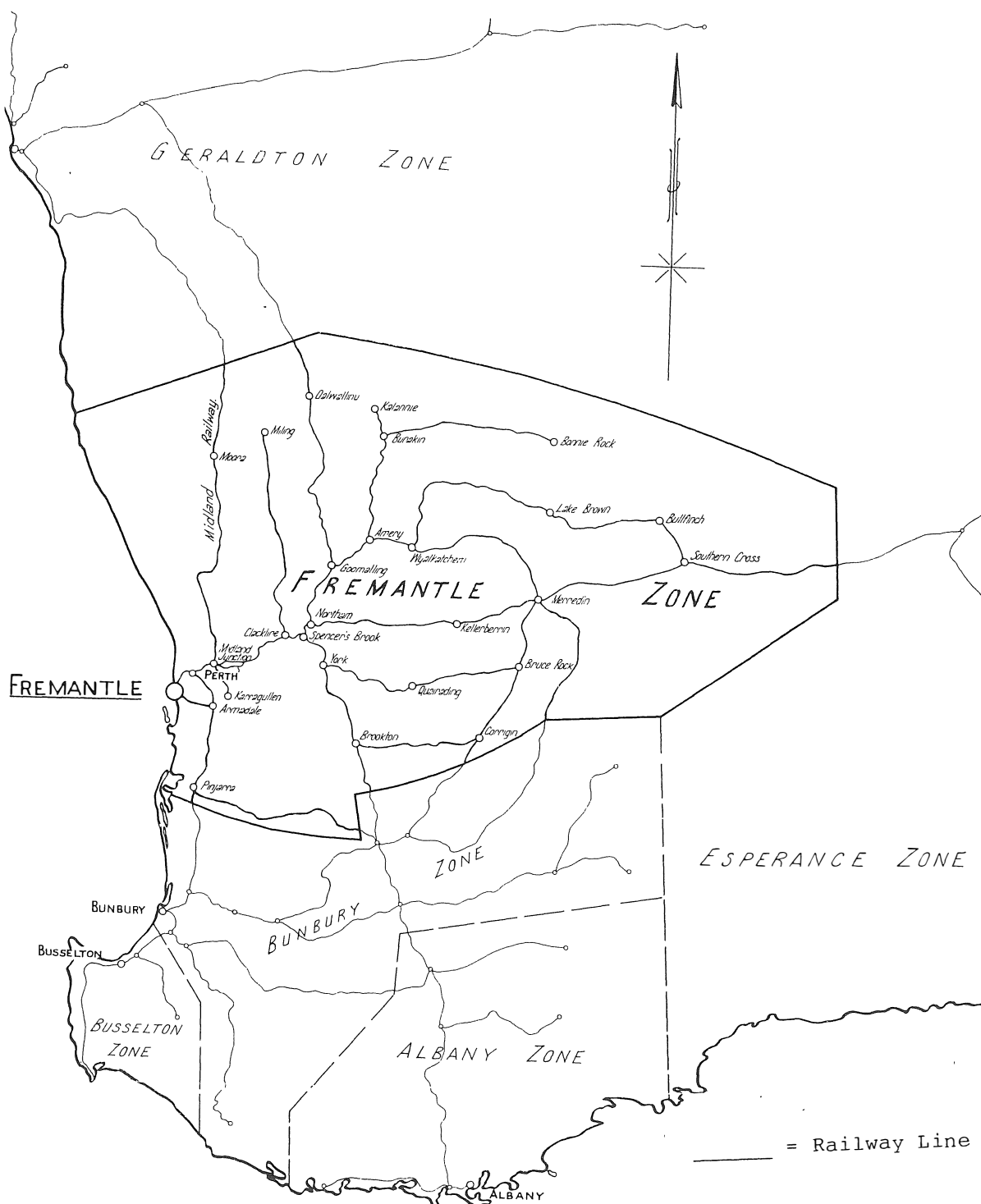
Source: F.W. Tydeman, Report on Port of
         Fremantle, 3 vols, (Perth, 1949),
         vol.3, Appendix 10.

The contrast with Albany, penalized by a non-radial pattern of railway development, is striking. When the Great Southern Railway was opened in 1889 Albany, with its fine natural harbour, began to threaten Fremantle's trade. This was a factor which prompted the government, which primarily represented Fremantle and Perth interests, to open up the Inner Harbour. T. Manford has shown that the government ensured that subsequent railway development and railway tariffs favoured Fremantle at the expense of the outports.[36] Figure 3.3 shows that apart from Fremantle, Bunbury was the only port to enjoy a radial system of railways. But Bunbury specialised in bulk cargoes and offered no serious competition to Fremantle for general cargoes. Albany was particularly severely affected by this 'centralist' policy and after the First World War was 'a dying port'.[37] Following the implementation of the Navigation Act in 1921, which reserved the coastal trade for Australian vessels, less overseas steamers called at Albany. Previously mail steamers had often topped-up with parcels of interstate cargo which was off-loaded at Albany and railed to Fremantle. Yet another blow occurred the following year when control of wool marketing passed to Fremantle buying and broking firms; an increasing proportion of the wool crop was railed to Fremantle for shipment. Given these factors and the loss of the bunkering trade (to be discussed shortly), it is not surprising that comparing the five year periods ending in 1913-14 and beginning in 1934-35, Albany's cargo traffic fell from about 77,000 tons per annum to 59,000 tons, a drop of 23 per cent; over the same five year periods Fremantle's trade almost doubled.[38]

Western Australia was not the only state to develop a transport network focussing on the major port. Aware that there was a close connection between railways and the fortunes of ports, city interests

used their influence in parliament to ensure that as far as possible railway lay-outs and railway tariffs favoured the capital city ports[39] In New South Wales, 'Sydney interests' ensured that the bulk of that state's freight was funnelled through the metropolitan area.[40] But as production and consumption activities increased the growing volumes of freight put great strains on the transport network, particularly as only about 13 per cent of Sydney's trade (measured in tons) was carried by rail.[41] The combined pressures of port and city land use on a finite amount of roadspace led, at times, to severe congestion.[42] Fortunately land use pressures were less serious in a smaller and less industrialised state such as Western Australia. Moreover, over half of Fremantle's trade consisted of bulk cargoes which were carried by rail to and from the port, reducing pressure on the road system.

Table 3.7 illustrates the composition of Fremantle's trade between 1904-05 and 1938-39, measured in tons. The major items handled were relatively homogeneous cargoes such as grain, oil, fertilizers and coal. One of the major changes in this period was the increasing proportion of these cargoes handled in bulk. Coal and phosphates (for fertilizers) were the first cargoes to be handled in bulk but the major turning point came in the early 1930's when bulk handling of grain was introduced. These developments will be discussed in Chapter 6. By 1938-39 about 63 per cent of imports were made up of bulk cargoes and 37 per cent by general cargoes; the corresponding figures for exports were 92 per cent and 8 per cent.[43] This breakdown reflects the state's reliance on imports of manufactured goods and a few bulk cargoes such as oil, coal and fertilizers, and the dominance of the export trade by primary products. It could be argued that values of trade would give a different picture but unfortunately value data are not available at the port level.

Table 3.7

Composition of Fremantle's Trade,
1904-05 to 1938-39

Imports	1904-05 '000 tons	%	1909-10 '000 tons	%	1919-20 '000 tons	%	1929-30 '000 tons	%	1938-39 '000 tons	%
Agricultural and dairy produce	64	10.9	42	9.5	13	3.2	17	1.7	16	1.7
Coal and Coke	139	23.8	98	22.2	149	37.0	75	7.6	70	7.4
Timber	51	8.7	16	3.6	5	1.2	17	1.7	14	1.5
Metal manufactures	73	12.5	52	11.8	31	7.7	89	9.0	69	7.3
Fertilizers	10	1.7	37	8.4	27	6.7	206	20.8	190	20.2
Petroleum	12	2.1	6	1.4	15	3.7	278	28.1	285	30.0
Residual	248	40.3	200	43.1	168	40.5	317	31.1	301	31.9
Total imports	585	100.0	442	100.0	403	100.0	991	100.0	942	100.0
Exports										
Wool and skins	3	1.8	5	2.6	34	6.7	38	4.6	44	5.4
Timber	44	26.2	34	17.9	19	3.7	17	2.0	20	2.5
Grains	2	1.2	44	23.2	181	35.5	444	53.2	348	42.7
Bunker coal	2	1.2	5	2.6	46	9.0	42	5.0	11	1.3
Bunker oil	–	–	–	–	–	–	144	17.2	124	15.2
Flour	–	–	1	0.5	116	22.7	67	8.0	86	10.6
Residual	117	69.6	101	53.2	114	22.4	83	10.0	182	22.3
Total exports	168	100.0	190	100.0	510	100.0	835	100.0	815	100.0

Notes: Only limited commodity detail is available on a continuous
         basis between 1904-05 and 1938-39. The residual category
         mainly comprises general cargoes including items such as
         hardware, machinery, intoxicants, corn sacks and bullion.
Source: FHT, Annual Reports.

Throughout Australia, general cargoes were more important in the import than export trade. As we will see in the next chapter, this created problems for shipowners as each type of cargo had different requirements for shipping capacity, causing many ships to either arrive or leave only partly loaded. However, as Table 3.8 shows, imports declined from 75 per cent to 57 per cent of total trade between 1910 and 1938. The greater degree of balance between import and export tonnages should have made Fremantle a more profitable port of call for shipowners.

3.   Fremantle's bunkering trade

After the opening of the Inner Harbour in 1897, Fremantle became the first and last port of call on the Australian coast for many overseas vessels. Thus the port was able to develop a valuable business supplying ships' bunkers and stores. In 1912-13 Western Australia (principally Fremantle), supplied bunkers and stores worth £163,000 or 11 per cent of the Australian total. By 1938-39 Western Australia (principally Fremantle) supplied one-quarter of the £2,106,000 worth of bunkers and stores shipped on overseas vessels at Australian ports.[44]

The main item supplied was bunker fuel which accounted for about two-thirds of the total. According to K. Burley, fuel was the largest single running cost on the Australian coast between the First and Second World Wars, although it declined in importance due to a fall in the price of bunker coal, the adoption of oil as an alternative fuel and innovations in marine technology.[45]

Expenditure on bunker fuel in Australia was influenced by a number of factors outside the direct control of the port authorities, including the volumes of cargo available, the level of freight rates and the prices of bunkers at alternative ports such as Durban and Colombo.

Table 3.8

Balance of Trade at Fremantle, 1910 to 1938

(Per cent of total tons)

Year[1]	Exports	Imports
1910	24.7	75.3
1920	48.0	52.0
1930	53.0	47.0
1938	43.5	56.5

Note: 1   Three year averages centred on the years shown.

Source: Appendix B

In 1907 Captain Irvine, the Chief Harbour Master, claimed that the Port of Natal (Durban) had captured three-quarters of Albany's bunkering trade, by charging 15s 6d per ton of coal, compared to 27s at Albany. Irvine estimated that every ton of coal sold at Albany and Fremantle meant 3s spent on labour; also, ships would outlay funds on items such as stores and port dues. He concluded that 'nothing tends to popularise a port so much with shipping, as to know that coal at a reasonable price can be obtained expeditiously.'[46] Ships coming to Australia in ballast for cargoes such as wheat and timber naturally tended to bunker in cheaper overseas ports as far as possible. Also, when shipowners faced the possibility of leaving Australia with ballast space they tended take on sufficient coal in the eastern states to carry them onto Durban or Colombo.[47] The latter port, for example, enjoyed a very extensive bunkering trade: in the mid-1920's it handled 825,000 tons of bunker fuel per annum, about seven times the level at Fremantle.[48]

Shipowners calling in Western Australia for bunkers could choose between Fremantle, Albany and Bunbury. Owing to its dominance of overseas trade, Fremantle naturally claimed the lions share of the bunkering trade as well. Although Albany offered a natural land-locked harbour and adequate facilities for bunkering, 'many ship-masters and owners prefer to make use of Fremantle as a bunkering port on account of its geographical position and the advantages which it offers in many other directions, such as engine repairs, and the procuring of stores.'[49] Moreover, in 1927 the International Load Line Convention amended Albany's winter (April to October) marks so ships could load 200 tons of cargo or bunkers less than at Fremantle where summer marks applied all the year round.[50] This move was due to the greater danger of encountering bad weather as far south as Albany. In 1924 it was

reported that the <u>Queen Maud</u> picked up 100 tons of coal at Albany but spent four days and 140 tons of coal battling her way round Cape Leeuwin. The ship was forced to call into Fremantle to top up with coal.[51] Clearly, incidents such as these reinforced Fremantle's attractiveness as a bunkering port. However, at the same time dues at Albany were lower: in 1924 a steamer of 4-5,000 tons calling for 500 tons of coal, staying 12 hours in port, paid £25 at Albany compared to £47 at Fremantle.[52] It was claimed that some ships wanting bunkers alone preferred to take Newcastle (New South Wales) coal on at Albany and by-pass Fremantle. However, the FHT argued that 'the charges at Fremantle and Albany have, in plain fact, little or nothing to do with the choice of port by shipowners, who have much greater aspects of each instance to consider than a few pounds difference in port dues.'[53] Probably the only result of lowering charges at Fremantle would have been a loss of revenue to the FHT.

Bunbury also made efforts to get some of the bunkering trade although the Secretary of the Bunbury Harbour Trust offered to consult with the FHT over rate charges so that 'the schedules would be kept uniform so far as practicable and competition would be avoided.'[54]. Bunbury's bunkering trade was basically confined to shipping that was loading there. It reached 46,592 tons in 1922 but declined thereafter; by the end of the Second World War it was virtually non-existent.[55]

Although local Collie coal was used in ships' bunkers as early as 1899,[56] the bulk of Fremantle's supplies of coal were imported from the eastern states. Unfortunately, although the FHT kept statistics on coal imports it did not keep records of imported coal used for bunkering purposes in any one year until 1923.[57] However, between 1907-08 and 1912-13 a total of 409,000 tons of imported coal was loaded into hulks

at Fremantle for bunkering purposes; over the same period 136,000 tons of Collie coal was used for bunkering purposes.[58] Thus Collie coal accounted for about one-quarter of the bunkering trade.

As early as 1908, local coal interests were pressing for improved handling facilities at Fremantle in order to boost the use of Collie coal for bunkering purposes and also to facilitate the development of an export trade.[59] One difficulty was that Collie coal had a lower calorific value than Newcastle coal and users of coal for shipping purposes agreed that it took 25 per cent more Collie coal to travel a given distance than if Newcastle coal was used.[60] Thus the State Steamships, for example, were reluctant to use the local coal as they had restricted bunkering space and its use would have encroached on space usually used for cargo.[61] During the Newcastle coal strike of 1910 many overseas ships were forced to call at Fremantle and take a record 47,000 tons of Collie coal. But according to a Royal Commission into the Collie coal industry, such 'was the greed of the coal owners that instead of supplying the best possible material with a view to the future stability of the industry, any rubbish which was sufficiently black to have the slightest resemblance to coal was dumped at Fremantle and Bunbury.'[62] Thus a golden opportunity was lost. Another problem with Collie coal was a supposedly increased danger of spontaneous combustion on long voyages. Although the Peninsular and Oriental Steamship Navigation company (P and O) started taking Collie coal in 1901 the main users appear to have been German lines. Thus the outbreak of the First World War led to a setback for the local industry: Collie coal bunkered fell from 54,000 tons in 1914 to 26,000 tons in 1915.[63] Despite the fact that freight and handling costs on imported coal were higher than on local coal - the freight rate from the eastern states was

about 10s per ton in 1916 - the imported coal retained the major share of the bunkering trade. For example, between 1923-24 and 1938-39 a total of 193,000 tons of Collie coal and 393,000 tons of imported coal was loaded into ship's bunkers at Fremantle; therefore, imported coal accounted for about two-thirds of total bunkers.[64] Collie coal was never popular with shipowners, some refusing to take any of it.[65]

Table 3.9, which illustrates the tonnage of coal and oil bunkers between 1923-24 and 1938-39, shows that from the mid-1920's onwards oil rapidly replaced coal as a bunkering fuel. By the end of the twenties over 75 per cent of bunkers were oil; by the eve of the Second World War coal bunkers had declined to a trickle. The switch to oil was probably encouraged by the high price of Australian coal. Between 1913 and 1921 New South Wales coal prices were roughly in line with those of overseas coal centres but between 1922 and 1928 the price of overseas coal tended to fall while New South Wales coal increased slightly in price.[66] This was due to the high profits reaped by the coal owners and the relatively high wages paid to Australian miners.[67] By the early 1930's the price of New South Wales coal had fallen to a more competitive price of 19s per ton at Newcastle. However, after shipment to Fremantle its price was often considered prohibitive by the shipowners.[68] Even Collie coal cost 29s per ton at Fremantle. Moreover, shipowners often preferred to carry non-Australian bunkers as an insurance against strikes in Australian bunkering ports.[69] Oil, on the other hand, was proving to be an economical bunkering fuel, offering quicker loading and freeing more space for cargo. By the early 1930's about 40 per cent of shipping tonnage visiting Australia was non-coal burning.[70] In 1932 the Tariff Board recommended against any protection for the local coal bunkering industry on the grounds that it would merely speed up the switch to oil and further reduce the demand for Australian coal.

Table 3.9

Coal and Oil Bunkers, 1923-24 to 1938-39

	Coal[1] ('000 tons)	%	Fuel Oil ('000 tons)		Total ('000 tons)
1923-24	86	83.5	17	16.5	103
1924-25	69	57.0	52	43.0	121
1925-26	67	48.2	72	51.8	139
1926-27	77	43.8	99	56.2	176
1927-28	51	33.1	103	66.9	154
1928-29	37	22.4	128	77.6	165
1929-30	42	22.6	144	77.4	186
1930-31	23	17.2	111	82.8	134
1931-32	16	12.3	114	87.7	130
1932-33	16	11.7	121	88.3	137
1933-34	16	12.2	115	87.8	131
1934-35	22	15.5	120	84.5	142
1935-36	18	12.9	122	87.1	140
1936-37	19	14.6	111	85.4	130
1937-38	16	11.2	127	88.8	143
1938-39	11	8.1	124	91.9	135

Notes: 1 Includes local and imported coal. Records of imported coal used for bunkers in any one year were not kept until 1923.

Source: FHT, Annual Reports.

The switch from coal to oil had major implications for Fremantle. At a basic physical level it led to the gradual disappearance of the old sailing ships used as coal hulks. In the late 1920's there were ten in use at Fremantle; by the mid-1930's only three remained. But, more importantly, it led to the decline of interstate coal imports, a mainstay of the coastal trade. Coal continued to be imported for the Western Australian Government Railways but between 1909-10 and 1938-39 coal dropped from 40 per cent to 19 per cent of the total tonnage of interstate imports. Over the same period interstate trade, measured in tonnage terms, fell from about 46 per cent to 24 per cent of total port trade. Oil was imported from the Dutch East Indies and the U.S.A. leading to growing traffic with these regions. By 1922 the FHT and port authorities at Melbourne and Sydney had allowed the Anglo-Iranian Oil Company to develop oil bunkering facilites.[71] These facilities posed new physical, financial and environmental problems for port authorities and will be discussed in more detail in a later chapter. The centralisation of oil facilities at Fremantle sealed the fate of Albany and Bunbury as bunkering ports and ensured that Fremantle would continue as one of Australia's leading bunkering and provisioning ports for overseas vessels.

This discussion of bunkering has illustrated the inter-relationship between trade and shipping; to a large degree, it is impossible to discuss one without considering the other. In the next chapter we will discuss shipping technology and ship flows in more detail, bearing in mind the importance of the inter-relationship.

4.   Passenger traffic at Fremantle

Although passenger traffic is only a minor component of port activity, it needs to be considered as it generated demands for shipping

and port services.[72] Moreover, for a small, isolated, state such as Western Australia, population flows through its ports provided an important index of prosperity.

The available data on Fremantle's passenger traffic are shown in Table 3.10. The data include both overseas and interstate passengers; total passenger movements are derived by adding arrivals and departures. Compared to the 1890's, when the gold rushes led to unprecedented levels of passenger traffic, passenger movements were fairly static for the first decade of the 20th century, averaging about 46,000 per annum. Passenger movements are, of course, a two-way affair, but with the exception of 1907 arrivals at Fremantle always exceeded departures. The net outflow in 1907 was due to the departure of many miners and goldfield residents as gold production declined. However, a revival of immigration, mostly assisted, led to a jump in arrivals between 1911 and 1913.[73] Taking the period 1901 to 1913 as a whole, there was an average net inflow of population at Fremantle of about 6,600 persons per year.

As the state's leading port, Fremantle naturally accounted for the bulk of the state's passenger traffic. In 1901 Fremantle handled 93 per cent of passenger movements, Albany 4 per cent and Broome, the only other port with significant passenger traffic, about 2 per cent. By 1913 the percentage shares were 91 per cent, 6 per cent and 2 per cent respectively. Albany remained the only port of call for some ships travelling via the Cape of Good Hope, including P and O Branch Line steamers, and Broome attracted Asiatic labour for the pearling industry.

Analysis of passenger movements into overseas and interstate movements is possible only for the state as a whole. The state-level statistics show that in 1901 interstate passengers accounted for about

Table 3.10

Passenger Traffic at Fremantle, 1901 to 1913[1]

Year	Arrivals[2]	Departures[3]	Total
1901	30,524	19,176	49,700
1902	35,029	19,081	54,110
1903	28,166	17,813	45,979
1904	28,681	17,164	45,845
1905	26,399	17,935	44,334
1906	22,841	19,537	42,378
1907	19,655	20,915	40,570
1908	22,053	18,613	40,666
1909	22,230	21,133	43,363
1910	27,360	21,646	49,006
1911	37,083	25,483	62,566
1912	35,876	29,070	64,946
1913	34,562	26,088	60,650

Notes: [1] Data on passenger arrivals and departures at individual ports are available in Statistical Registers only for the years 1901 to 1913 inclusive.

[2] Arrivals are those who landed from places outside Western Australia.

[3] Departures are those who embarked for places outside Western Australia.

Source: Western Australian, Statistical Registers.

87 per cent of passenger traffic and in 1913 68 per cent. Thus the bulk of Fremantle's passengers were interstate rather than overseas travellers, although the latter had become more important by the eve of the First World War.

Given Fremantle's dominance of the state's passenger traffic, some idea of the trend of passenger movements after 1913 can be gauged from the trend of arrivals and departures in Western Australia as a whole. These are shown in Table 3.11. Passenger movements rose to record levels during the First World War, but this was due to troop movements; throughout the 1920's they averaged only 33,000 per annum, or about one-half of the pre-war level. The depression caused a further drop in passenger movements and they remained relatively depressed as late as 1939. Although the slump in passenger traffic was largely due to the decline in the state's economic performance it was also influenced by the emergence of competition from other modes of transport.

After the opening of the Trans-Australia Railway in 1917 interstate passengers had a viable alternative to the long sea voyage around the coast (despite breaks of gauge, the journey by rail between Perth and Melbourne took only four days compared to seven to eight days by sea). Between 1936 and 1938, the railway was carrying a two-way traffic averaging about 10,000 persons per annum, or about 23 per cent of total passenger movements into and out of Western Australia. But it was the aeroplane rather than the railway which was eventually to cause the demise of interstate passenger shipping, although this did not occur until after the Second World War.[74] Between 1936 and 1938 aeroplanes accounted for about 2,000 passenger movements per annum or only 4 per cent of the total. Thus, by the eve of the Second World War, railway

Table 3.11

Passenger Movements by Sea in Western Australia,
1914 to 1939[1]
('000 persons)

Year	Arrivals	Departures	Total
1914	27	31	58
1915	21	32	53
1916	19	35	54
1917	16	20	36
1918	11	11	22
1919	27	11	38
1920	15	14	29
1921	15	14	29
1922	17	13	30
1923	20	14	34
1924	21	14	35
1925	18	13	31
1926	18	14	32
1927	21	15	36
1928	21	16	37
1929	22	17	39
1930	15	16	31
1931	9	12	21
1932	10	12	22
1933	11	12	23
1934	13	14	27
1935	15	14	29
1936	16	15	31
1937	17	16	33
1938	16	16	32
1939	14	14	28

Note: [1] Up to 1916 inclusive the data include overland arrivals and departures. From 1917 onwards details of overland arrivals and departures are given in the Statistical Registers and have been subtracted from the aggregate data in order to obtain movements by sea. From 1931 onwards the Statistical Registers give a breakdown of overland movements between rail and air.

Source: Western Australia, Statistical Registers.

and air transport accounted for over one-quarter of passenger movements: the end of an era of leisurely sea travel was in sight.

Passenger movements are generated both by tourists and migrants. From the port's point of view, migrants pass more or less directly through the terminals and require less elaborate provision than tourists, who might demand tourist guides, banking and other facilities. However, it is not possible to provide a detailed breakdown of passenger flows at Fremantle during our period. Details of temporary arrivals and departures are available at the national level only from 1924.[75] Between 1926 and 1930 temporary arrivals averaged about 125,000 per annum or 27 per cent of total arrivals; over the same period temporary departures averaged 126,000 per annum or 37 per cent of total departures. The depression of the 1930's led to a sharp reduction in tourist traffic and as late as 1937-1939 temporary arrivals and departures averaged only 29,000 and 31,000 per annum respectively. Doubtless, Fremantle reflected these national trends.

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* * * * *

Thus far we have seen that Fremantle's growth between 1903 and 1939 was largely dictated by factors outside its control: the port appears to have been a passive element, merely responding to booms and slumps in the economy and shifts in economic structure. After the gold boom peaked in 1903 Western Australia entered a period of slower growth. The economy remained heavily orientated to primary production

as manufacturing industry, handicapped by competition from eastern states producers after federation in 1901, grew only slowly. Primary exports, particularly wheat, boomed in the 1920's but suffered severe setbacks during the 1930's depression. In short, economic conditions were not conducive to a rapid expansion of port trade.

Within Western Australia, Fremantle's dominance was never seriously challenged due largely to its proximity to the metropolitan area and the development of a basically Fremantle-centred transport system. However, we will see in the next chapter that other factors, such as the provision of deep-water berths, were also important in explaining Fremantle's position. Within Australia, Fremantle accounted for a reduced share of national trade once the gold boom of the 1890's had subsided, but achieved some importance as a first port of call and bunkering port. Outside Australia, Fremantle remained a relatively minor port serving a sparsely populated corner of the British Empire.

Footnotes

1. P.J. Rimmer, 'The Problem of Comparing and Classifying Seaports', Professional Geographer, vol.18, (1966), pp.83-91.

2. R.T. Appleyard, 'Problems in Writing a History of Fremantle', in C.T. Stannage (ed.), Local History in Western Australia, (Perth, 1974), pp.11-7.

3. See C.T. Stannage (ed.), A New History of Western Australia, (Nedlands, W.A., 1981), chs.5-8.

4. I.W. McLean and J. Pincus, 'Did Australian Living Standards Stagnate between 1890 and 1940?', The Journal of Economic History, vol. XLIII (1983), pp.193-202.

5. See G. Snooks, Depression and Recovery in Western Australia 1928/28-1938/39, (Nedlands, W.A., 1974), ch.1.

6. Ibid., p.1.

7. S. Glynn, Government Policy and Agricultural Development, (Nedlands, W.A., 1975), p.2.

8. Ibid., Appendix 1, tables A.1 and A.7.

9. Glynn, passim.

10. Ibid., pp.5-6.

11. Ibid., p.6.

12. G.D. Snooks, 'The Arithmetic of Regional Growth: Western Australia 1912/13 to 1957/8', Australian Economic History Review, vol. xix (1979), p.65.

13. Ibid., p.67.

14. Snooks, Depression and Recovery in Western Australia, ch.1, passim.

15. Ibid., p.37.

16. Ibid.

17. Ibid., p.123.

18. G. Snooks, 'Development in Adversity 1913 to 1946', in Stannage, op.cit., pp.241-44.

19. For a detailed analysis see N.G. Butlin, 'Some Perspectives of Australian Economic Development, 1890-1965', in C. Forster (ed.), Australian Economic Development in the Twentieth Century, (London, 1970), pp.266-327.

20.   J. Hutton, <u>Manufacturing Industry and Western Australian Development</u>, (Nedlands, W.A.., 1966), ch.lll, <u>passim</u>.

21.   <u>Ibid</u>., pp.85-6.

22.   See G. Henderson, 'From Sail to Steam: Shipping in Western Australia 1870-1890', (University of Western Australia, MA thesis, 1977), pp.66-7.

23.   Hutton, <u>op.cit</u>., p.68.

24.   See K. Burley, <u>British Shipping and Australia 1920-1939</u>, (Cambridge, 1968), ch.3 for a detailed discussion of overseas trade and commercial policy.

25.   <u>Royal Commission on Mineral Oils and Petrol and Other Products of Mineral Oils</u>, (Canberra, 1935), p.23.

26.   <u>Ibid</u>.

27.   K. Trace, 'Australian Overseas Shipping, 1900-60', (Ph.D thesis, University of Melbourne, 1965), p.279.

28.   L. Wendemuth and W. Bottcher [trans. W. Eggers], <u>The Port of Hamburg</u>, (Hamburg, 1927), pp.1-2.

29.   <u>Ibid</u>., p.2.

30.   F.W. Tydeman, <u>Report on Port of Fremantle</u>, 3 vols, (Perth, 1949), vol. 2., p.40.

31.   Henderson, <u>op.cit</u>., pp.19-23.

32.   Tydeman, <u>loc.cit</u>.

33.   C.T. Stannage, <u>The People of Perth</u>, (Perth,1979), pp.240-51.

34.   Tydeman, <u>op.cit</u>., pp.44-5.

35.   <u>Ibid</u>.

36.   See T. Manford, 'A History of Rail Transport Policy in Western Australia, 1870-1911', (Ph.D. thesis, University of Western Australia, 1976).

37.   F.W. Tydeman, <u>Report on Albany Harbour</u>, (Perth, 1948), pp.54-6. See Glynn, <u>op.cit</u>., ch.7 for a detailed discussion of railway development between 1900-1930.

38.   Tydeman, <u>Report on Albany Harbour</u>, <u>op.cit</u>., Appendix 8, (Data on Albany's trade).

39.   See P.J. Rimmer, 'Politicians, public servants and petitioners: aspects of transport in Australia 1851-1901', in J.M. Powell and M. Williams (eds.), <u>Australian Space, Australian Time</u>, (Melbourne, 1975), pp.182-225.

40. G. Wotherspoon, 'The Sydney Interest and the Rail 1860-1900', in M. Kelly, (ed.), _Nineteenth-Century Sydney_, (Sydney, 1978), pp.12-23.

41. C.R. Bickford, 'The Development of the Port of Sydney', _Journal of the Institution of Engineers (Australia)_, vol. 29 (1957), p.121.

42. See A. Roberts, 'Planning Sydney's Transport 1875-1900', in M. Kelly, _op.cit._, pp.24-36.

43. Tydeman, _Report on Port of Fremantle_, _op.cit._, p.41.

44. Statistics from Commonwealth _Yearbooks_. Value detail for each port is not available.

45. Burley, _op.cit._, p.320.

46. FPA 3/07/2, memo from Irvine to Under-Secretary, 'Proposal to charge wharfage on bunker coal', 2 March 1908.

47. Ibid., 107/23/1, copy of memo, 're Western Australian Bunkering Trade', issued by an unnamed coaling company, July 1924.

48. Data for Colombo 1924-6 are from K. Dharmasena, _The Port of Colombo 1860-1939_, (Colombo, 1980), p.67; data for Fremantle are from Table 3.9.

49. FPA 107/23/1, copy of memo 're Western Australian Bunkering Trade', _op.cit._

50. Tydeman, _Report on Albany Harbour_, _op.cit._, p.56.

51. FPA 107/23/2, letter from FHT to Hon. Mr. Drew, 17 July 1924.

52. Ibid., letter from Johnson and Lynn Ltd. to FHT, 19 March 1924.

53. Ibid., letter from FHT to J.B. Sleeman, M.L.A., 28 July 1924.

54. Ibid., 30/19, letter from W.J. Cope, Secretary Bunbury Harbour Trust, to F. Stevens, Secretary of FHT, 12 April 1919.

55. Statistics from Tydeman, _Report on Bunbury Harbour_, _loc.cit._

56. _Report of the Royal Commission on the Collie Coal Industry_, (Perth, 1916), Appendix XXV.

57. FPA 118/30/1, 'Return Setting Out Coal Handled from 1915 to Present Time', undated typescript.

58. _Report of the Royal Commission on the Collie Coal Industry_, _op.cit._, Appendix XXIX.

59. FPA 48/08/2, 'Notes by F. Viles for Information of the Hon. J.D. Connolly, Colonial Secretary, on the Present Coaling

Arrangements of Fremantle, and His Suggestions for Improved Facilities', 20 June 1908.

60.   <u>Report of the Royal Commission on the Collie Coal Industry</u>, op.cit., p.xxxi.

61.   <u>Ibid</u>.

62.   <u>Ibid</u>., p.xxxii.

63.   <u>Ibid</u>.

64.   Data from FHT, <u>Annual Reports</u>.

65.   Tariff Board, <u>Report and Recommendations on Bunker Coal -Imposition of Duty or Payment of Bounty</u>, (Canberra, 1932), p.5., published in Commonwealth <u>Parliamentary Papers</u>, vol. 111 (1932-34), pp.437-48.

66.   <u>Ibid</u>., p.8.

67.   <u>Ibid</u>., pp.10-12.

68.   <u>Ibid</u>., p.5.

69.   <u>Ibid</u>., p.8.

70.   <u>Ibid</u>., p.7.

71.   Burley, <u>op.cit</u>., p.95.

72.   For a useful survey of the demands of the passenger trade for shipping see F. Broeze, 'Our Home is Girt by Sea, The Passenger Trade to Australia and New Zealand 1788-1914', paper given at the International Congress of Historical Sciences, Stuttgart, August 1985.

73.   See F.K. Crowley, 'The British Contribution To The Australian Population: 1860-1919', <u>University Studies in Western Australian History</u>, vol. 2 (1954), pp.55-88.

74.   J. Bach, <u>A Maritime History of Australia</u>, (Melbourne, 1976), chs.XIV and XV.

75.   Burley, <u>op.cit</u>., pp.148-51.

CHAPTER 4

The Shipping of Fremantle, 1903-1939

During the 19th century Western Australia with its small population and consuming market offered only limited scope for the employment of British shipping. In an imperial context, Western Australia's significance 'was very little more than its red colour on the map'.[1] However, as we saw in the previous chapter, following the gold rushes of the 1890's the rapid growth of population and primary production generated a rising trend in trade flows. Moreover, as an island nation Australia depended on water transport to provide her principal link with the outside world. Thus the latter years of the 19th century and early years of this century witnessed a major expansion in the demand for shipping services in Western Australia.

At the outset it should be emphasized that Australia as a whole poses some special problems for shipowners. She is a geographically isolated island situated at the end of what is, for historical reasons, one of the world's largest trade routes: Fremantle, for example, is 9,537 miles from London (via Suez). Australia's primary exports such as wool, wheat and fruit fluctuate considerably on both a seasonal and annual basis. The long sea voyage to and from Australia means that shipping services need to be planned months in advance, well before the exports are 'harvested' and detailed shipping requirements are known.[2] In addition many exports have special requirements for shipping capacity: meat and dairy produce, for example, require refrigerated shipping space and prompt delivery to overseas markets. The import trade, which comprises general cargoes and a few bulk cargoes such as oil, requires frequent and reliable shipping services. In our period

there was also a major demand for regular and fast sea-mail services. The different requirements of the export and import trades force many vessels to arrive or leave less than fully loaded. Thus Australia has some onerous requirements for shipping services.

At the turn of the century, at least ten overseas and six interstate steamship lines called at Fremantle, a considerable number given the problems discussed above and the fact that Western Australia's population was only about 213,000.[3] Figure 4.1 illustrates the growth of ship numbers and tonnage entering Fremantle between 1903-04 and 1938-39. Comparing the five year periods ending in 1907-08 and beginning in 1934-35, the number of ships calling grew from 742 to 769 per annum and tonnage entering grew from 1,517,000 net registered tons (nrt) to 3,726,000 nrt per annum.[4] Thus ship numbers grew by only four per cent while the tonnage of shipping grew by 146 per cent. By the eve of the Second World War Western Australia's population had grown to about 465,000 or seven per cent of the Australian total. On a world scale, Western Australia was still a very small consumer and producer. Nevertheless, in the Australian context Fremantle played an important role as a port of call and bunkering port for liners: by the late 1930's one-quarter to one-third of all overseas tonnage entering Australia called at Fremantle.[5] The objective of this chapter is to explain the changing level and pattern of ship movements at Fremantle between 1903 and 1939. As we will see, alterations in ship movements called for substantial adaptation on the part of the port.

In this discussion of ship movements we must deal not only with ship movements measured in terms of tonnage but also with the nature of ships. This is because the implications of ship movements for the port depended on factors such as the types, sizes and technology of vessels

Figure 4.1

The Growth of Shipping at Fremantle, 1903-04 to 1938-39

No. of ships
(semi-log
scale)

Million
net registered
tons (semi-log
scale)

1,000

800

700
600

500

400

300

200

No. of ships

Shipping tonnage

5

4

3

2

1903-04   1909-10   1914-15   1919-20   1924-25   1929-30   1934-35   1938-39

Source: Appendix C.

calling. Shipping and port technological alterations are closely connected, as subsequent discussion will demonstrate. We commence by discussing liners, tramps and tankers and the organisation of shipping employed on trade routes to and from Fremantle.

1.   Ship types and organisation

Fremantle was served by three main types of ships: liners, tramps and tankers.[6] Although we will consider all three types it is necessary to devote most attention to liners because they had the greatest impact on the port. Liners are vessels which offer a regular service over specified routes. The fact that they are committed to offering regular services means that liner companies do not expect their ships to travel fully loaded on every trip. Liners normally carry general cargo which can range from small packages to bulky items such as railway locomotives. Thus in order to maintain an adequate service, liner companies need to provide vessels of varying types and speeds to suit the requirements of each individual trade. For example, the Australian/Europe trade required fast vessels with refrigerated space for carrying perishable cargoes such as meat and butter.

Liners calling at Fremantle were organised by conferences. A conference is an association of shipowners who operate liners on specific routes and adopt common policies to customers.[7] In economic terms, conferences are cartels which regulate competition and enjoy varying degrees of monopoly power. Some conferences are governed by formal agreements and run by secretariats while others are organised on a more informal basis. Conferences fix freight rates which can be charged by members, thereby preventing competition through rate cutting. This tends to lead to competition in services and in order to regulate this conferences allocate sailings and ports of call and even

pool trade and earnings amongst members. A crucial aspect of the conference system is the use of deferred rebates which are designed to tie shippers to a particular conference. The above practices are typical of 'closed' conferences which admit new members only with the agreement of existing members. 'Open' conferences, which do not restrict membership, are mainly confined to routes to and from the U.S.A. This is because 'closed' conferences would violate American Anti-Trust Laws. Conferences often enjoy a virtual monopoly on routes, with the result that the bargaining power of shippers is relatively weak unless they are organised into associations. The first major conference was the United Kingdom/Calcutta conference developed in 1875 to combat cut-throat competition which followed the opening of the Suez Canal in 1869. The introduction of deferred rebates in 1877 ensured its success and conferences were rapidly adopted on other routes. By 1939, 'practically every liner trade or route of any importance was governed by conference agreements'.[8]

The conference system has proved one of the most controversial aspects of the shipping industry. Concern about its effects led to the appointment of a number of governmental and other public investigations, the most well known being the British Royal Commission on Shipping Rings, which reported in 1909. The majority report favoured the conference system and declared that deferred rebates were acceptable but a minority report identified major defects, including the creation of monopoly power, high freight rates and damage to the prospects of tramp shipping.[9] A West Australian Royal Commission (1905) and an Australian Royal Commission (1906) condemned various aspects of the conference system, and Australian Royal Commissions on the Navigation Bill (1906) and the Navigation Act (1924) argued that conferences hindered the

development of an Australian shipping industry.[10] However, recent
writing has suggested that because most liner trades are characterised
by freedom of entry and exit they are inherently 'contestable', that is,
subject to the threat of considerable competition. Under these
circumstances, it is unlikely that conferences are inimical to the
public interest.[11] It is not our intention to examine conferences and
the determination of freight rates in detail: these topics have been
explored thoroughly elsewhere.[12] However, we do need to consider
conferences insofar as they affected shipping at Fremantle.

The exact details of many conference arrangements are difficult
to discover because of the traditional secrecy surrounding the shipping
industry, but a conference was introduced on the United
Kingdom/Australia run as early as 1884.[13] A homeward conference was
slower to develop largely because tramp shipping offered the cheapest
way of transporting Australia's predominantly bulk exports. The
advantages of liners, such as regular sailings, did not compensate for
the higher freight rates charged by conference liners. But the
introduction of refrigeration, which required more costly vessels and
greater service reliability, led to a number of agreements amongst
shipowners. By the eve of the First World War formal homeward
conferences existed for both refrigerated and non-refrigerated
cargoes.[14]

The above arrangements were mainly concerned with trade between
Britain and eastern states ports; the West Australian trade was
controlled by a combination of local shippers, organised into the West
Australian Shipping Association (WASA), and British shipowners.[15] WASA
was formed in 1884 to obtain lower freight rates to Western Australia
but after a short rate-war negotiated an agreement with the British

lines giving it a share of the trade on condition that it charged agreed freight rates. Profits in the West Australian trade were to be pooled and shared, WASA receiving 7/24. The agreement was, in effect, 'a Conference set up to preserve the trade at a profitable level'.[16] Fremantle merchants complained that even after the opening of the Inner Harbour freight rates from London to Fremantle remained about 25 per cent higher than from London to the eastern states.[17] Some liner companies still charged the same rates for Fremantle cargo as they had done when they called at Albany, despite the fact that they no longer had to absorb the cost of transferring the cargo from Albany to Fremantle.[18] The 1905 Royal Commission identified WASA as the main cause of the continued high freight rates to Western Australia, while port charges and facilities at Fremantle compared favourably with eastern states ports.[19] Unfortunately, the full history of WASA has yet to be written and a detailed appraisal of its operation must await further research.[20] WASA continued to operate until the 1960's.

Liners tended to do a 'milkround' of the Australian coast, 'topping-up' with cargoes in each port:

> Liners, especially those engaged on the European route, spent a week or more after reaching Fremantle in circling the continent from west to east, discharging cargo en route. On reaching the east and completing discharge they began loading one more. They retraced their route, loading at each port before clearing the Commonwealth at Fremantle.[21]

In the 1920's considerable excess capacity, especially in refrigerated ships, forced liners to spend more time on the 'milkround'. But the 'milkround' was costly as the shipowners had to pay multiple port and handling charges; as we will see in Chapter 7, this led to complaints about the level of Australian port charges. Following several years of losses, the Conference Liner raised freight

rates in the outward trade to Australia in 1928.[22] It is, perhaps, not entirely a coincidence that freight rates were raised the year after the sale of the Australian Commonwealth Line. Australian shippers feared a similar rise in the homeward trade and asked the federal government to intervene. In 1929 the government called a conference of shipowners and representatives of producers, importers and exporters. As a result of this conference these groups formed the Council of the Australian Overseas Transport Association (AOTA). During the 1930's AOTA negotiated agreements and freight rates for general cargo, wool, refrigerated cargo, dairy produce and fruit. The Australian Industries Preservation Act, which had been passed in 1906 to stop deferred rebates in the coastal trade, was amended to allow such practices to continue legally. However, rationalisation of tonnage proceeded only slowly and not all shippers were happy with the new arrangements. In the early 1930's Westralian Farmers Co-operative Ltd. formed the West Farmers Line in order to fight the conference. The West Farmers Line was a chartering rather than ship-owning organisation and remained outside the conference until 1937.[23] The conference system continued without any major changes until the outbreak of the Second World War.

In order to obtain adequate cargoes and passengers at Fremantle liner companies either opened branch offices or employed the services of a shipping agent. In the mid-1930's the following liner companies operated branch offices at Fremantle:[24]

Aberdeen and Commonwealth Line Orient Line	) British companies in the) overseas trade
Adelaide Steamship Company McIlwraith, McEacharn Ltd. Melbourne Steamship Company	) Eastern state companies) in the inter-colonial) trade
State Shipping Service	) Western Australian company

The following firms acted as shipping agents:

        Burns Philp and Company
        Dalgety and Company Ltd.
        Elder Smith and Company Ltd.
        Geo. Wills and Company Ltd.
        H.J. Wigmore and Company
        Johnson and Lynn Ltd.
        MacDonald Hamilton and Company
        West Australian Shipping Association
        W.M. Crosby and Company Ltd.

It is clear that most overseas liner companies relied on shipping agents: only two established branch offices at Fremantle. However, many of the agents were intimately linked with shipping lines. For example, MacDonald Hamilton and Company acted as agents for the Peninsular and Oriental Steamship Navigation Company (P and O), the British India Steam Navigation Company, the Australasian United Steam Navigation Company Ltd. and Messageries Maritimes. MacDonald Hamilton and Company and the first three lines all formed part of Lord Inchcape's P and O group of companies.[25]

Tramp shipping is very different from liner shipping. It operates in a world market, where the forces of supply and demand work freely. Tramps do not keep to a fixed schedule but trade wherever there is cargo. Tramp owners generally aim to carry full cargo loads and negotiate freight rates, routes and ports of call in order to achieve this. Tramps usually carry bulk cargoes and although the average tramp is designed to carry a wide range of bulk cargoes specialised vessels are built for the carriage of cargoes such as grain and ore. The chartering of tramps is usually arranged by the owner's broker through the Baltic Mercantile and Shipping Exchange in London. Tramps may be chartered for a single voyage or for a certain period of time. In the latter case the owner's responsibility is usually limited to the

manning, provisioning and maintenance of the vessel. Tramp owners do not need to maintain branch offices to organise local cargoes and normally use shipping agents only to handle paperwork while in port.

In the 1920's and 1930's tramps suffered severe competition from liners which took 'parcels' of wheat and other cargoes usually carried by tramps. The liners did this to suit the convenience of shippers and to help ensure fuller use of their shipping capacity. One consequence of this was that tramps became less frequent visitors to Australian ports during the inter-war years than otherwise would have been the case.[26]

The tanker trade is a specialised one which merits some brief comments. Following the drilling of the first successful well in Pennsylvannia in 1859, there gradually arose a demand for the carriage of oil by sea. Oil was originally carried by ordinary dry cargo ships in drums, cases and barrels. This was both cumbersome and hazardous and specialised vessels were gradually developed for the carriage of oil. The first steam tanker was the Glückauf built by the British for a German shipowner in 1886. By the outbreak of the First World War the world tanker fleet numbered 432 tankers totalling 1.6 million gross tons.[27] By 1938 the world tanker fleet had grown to a 16.6 million deadweight tons and represented about ten per cent of the world's shipping.[28] The world's tanker fleet was divided between 'free' operators, which chartered ships to oil companies, usually on a long term basis, and oil companies which operated their tankers on regular routes between production, refining and consumption centres. For example, by 1939 the Anglo-Iranian Oil Company (now known as British Petroleum), owned 92 tankers totalling 964,000 deadweight tons.[29]

It is apparent that bulk cargoes such as wheat or oil had different requirements for shipping capacity than general cargoes. Due to the pattern of Australia's trade more general cargo capacity was required in the import trade than in the export trade, making excess capacity a persistent problem for shipowners on routes to and from Australia. Shipowners are keen to fill their ships for each leg of a journey if possible because a high proportion of vessel costs are fixed regardless of the volume of cargo carried. Thus average cost per unit of output (cargo carried) falls as output increases. However, because the demand for shipping is a derived demand, the most important factor is probably the extent to which the commodity shipped can bear freight charges, since shipowners can set freight rates to take account of the possibility of excess capacity on one leg of a journey. According to K. Burley, in the inter-war period full cargoes to or from any Australian port were 'extremely rare' except for tramps carrying bulk cargoes.[30] But tramps coming to pick up Australia's exports were often forced to arrive in ballast: between 1920 and 1939 ballast arrivals were almost double ballast clearances.[31] In 1930-32 90 per cent of vessels that loaded full cargoes of wheat arrived in ballast.[32]

Table 4.1 illustrates the proportion of all tonnage entering and clearing Fremantle in ballast between 1905 and 1937-38 (unfortunately the available data does not distinguish between liners, tramps and tankers). Generally, ballast entrances and clearances were not markedly different and never exceeded more than about six per cent of tonnage. This was because as the first and last port of call on the Australian coast, Fremantle tended to attract liners which unloaded or loaded relatively small quantities of cargo. During the 1930's only between 12 to 15 per cent of the average vessel's cargo was discharged or loaded

Table 4.1

Shipping Entered and Cleared in Ballast at Fremantle,
1905 to 1937-38[1]

('000 net registered tons)

Year	Entered			Cleared		
	In Ballast	Total	% in Ballast	in Ballast	Total	% in Ballast
1905[2]	1	1,177	0.1	67	1,133	5.9
1913[2]	50	1,780	2.8	41	1,737	2.4
1922-23	47	2,312	2.0	24	2,229	1.1
1932-33	179	3,060	5.8	179	3,145	5.7
1937-38	170	3,413	5.0	215	3,439	6.3

Note: [1] Excludes intrastate shipping.

[2] Calendar years.

Source: Western Australia, Statistical Registers.

at Fremantle.[33] Thus over 85 per cent of each ship's cargo was brought into the port and taken out again, reflecting the port's role as a first port of call on a 'milkround' rather than as a single terminal port. Normally, the only full cargoes handled at Fremantle were bulk commodities and interstate general cargo. The high proportion of part cargoes, often poorly stowed, impeded cargo-handling and slowed ship turnround.

Slow turnround in port was extremely costly for shipowners due to the high capital costs of their ships. According to one estimate, ships spent up to 60 per cent of the year in port.[34] Thus the speed of turnround was of great interest to shipowners and may have influenced their willingness to send ships to Fremantle.

Table 4.2 shows average turnround times for overseas vessels between 1912-13 and 1934-35. Average turnround time remained remarkably constant at about four days per vessel until the 1930's. By 1934-35 it had halved to about two days per vessel. This improvement was mainly due to a speeding up of cargo-handling. As we will see in Chapter 5, during the depressed years of the 1930's stevedores were able to extract extra effort from wharf labourers and force a reduction in work rules and restrictive practices.

Owing to a paucity of data it is not possible to make detailed comparisons with other ports, but data on Melbourne suggest that turnround times at that port followed a similar trend.[35] Ship turnround times provide an important indication of the capacity of a port to handle ships and in Chapter 8 we will use this data in our attempt to assess the efficiency of the Port of Fremantle.

Table 4.2

Turnround Times of Overseas Vessels at Fremantle,
1912-13 to 1934-35

	Average turnround Time in Days
1912-13	4.1
1919-20	3.9
1928-29	4.0
1934-35	2.2

Notes: The turnround times were calculated by summing gross times in port (measured in fractions of a day) and the number of visits for each ship calling at Fremantle; the total gross time in port by all ships was divided by the total number of ship visits to give weighted average turnround times.

Source: FHT, Annual Reports.

2.   The pattern of shipping services

Ships calling at Fremantle can, in principle, be divided into three groups: overseas, interstate and intrastate.   Table 4.3 illustrates vessel arrivals between 1903-04 and 1938-39.[36] One problem with interpreting Table 4.3 is that overseas arrivals were recorded according to their original port of departure: for example, shipping from the United Kingdom, travelling via European or Asian ports is recorded as coming from the United Kingdom only.   Another problem is that many vessels coming from interstate and even, in some cases, intrastate, were overseas vessels trading via other Australian ports. Thus the distinction between overseas and coastal shipping is rather blurred in our period.   For these reasons, Table 4.3 gives only a rough indication of the geographical pattern of shipping services.   Table 4.3 shows that arrivals from overseas and interstate accounted for the bulk of shipping activity; intrastate shipping, never a major activity, had shrunk to four per cent of ship arrivals by the late 1930's.   We will discuss overseas and coastal shipping in turn.

In overseas shipping, the dominance of the United Kingdom increased: by the late 1930's 29 per cent of all arrivals came from United Kingdom ports.   This reflected the overwhelming importance of the United Kingdom/Australia trade route.   This route was serviced by the vessels of many leading liner companies which, following the opening of the Inner Harbour at the turn of the century, called at Fremantle instead of Albany.   The first mail steamer to call at Fremantle was the Norddeutscher Lloyd's Gera on the 10 August 1898.   The first British mail steamer to call was the Orient Line's Ormuz on the 13 August 1900.   It was followed a week later by the P and O's steamer India.   At that time P and O steamers sailed from Tilbury to Marseilles, Port Said,

Table 4.3

Vessel Arrivals at Fremantle, 1903-04 to 1938-39

(Quinquennial averages)

Vessel Arrivals From	1904-08		1920-24		1935-39	
	'000 nrt.	%	'000 nrt.	%	'000 nrt.	%
United Kingdom ports	260	17.1	547	21.4	1,077	28.9
Commonwealth (other than U.K.) ports	104	6.9	268	10.5	205	5.5
Other foreign ports	251	16.5	243	9.5	518	13.9
Interstate ports	711	46.9	1,364	53.4	1,763	47.3
Intrastate ports	191	12.6	133	5.2	163	4.4
Grand total	1,517	100.0	2,555	100.0	3,726	100.0

Source: FHT, Annual Reports.

Suez, Aden, Colombo, Fremantle, Adelaide, Melbourne and Sydney.[37] The

following approximate list illustrates the established pattern of

British lines servicing the United Kingdom/Australia route:[38]

> P and O Steam Navigation Co. Ltd. - monthly passenger and
> cargo service via Suez.
>
> P and O Branch Service (Wm. Lund's Blue Anchor Line taken
> over by P and O in 1910) - monthly passenger and cargo
> service via South Africa.
>
> Orient Steam Navigation Co. Ltd. (50 per cent interest
> acquired by P and O in 1919) - monthly passenger and cargo
> service via Suez, alternating with the P and O Line.
>
> Blue Funnel Line (Alfred Holt & Co. Ltd.) - monthly
> passenger and cargo service via South Africa.
>
> Cunard Steamship Company - monthly cargo service via Suez.
>
> Federal Steam Navigation Co. Ltd. (acquired by P and O
> Group in 1916) - monthly cargo service via Suez.
>
> Ellerman and Bucknall Steamship Co. Ltd. - monthly cargo
> service via Suez. Homewards only.
>
> Aberdeen Line (Geo. Thompson and Company) - monthly
> passenger and cargo service via South Africa.
>
> White Star Line (Oceanic Steam Navigation Company; in 1926
> the White Star, Aberdeen and Shaw Savill and Albion Lines
> were transferred to the Royal Mail Packet Company under
> Lord Kylsant) - monthly passenger and cargo service via
> South Africa.
>
> Clan Line (Cayzer, Irvine and Company) - monthly cargo
> service via Suez.
>
> Scottish Shire Line (Turnbull, Martin and Company Ltd.;
> acquired by Clan Line in 1918) - irregular service via
> Suez and South Africa.

In addition, between 1916 and 1927, the Commonwealth Government

Line of steamers (restructured as the Australian Commonwealth Line in

1923) provided a monthly service of passenger and cargo steamers to the

United Kingdom via Colombo and Port Said and a fortnightly service to

the United Kingdom via Suez.[39] The British lines also carried trade

between Australia and Europe as did vessels of European lines such as

Messageries Maritimes, Lloyd Sabaudo., Holland-Australia and Wilh. Wilhelmsen. We will consider the activities of these lines in more detail later in the chapter.

Shipping travelling between Europe and Australia was routed via the Suez Canal, the Panama Canal or the Cape route.[40] The few sailing ships that remained all took the latter route. The Panama Canal handled shipping travelling to and from Europe via New Zealand, as well as trade with North America, and was not usually used by ships calling at Fremantle. The Suez Canal, opened in 1869, did not have an immediate impact on the Australian run as the Canal route was not much shorter than the route round the Cape.[41] However, as far as Fremantle was concerned, the opening of the Canal was beneficial as it reduced the advantage of Albany's location on the Cape route. But as late as 1912-13 only 16 per cent of the steamships reaching Western Australia used the Canal; by 1933 the proportion was 24 per cent.[42] Use of the Canal declined in the 1930's as under-employed shipping took the Cape routes to avoid paying canal dues,[43] but by 1937-38 almost one-fifth of entries came via Suez. Vessels tended to make more use of the Canal on the howeward than outward voyage due to the need to deliver primary exports such as wool, meat and fruit as rapidly as possible to the European market.[44].

The nature of the United Kingdom/Australia trade, which was discussed in general terms in the previous chapter, can be further illustrated by an examination of cargoes carried by two vessels engaged in the trade.[45]

In 1923-24 the P and O's _Mooltan_ of 20,847 tons called three times at Fremantle, unloading 1,280 tons of general cargo and loading 12 boxes of gold, 356 bales of wool and skins, 112 tons of flour, 94 tons

of fruit and 2 tons of general cargo. The Orient Company's _Orion_ of 23,371 tons called four times at Fremantle in 1938-39, unloading 302 tons of general cargo and loading 564 tons of fruit, 206 tons of dried fruit, 139 tons of flour, 84 tons of general cargo, 56 tons of frozen meat, 33 tons of oats, 5 tons of pearl shell, 420 bales of wool and 25 boxes of gold. Both vessels carried passengers but unfortunately port statistics do not record passenger numbers. The two vessels averaged only 11.5 hours in Fremantle per trip. Thus the _Mooltan_ and _Orion_ were typical of the fast passenger-mail liners which adhered to strict schedules, handled relatively small amounts of cargo and spent little time in port.

Trade between Western Australia and Asia followed two routes: one was via Western Australia to India, Ceylon and Burma; the other was from Western Australia northwards to the Dutch East Indies and the Straits Settlements (Singapore and Malaya).[46] By 1937-38 trade with Asia and the Pacific Islands accounted for about one-fifth of the 2.1 million tons of shipping entering Western Australia. As we saw in the previous chapter, most of this trade was oil from the Dutch East Indies; direct trade with the Far East, particularly Japan, mainly went via eastern states ports. In 1938-39 20 vessels unloaded fuel oil, including the Vacuum Oil Company's _Ahamo_ of 8,621 tons which unloaded 30,865 tons and Bataafsche Petroleum Maatschappij's (a subsidiary of Royal Dutch Shell) _Manvantara_ of 8,237 tons, which unloaded 30,674 tons. These tankers made three trips each, averaging about 3.5 days in port per trip and loaded no return cargoes.

Trade to India and Ceylon was carried en route by lines on the United Kingdom/Australia run, principally the P and O, the Orient Line and, between 1916-27, the Commonwealth Government Line. In addition,

the British India Steam Navigation Company operated a regular service between Calcutta and Australia via Penang and Singapore (having taken over the rival Melbourne based Currie Line in 1913).

The Port of Singapore, located between the Indian and Pacific Oceans, grew in importance as an entrepot and coaling station following the opening of the Suez Canal. It provided a focal point for steamship lines trading with the Far East.[47] In 1884 Trinder, Anderson and Company in partnership with Charles Bethell and Company, introduced a steamship service between Fremantle and Singapore, calling at north-west ports and Batavia en route. The 618 ton Natal connected with the P and O's steamer service, enabling passengers and goods to be trans-shipped for carriage to and from the United Kingdom. In 1886 the West Australian Steam Navigation Company (WASN) was formed to take over this service and was to continue operating until 1936. Alfred Holt's Ocean Steamship Company was also keen to secure a share of this 'connecting trade' and in 1889 reached an agreement with the WASN Company whereby Holt's vessel Saladin of 1,990 tons, carried the WASN Company's trade from Singapore to Australia, while the latter Company acted as West Australian agents for Holt's vessel.[48] The Sultan, a 2,062 ton steamer jointly owned by both companies joined the trade in 1894 and was the first ocean going vessel to enter Fremantle's Inner Harbour. By 1895 their ships were calling every three weeks at Geraldton, Shark Bay, Carnarvon roads, Ashburton roads, Roebuck Bay roads, the Pearling Grounds and Derby, providing a valuable service to the isolated communities in the north-west of Western Australia.[49] The cargo of the WASN Company's Paroo of 2,665 tons, which called at Fremantle eight times in 1908-09, spending an average of ten days in port on each trip, illustrates the nature of the trade. She unloaded 3,788 tons of general

cargo, 39 tons of ore, 186 bales of wool, 191 hides, 9,037 cattle and sheep and 27 horses and dogs. She loaded 1,598 tons of general cargo, 966 tons of sandalwood, 471 tons of coal, 308 tons of timber, 150 tons of chaff and fodder, 65 tons of bark, 45 tons of ore, 2,386 bales of wool, 314 cattle and sheep and 8 horses and dogs.

The above service highlights the difficulty of drawing a distinction between coastal (interstate and intrastate) and overseas shipping services. It was common for overseas vessels to carry passengers and cargo along the Australian coast in competition with Australian shipping companies.[50] However, as we will see shortly, this competition was reduced after 1921 due to the implementation of the Navigation Act. We will now turn and consider the operation of coastal shipping services in Western Australia.

The coastline of Western Australia accounts for more than one-third of the total coastline of Australia; a voyage from Fremantle to Darwin and back is about 5,000 miles or one-half of the distance from Fremantle to the United Kingdom. The large tidal range in the north-western ports and the primitive port facilities meant that vessels had to be specially designed to withstand the strain of resting on the seabed at low tide. Given these factors and the sparse population, the cost of providing coastal shipping services was high and regular services were slow to develop.

The first regular steam shipping services in Western Australia were developed as feeder routes for passengers and cargo to and from Albany, where they linked up with the Imperial and inter-colonial trunk lines.[51] The Adelaide Steamship Company entered the Western Australian trade in 1883 when it took over a local shipping company. It dominated the coastal trade until the gold rushes of the 1890's attracted other

companies into the trade: McIlwraith McEacharn Ltd., the Australian United Steamship Navigation Company and the Melbourne Steamship Company were offering regular services between the eastern states and Western Australia before the end of the 19th century.[52] Huddart Parker Ltd. soon followed with a service from Sydney steaming via Melbourne, Albany, Hamelin, Vasse, Bunbury, Fremantle to Geraldton.[53] The Adelaide Steamship Company had a slight advantage over these companies because it obtained the mail contract for the north-west coast in 1893. The contract was renewed in 1896, 1901, 1907 and 1910. By 1910 the subsidy from the government was worth £5,000 per annum.[54] Initially, the other companies competed strongly for the general cargo, passenger and coal trades. But in 1899 the interstate shipowners formed the Australasian Steamship Owners' Federation and this 'combine' was accused of charging excessive freight rates and providing inadequate services. There was certainly considerable evidence of collaboration amongst the interstate companies before the First World War, particularly in the coal trade.[55] Feeling against the companies was so strong that the West Australian manager of the Adelaide Steamship Company told the 1906 Royal Commission on the Navigation Bill that 'it is almost an indictable offence to belong to an interstate shipping company.'[56]

In 1921 the federal government implemented the cabotage restrictions of the Navigation Act reserving the coastal trade only for those ships which met Australian wage and manning conditions. This Act had actually been passed in 1912 but its implementation was delayed at the request of the British government. The purpose of the Act was to encourage the growth of an Australian mercantile marine but the Act met with considerable opposition, even within Australia.[57] The out-lying states, such as Western Australia and Tasmania, were critical of the

monopoly power the Act gave to interstate shipowners. In 1926 the federal government tried to reduce complaints about the Act by allowing British vessels to operate on the coast unlicensed in certain circumstances. In 1935 this permit system was placed on a statutory basis. Alfred Holt and Company appears to have been allowed to operate unlicensed ships on its service along the coast of Western Australia from 1921 onwards.[58]

A guide to the nature of the interstate trade can be obtained by an examination of two sample passenger-cargo vessels. In 1908-09 McIlwraith McEacharn's Cooeyanna of 3,922 tons called twelve times at Fremantle and unloaded 4,746 tons of general cargo, 13,959 tons of coal, 380 tons of fertilizer, 43 tons of timber, 4 bales of wool, 4,092 cattle and sheep and 19 horses and dogs. She loaded 942 tons of general cargo, 2,864 tons of timber, 89 tons of chaff and fodder and 403 hides. The Melbourne Steamship Company's Dimboola of 3,886 tons called thirteen times at Fremantle in 1923-24 and unloaded 29,593 tons of general cargo, 605 tons of timber, 189 tons of fertilizers, 174 tons of coal, 2 tons of frozen meat, 1,267 cattle and sheep and 509 horses and dogs. She loaded 4,392 tons of general cargo, 349 tons of timber, 314 tons of bark, 175 tons of fruit, 173 tons of ores, 476 bales of wool, 684 hides and 11 horses and dogs. The Dimboola was reputedly very popular with first class passengers on the Sydney to Fremantle run as they were 'carried in extreme comfort.'[59] The Cooeyanna averaged three days in port per trip and the Dimboola two days per trip. For both vessels, general cargoes discharged at Fremantle were much greater than the quantity loaded, an imbalance which reflected Western Australia's dependence on manufactured goods produced in the eastern states. Unlike the Cooeyanna the Dimboola carried only a modest cargo of coal, a reflection of the decline of the

interstate coal trade. As we saw in the previous chapter, the falling demand for Newcastle coal for ship's bunkers was the main reason why interstate trade declined from 46 per cent of the total tonnage of port trade in 1910 to 24 per cent in 1938. Another factor was the opening of the Trans-Continental Railway in 1917 which offered serious competition for passengers and smaller consignments of cargo. As we saw in Chapter 3, in the 1920's passenger numbers were about 50 per cent below their pre-1914 level. In addition, labour unrest, particularly in the 1920's, led to regular disruption of shipping services. Moreover, sea transport suffered from persistent pilfering of cargo. We will examine these latter two problems in Chapter 5, where we discuss labour relations and cargo-handling in detail. These and other problems, including the growing competition from road transport and the use of obsolescent ships, led to a drastic decline in interstate shipping after the Second World War.[60]

The fortunes of the private shipping companies were not helped by the decision of the Scaddon Labor Government to establish the State Shipping Service (SSS) in 1912.[61] The SSS was designed to provide competition with Alfred Holt and Company and the eastern states lines and to provide more regular shipping services. It is of particular interest as it is the only shipping line to use Fremantle as a home port. As we saw in Chapter 2, it was administered by the FHT between 1913 and 1919 after its financial affairs got into disarray under its first manager. In 1913 the government awarded the north-west mail contract to the SSS and the Adelaide Steamship Company withdrew from the north-west route.

The SSS's first ships were the Una of 178 tons and the Eucla of 564 tons, both of which were mainly employed on the south coast route to

Eucla. By 1915 the fleet had expanded to include the <u>Western Australia</u> 2,937 tons, the <u>Kwinana</u> 2,425 tons, the <u>Bambra</u> 3,302 tons and the <u>Kangaroo</u> 4,434 tons. The latter vessel was the first Australian owned motor vessel and only the second motor ship built by a British shipyard. By the outbreak of the First World War the SSS called regularly at Geraldton, Shark Bay, Carnarvon Jetty, Ashburton Roads, Cossack Roads, Balla Balla Anchorage, Port Hedland, Broome, Derby and Wyndham. The service was extended to Darwin in 1920 and Java and Singapore in 1921. The WASN Company withdrew from the north- west coast service in the mid-1930's leaving the trade to Alfred Holt and Company and the SSS. Attempts by the state government to drive Holt and Company from the trade were resisted by the federal government.[62]

A guide to the nature of the SSS's operations can be obtained from examining the cargoes carried by two of its vessels. In 1923-24 the <u>Kangaroo</u> called ten times at Fremantle while on the north-west service to Java and Malaya, spending an average of nine days in port per trip. She unloaded 11,064 tons of general cargo, 300 tons of fertilizers, 4,105 bales of wool, 9,897 cattle and sheep and 14 horses and dogs. Cargo loaded was 1,704 tons of general cargo, 1,349 tons of flour, 557 tons of fruit, 471 tons of sandalwood, 257 tons of timber, 264 tons of chaff and fodder, 5 tons of coal, 502 bales of wool, and 9 horses and dogs. At that time the south coast service was provided by the <u>Eucla</u>. In 1923-24 she called eighteen times at Fremantle spending almost three days in port on each trip. She unloaded 483 tons of general cargo, 100 tons of coal, 2 tons of timber, and 1, 147 bales of wool. She loaded 5,312 tons of general cargo, 199 tons of timber, 46 tons of explosives and 35 tons of coal. Trade on the south coast service fell off rapidly in the 1930's and the route was abandoned in 1940.

3.   <u>The nationality of shipping calling at Fremantle</u>

Table 4.4 illustrates the nationality of shipping entering West Australian ports between 1905 and 1937-38. The dominance of British shipping is readily apparent: it accounted for about 80 per cent of total tonnage entering West Australian ports. British shipping consisted of Australian, United Kingdom and New Zealand tonnage, although the latter was insignificant.

Australia has never had a strong tradition of maritime enterprise and has relied on overseas fleets for the carriage of her overseas trade.[63] A brief exception was the Commonwealth Government Line which was established in 1916 by Prime Minister Hughes to carry Australia's primary exports which were piling up on the wharves due to the war-time scarcity of shipping. The Line was retained after the war but was the centre of considerable controversy. In 1923 S.M. Bruce's National Country Party Government restructured the Line and it became known as the Australian Commonwealth Line of Steamers. But it made continual losses and was sold to the Royal Mail group in 1927.[64] By 1937-38 Australian registered tonnage, mainly owned by eastern states companies, accounted for a mere 11 per cent of total tonnage entering West Australian ports.

In the case of Western Australia, F. Broeze has attributed the lack of shipping enterprise to four main factors: firstly, a lack of 'risk' capital amongst West Australian merchants; secondly, the nature of the coastal trade which required large numbers of very small vessels which diverted capital which otherwise could have gone into larger deep-

Table 4.4

Nationality of Shipping Entered at West Australian Ports,
Selected Years, 1905 to 1937-38

('000 gross registered tons)

	Aust.		U.K.		New Zealand		Other British		Total British		All Foreign		Total
	tons	%	tons	%	tons	%	tons	%	tons	%	tons	%	
1905[1]	445	24.2	1045	56.8	3	0.2	2	0.1	1495	81.3	344	18.7	1839
1913[1]	575	19.0	1683	55.5	3	0.1	–	–	2261	74.6	771	25.4	3032
1922-23	871	27.5	1835	57.9	+	–	26	0.8	2732	86.3	435	13.7	3167
1932-33	348	9.8	2509	70.7	+	–	23	0.6	2880	81.1	670	18.9	3550
1937-38	449	10.9	2788	67.9	1	*	48	1.2	3286	80.1	818	19.9	4104

Notes: 1   Calendar years.

*   Less than 0.1 per cent.

+   Not separately identified.

Source: Western Australia, Statistical Registers.

sea vessels; thirdly, the failure of the local shipbuilding industry to build craft larger than 100 tons; and finally, a shortage of qualified sea-going personnel and the high level of wages.[65] Undoubtedly, there were more profitable and less risky outlets for the scarce capital of a fledgling colony. Moreover, the domination of the north-west trade by WASN and Alfred Holt and Company may have put a stop to any hopes of a local shipping industry.[66] However, establishment of the SSS in 1912 provided Western Australia with a small government owned line. In the early 1930's the Westralian Farmers Co-operative Ltd. formed the West Farmers Line in order to fight the established conference lines. But this was a chartering rather than a ship-owning line.[67] By 1938 the very small steam and sailing vessels (mostly fishing and pearling craft) on the West Australian Register totalled only 14,400 tons or a mere four per cent of the small Australian fleet.

The lion's share of British shipping was, of course, taken by United Kingdom shipping, which by the late 1930's accounted for about two-thirds of total entries into Western Australia. As we saw earlier, at least ten United Kingdom shipping companies provided regular services to Australia. As we will see in the chapters that follow, these lines exerted a considerable influence on port operation and development. In 1926-27, for example, Fremantle had 51 visits by P and O mail steamers which paid about £ 4,482 in port and pilotage dues alone.[68] The FHT could not lightly disregard the wishes of so influential a customer (that, moreover, controlled several other major companies calling at Fremantle).

Non-British tonnage, which is illustrated in more detail in Table 4.5 can be considered under two headings: European and non-European. We will consider each in turn.

Table 4.5

Nationality of Non-British Shipping Entered at West Australian Ports,
Selected Years, 1905 to 1937-38

('000 gross registered tons)

	1905[1]	1913[1]	1922-23	1932-33	1937-37
Denmark	2	3	26	40	43
France	81	95	68	-	7
Germany	208	517	17	67	55
Italy	10	2	70	128	133
Japan	-	14	57	100	102
Netherlands	1	1	94	47	55
Norway	31	99	54	207	243
Sweden	3	32	26	61	35
U.S.A.	2	-	18	13	22
Others	6	8	5	7	123
Total	344	771	435	670	818

Note: [1] Calendar years.

Source: Western Australia, Statistical Registers.

The European fleets can be considered in two groups: firstly, the fleets of France, Germany, Italy and the Netherlands, which were primarily concerned with the direct trade between their mother country and Australia; secondly, the fleets of Norway and Sweden which were primarily engaged in cross-trading, mostly between other European countries and Australia.[69]

After the opening of the Inner Harbour the French company, Messageries Maritimes, included Fremantle as a port of call on its run from Marseilles via Suez to Sydney. From Sydney it offered a regular service to Noumea. Vessels belonging to Messageries Maritimes which visited Fremantle in 1908-09 included the Australien (6,365 tons), Armand Behic (6,397 tons), and Dumbea (5,809 tons). These passenger-cargo services were disrupted by the First World War and the Suez route was not reopened until 1920. It was abandoned at the end of the 1920's as an economy measure and by 1938 French vessels accounted for less than one per cent of non-British shipping entering Western Australia.

In 1905 German ships accounted for about 208,000 or about 60 per cent of non-British tonnage entering Western Australia. The main German company involved in the trade was Norddeutscher Lloyd, whose ships began calling at Fremantle in 1902 on their run from Bremerhaven to Sydney. In 1908-09, for example, the passenger-cargo steamer Friedrich der Grosse of 10,536 tons and the three 8,000 tons sisters Roon, Gneisenau and Seydlitz visited Fremantle. These were all modern vessels and offered strong competition to the British lines. German tonnage peaked at 517,000 tons or about two-thirds of non-British tonnage entering Western Australia in 1913. It was disrupted by the First World War and never returned to its pre-war level. The Norddeutscher Lloyd was not able to resume services to Australia until 1925. The German-Australian

Steamship Company (Deutsche-Australische Dampfschiffs Gesellschaft) of Hamburg (founded to rival the Bremen based Norddeutscher Lloyd) entered the Australian trade in 1889 and built up a major position in the freight traffic. In 1926 it was taken over by the Hamburg America Line. In 1930 the latter line and Norddeutscher Lloyd agreed to run the Australian service on a joint basis and this arrangement continued until 1939.

After the First World War Italian emigration to the U.S.A. declined and larger numbers of Italians chose Australia as a place to settle. Consequently, Italian lines, such as Lloyd Sabaudo and the Navigazione Generale Italiana, entered the passenger and migrant trade to Australia. In 1923-24 the former's <u>Principessa Giovanna</u> and <u>Principessa Maria</u> called briefly at Fremantle <u>en route</u> to the eastern states. These vessels, both around 8,300 tons, provided fairly basic accommodation for up to 400 emigrants, and were typical of those engaged in this trade. The depression led to the collapse of the emigrant trade but the Italian Government ensured the maintenance of the service by paying an increased subsidy and arranging the merger of the Lloyd Sabaudo and Navigazione Generale Italiana into the Italia Line in 1932. This Line operated the Australian service in conjunction with the Cosulich Line. A further reorganisation four years later left the Australian service in the hands of yet another Italian line, Lloyd Trestino. By 1937-38 Italian vessels accounted for 16 per cent of non-British vessels entering Western Australia.

The Holland-Australia Line (one of the eight lines operated by the Vereenigde Nederlandsche Scheepvaart Maatschappij established in 1919) was the only Dutch line whose vessels regularly called at Fremantle. In 1923-24, for example, the Holland Australia Line's

<u>Aagtekerk</u>, <u>Abbekerk</u>, <u>Almkerk</u> and <u>Arendskerk</u>, averaging 7,500 tons each, made a total of 14 calls at Fremantle. The Dutch share of Fremantle shipping grew substantially in importance in the 1920's, mainly due to the import of oil from the Dutch East Indies that was largely carried on Shell tankers. In 1938-39 nine of the thirteen Dutch ships visiting Fremantle were tankers.[70]

The fleets of Sweden and Norway were, as already indicated, largely engaged in cross-trading. The Norwegian fleet was the most important, accounting for about 30 per cent of all non-British shipping entering Western Australia in 1937-38. The major line was the Norwegian Africa and Australia Line, established in 1910 by Wilh. Wilhelmsen and Fearnley and Eger. It provided a Europe/Australia service which went via the Cape on the outward run and via Suez on the homeward run. In 1938-39 16 vessels belonging to Wilh. Wilhelmsen called at Fremantle, including the <u>Tricolor</u> (6,850 tons), the <u>Tamerlane</u> (6,778 tons), and the <u>Talleyrand</u> (6,732 tons). All were motorships designed to carry cargo and a small complement of passengers. As we shall see later in the chapter, the Norwegian lines led the world in the adoption of the diesel motorship.

The non-European ships calling at Western Australian ports were predominantly Japanese. Japan took advantage of the disruption caused by the First World War to expand the services offered by its shipping lines. Aided by subsidies and the depreciation of the yen, Japanese shipping began to make substantial gains, mainly at the expense of British and Dutch shipping.[71] In 1912-13 only three Japanese ships made one trip each to Fremantle; in 1930-31 24 ships made 36 visits.[72] These ships were mostly owned by tramp companies such as Kawasaki Kisen Kaisha, Kokusai Kisen Kaisha and Yamashita Kisen Kaisha, and came to

pick up cargoes like wheat and flour. Liner services between Japan and Australia offered by Nippon Yusen Kaisha, Osaka Shosen Kaisha and other leading Japanese companies terminated at eastern states ports and did not call at Fremantle. By the late 1930's Japanese shipping dominated trade between Australia and the Far East and in 1938 the Australian government intervened to establish an agreement on cargosharing between the Japanese lines and the Eastern and Australian Steamship Company (significantly, another member of the P and O Group).[73]

4. The increasing size of ships

The FHT needed to know the size of ships likely to call at Fremantle in order to plan port facilities. The factors causing shipowners to increase ship size are manyfold but trade volume, value and the distance over which the cargo is to be shipped are of great importance.[74] However, the pressure to increase ship size is primarily an economic one, following from the fact that with increasing size, costs per ton of cargo carried decrease, irrespective of any plausible structure of factor prices. However, the shipowners' ability to reap these economies of scale is constrained by factors external to the ship such as the nature of demand conditions and port facilities.

So far as demand is concerned, shippers of general cargo, for example, are interested in the frequency, regularity and speed of shipping services, which means that a liner might have to accept less than full loads in order to maintain a sailing schedule. So far as port facilities go, they can impose physical limitations on the size of ships which use the port. Port facilities need to cater for the length, beam and draught of ships.

The first three or four decades of the 20th century saw steady increases in average size. Between 1910 and 1927 the average gross

tonnage of the 20 largest vessels afloat increased from 28,000 to 35,800

tons.[75] Anxious port authorities the world over wondered how to provide

adequate facilities for such 'leviathans'. Writing about 1910 one

engineer painted the following colourful picture:

> A race between engineers: such might describe the
> condition of affairs in the maritime world of to-day in
> regard to two of the most important branches of civil
> engineering. On the one hand, we have the ship designers
> turning out larger and larger vessels; on the other is the
> harbour engineer, striving vainly to provide a sufficient
> depth of water in which to float these large steamships.
> It is a tremendous struggle. The former has set the pace,
> and the latter finds it hot, so much so that he is hard
> put to it to keep on his rival's heels.[76]

The world's largest ships, however, were engaged in the Trans-Atlantic

trade and did not visit Australia. As late as 1939, the largest

commercial vessel to visit Fremantle was the Dominion Monarch of 27,155

tons. She was built for the Shaw, Savill and Albion Line and was a fast

passenger-cargo motorship, with accommodation for 525 first class

passengers only. In fact, in 1939 ships of less than 6,000 tons still

accounted for 57 per cent of world tonnage.[77] Ship size, particularly

for tankers and bulk carriers, did not really 'take-off' until after the

Second World War. Nevertheless, Figure 4.2 shows that the average size

of ships calling at Fremantle grew steadily at about three per cent per

annum between 1903-04 and 1938-39.[78] By 1938-39 the average visitor was

5,000 nrt compared to only 1,800 nrt in 1903-04.

Table 4.6 illustrates the size distribution of ships entering

Fremantle: in 1908-09 almost 90 per cent of ships calling were less

than 5,000 tons and no vessel over 10,000 tons entered port. By 1923-24

vessels of 5,000 tons and over accounted for 61 per cent of entries;

vessels of under 3,000 tons had shrunk from about 40 per cent to 16 per

cent of entries. By 1938-39 vessels of 10,000 tons and over accounted

for over one-quarter of entries. Passenger liners accounted for the

Figure 4.2

The Average Size of Vessels Calling at Framantle,
1903-04 to 1038-39

'000 net
register
tons (semi-
log scale)
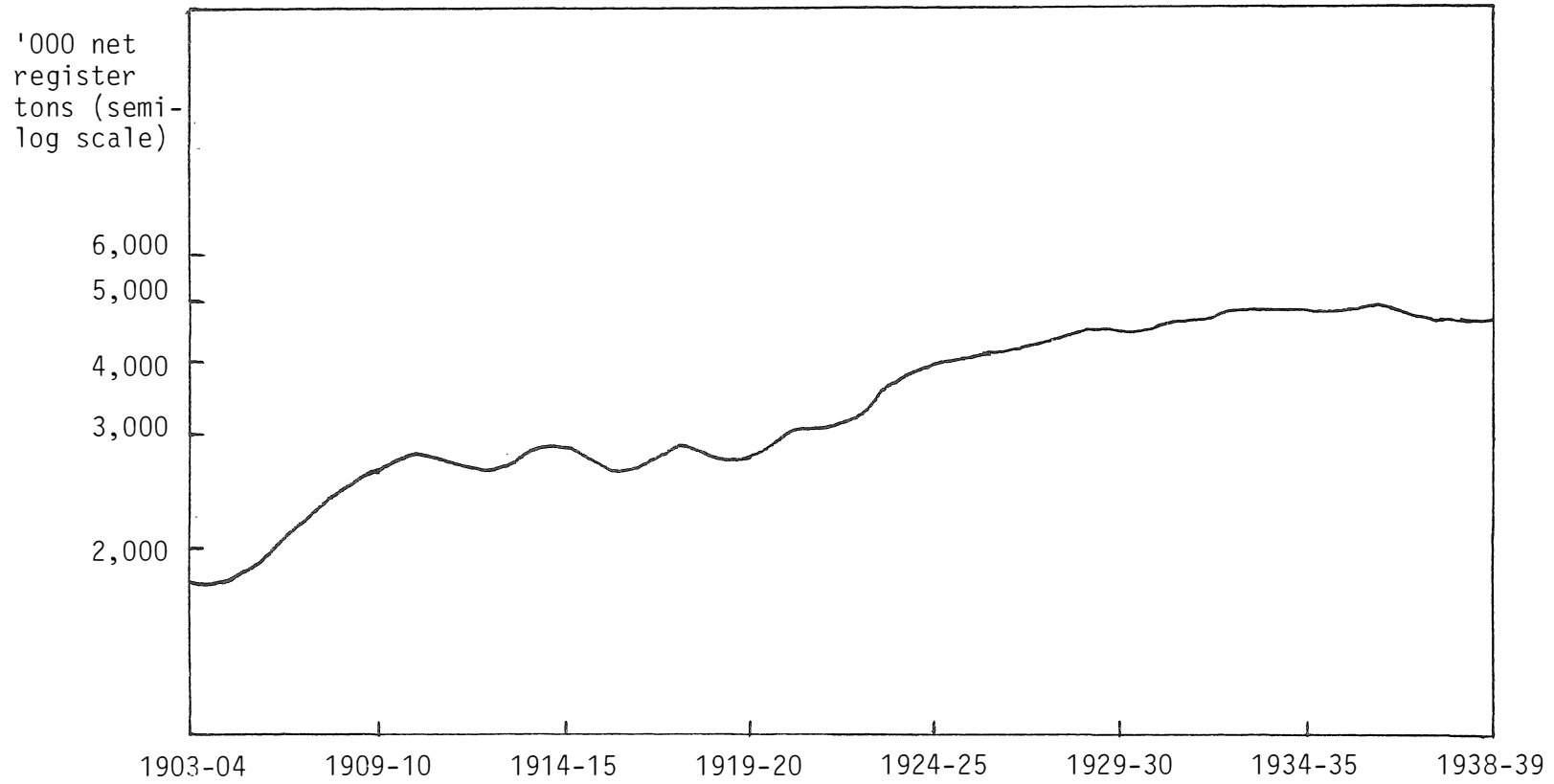
Source: Appendix C.

Table 4.6

Percentage Shares of Selected Tonnage Ranges in Vessel
Arrivals at Fremantle: Selected Years, 1908-09 to 1938-39

(gross registered tonnage)

	1908-09	1923-24	1938-39
100 - 2,999	39.5	16.2	14.2
3,000 - 4,999	49.7	22.7	22.7
5,000 - 7,499	10.2	27.6	17.0
7,500 - 9,999	0.7	13.2	19.1
10,000 - 12,999	-	8.2	15.2
13,000 - 15,999	-	8.3	6.7
16,000 and over	-	3.9	5.2

Notes: Calculated from data on ship visits and tonnages given in the
          FHT, Annual Reports.

Source: FHT, Annual Reports.

lion's share of the larger ships. In 1938-39 17 passenger ships made 84 entries and accounted for one-third of total tonnage entering Fremantle.[79] Apart from the Dominion Monarch, the largest ones included the P and O's Mooltan (20,952 tons), the Orient Line's Orcades (23,456) tons, and the P and O's Strathallan (23,722 tons). Cargo liners calling were mostly in the 8,000-14,000 ton range while tramps rarely exceeded 6,000 tons.[80] Cargo liners calling in 1938-39 included the Waipawa (10,801 tons), the Coptic (8,533 tons) and the Zealandic (8,444 tons), all owned by the Shaw Savill and Albion Company. Examples of tramps calling were the Glenbank (5,151 tons), the Myrtlebank (5,150 tons), and the Olivebank (5,154 tons). All three belonged to Andrew Weir and Company and brought cargoes of rock phosphates. Most oil tankers calling were in the range 6,000-10,000 tons;[81] those visiting Fremantle in 1938-39 included the Vacuum Oil Company's Ahamo (8,621 tons) and Royal Dutch Shell's Manvantara (8,237 tons), and Telena (7,406 tons).

When planning port facilities the FHT was not so much interested in the size of ships measured in terms of tonnage, but also in their length, beam and draught. In 1939 the average length of ships visiting Fremantle was 450 feet and the longest about 658 feet.[82] In normal conditions the narrow curved entrance to the harbour limited ships to 750 feet in length but in fact longer ships were occasionally berthed. For example, in 1924 the battle cruiser H.M.S. Hood, 861 feet long and drawing 33 feet was safely berthed in the Inner Harbour.[83] However, in 1922 the Orient Line expressed doubts about whether its lengthy 20,000 ton steamers could be safely handled in adverse weather conditions.[84] But, generally, the length and beam of ships did not pose any major problems at Fremantle.

The draught of ships was another matter. It was costly and time

consuming to provide deep-water berths. The decision to deepen Fremantle's Inner Harbour from 30 feet to 36 feet in 1916 eventually doubled the capital cost of the port.[85] Moreover, even one of the largest passenger liners took a relatively short time to construct when compared to the time required to cut channels and construct docks and wharves.

The deepest draft vessel to call at Fremantle before the Second World War was the whale factory ship Terje Viken of 20,638 tons. She arrived in March 1939 and after taking on bunker fuel left drawing 34 feet 9 inches of water. However, given that in the same year almost 90 per cent of ships using the port drew 28 feet or less,[86] it is debatable whether the decision to deepen the harbour was justified. The decision had been influenced by the recommendations of the Dominion's Royal Commission (1913-17) and news of plans for deepening of the Suez Canal. In Chapter 6, where harbour deepening is discussed in detail, we shall see that the FHT's desire to have the most modern port facilities frequently led them to neglect economic considerations. Moreover, the discussion of port finances in Chapter 7 will show that most port revenue came from cargo rather than ships so that large ships did not make a proportionate contribution to the cost of establishing and running the port.

The consequence of larger ships was that the average cargo carried per ship also rose. In the first decade of this century average cargo per ship was about 900 tons; by the early 1920's it was about 1,200 tons and by the late 1930's 2,100 tons.[87] Of course, these averages give no indication of the dispersion of cargo sizes but the implications for the port are clear: increasingly larger cargoes required larger wharf sheds, increased road and rail access and improved

handling equipment. However, the necessary capital for these facilities was not readily available in the 1930's: as we will see in the next chapter, for a variety of reasons, cargo-handling techniques remained relatively static right up to the end of our period.

5.   Technological change in shipping

It is widely recognised that by the outbreak of the First World War the world's shipping industry had been revolutionized by a number of technological innovations. These included the change from wooden to iron and then to steel ships, the replacement of sail by steam and the introduction of the compound and triple-expansion engines.[88] These innovations contributed to increased productivity in ocean transportation and were a major factor in the expansion of world trade and the emergence of an integrated world economy.[89] Although Australia benefited from these developments, G. Blainey has suggested that the steamship did not make a major contribution to the growth of overseas trade until the early years of the 20th century. According to Blainey it was from the 1920's onwards that shipping was most successful in overcoming the 'tyranny of distance':

> The cost of crossing the ocean was pared down by the increasing size of the average ship, the shift from coal to oil or diesel fuel, the adoption of bulk carriers for many cargoes ranging from sugar to oil, the cheaper tolls charged by the Suez Canal, and the more frequent use of the Panama Canal which saved 3,500 miles between Sydney and New York.[90]

However, F. Broeze has suggested cheap ocean freight rates and the increasing efficiency of steamship services had already done much to reduce Australia's isolation in the second half of the 19th century: 'where it counted, the ocean was no tariff wall but a cheap and commodious highway.'[91] It is not our intention to discuss the development of shipping technology in detail; we merely focus briefly on

those developments of importance for ports.

G. Henderson has shown that the transition from steam to sail in Western Australia was very rapid due largely to the advanced state of steam technology by the time it was first introduced into Western Australian waters.[92] The first steamship to enter the coastal trade was the Xantho in the early 1870's. By the late 1890's sail traffic was confined to bulk cargoes such as timber and coal. Table 4.7 illustrates the proportion of sail and steam vessels entering Fremantle. By the early 1920's only a few sailing ships were calling and during the 1930's they virtually disappeared from Australian ports.[93]

Apart from the switch from sail to steam, there were other important changes in engine technology. The original steamers were coal burners but in the inter-war years their efficiency was improved by the adoption of oil-firing and the use of turbines instead of the original reciprocating engines. In 1912 the first diesel powered ocean going ship, the Selandia was built for the Danish East Asiatic Company. Diesel powered motorships offered significant advances over steamships including greater fuel economy, but in the inter-war years were more costly to run at speed and not as reliable.[94] Diesel engines appear to have been less economic than steam propulsion on vessels larger than about 10,000 tons.[95] But they proved popular with shipowners in the Australian trade: in 1939 less than a quarter of world tonnage was equipped with diesel engines but in 1938 about one-third of the tonnage entering Sydney and Melbourne was diesel-powered.[96] The Norwegian lines led the way in the adoption of the motorship: by 1939 62 per cent of the Norwegian fleet consisted of motor tonnage, whereas only 45 per cent of the British fleet and about 5 per cent of the American fleet comprised motor tonnage.[97] The leading British lines were relatively slow to adopt motorships[98] (except for the members of the ill-fated

Table 4.7

Steam and Sailing Ship Entries at Fremantle, 1904-05 to 1931-32

('000 net registered tons)

Year	Sail	%	Steam	%	Total
1904-5	54	3.6	1,436	96.4	1,490
1912-13	50	1.3	2,292	98.7	2,322
1922-23	3	0.1	2,617	99.9	2,620
1931-32*	3	0.1	3,346	99.9	3,349

Note: * This is the last year FHT, Annual Reports give the breakdown between steam and sail.

Source: FHT, Annual Reports.

Royal Mail group)[99] and most motorships that visited Fremantle in our period belonged to non-British lines.

The change from coal to oil as a fuel had major implications for Fremantle's bunkering trade. As we saw in the previous chapter, coal bunkers had become negligible by the late 1930's. Oil bunkering facilities were provided at Fremantle by 1920 which reinforced Fremantle's dominance of the bunkering trade, as Albany and Bunbury lacked such facilities.

*

* * * * *

This chapter has shown that there were important changes in the level and pattern of ship movements at Fremantle between 1903 and 1939. Shipping calling at Fremantle fell into three groups - overseas, interstate and intrastate - although, as we have seen, the distinction between the three groups was rather blurred. The United Kingdom's shipping maintained its dominance of Fremantle's trade throughout the period, although in an imperial context it is probably not too much of an exaggeration to say that Fremantle's importance remained little more than 'its red colour on the map'. In the inter-war years liners spent greater time on the Australian coast doing a 'milkround' in search of cargoes. Liners took increasing parcels of 'tramp' cargoes reducing employment opportunities for tramp shipping on the Australian coast. Another legacy of the 'milkround' was that shipowners incurred multiple

port and handling charges, leading to complaints about the level of Australian port charges. We will discuss this issue more fully in Chapter 7. Interstate shipping began a slow decline after the First World War due to the gradual demise of the interstate coal trade and competition from the Trans-Continental Railway. Intrastate shipping was never a major part of port activity but provided vital services to the outlying areas of Western Australia.

One of the most striking changes between 1903-39 was undoubtedly the tendency towards increased ship size. The average vessel calling increased from about 1,800 nrt to 5,000 nrt, but much larger vessels, usually passenger liners of 20,000 tons and above, became frequent visitors. These large ships required costly deep-water channels and berths. A consequence of the general trend towards increased ship size was that average cargo carried per ship more than doubled. This meant that larger cargo sheds, increased road and rail access and improved handling facilities were also required. Thus the port was pressured to make costly adaptations to changes imposed externally. However, as subsequent chapters will show, it is an over-simplification to see the port simply as a technology-taker; the relationship was essentially a two-way one. The tension between what 'a modern port should have' and what Fremantle could realistically provide led to numerous conflicts and delays in port planning.

Footnotes

1.   F. Broeze, 'Western Australia Until 1869: The Maritime
      Perspective', Part II, Early Days, Journal and proceedings
      of the Royal W.A. Historical Society, vol.8 (1983), Part 6,
      p.114.

2.   K. Burley, British Shipping and Australia 1920-1939, (Cambridge,
      1968), p.13.

3.   Western Australia, Yearbook, 1903-04, (Perth, 1906), pp.1128-48.

4.   In this chapter, shipping tonnage, unless otherwise specified,
      refers to gross registered tonnage (grt). For an
      explanation of the various tonnage measures see Appendix C.

5.   Burley, op.cit., p.51.

6.   For a clear discussion of different ship types and organisation,
      on which this discussion draws, see A.E. Branch, Elements of
      Shipping, 5th edition, (London, 1981).

7.   For detailed discussion of shipping conferences see D. Marx,
      International Shipping Cartels: a Study of Industrial Self-
      Regulation by Shipping Conferences, (Princeton, 1953); S.G.
      Sturmey, British Shipping and World Competition, (London,
      1962); K. Trace, 'Australian Overseas Shipping 1900-1960',
      (Ph.D thesis, University of Melbourne, 1965); Burley,
      op.cit., ch.6, passim; B.M. Deakin and T. Seward, Shipping
      Conferences. A Study of their Origins Development and
      Economic Practices, (Cambridge, 1973); J. Bach, A Maritime
      History of Australia, (Melbourne, 1976); K.A. Moore, The
      Early History of Freight Conferences. Background and Main
      Developments Until Around 1900, National Maritime Museum
      Monograph No.51, (London, 1981).

8.   Branch, op.cit., p.187.

9.   See Report of Royal Commission on Shipping Rings, 1909
      (Cd4668). From 1916 deferred rebates, 'fighting ships (used
      by conferences to undercut non-conference vessels) and
      similar practices were outlawed in the U.S.A.

10.   Royal Commission on Ocean Freights, (Perth, 1905). The
      Commonwealth reports were as follows: Report from the Royal
      Commission on Ocean Shipping Services, 1906 (No.36); Report
      of the Royal Commission on the Navigation Bill, 1906
      (No.30); Report of the Royal Commission to the Navigation
      Act, 1924 (No.103).

11.   See K. Trace, 'Contestable Market Theory Applied to Australian

Overseas Liner Shipping Arrangements', _Maritime Studies_, No.22 (January/February 1985), pp.1-11; and J. Davies, 'The Role of Contestability Theory in the Economic Analysis of Liner Shipping', _Maritime Studies_, No.22 (March/April 1985), pp.2-8.

12. See footnote 7.

13. Bach, _op.cit._, ch.VIII, _passim_; Burley, _op.cit._, p.222.

14. Burley, _op.cit._, pp.223-4.

15. Bach, _op.cit._, pp.163-74.

16. _Ibid._ p.167.

17. FPA 31/03, copy of letter from W. Sandover (in England) to Perth Chamber of Commerce, 21 November 1902.

18. Ibid., copy of letter from Fremantle Chamber of Commerce to Acting Premier, 22 April 1903.

19. _Royal Commission on Ocean Freights_, op.cit., pp.7-17.

20. G. Henderson, 'From Sail to Steam: Shipping in Western Australia, 1870-1890', (MA thesis, University of Western Australia, 1977), pp.233-5. Henderson highlights the need for research on WASA records.

21. Burley, _op.cit._, pp.188-9.

22. The following discussion draws on Bach, _op.cit_, ch.XIII.

23. For details see J. Sandford, _Walter Harper and the Farmers_, (Perth, 1955).

24. FPA 20/35/1, 'Port facilities and charges at Fremantle', typescript prepared by Department of Overseas Trade, London, 7 March 1934.

25. For a detailed discussion of the organisation of shipping companies on Australian routes see Trace, _op.cit._, ch.2.

26. Burley, _op.cit._, pp.100-16.

27. K. Petersen, _The Saga of Norwegian Shipping_, (Oslo, 1955), p.109.

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49. B. Pemberton, <u>Australian Coastal Shipping</u>, (Melbourne, 1979), p.29.

50. Burley, <u>op.cit.</u>, p.5.

51. Pemberton, <u>op.cit.</u>, p.23.

52. <u>Ibid.</u>, p.140.

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54. AA: Prime Minister's Department, CRS A461, correspondence files, multiple number series, third system, 1934-1950; I418/2/6 Pt. 2, 'NW Coast (WA) Mail Contract', 6 May 1937.

55. Burley, <u>op.cit.</u>, p.22.

56. <u>Report of the Royal Commission on the Navigation Bill</u>, 1906, (No.30), minutes of evidence, p.575, cited by Bach, <u>op.cit.</u>, p.211.

57. See Bach, <u>op.cit.</u>, pp.312-4 and Burley, <u>op.cit.</u>, p.21-4.

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63. For a general discussion of the reasons see Bach, <u>op.cit.</u>, ch.1, <u>passim</u>.

64. McDonell, <u>op.cit.</u>, pp.216-20.

65. Broeze, <u>op.cit.</u>, pp.108-9.

66. Henderson, <u>op.cit.</u>, p.233-4.

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82.   Tydeman, op.cit., vol.2, p.48.

83.   FPA 109/23/1, 'Visit of Special British Service Squadron'.

84.   Ibid., 60/23/2-3, letter from T. Day, Manager, Perth Branch of the Orient Line, to FHT, 29 December 1922.

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87.   Calculated from five year averages centred on the years 1905-06, 1921-22 and 1936-37, and rounded to the nearest hundred.

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92.   Henderson, op.cit., p.232.

93.   Burley, op.cit., p.92.

94.   Ibid., p.96.

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CHAPTER 5

Cargo-Handling, Working Conditions and Industrial Relations on the Waterfront at Fremantle, 1903-1939

In the previous chapter we saw that the ships calling at Fremantle changed dramatically between 1903 and 1939. By 1939 sailing ships had disappeared; steamships and motorships of increased tonnage were tying up in the Inner Harbour. But the port itself and the technology of cargo-handling remained much as it was at the turn of the century. The handling of cargo was still a hard manual task, requiring considerable physical strength and was often undertaken in arduous and hazardous conditions. Thus the potential gains from the increased efficiency of shipping were apparently reduced by the inefficiency of cargo-handling ashore. But in this Fremantle did not stand alone: throughout the world ports remained much as they were in the 19th century, 'with congested access, cluttered storage and general reliance on a large labour force.'[1]

The objective of this chapter is to examine cargo-handling practices, working conditions and industrial relations on the waterfront at Fremantle between 1903 and 1939. Economic historians have sometimes been accused of focussing on sectors of industry where mechanical progress was rapid and neglecting sectors where hand technologies persisted.[2] In the field of ocean transport the history of the steamship is well documented but little has been written on cargo-handling in the ports.[3] Thus it is hoped that this chapter will cast some light on this neglected area of transport history. Before discussing cargo-handling it is, however, necessary to consider the organisation of the Fremantle waterfront.

1.   The organisation of the Fremantle waterfront

A wide range of people derived employment opportunities from port operations at Fremantle: the port was composed of congeries of trades, rather than one single type. Workers employed in the port area included crews of pilot boats and tugs, shipwrights, carpenters, electricians, engineers, plumbers, painters, clerks, maintenance and construction workers and government officials.[4] In the cargo-handling area the most important workers were stevedores, wharf labourers, tally clerks and watchmen. By 1939 these workers were organised into a number of different unions. Skilled craftsmen belonged to the relevant craft union, such as the Amalgamated Engineering Union, the Amalgamated Society of Carpenters and the Plumbers' Union.[5] But the most important unions on the Fremantle waterfront were the Fremantle Lumpers' Union (FLU), the Seamen's Union and the Coastal Dock, Rivers and Harbour Works Union (CDRHWU). Wharf labourers, or lumpers as they were known in Western Australia,[6] provided the most important labour input to cargo-handling and will be the focus of attention in this chapter.

While the FLU and the Seamen's Union had their counterparts in the eastern states, the CDRHWU was unique to Western Australia.[7] Formed in 1911 it covered a diverse group of workers including crews of tugs, lighters, pilot boats, dredge and excursion steamers, casual lumpers, and general labourers employed on harbour and ship repair and maintenance. The FLU allowed CDRHWU casuals to work on the wharves when labour was scarce; they got the crumbs from the lumpers' table. In return the CDRHWU gave lumpers' sons preference for membership. This arrangement lasted until 1939 when it was stopped by the lumpers who claimed that CDRHWU casuals were working for more than the agreed limit of eight hours per hiring.

Lumpers were hired on a casual basis, by the hour or by the day. This system of hiring evolved to cope with the wide fluctuations in trade flows which meant that there were days when the demand for labour was high and days when it was low. From the point of view of the shipowners, the problem was to maintain a labour reserve sufficient to cope with peak demands but to avoid as far as possible the costs of maintaining such a reserve. As long as there was a plentiful supply of labour this was possible, since the employer hired labour only for as long as he needed it and there were always men willing to work when required. The casual system of employment makes it difficult to make firm statements about the employment and earnings experience of the average lumper. Nevertheless, the casual system has long been recognised to have serious social and economic repercussions: irregular earnings made life difficult for lumpers and their families; restrictive practices reduced labour efficiency; industrial relations were usually turbulent.[8] Indeed, it has been claimed that 'class war was seen at its most ferocious on the waterfront'.[9] As we will see, these endemic problems all surfaced at one time and another on the waterfront at Fremantle.

The Fremantle Lumpers' Union had been formed in July 1889 following the visit of a delegation from the Adelaide Lumpers' Union the previous month. It was the first union of unskilled workers in Western Australia and 'its formation was a significant milestone in the development of unionism in Western Australia'.[10] From a small nucleus of 136 members it expanded rapidly: by the turn of the century it had 841 members. Subsequently, membership appears to have stagnated because in 1918 it had only 843 members, although some may have left to join the armed forces. By 1929 there were 1,624 members but by 1936 the

depression had taken its toll and membership had fallen to about 1,150.[11] The membership lists reveal two striking features: firstly, the repetition of family names suggests a tendency for sons to follow fathers into the industry; secondly, the fact that the overwhelming majority of members lived in Fremantle and adjoining suburbs.[12] About 50 per cent lived within two miles of the wharves.[13] Such proximity to the work place was essential in an industry where work was so uncertain; regular attendances at the pick-ups were the only way to ensure a chance of earning a living wage. The tendency for sons to follow fathers into the industry and the clustering of the workforce undoubtedly contributed to the strength and solidarity of the union.

The Waterside Workers' Federation of Australia (WWF) was formed in 1902 but the FLU appears to have been fearful of losing its independence and did not join until 1910.[14] By 1913 the WWF had over forty branches but had problems ensuring branches adhered to federal policy. This was due in part to a lack of contact and confidence in the federal leadership.[15]

In the early 1930's a number of branches made moves to break away from the Federation but only in Fremantle did a breakaway actually occur. Possibly because of Western Australia's geographical isolation, the Fremantle Branch was often out of step with federal policy. In 1925 it was fined £1,000 for refusing to work the steamer Clan Monroe contrary to a federal directive.[16] However, a more serious dispute arose in the early 1930's over conflicts between branch rules and federal rules. The Fremantle Branch began refusing requests from WWF members at other ports to transfer to Fremantle unless they had been members of their parent branches for three years. This was a breach of the federal rules which allowed members freedom to transfer between

branches.[17] Mr. Fox, Secretary of the Fremantle Branch, claimed in 1931 that they already had 400 members too many on their books.[18] He wrote to Mr. Turley, General Secretary of the WWF, that if he insisted on them taking transfers, 'the breaking point will soon be reached.'[19] However, they reluctantly agreed to three transfers in November 1931 after the Federal Executive threatened to take the issue to the Arbitration Court.[20]

Disputes between the Fremantle Branch and Federal Executive also arose over the method of collection of union dues. The Federal Executive claimed that the Fremantle Branch owed about £ 300 in dues by the end of 1932.[21] The matter was not helped by the poor personal relations between Fox and Turley.[22] Healy, Turley's successor as General Secretary, claimed that Turley 'must bear much responsibility' for the eventual loss of Fremantle from the Federation.[23] At a meeting in July 1932 a motion to break with the WWF declared that 'this Federation has now become a gigantic octopus controlled by a small clique of class collaborators'.[24] However, discussion was postponed and a motion to break with the WWF was not passed until May 1933, with effect from the end of August.[25]

One argument that was used to persuade the Fremantle membership to dis-affiliate was that they could get better wages and conditions under a State Award, on account of the higher cost of living in Western Australia.[26] In April 1916 the Fremantle Branch had claimed higher overtime rates but Justice Higgins had rejected their claim, declaring 'I certainly will not alter the award and order so as to give to the Fremantle men more than all their brethren and all their comrades are getting in all the other ports of Australia.'[27] Despite a number of attempts in the 1930's the Fremantle lumpers failed to get a State

Award. They continued to operate under the Federal Award and receive the same pay and conditions as Federation members. Turley, with some justification, accused the Fremantle union of having a 'joy-ride' at the expense of the Federation.[28] Justice Beeby, in proceedings at the Federal Court in 1936, declared that the Fremantle Branch was 'a law unto themselves' and accused them of disloyalty to the Federation.[29] As a result of his experiences at the above hearings Mr. Cook, the Vigilante officer, was convinced that Fremantle should re-affiliate.[30] In September 1938 Healy, Turley's successor as General Secretary, urged Fremantle to re-affiliate, stressing the need for unity in dealing with the shipowners.[31] But despite this, and other attempts, Fremantle remained outside the Federation until 1946.

Against a diversity of labour and unions engaged in cargo-handling stood a similar diversity of employers and employers associations. Shipping companies, shipping agents, stevedoring companies and bunkering contractors were all involved in cargo-handling. As we saw in the previous chapter, by the mid-1930's two overseas and four interstate shipping companies had branch offices at Fremantle. The business of other lines was handled by nine shipping agents. In addition Johnson and Lynn Ltd., the Adelaide Steamship Company, the Melbourne Steamship Company and McIlwraith, McEacharn and Company acted as bunkering contractors.[32]

The shipowners were not a homogenous group and their attitudes to the workforce appear to have been affected by their respective cost structures. Stevedoring costs represented only 10 to 15 per cent of total operating costs for overseas shipowners and rather than delay ships in port overseas owners were often willing to grant concessions to maritime unions, particularly as the increased costs could be passed on

in the form of higher freight rates. However, stevedoring costs represented 35 to 40 per cent of total operating costs for interstate shipowners and consequently they were less willing to follow a policy of appeasement.[33]

Overseas and interstate shipowners each formed their own representative organisations. By the 1880's there were coastal shipowners' associations in Fremantle, Sydney, Melbourne and Adelaide. The West Australian association was called the West Australian Steamship Owners' Association. Attempts to establish a national organisation did not succeed until 1899 when the Australasian Steamship Owners' Association (ASOF) was formed. By 1904 the members of the ASOF were the Melbourne Steamship Company, the Adelaide Steamship Company, the Australasian United Steam Navigation Company, Huddart Parker and Company, Howard Smith and Company, McIlwraith McEacharn and Company and the Union Steamship Company of New Zealand. The Head Office was in Melbourne and by 1922 branches had been established in Sydney, Brisbane, Adelaide and Fremantle. In 1905 the Commonwealth Steamship Owners' Association was formed to allow the members of the ASOF to register under the Commonwealth Conciliation and Arbitration Act. The overseas conference lines formed the Oversea Shipping Representatives Association in 1913. This powerful organisation, dominated by the Peninsular and Oriental Steam Navigation Company and the Orient Steam Navigation Company, generally protected the interests of overseas shipowners as well as dealing with industrial matters.[34]

The shipowners usually contracted out stevedoring operations to specialist companies. Stevedoring traditionally refers to cargo-handling aboard ship rather than on the wharves, but stevedoring companies performed both types of cargo-handling in all Australian ports

with the exception of Fremantle. At Fremantle, as we saw in Chapter 2, the FHT acquired a monopoly of cargo-handling on the wharves. The FHT also did stevedoring on ships of the State Shipping Service. The FHT was the largest stevedoring concern at Fremantle, employing about one-half of the workforce.[35] Most private companies were small, offering technical knowledge and supervision but employing little mechanical equipment. The private stevedoring companies operating at Fremantle in the 1930's were as follows:[36]

> Robert Laurie and Company Ltd.
> Fremantle Stevedoring Company
> Federal Stevedoring Company
> Nicholls and Company Ltd.
> Ocean Stevedoring Company Ltd.
> Adelaide Steamship Company
> McIlwraith McEacharn Ltd.
> West Australian Stevedoring Company Ltd.

Several stevedoring firms were owned by interstate shipping companies and it is likely that shipping companies or their agents held shares in many of the others.[37] As late as 1955 of the 49 stevedoring firms in Australia only eight were completely independent of shipping interests.[38] Given the impact of stevedoring on their operations, it is not surprising that shipowners would want to influence stevedoring rates and working practices.

Between 1904-05 and 1938-39 the FHT earnt an average profit of £13,000 per annum from cargo-handling. As we will see in Chapter 7, on occasion these profits saved the FHT from suffering an overall loss. There is no data on the profitability of private companies in this period but evidence for the 1950's suggests that stevedoring was one of the more profitable activities in the working of ports.[39]

2.   Cargo-handling and waterfront technology - 1900-1939

By the late 19th century the transfer of cargo between ship and shore was achieved largely by mechanical means - ship's gear or wharf

cranes, depending on the custom of the port. The main ship-handling gear was the ship's booms which were types of cranes operated by winches. The cargo was loaded onto wooden platforms or into slings for hoisting. The application of steam power to ship propulsion also provided power for ancillary equipment and steam winches were one of the first mechanical appliances applied to cargo-handling.[40] Generally speaking, the use of wharf cranes either alone or in combination with ship's gear speeded up cargo-handling.[41] However, except at Fremantle, Australian port authorities were reluctant to incur the expense involved in their provision.[42] Melbourne acquired a 70 ton steam crane around 1901 but by 1929 had added only one 35 ton crane and one 3 ton crane.[43] In 1927 Sir George Buchanan declared that Sydney was 'almost devoid of mechanical equipment.'[44] By the late 1920's the FHT had sixteen 3 ton gantry cranes and six run-about cranes of 2-3 ton capacity. It claimed the cranes were seldom idle when what it called a 'suitable' ship was in port.[45] The Secretary of the FHT, Stevens, implied that the Trust was willing to supply mechanical equipment because of its monopoly of shore handling operations:

> At Fremantle there are no vested interests so far as a port authority is concerned, and this fact has enabled the Trust to put in valuable cargohandling plant and to maintain a continuity of design of wharves and sheds which would not be possible under any system which had to consider various vested interests. It has also enabled the Trust to focus the work into a small compass, and, by utilising every berth to the fullest extent possible, prevented the country from having to face heavy expenditure on extensions which would long ago have been necessary if berths were locked up in vested interests.[46]

However, even at Fremantle, very little mechanical equipment was used in the movement of cargo across the wharves, though it is important to distinguish between bulk and general cargoes. By the late 1930's most ports in developed countries handled homogeneous cargoes such as

grain, coal and oil in bulk, using mechanical devices such as conveyors, elevators and pipelines.[47] By the end of the first decade of this century coal and phosphates were being handled with the aid of cranes at Fremantle, but grain was not handled in bulk until the early 1930's.[48] In the handling of bulk wheat the work of lumpers was limited to rigging and adjusting the equipment and trimming the cargo into the corner of the holds. The latter was unpleasant and dusty work. For reasons which will be discussed at length in Chapter 6 much wheat and flour was still handled traditionally:

> A man has to carry, for a period of eight hours, bags weighing anything from 180 to 200 lbs., and sometimes more than 200 lbs... The men have to work out in the sun at times, with the thermometer at 100, 107 or perhaps 108 degrees, without any covering ... A man wants a cast iron constitution to stand it. At any rate, speaking of men who have been following the trade for some time, and who are supposed to be good workers you will often hear it stated "so and so is getting broken up; he will not last much longer."[49]

Non-bulk or general cargoes were more heterogeneous and ranged from railway locomotives to knitting needles. The need to identify and handle individual consignments packed in barrels, bags and boxes of varying shapes and sizes, presented complex organisational problems. As late as 1939, the storing of general cargo in ships' holds and its handling on the wharves remained primarily a manual task, requiring 'a mighty arm, a hard muscle, and a large strong back.'[50] In the case of imports, for example, cargoes were usually loaded into slings or onto wooden platforms and discharged using ships' gear or wharf cranes. Delays in unloading the sling, hooking on, getting ready to lift and related activities, meant that in the workcycle of a crane less than 50 per cent of the time was actually spent lifting.[51] The wharf labourers would transfer the contents of the sling or platform to the wharf shed. Sometimes the only piece of mechanical equipment used was a two-

wheeled sack truck, equipped with a blade or other load support which was prised beneath the cargo. At some ports, including Fremantle, four-wheeled platform trucks and trollies operated by manpower were also use.[52] The cargo from the ship could be landed directly on these trucks and wheeled straight into the wharf sheds, thereby slightly reducing the number of times the cargo was handled. Sorting and stacking sheets would be made out from the ship's manifest and used by 'listmen' to direct the labourers where to stack the cargo. If the cargo consisted of a large number of small consignments then a correspondingly large number of stacks were required in order that consignees might get speedy access to their goods. With large cargoes this multiplication of stacks often caused cargo to spill out of the wharf shed onto approach ways, leading to congestion and delays in cargo delivery and receival.

Some idea of the inefficiency of manual cargo-handling methods can be gauged from the fact that ships often spent up to 60 per cent of the year in port,[53] though this cannot necessarily be ascribed only to problems of cargo-handling. During the 1920's and 1930's overseas shipowners frequently complained about delays and the cost of turnround at Fremantle and other Australian ports.[54]

The early years of the 20th century saw only modest technological improvements in general cargo-handling throughout the world. Platform trucks powered by electric batteries began to appear around 1910 and after the First World War petrol-engined versions appeared.[55] However, these were scarce in Australian ports: as late as the mid-1920's, Fremantle, for example, had only one petrol trolley.[56] Yet in 1928 Mr. Justice Beeby noted that 'Fremantle has the best equipped wharves in the Commonwealth'![57] During the 1920's mobile cranes were introduced to speed up the movement of cargo and aid

stacking operations in wharf sheds. A study at Liverpool showed that the use of portable electric cranes reduced handling costs by more than one fifth.[58] The first petrol-electric mobile crane was exhibited at the Wembley Exhibition in 1924 by Messrs. Ransomes and Rapier Ltd.[59] The FHT purchased its first one in 1927. But such cranes were still a novelty in most seaports and by 1939 there were probably not more than half a dozen in use at any Australian port.[60]

Australia was not the only country in which stevedoring was technologically backward. A sample of American industries taken in 1925 showed that stevedoring had the lowest proportion of machine to handworkers: only twelve per cent of workers operated or contributed to machine operation. Of the remainder, eighty per cent were handworkers and eight per cent supervisors.[61] Nevertheless, by the beginning of the 1930's the high-lift platform truck, the forerunner of the modern fork lift truck, had appeared on some American wharves. But Australia did not see any until the American forces brought them in 1942.[62]

The extent of mechanisation at Fremantle can be gauged more accurately by examining the FHT's ratio of labour costs to total costs for stevedoring operations. A fall in this ratio, other things being equal, would suggest an increase in mechanisation. However, this ratio is influenced by the proportion of overtime and ordinary time worked, as well as by the number of workers.

Table 5.1 provides a breakdown of the FHT's cargo-handling costs between 1919-20 and 1938-39. The stevedoring costs include the cost of supervisory labour and of cargo-handling on ships of the State Shipping Service. The latter service was performed at cost. It can be seen that wharf labour and mechanical expenses fluctuated considerably from year to year and that no long term trend is apparent. Between 1919-20 and

Table 5.1

Breakdown of the Fremantle Harbour Trust's Stevedoring Costs,
1919-20 to 1938-39

(£)

Year	Wharf Labour	%	Mechan- ical Equip- ment[1]	%	Steve- doring[2]	%	Miscel- laneous	%	Total	%
1919-20	64,673	76.8	9,106	10.8	5,352	6.4	5,114	6.1	84,245	100.0
1920-21	64,470	76.4	9,298	11.0	4,005	4.7	6,658	7.9	84,431	100.0
1921-22	58,400	76.6	8,435	11.1	3,574	4.7	5,800	7.6	76,209	100.0
1922-23	54,598	74.5	7,995	10.9	4,719	6.4	5,954	8.1	73,226	100.0
1923-24	76,888	78.6	9,099	9.3	5,198	5.3	6,635	6.8	97,820	100.0
1924-25	97,620	81.0	9,795	8.1	5,884	4.9	7,218	6.0	120,517	100.0
1925-26	100,231	78.0	11,902	9.3	7,417	5.8	8,919	6.9	128,469	100.0
1926-27	133,281	81.7	12,743	7.8	7,309	4.5	9,748	6.0	163,081	100.0
1927-28	149,710	80.3	14,737	7.9	7,034	3.8	14,920	8.0	186,401	100.0
1928-29	143,670	76.6	19,011	10.1	7,778	4.1	17,216	9.2	187,675	100.0
1929-30	111,572	71.2	22,378	14.3	5,682	3.6	17,022	10.9	156,654	100.0
1930-31	76,370	68.0	18,836	16.8	3,898	3.5	13,158	11.7	112,262	100.0
1931-32	56,901	66.3	13,883	16.2	3,592	4.2	11,443	13.3	85,819	100.0
1932-33	61,856	67.1	13,415	14.6	4,629	5.0	12,244	13.3	92,144	100.0
1933-34	64,904	67.8	11,995	12.5	5,967	6.2	12,911	13.5	95,777	100.0
1934-35	77,658	70.4	12,105	11.0	6,739	6.1	13,809	12.5	110,311	100.0
1935-36	82,795	73.8	11,297	10.1	6,992	6.2	11,106	9.9	112,190	100.0
1936-37	92,607	73.9	12,856	10.3	7,536	6.0	12,377	9.9	125,376	100.0
1937-38	110,307	77.2	14,034	9.8	8,979	6.3	9,473	6.6	142,793	100.0
1938-39	119,237	76.6	16,208	10.4	9,435	6.1	10,686	6.9	155,566	100.0

Notes: 1   Mechanical equipment costs (principally for cranes and grain-handling equipment), were combined with general wharf expenses until 1927-28. Between 1927-28 and 1938-39 mechanical equipment costs averaged 11 per cent of the total for wharf expenses and equipment charges, and this proportion was used to estimate mechanical equipment charges for the first 8 years.

     2   Stevedoring includes the cost of supervisory labour and of cargo-handling on ships of the State Shipping Service. The latter was performed at cost.

Where percentages do not add to 100.0 this is due to rounding.

Source: FHT, Annual Reports.

1938-39 wharf labourers' wages averaged 71 per cent of total costs; mechanical equipment costs averaged 11 per cent of total costs over the same period. Table 5.1 thus confirms the picture of technological stagnation suggested by our previous discussion.

Private stevedoring companies probably had a higher ratio of labour to total costs. This is because the port authority's costs included the operation of quay cranes and grain plant, facilities not provided by private stevedores. Most stevedoring companies possessed minimal mechanical equipment: before the Second World War a man could buy himself a coil of rope and a hook and call himself a stevedore. An analysis of stevedoring costs in 1948-54, based on a large sample of stevedoring companies, showed that direct labour costs still accounted for 70 per cent of total costs.[63] This suggests that in the pre-war period private stevedoring companies probably paid 80 to 90 per cent of their outlays in the form of wages.

Another measure of mechanisation is the amount of investment in mechanical equipment per employee. Difficulties created by changing prices, depreciation procedures, and estimating the size of the workforce, reduce the accuracy of this measure, but it does give a rough guide. Table 5.2, based on the FHT's financial records, shows that between 1920 and 1938 mechanical equipment fell from about three per cent to one per cent of total net fixed assets. Investment in mechanical equipment per wharf labourer fell from £69 to £34, a drop of 51 per cent. Therefore, far from increasing the degree of mechanisation appears to have fallen by the late 1930's. This was because there was no significant investment in machinery during the depression years so that the book value of machinery was regularly reduced by depreciation.

Table 5.2

Investment in Mechanical Equipment at Fremantle in 1920 and 1938[1]

Year	Net Investment in Mechanical Equipment[2] £'000	Total Net Fixed Assets £'000	Col.1/ Col.2 x100	Estimated Workforce[3]	Investment Per Employee Col.1/Col.4 £
1920	58	1,992	2.9	843	69
1938	39	2,926	1.3	1,150	34

Notes: [1] 1920 = average of three years centred on 1919-20.

1938 = average of three years centred on 1937-38.

[2] Net investment in mechanical equipment comprises investment in cranes, grain plan, wharf plant and rolling plant.

[3] Because of the casual nature of waterfront employment it is difficult to estimate the exact size of the workforce. The 1920 statistic is based on union membership as at 31 December 1918; the 1938 data is based on union membership as at 31 December 1936. The union data includes inactive workers, those ill or unable to obtain work and consequently probably overestimates the size of the workforce.

Sources: Data on net assets are from FHT, Annual Reports; union membership statistics are from pp.167-8.

The question remains, why was stevedoring technologically backward? The basic reason appears to have been the irregular nature of shipping and trade and hence of the demand for cargo-handling services. It was more economical to hire casual labour, even at relatively high hourly rates, to handle cargo manually, rather than use mechanical equipment which could not be discharged when demand was slack. Another economic factor was the system of cost-plus charging which appears to have prevailed in the industry.[64] Profits were calculated as a percentage of direct costs and therefore stevedores had little incentive to reduce costs by introducing machinery or improved working methods. A study of American stevedoring concluded that such charging practices had 'made for slow and glacier-like changes in methods of cargo-handling over the past 50 years'.[65]

Technical factors such as limitations in the design of machines, wharves and sheds, also help explain the slow spread of mechanisation on the waterfront. Some of the early electric trucks were unsuitable for port use because of their inability to climb steep grades.[66] Many ports had narrow finger piers and sheds with forests of pillars both of which made it difficult to operate mechanical equipment. However, only the latter was a problem at Fremantle. Of course, these difficulties could have been overcome if port authorities had been willing to scrap existing facilities. But most port infrastructure is relatively long-lived and once paid for can be maintained in operational condition at relatively little cost. Therefore, from the port authorities point of view, it was desirable to delay replacement of wharves and sheds until they reached the end of their economic lives. Thus there is a close connection between technological and economic barriers to mechanisation.

Another factor explaining the slow progress of mechanisation may have been the small size of many stevedoring companies. They lacked both the volume of work and the capital required to purchase machinery. However, we saw earlier that many were owned by shipping companies so for them capital should have not been a serious constraint.

There is no doubt that the introduction of more machinery would have been opposed by the lumpers, even though it would have reduced the physical strain of wharf work. In 1926 Stevens, Secretary of the FHT, observed that the men pushing trollies across the wharf were 'often all in by the time the stacks were reached and wanted a spell while someone else stacked their cargo.'[67] He offered to introduce horses to pull the trollies but even this was resisted by the men as they feared it would mean less work. As we will see in the next chapter, the introduction of bulk grain handling was viewed with alarm by the lumpers, the more so because it occurred in the depths of the 1930's depression. In other countries, when machinery was first introduced on the wharves, it was sometimes sabotaged or driven into the sea.[68] Thus economic, technical and social factors combined to reduce the progress of mechanisation prior to 1939.

3.   The hazardous nature of waterfront employment

A recognition of the hazardous nature of waterfront employment appears to have come relatively late in the history of the labour movement and labour legislation. A 1927 study by the International Transport Workers' Federation declared that 'there are few occupations in which the life and health of the workers are so beset with dangers as in port work.'[69] The following year a conference organised by the International Labour Organisation observed that, 'the work of loading and unloading ships is a specially dangerous and unhealthy occupation,

and that the workers engaged in it require to be protected in each country by special safety regulations.'[70] The International Labour Organisation drafted a convention concerning the protection of waterside workers in 1929 and in a revised form it was incorporated in the British Dock Regulations of 1934.[71] But there was no legislation dealing specifically with the regulation of working conditions on Australia's wharves during our period. The federal government had, under the Navigation Act, provided some loading and unloading regulations, but these extended only to the ship's hook and did not cover work on the wharves.

At Fremantle, the FHT provided a lumper's shelter and a light ambulance on pneumatic tyred wheels but generally working conditions were primitive. For example, men could be picked-up to work in a freezer ship and be expected to work in freezing temperatures clad only in shirts and shorts. No freezer gear was provided.[72] Some of the cargoes were particularly unpleasant to work. For example, in a story by John Morrison one wharf labourer describes his experience of handling soda ash on a midnight shift as follows:

> Vile stuff. A fine, moist, heavy powder, in bags that go only twelve to the ton. It ruins clothes, eats patches of skin off hands, aggravates every little scratch into a sore, provokes perpetual sneezing. I've seen all six men on a long soda ash job exhibiting handkerchiefs flecked with blood ... by four-thirty all six of us are running from the eyes and sneezing furiously. This cargo should never have been placed here. Many bags are torn, and almost every sling goes up with a tail of streaming powder, like a rocket ...[73]

W. Mitchell, in her thesis on Sydney's wharf labourers, has summarised the position well:

> The general environment in which the work was performed was indicative of the general acceptance by owners, politicians and the community, of conditions of labour which can only be described as primitive. To a large extent the unionists also shared in this acceptance,

bargaining for more money as a reward for working in bad conditions.[74]

A rough idea of the hazardous nature of waterfront work can be obtained from Table 5.3 which shows the accident rate per 100 unionists. It would be preferable to show the accident rate per 100 persons employed but there is no adequate data on waterfront employment. Union membership is obviously only a rough guide as it includes men unable to obtain work or who are inactive due to illness or some other reason.

Table 5.3 suggests that there was a tendency for the accident rate to increase, as it climbed from about.8 accidents per 100 unionists in 1904-05 to about 19 per 100 unionists in 1924-25. By 1927-28 the accident rate had jumped to 29 per 100 unionists. In the latter year there were two fatalities. More than one-quarter of injured unionists were off work for five weeks or more suggesting their injuries were of a serious nature. The union paid out £2,470 in accident pay at the rate of £1 per week per worker. The increase in accidents was attributed by the union to an increase in the pace of work.[75] Unfortunately, no accident data for the early 1930's has survived but by 1936-37 the accident rate had fallen to about 13 per 100 unionists.

During the 1930's depression there was widespread unemployment in Western Australia. Unemployment peaked at 28.7 per cent in 1931-32 but did not drop below 10 per cent until 1936-37, when it was 6.0 per cent. Employers took advantage of the labour surplus to extract further efforts from the men. Strong men, known as 'bulls', were used to set the pace of work and with the ever present threat of unemployment the men could be relied on to work feverishly. Long shifts - stretches up to 24 hours were not unknown - must have increased the chance of accidents occurring. Foremen selected men at the gates daily for work

Table 5.3

Estimates of the Accident Rate for Lumpers at Fremantle

Year	No. of Accidents[1]	Membership of Fremantle Lumpers' Union (Actual Year in Brackets)	Approximate Accident Rate Per 100 Unionists
1904-05	70	841 (1902)	8.3
1909-10	87	841 (1902)	10.3
1914-15	114	843 (1918)	13.5
1919-20	122	843 (1918)	14.5
1924-25	225	1,215 (1927)	18.5
1927-28	475	1,624 (1929)	29.2
1936-37	152	1,150 (1936)	13.2

Note: [1] These were accidents reported to the union. It is possible that some minor accidents were not reported to the union.

Sources: WWF Fremantle Branch Records, N28/317, Accident and Death Record Book; WWF Federal Deposit, T62/11/6, letters from Secretary of FLU to General Secretary of WWF, 27 August 1927, and 21 July 1928; WWF Federal Deposit, T62/39, Membership Book W.A. Branches, 1902-48.

and the competition for work was so great that the foremen acquired a great deal of power which was not always exercised responsibly, favouritism and bribery sometimes occurring.[76] One wharf labourer painted the picture as follows:

> A ghastly, frightening (group) of men at times fighting and tearing each other's clothes off in sweating jungle-like scuffles, for a starting docket to earn twenty-three shillings for a day's work on the wharves. That was the bull system ...[77]

The effects of the working conditions on the men were publicized in 1943 when Dr. Ronald Macqueen examined 539 men who were suspected of being malingerers. To his astonishment he found most were not malingerers. In an oft cited passage he wrote:

> My chief impression of these men was that all of them were prematurely aged. It was rare to find any man, who did not look at least 10 years older than his stated age ... I had examined men, who in the main, had been ruined physically by the intolerable anxieties of the depression years. The endless search for the infrequent job, which would keep them and their families from the precarious borderline of malnutrition, had taken its devastating toll. The feverish, high tension work performed when the job was secured, in order to ensure its repetition had been paid for at the shocking price of premature old age and physical calamity.[78]

A paucity of data makes comparisons with other occupations and states difficult. Moreover, the limited data available is not strictly comparable with that for Fremantle. For example, in 1937-38 there were 58 accidents per 100 wharf labourers employed in New South Wales,[79] a striking contrast with my estimate of 13 per 100 for Fremantle in 1936-37. The New South Wales data is probably more accurate than mine as it refers to actual employees rather than the number of unionists. I have been unable to locate data on accidents in different occupations in Western Australia prior to 1939, with the exception of coal mining and timber work, both of which were also high risk occupations. For example, in 1938 there were 47.6 accidents per 100 employees in the

Collie coal mines, which suggests that if there was 'blood on the cargo' there was more on the coal.[80] In Western Australia as a whole in 1933 there were 561 accidents incapacitating workers for more than 14 days, or 0.3 accidents per 100 members of the workforce.[81] This evidence is certainly not conclusive but does tend to suggest that wharf labouring was a very hazardous occupation.

The most common injuries were cuts and bruises, strains, sprains and fractures.[82] The following illustrate injuries suffered by lumpers:

> O'Neil, W. 3 July 1936. Strained his back while lifting cargo.
> Seymour, H.A. 22 September 1936. A 71 year old man who was knocked into the hold by a sling of timber and killed. (He was employed as a hatchman directing the handling of slings of cargo.)
> Knott, E.E. 11 March 1937. Helping to lift a case which slipped and crushed his foot.
> Waddell, A. 21 April 1937. Struck on the head and shoulders by a falling basket of coal while working in a ship's hold. Suffered from concussion.
> Bond, A. 23 September 1937. Foot badly bruised when caught beneath a drum of bitumen which was being unloaded.

Injured lumpers were usually eligible for workers' compensation benefits. The first Workers' Compensation Act was passed in 1902 but in 1912 the Scaddon Labor Government amended the Act to provide significantly improved benefits.[83] By 1937 an injured worker got compensation of £2 15s 11d weekly, or about one-half of the estimated weekly earnings of a lumper.[84] Between 1931-35 one lumper employed by the FHT received £257 for various injuries to muscles, knees and elbows. Subsequently, the Trust refused to employ him and four other lumpers who had received large payments for injury.[85] The union also took care of injured members providing financial assistance and regular hospital visits where necessary.

In the late 1930's the WWF embarked on a 'Safety First' campaign to 'put an end to the conditions which are leaving a trail of maimed and

broken men in their wake.'[86] But this appears to have met with little success until war broke out and the situation on the wharves swung from one of labour surplus to labour shortage. We will now examine the course of industrial relations at Fremantle between the turn of the century and 1939.

4. Industrial relations on the waterfront and the struggle for job control

Buoyant conditions caused by the gold rush enabled the FLU to get the hourly rate for day work raised from 1s to 1s 3d in 1896.[87] However, this gain was shortlived as a temporary recession occurred in 1898-99. The West Australian Steamship Owners' Association took advantage of the economic climate to press for reductions in wages and working conditions from the 1 March 1899. In particular, they declared that there was to be freedom of contract on the wharves, that is, there was to be no closed shop; stevedores were to have the right to determine the number of men in each gang; the basic rate of pay was to be reduced to 1s 1 $\frac{1}{2}$ d per hour and other rates reduced as well, and the working day was changed from 8 a.m. to 5 p.m. to 6 a.m. to 6 p.m., a change which effectively led to the loss of three hours of overtime. Not surprisingly, the lumpers rejected these terms and the resultant strike was the longest and most violent in Western Australia's history. It was eventually resolved through arbitration, with the employers gaining most of their objectives, although they agreed to pay the old rate for handling coal. However, by negotiating with the union, which they had previously refused to do, the employers strengthened its position on the waterfront: thus the strike was not a complete defeat for the lumpers.

I.H. Vanden Driesen has argued that the strike had broad historical significance for two reasons. Firstly, the solidarity of the

union membership and the financial support received from other unionists testified to the growing strength of the labour movement. Secondly, the success of arbitration in settling the dispute strengthened community support for arbitration. An Industrial Conciliation and Arbitration Act was passed the following year. However, it proved to be unworkable and was replaced by an Act of 1902. The Fremantle lumpers had registered themselves as early as 1 March 1901.

In 1906 the first industrial agreement under the Act was made between the shipowners and the lumpers. The employers had decided to go to arbitration to get the protection of an award. The lumpers had issued union rules at variance with the existing voluntary agreement (basically an extension of the 1899 settlement). The disputed rules included: no members of the union were to work for more than 24 hours; members must have a 12 hour break after a 24 hour shift; no members to receive any cargo handled by ships' crews; no members who have worked for 8 hours are to work another ship or shed unless other labour is not available.[88] The union also tried to insist on the employment of more men than the employers considered necessary. For example, the union wanted three men to be used to handle cargo direct from ships' slings to railway trucks but the FHT claimed the third man was a hindrance and increased the danger of accidents. In coaling from railway truck to ship the union wanted six men but the employers claimed only four men could work in a truck so the extra two stood idle.[89] The employers insisted on employing the numbers they considered necessary and the 1906 Agreement provided that 'there shall be no Lumpers' Union rules which may conflict with this Agreement or prevent the Employers from utilising the men in their employment as may be required by the work at their disposal.'[90] It set the basic rate of pay at 1s 3d per hour and

overtime at 2s per hour. Special rates of 1s 4d per hour were granted for handling coal and 1s 6d per hour for handling cargo in freezers. Four 'smoke-ohs' in 24 hours were allowed on coal, concentrates and ore, and one 'smoke-oh' on general cargo. The 'smoke-oh' which allowed time off work without loss of pay, appears to have been an Australian innovation.[91] Employers eventually conceded that the men could not be expected to work continuously without a break and that rest periods were productive in the sense that they enabled men to sustain effort for longer periods.

The union rules which prompted the 1906 Agreement are examples of restrictive practices. A restrictive practice may be defined as 'an institutional arrangement requiring the employer to hire more labour than he would have hired in the absence of compulsion, at a given wage rate.'[92] The restrictive practices were basically designed to protect the workers from the deleterious effects of the system of casual employment. Restrictive practices were not confined to Australian ports and Australian workers: an American study found that men would go to extreme lengths to stretch out part-work days into whole work days on the waterfront.[93] After examining restrictive practices in 1914 Justice Higgins concluded that:

> Many of them, which seemed to me to be most arbitrary and unreasonable at first, turn out to be expedients, crude and clumsy, for securing a better distribution of work among the labourers.[94]

The ability of the lumpers to impose restrictive practices depended on two main factors: firstly the extent of union control over the workforce and productive process; secondly, the willingness and ability of employers to resist strikes and stoppages.[95] Although as a result of the 1899 strike the employers were free to employ non-unionists they did so only if union labour was short, giving the FLU effective control of

the workforce. Furthermore, the casual nature of employment meant that a lumper's employer could change from day to day; under these circumstances a lumper tended to owe his first allegiance to his union, rather than to his employer. The situation at Fremantle was complicated by the fact that foremen were also members of the FLU. It was therefore difficult for them to combat labour inefficiency as they were subject to discipline from the men they were meant to supervise! We have already seen that because of differences in their cost structures, overseas shipowners were more willing to make concessions to unions than were coastal shipowners. The desire of shipowners for fast turnround, particularly for mail steamers, led the FHT to complain that 'the slightest delay has generally called forth torrents of abuse, and the necessity for the employment of more labour.'[96] Thus the shipowners themselves sometimes opposed the FHT's efforts to reduce labour requirements. Such conditions provided a favourable environment for the spread of restrictive practices.

The 1902 Agreement was ineffective in checking them. Written and unwritten rules of the union led to disagreements over issues such as manning, sling weights and 'smoke-ohs'. The agreement was renewed in 1910 with only minor changes; however, the following year the union called a stopwork meeting to press for increased rates due to rises in the cost of living. An increase of 20 per cent was achieved by negotiation; the employers appear to have been quite willing to make concessions.[97] In its Annual Report for 1912-13 the FHT observed that the lumpers were working well and hoped that 'the good feeling and mutual forbearance may continue.'[98] In fact industrial relations remained relatively smooth until 1917.

In 1914, prompted by the threat of a national dispute following the breakdown of discussions between the WWF and employers, Mr. Justice Higgins handed down the first national award for the industry. Henceforth rates of pay and working conditions were to be uniform throughout Australia. Higgins set the basic rate at 1s 9d per hour with 2s 7 $\frac{1}{2}$d per hour for all overtime. Rates for special cargoes were 3d per hour extra. However, Fremantle lumpers had previously received a higher rate for overtime beyond midnight and refused to accept less than they were previously paid.[99] In Western Australia Higgin's Award offered no great advantage to the union.[100] Higgins put forward a balance of power argument in an attempt to explain the state of industrial relations in the industry: when there was an excess of labour offering for work bargaining advantage rested with the employer and vice versa when labour was scarce. There was thus a seesaw of power, depending on economic conditions, which both sides exploited: 'The weaker side complains of tyranny; and often becomes a tyrant itself, when occasion offers.'[101]

In 1917, a strike, beginning in New South Wales, and fanned by the workers' dissatisfaction with the war and the increasing cost of living, flared into a nation-wide dispute.[102] On 13 August the lumpers at Fremantle refused to load the _Minderoo_ with flour for export, ostensibly because proper precautions had not been taken to prevent the flour falling into the hands of the enemy. However, the real reason was that the lumpers wanted to support strike action by their counterparts in the eastern states.[103] Prime Minister Hughes was determined to keep the ports open and decided to recruit a national volunteer workforce. The Arbitration Award was amended to give volunteers or National Workers, as they became known, preference of employment over members of

the existing unions. The employers set up Employment Bureaux to ensure that work was allocated to the Nationals. The Fremantle Bureau opened on 24 August but the dispute continued until the 3 October when the FLU announced that its members would return to work the next day.

After the strike the unionists and National worked side by side, with the Nationals getting first preference for any work. In December 1917 a group of Nationals complained to H. Colebatch, the Colonial Secretary, that the best jobs were going to lumpers and that they were suffering from intimidation. It was claimed that 'old lumpers' deliberately dropped coal, bolts and other objects on them when they were working in the holds.[104] Some foremen were accused of sympathizing with the lumpers and working Nationals harder. However, the FHT considered such complaints unjustified. They employed 'old lumpers' 'to stiffen up gangs' as many of the Nationals were inexperienced.[105] Private stevedores appear to have also preferred 'old lumpers' because of their greater experience. In its Annual Report for 1917-18 the FHT declared work was proceeding satisfactorily, 'there being now little beyond small irritations which crop up occasionally, to mar the general harmony which exists between the two bodies of men.'[106] This, however, was a rather sanguine view, and in 1919 the divisions between the lumpers and Nationals flared up again: the result was what The Printing Trades Journal called 'Westralia's Eureka'.[107]

The end of the war saw ex-servicemen and members of the FLU returning to the wharves. These men were guaranteed preference of employment by the government before any one else including Nationals. An outbreak of influenza in January 1919 in the eastern states led the Acting-Premier in the Liberal Government, H. Colebatch, to quarantine all people arriving by land. The rail link with the eastern states was

closed leading to shortages of food in Western Australia. A seamen's strike had cut shipping with the eastern states but in April the <u>Dimboola</u> arrived with urgently needed food supplies; she also had several people with influenza on board. The first attempt to berth the ship succeeded only in alienating public opinion; the lumpers refused to work the ship until the seven days period of quarantine had expired. However, the <u>Dimboola</u> was fumigated at anchor and brought in for unloading by the Nationals. This was prevented by the lumpers who picketed the wharf. The FHT's carpenters, acting under instructions from the Trades Hall, refused to help erect barriers to enclose the wharves and protect the Nationals.

The government was somewhat preoccupied as H. Colebatch had just succeeded Sir Henry Lefroy as Premier. It was hoping that the federal government of Prime Minister Hughes would intervene in the wharf crisis. However, the federal government refused to become involved and on Sunday 4 May Colebatch and a group of volunteer workers proceeded by boat from Perth to Fremantle to unload the <u>Dimboola</u>. As they passed under the bridges at Fremantle they were greeted by a barrage of missiles. When they reached the wharf, armed police on horseback and foot were able to push back the lumpers but one lumper, Thomas Edwards, was severely injured in the fracas. The situation deteriorated rapidly: some shots were fired from the crowd, the Riot Act was read and the police loaded their firearms. Colebatch, alarmed at the way things were developing, called an emergency conference between himself, the Police Commissioner and union officials. It was agreed that the police and volunteers would withdraw. The lumpers had clearly come off best 'and for some days Fremantle continued to bubble over with excitement; successful rioting was a heady diet for the sleepy community

of the West.'[108] The state government appealed for military assistance from the federal government but, once again, the federal government refused to become involved.[109] The dispute was finally resolved on the 7 May when the Nationals agreed to withdraw from the waterfront, partly out of fears for their safety. After some political wrangling the government found the Nationals alternative employment or gave them financial compensation. The government paid 215 Nationals compensation totalling £17,929.[110] 'Westralia's Eureka' was over: the FLU had a monopoly of the supply of wharf labourers at Fremantle. The episode contributed to the downfall of Colebatch, who lasted only one month as Premier.

On 7 May Thomas Edwards died from his injuries received on the wharf. To trade unionists he became a martyr in the fight for worker rights and his funeral was attended by about 7,000 unionists. However, as B.K. De Garis has observed, although the immediate impact of his death was great, he was soon forgotten; the lumpers' victory 'has never assumed the place in the mystique of the trade union movement that contemporary references to 'Westralia's Eureka' attempted to confer upon it.'[111]

In October 1919 the Arbitration Court awarded the lumpers 2s 3d per hour, backdated to May 1919. Overseas shipping interests tried to get the High Court to outlaw backdated increases but it was eventually paid. The FHT complained that the retrospective award cost them £2,000.[112] In 1921 the lumpers were granted an extra 6d per hour and from 1923 quarterly cost of living adjustments. The latter adjustments took the rate to 3s 0 1/2d in 1929; however, following the 10 per cent wage cut it fell to 2s 2d in 1931. Modest increases followed every year thereafter and by 1939 the rate was 2s 10d per hour. Before considering

the impact of these changes on the earnings of lumpers it is, however, necessary to discuss the waterfront strike of 1928.

This was prompted by an award of Justice Beeby handed down in August 1928. Beeby expressed irritation with the WWF:

> There is no escape from the conclusion that the Federation has adopted a policy of definite defiance of this Court. It has always stated its willingness to accept awards, but with the unexpressed reservation that, so far as the community would permit, the collective power of the organisation would be used to extort conditions which the Court had refused or had not been asked to consider.[113]

He was particularly critical of the Fremantle lumpers, who by this time had broken with the Federation. He said he was inclined to let them 'fight out their own battles' as they never abided by awards. Their respective practices had, he agreed, made Fremantle one of the slowest ports in Australia.[114] The employers argued that since the introduction of arbitration in 1914 cargo-handling rates had fallen by 20 per cent. In order to ascertain the true picture Beeby commissioned a report from J.T. Sutcliffe, the Commonwealth Statistician. Sutcliffe found it difficult to obtain adequate information but managed to produce statistics which showed that labour productivity in overseas cargo-handling had fallen by 18 per cent at Melbourne but had risen by 7 per cent at Sydney; in the case of interstate cargo-handling productivity had dropped by about 6 per cent at both ports.[115] FHT records show that the rate for handling general cargo at Fremantle was 12 tons per gang per hour and at Sydney 25 tons per gang per hour, a comparison which suggests that Fremantle was a 'slow' port.[116] But although the 'gang' was the technical unit of production at all ports its size varied from port to port and cargo to cargo, the size depending on the amount of mechanical equipment available, the nature of the cargo and the customs of the port. At Fremantle 12 men were employed on general cargo; at

Sydney 24. Thus after making allowance for the difference in gang sizes it is clear that there was very little difference in labour productivity between the two ports. Sydney had no wharf cranes so it could be argued that the larger gang size counterbalanced greater mechanisation at Fremantle.

Not all delays in cargo-handling and ship turnround could be attributed to the lumpers. Time spent waiting for berths, preparing the ship and extraneous delays including strikes by other unions could all increase turnround times. For example, in 1925 British seamen went on strike while their ships were in Australian ports. In October 1925 alone 35 ships were held up as a result of the strike.[117] The 1920's saw numerous strikes of interstate seamen. Industrial disputes involving both coastal shipping and wharf labour caused an annual average of 400,000 working days to be lost in Australia in the 1920's.[118] These strikes were obviously costly to shipowners but the lumpers were not the only ones responsible.

As a first and last port of call Fremantle suffered from ships topping up their loadings at other ports and through having to cope with poor stowage of cargo to be discharged at Fremantle. Export cargo 'has often to be wriggled into any spaces left in the ship, while all the cream of the stevedoring has been done in the eastern states' ports'.[119] Ships arriving from overseas often had other cargo stowed on top of Fremantle cargo and this all had to be shifted before the Fremantle consignments could be reached. The discharge rate could drop from 12-15 tons per gang per hour to 5-9 tons per gang per hour under these circumstances.

The FHT estimated that 25 per cent of time lost was due to delays in shunting railway trucks; 15 per cent due to restriction of

output by the men or topping up partly loaded ships or breaking into poorly stowed cargo; and 10 per cent due to delays over which they had no control, such as breakages of gear or rain.[120] However, the FLU undoubtedly increased restrictive practices in the 1920's. For example, it insisted that barrowmen handling general cargo were not permitted to assist in unloading their barrows meaning additional men had to be employed for that purpose. Extra men were forced into wheat loading gangs with no increase in output.[121] The union resolved to get the practice of 'Hookey-on' established (the task of simply attaching and removing the crane hook from a sling of cargo) in order to provide work for older lumpers.[122] These, and other practices, increased the costs of cargo-handling. Stevens, Secretary of the FHT, echoed all employers when he wrote that:

> The restrictions placed upon output by the waterside workers have had a most important bearing both on the pace and the cost of the work, and it is a fact that the employers have little success in combating [sic] the continual effort being made by the men to increase their earnings and to spread these increased earnings among a larger and still larger number of men without a commensurate increase in output.[123]

Another problem that concerned shipowners, consignees and port authorities, was the pilfering of cargo. There was a saying on the waterfront that wharf labourers' wages were 'twenty quid a week and half the cargo.'[124] Although clearly an exaggeration, the problem was serious enough for the federal government to appoint a royal commission to inquire into the matter. The Commission, which reported in 1921, found that in the year ending 31 December 1920 pillaging led to the loss of cargo valued at £386,000, of which Fremantle accounted for only £21,760 or six per cent.[125] The Commission concluded that pillaging took place prior to shipment in the country of export, during the voyage, in the hold during discharge, while the goods were on the

wharves or in the sheds and subsequent to delivery from the wharf sheds. It was impossible to say precisely where the bulk of pillaging occurred but 'a large amount of what may be termed scientific thieving of cargo takes place prior to shipment in the country of export, especially in America, where probably gangs of thieves carry on the work as a remunerative business proposition.'[126] Thus not all of the pillaging was done by Australian workers. However, the Commission found that there was no bar to the employment of convicted men on the wharves: the FHT admitted that it might employ convicted men if labour was short.[127] Union officials failed to take effective action to prevent thieving and fines were often paid by collections from unionists. In the five years ended 31 December 1920 there were 778 convictions in Australia for stealing from ships or wharves, of which 406 led to imprisonment. In Western Australia, over the same period, there were 43 convictions, roughly proportional to the value of cargo pillaged in that state.[128]

Special squads of detectives were assigned to the wharves to assist the FHT men and found that 'pillaging does not exist at Fremantle to any extent.' Captain Cleary, who as the Trust's Wharf Manager, was not, perhaps, entirely unbiased, suggested that no port was freer from pilfering than Fremantle.[129] However, it seems reasonable to conclude that Fremantle was relatively free from 'scientific thieving.' The shipowners, however, were determined to combat 'lawlessness' on the waterfront, break union job control, and reduce restrictive practices: the 1928 strike over the Beeby Award provided the opportunity.

The Beeby Award introduced financial penalties for strikes, reduced the overtime rate from 1.5 to 1.25 times the regular day rate and, most irritating of all to the union, introduced a second pick-up

during the working day. The Fremantle lumpers had done away with the second pick-up in 1923. Under this arrangement the men signed on in the morning,and even if the job ended before the end of the day they received the full day's wage. Under Beeby's Award the men had to attend a second pick-up if the job finished before noon. This could mean that men who failed to get jobs at both pick-ups would have had to travel to and from the waterfront twice a day for no wages. The union had argued that with the advent of wireless shipowners could predict arrival times and hence labour requirements more accurately and so one pick-up was sufficient.[130]

The Beeby Award led to a serious nation-wide strike. Volunteer workers were taken on to work the ships under police protection. However at Fremantle no volunteers offered for engagement, possibly a legacy of the events of 1919. In September 1928 the federal government passed the Transport Workers Act or the 'Dog-Collar Act' as it became known. The Act required all wharf labourers to be licensed; the licenses, renewable annually, were issued by employers to 'volunteers' but not to 'undesirables', that is, members of the WWF. The 'Dog Collar Act' was, in effect, a political move against the WWF enforced by government legislation. It ended the union's preferential monopoly of waterfront employment and left it seriously weakened; as a result, strikes and restrictive practices declined during the 1930's.

The 'Dog Collar Act' was never applied to Sydney because members of the WWF had offered for work and its application to Fremantle was withdrawn in December 1929. Although the specific impact of the Act on Fremantle was not great, the threat of its application cast a long shadow over union activities in the 1930's.

Industrial disputes involving coastal shipping and wharf labour accounted for an annual average of 20,000 working days lost in Australia in the 1930's or only about five per cent of the level of the 1920's.[131] An indication of the effect of the reduction in restrictive practices can be obtained by examining labour productivity. Unfortunately, data on pre-war labour productivity are very limited but Table 5.4 illustrates the trend for cargoes discharged at Fremantle. During the 1930's the average for total tonnage was 14.5 tons per gang hour, about 20 per cent above the level in the 1920's. However, productivity appears to have peaked in the early 1930's in the depths of the depression and declined steadily thereafter. As economic conditions improved the lumpers were able to restore some pre-depression work rules and practices. It is apparent that productivity on overseas cargo (as represented by English cargo) was, on average, 25 per cent lower than on interstate cargo. This was due to the problem of 'over-stowing' discussed earlier, but also partly to the greater willingness of overseas shipowners to make concessions in order to ensure speedy turnround.

In 1936 Justice Beeby handed down a new award, which offered some gains to the workforce, including the elimination of the shift system and improvements in overtime payments. But, as we saw earlier, unemployment in Western Australia did not drop below 10 per cent until 1936-37 and even in 1939 it was about 6.5 per cent; the balance of industrial power remained in the employers' favour until the outbreak of the Second World War. By 1944-45, however, under pressure from a strengthened union, and war time conditions, the handling rate for total tonnage had fallen to 10 tons per gang hour.

Table 5.4

Tons Per Gang Hour Discharging at Fremantle, 1932-33 to 1938-39

	Total Tonnage	Interstate	English Cargo
1932-33	16.3	18.0	13.8
1933-34	15.5	17.5	12.0
1934-35	14.9	17.1	11.0
1935-36	14.2	15.5	11.8
1936-37	13.6	14.6	12.0
1937-38	13.6	14.4	11.1
1938-39	13.5	13.9	11.5

Source: FPA New Series 111/1, 'Handling Charges – Annual Costs, General Rebates etc.'

5.   The earnings of Fremantle's lumpers

Because of the casual nature of waterfront employment it is difficult to comment on the earnings experience of the average lumper. In 1913 the FHT had 737 lumpers or over 85 per cent of the members of the FLU on its pay sheets. The FHT paid these men a total of £38,054 or about £51 12s per man. However, this simple average is misleading because Table 5.5 shows that about 60 per cent of lumpers received less than £10 from the Trust. This probably did not represent the full extent of their waterfront earnings as they could have worked for private stevedoring companies during the year. Clearly, the FHT had a core of 'regulars' who were given as much continuity of work as possible. Men known for their experience or reliability were regularly rehired, particularly for key jobs such as winchmen and crane operators.[132] This undoubtedly led to improved efficiency. The 'tail' of the union would be employed only when the port was busy.

The outbreak of the First World War reduced port trade and the demand for labour fell, causing distress for many unionists and their families. In 1914, Stevens, Secretary of the FHT, received the following letter from a lumper's wife:

> The time as come that us wife's as to come forward to ask you to help us to get our husbands work to feed our children be kind enough to ask your foreman to pick up some of the men that has not done much work for a time ... you do not know the state of our homes or you would feel quite sad us women try and do our best and with the help of you you might save a few tears these bad times ...[133]

The wharf manager observed that some of the men he employed 'worked on empty stomachs for the day.'[134]

In 1914 Mr. Justice Higgins declared that the average wharf labourer got 30 hours work per week but acknowledged that 'the estimate of 30 hours of work per week seems to be rather over than under the

Table 5.5

Yearly Earnings of Lumpers
Employed by the Fremantle Harbour Trust in 1913

Yearly Earnings (£'s)				No. of Men
Less than			1	190
1 but less than			10	249
10 "	"	"	50	84
50 "	"	"	100	61
100 "	"	"	130	46
130 "	"	"	150	35
150 "	"	"	170	24
170 "	"	"	200	28
200 "	"	"	220	14
220 "	"	"	230	1
230 "	"	"	240	3
240 "	"	"	250	–
250 "	"	"	260	1
260 or more				1

Total earnings £38,054   Total men   737

Source: FPA 63/10A/3, Digest of Wharf Labourers' Pay Sheets Year 1913.

truth.'[135]   This rough benchmark has been used to produce estimates of real weekly rates of pay between 1923-24 and 1938-39, which are illustrated in Table 5.6.

Table 5.6 shows that the rate of pay was about 80s per week in the 1920's; it fell to 70s per week in 1931-32 and did not regain its pre-depression level until the late 1930's. However, the assumption of a 30 hour working week is particularly questionable for the 1930's. In 1931, 215 members of the FLU averaged only 30 shillings per week.[136] Thus Table 5.6 seriously underestimates the effect of the depression on weekly rates of pay.

In order to ensure a more even distribution of work amongst members of the union, the executive passed rules, 'to curb the ravenous appetities [sic] for work of some of the "stars" who have little consideration for their less favoured comrades.'[137] In August 1930, John Small, one of the "stars" worked continuously from 7 p.m. on the 26th to 6.30 a.m. on the 27th. According to union rules he should have then stood down for eight hours to allow other men a share of the work. However, he attended another pick-up at 1 p.m. on the 27th and earnt 28 shillings on this latter shift. The union fined him 28 shillings and when he refused to pay struck him off the books. In that year the union fined a total of twenty-two men sums ranging from 10 shillings to £2 3s 3d for similar breaches of branch rules. As conditions improved the number of fines dropped. In 1934 only five men were fined, most cases being discharged without a fine.[138]

By 1935, according to union records, average earnings were 77 shillings per week, close to the estimate in Table 5.6.[139] However, this was less than the average male weekly wage in Western Australia of 86s 7d. In 1936 the union claimed it was difficult to get good

Table 5.6

Estimated Weekly Real Rates of Pay for
Western Australia's Waterside Workers, 1923-24 to 1938-39

	(1)	(2)	(3)	(4)	(5)
Year	WEEKLY RATES OF PAY (Shillings) Year End 31st Dec.	Year End 30th June	Retail Price Index 1938-39 = 1000	Real Weekly Rates of pay 1938-39 Prices	Index of Real Weekly Rates of Pay 1923-24 = 100
1923	89				
1924	84	87	1079	81	100
1925	87	86	1099	78	96
1926	89	88	1094	80	99
1927	89	89	1088	82	101
1928	88	89	1093	81	100
1929	91	90	1130	80	99
1930	84	88	1117	79	98
1931	65	75	1031	73	90
1932	69	67	954	70	86
1933	70	70	918	76	94
1934	73	72	918	78	96
1935	74	74	933	79	98
1936	76	75	941	80	99
1937	83	80	974	82	101
1938	84	84	980	86	106
1939	85	85	1000	85	105

Notes and Sources: Hourly wage rates at 31st December were obtained from Commonwealth, Labour Reports. Weekly wages were estimated on the basis of a 30 hour working week and were rounded to the nearest shilling. Earnings were converted to financial years on the assumption that they accrued at a constant rate throughout the year. The retail price index is from G.D. Snooks, Depression and Recovery in Western Australia 1928/29-1938/39, (Nedlands, W.A. 1974), Table A.44, p.176.

attendances at stop-work meetings on Sundays as many members 'cannot buy a decent suit' and would rather not attend than show their poverty.[140] However, as this was used to support a claim for inclusion of stop-working meetings in normal working hours perhaps it should be taken with a grain of salt! By 1939 average earnings, according to union records, were about 93 shillings per week, 8 shillings more than our estimate in Table 5.6.[141] At that time the average weekly wage for males in Western Australia was 100s 6d; this suggests that the relative position of wharf labourers improved slightly in the late 1930's. In fact the Fremantle lumpers warned the WWF against using Fremantle as an example in wage claims as they were 'the best placed port in Australia.'[142] In the eastern states large numbers of workers had flocked to the wharves, depressing average earnings. On an average day in Melbourne in the late 1930's about two-thirds of the workforce was unemployed.[143] Competition for work was so great it was difficult for regular followers of the industry and impossible for casuals to obtain a living wage.[144] The pre-war Australian waterfront was a dismal place, characterised by low wages and poor working conditions.

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As late as 1939, the basic requirements for wharf labourers were 'a mighty arm, a hard muscle, and a large strong back.' Only limited numbers of labour-saving devices such as mobile cranes and electric trucks were used. As long as labour was plentiful the system of casual

employment enabled employers to obtain labour where and when they wanted at least cost. Given the irregular nature of shipping and trade it was more economical to hire casual labour, even at relatively high hourly rates, than use mechanical equipment which could not be discharged when trade was slack. Thus even in a relatively affluent country such as Australia hand technologies persisted in transport well into the 20th century.

The casual system had many serious social and economic repercussions: lumpers frequently found it difficult to obtain a living wage from wharf work; the system bred industrial unrest; restrictive practices were widespread. The latter, designed to provide lumpers with some security of employment through over-manning, spinning out work and similar practices, reduced labour efficiency by about 15 per cent in the 1920's. Managerial resistance to restrictive practices was weakened by the fact that foremen were members of the FLU and thus subject to union discipline. Given the existence of restrictive practices and the unique problems she faced as a first and last port of call, Fremantle acquired the reputation of being a 'slow' port. However, in the case of general cargo, after making allowance for variations in gang size, there was very little difference in labour productivity between Fremantle and Sydney. The combined effect of the 'Dog Collar Act' and depression reduced union job control and restrictive practices in the 1930's but the effect seems to have been more marked in the eastern states than in Fremantle. None of this should obscure the fact that wharf labouring was a physically demanding and hazardous task, at which many failed to gain a living wage. Fremantle's growth as a port owed as much to the muscle power of its lumpers as it did to the enterprise of its managers.

Footnotes

1. E. Corlett, The Ship, The Revolution in Merchant Shipping 1950-1980, (London, 1981), p.9.

2. 'British Economic History and the Question of Work', editorial in History Workshop, Issue 3, (Spring 1977), pp.1-4. See also G. Davidson, 'The Australian Energy System in 1888', Australia 1888, Bulletin No.10 (September 1982), pp.3-37.

3. For a survey of research in maritime history see R. Davis, 'Maritime History: Progress and Problems', in S. Marriner (ed.), Business and Businessmen. Studies in Business, Economic and Accounting History, (Liverpool, 1978), pp.169-97.

4. S. Macintyre, Militant. The Life and Times of Paddy Troy, (Sydney, 1984), pp.66-8.

5. Ibid., p.69.

6. The Macquarie Dictionary defines lumper as a colloqial expression for wharf labourers. According to the Oxford English Dictionary, lumpers were people who contracted to unload ships; the earliest reference to the term appeared in 1785.

7. Macintyre, op.cit., ch.5 passim. The following details about the CDRHWU are from this source.

8. See C. Kerr and A. Siegal, 'The Interindustry Propensity to Strike - An International Comparison', in A. Kornhauser, R. Dubin and A. Ross (eds.), Industrial Conflict, (New York, 1954); and W. Mitchell, 'Home Life at the Hungry Mile: Sydney Wharf Labourers and their Families, 1900-1914', Labour History, No.33 (1977), pp.86-97.

9. W. Lowenstein and T. Hills, Under the Hook. Melbourne Waterside Workers Remember: 1900-1980, (Prahran, Victoria, 1982), p.6.

10. I.H. Vanden Driesen, 'The Evolution of the Trade Union Movement in Western Australia', in C.T. Stannage (ed.), A New History of Western Australia, (Nedlands, W.A., 1981), p.355.

11. Australian National University Archives, Waterside Workers' Federation (WWF), Federal Deposit, T62/39, Membership Books - Western Australian Branches, 1902-1948.

12. Ibid., Fremantle Branch Records, N28/303, lists of members, 1935-1950.

13. Ibid., N28/206, transcript of evidence by O.W.T. Cook, Vigelante Officer, before Justice Beeby, 11 March 1936.

14. Ibid., N28/2, minutes, 11 May 1903 and 6 November 1910.

15.   Ibid., Federal Deposit, Z55 Box 43, J. Healy, 'Brief History of
       the Australian Waterfront and the Waterside Workers' Union',
       typescript dated 1954.

16.   Ibid., Fremantle Branch Records, N28/7, minutes, 22 March 1925.

17.   Ibid., Federal Deposit, T62/11/6, letter from Mr. Turley,
       General Secretary of WWF to Mr. Fox, Secretary of FLU, 21
       August 1930.

18.   Ibid., Fox to Turley, 24 January 1931.

19.   Ibid., Fox to Turley, 29 April 1931.

20.   Ibid., Fox to Turley, 3 November 1931.

21.   Ibid., Turley to Fox, 2 March 1933.

22.   Ibid., Turley to Fox, 26 March 1934 and Fox to Turley, 22
       January 1935.   The   tone   of   this   correspondence   was
       distinctly frosty.

23.   Ibid., Z55 Box 43, Healy, 'Brief History ...'.

24.   Ibid., Fremantle Branch Records, N28/9, minutes, 23 July 1932.

25.   Ibid., Federal Deposit, T62/11/62, Fox to Turley, 16 May 1933.

26.   Ibid., letter from Mr. Rowe, Secretary of the FLU to Mr. Morris,
       General Secretary of the WWF, 26 August 1925; Turley to Mr.
       Thornett, Secretary of the FLU, 26 October 1935.

27.   Ibid., Z55 Box 43, Higgins cited in 'History of Stevedoring in
       Australia as Disclosed in Reports of Industrial Tribunals,
       Royal Commissions etc.', undated typescript.

28.   Ibid., T62/11/6, Turley to Fox, 26 March 1934.

29.   Ibid., Fremantle Branch Records, N28/206, 'Court Judgements
       1936', transcripts of evidence, pp.614-5.

30.   Ibid., N28/9, minutes, 22 March 1936.

31.   Ibid., Federal Deposit, T62/22/6, Healy to Thornett, 20
       September 1938.

32   FPA 20/35/1, 'Port Facilities and Charges at Fremantle', report
       by Department of Overseas Trade, London, 7 March 1934.

33.   K.F. Walker, Industrial Relations in Australia, (Cambridge,
       Mass., 1956), pp.278-9.

34.   J. Bach, A Maritime History of Australia, (Melbourne, 1976),
       p.301.

35.   FPA 20/29/1, letter from FHT to Cairns Tableland Publicity Association, 10 April 1929.

36.   Ibid., 20/35/1, 'Port Facilities ...'.

37.   However, before the Second World War the Orient Line was the only overseas company known to have an interest in an Australian stevedoring company. See K. Burley, British Shipping and Australia 1920-1939, (Cambridge, 1968), p.208.

38.   Report of the Committee of Inquiry into the Stevedoring Industry, (Chairman J.B.Tait), (Canberra, 1957), pp.28-9.

39.   Ibid., Part VII, passim.

40.   H.F. Cornick, Dock and Harbour Engineering, 4 vols., (London, 1958-62), vol.3, (1960), p.184.

41.   See E.S. Tooth, 'The Ship's Gear and Quay Cranes Controversy', The Dock and Harbour Authority, vol.39, (1958), pp.77-80.

42.   Burley, op.cit., p.199.

43.   Bach, op.cit., p.345.

44.   Sir George Buchanan, Report on Transport in Australia with Special Reference to Port and Harbour Facilities, 2 vols., (Canberra, 1927), vol.1, p.147.

45.   FPA 20/29/1, letter from Secretary of FHT to Secretary, Commonwealth Transport Committee, Sydney, 18 April 1929.

46.   F.W.B. Stevens, 'The History of the Fremantle Harbour', in J.K. Hitchcock, The History of Fremantle. The Front Gate of Australia, (Fremantle, 1929), p.146.

47.   See Cornick, op.cit., for a detailed survey of cargo-handling methods.

48.   The development of bulk handling will be considered more fully in Chapter 6.

49.   WWF Federal Deposit, T62/52/33, transcript of evidence by WWF before Justice Beeby, 12-16 March 1928, pp.408-10.

50.   H.Jerome, Mechanisation in Industry, (New York, 1934), p.154.

51.   R.B. Oram and C. Baker, The Efficient Port, (London, 1971), p.84.

52.   Commonwealth Arbitration Reports, vol.26 (1928), p.881.

53.   Corlett, op.cit., p.9.

54.   Burley, op.cit., pp.197-215.

55. K.E. Booth and C.G. Chantrill, _Materials Handling with Industrial Trucks_, (London, 1962), p.2.

56. FHT, _Annual Report_, 1926-27, p.15.

57. _Commonwealth Arbitration Reports_, op.cit., p.881.

58. G.H. Roe, 'Mechanical Cargo-Handling', _Dock and Harbour Authority_, vol.2 (1921-22), p.206.

59. 'Mobile Cranes: Various Types and Their Uses', _Dock and Harbour Authority_, vol.14 (1933-34), p.370.

60. This generalisation is based on an inspection of the Annual Reports of the Sydney, Melbourne and Fremantle port authorities.

61. Jerome, op.cit., p.275.

62. See M. Tull, 'American Technology and the Mechanisation of Australian Ports 1942 to 1958', _Journal of Transport History_, (forthcoming).

63. _Report of the Committee of Inquiry into the Stevedoring Industry_, op.cit., p.111. If indirect costs, such as attendance money, were included labour costs accounted for 80 per cent of total costs. But these indirect costs did not apply in our period.

64. _Ibid._, Part VII.

65. H.M. Levinson (ed.), _Collective Bargaining and Technological Change in American Transportation_, (Illinois, 1971), p.275.

66. Jerome, op.cit., p.330, footnote 2.

67. FPA 105/26/2-3, 'The Port of Fremantle in Comparison with the Ports of Adelaide, Melbourne, and Sydney', report by Stevens and Commissioner J. Taylor, 1 March 1926.

68. See Jerome, op.cit., p.356 and P.N. Stearns, _Lives of Labour_, (London, 1975), p.126.

69. WWF Federal Deposit, T62/57/3, International Transport Workers' Federation, _Protective Measures and Regulations for Port Labour_, (Amsterdam, 1927), p.3.

70. Australian Archives (AA): Department of External Affairs, CRS A981 Correspondence files, alphabetical series, 1925-1942; ILO 175 Protection against accidents of workers engaged in loading and unloading ships.

71. _Ibid._

72. WWF Federal Deposit, T62/52/33, transcript of evidence before Justice Beeby, 23 August 1928, p.714.

73. John Morrison in his story <u>All Through the Night</u>, cited in Lowenstein and Hills, <u>op.cit.</u>, p.164.

74. W.J. Mitchell, 'Wharf Labourers, their Unionism and Leadership 1872-1916', (Ph.D. thesis, university of New South Wales, 1973), pp.191-2.

75. WWF Federal Deposit, T62/11/6, letter from Secretary of FLU to General Secretary, WWF 21 July 1928.

76. M. Perlman, <u>Judges in Industry</u>, (Carlton, Vic., 1954), p.137.

77. Cited by V. Williams, in <u>The Years of Big Jim</u>, (Perth, 1975), p.31.

78. Dr. R. Macqueen, 'Report on the Medical Examination of Sydney Waterside Workers with Disability Cards', typescript in National Library dated 1943.

79. WWF Federal Deposit, T62/57/1, 'Accident Figures for New South Wales 1937-38. Analysed for Federal Council by P. Callahan', undated typescript.

80. Calculated from data in B. Pope, 'Blood on the Coal, A Study of Work Related Injuries in the Collie Mines, 1920-1925', unpublished paper submitted as part of the requirements for history honours at Murdoch University 1982. For data on the timber industry see Department of Labour, <u>Annual Reports</u>, 1928-29 onwards.

81. Data from Western Australia, <u>Statistical Registers</u>.

82. This conclusion is based on a detailed reading of the lumpers' accident records. See WWF Fremantle Branch Records, N28/318, Accident Record Book.

83. For details of the legislation see E. Russell, <u>A History of the Law in Western Australia and its Development from 1829 to 1979</u>, (Nedlands, W.A., 1980), p.242.

84. WWF N28/318, Accident Record Book.

85. FPA, New Series, 1/1, memo from Manager of Wharf Operations to Secretary of FHT, 19 October 1936.

86. WWF Federal Deposit, T62/57/1, 'Accident figures for New South Wales...'. In January 1940 there was a conference convened by the Minister of Labour and Industry to consider WWF requests for improved regulations of working conditions.

87. This section on the 1899 strike and its background draws heavily on I.A. Vanden Driesen, 'Confrontation and Reconciliation on the Waterfront: The Fremantle Lumpers' Strike - 1899', <u>Labour History</u>, No.40 (May 1981), pp.29-48.

88.   FPA 63/07/1, 'Private notes for members attending conference with delegates from Fremantle Lumpers' Union...', 11 October 1905.

89.   Ibid., undated memo from Thos. Fox, Foreman to the Wharf Manager.

90.   Ibid., 63/07/4, copy of Industrial Agreement dated 20 December 1906.

91.   WWF Federal Deposit, Z55 Box 43, 'History of Stevedoring in Australia...', op.cit., p.6, citing Justice Higgins.

92.   P.T. Hartman, Collective Bargaining and Productivity, (California, 1969), p.42.

93.   S.B. Mathewson, Restriction of Output among Unorganized Workers, (New York, 1931), pp.88-9.

94.   Commonwealth Arbitration Reports, vol.8 (1914), p.76.

95.   E.Mansfield, The Economics of Technological Change, (London, 1969), pp.153-4.

96.   FPA 63/07/2, internal memo from Wharf Manager to Secretary, 26 July 1906.

97.   Ibid., 63/10B/1, minutes of meeting of representatives of the Employers of Maritime Labour, 11 November 1910; minutes of conference between Maritime Employers and Representatives of FLU, 21 November 1910.

98.   FHT, Annual Report, 1912-13, p.7.

99.   Ibid., 1915-16, p.11.

100.   WWF Fremantle Branch Records, N28/5, minutes, 26 April 1916.

101.   Commonwealth Arbitration Reports, vol.8 (1914), p.76.

102.   See P. Hopper, 'The 1919 Fremantle Lumpers' Strike', (Honours Dissertation, University of Western Australia, 1975).

103.   AA: Prime Minister's Department, CRS A1606, Correspondence files, secret and confidential series, third system, 1926-1939; B26/1 Fremantle Volunteer Wharf Labourers - Question of Compensation, 1919.

104.   FPA 126/17/2, letter from Colonial Secretary H. Colebatch to FHT, 14 December 1917.

105.   Ibid., internal memo from Captain Cleary, Wharf Manager to Secretary, 20 December 1917.

106.   FHT, Annual Report, 1917-18, p.14.

107. This account of the 1919 strike draws on B.K. de Garis 'An Incident at Fremantle', Labour History May, (1966), pp.31-7.

108. Ibid., p.35.

109. AA: CRS A1606, 1926-1939; B26/1, op.cit.

110. Ibid.

111. De Garis, op.cit., p.37.

112. FHT Annual Report, 1919-20, p.13.

113. WWF Federal Deposit, Z55 Box 43, 'History of Stevedoring in Australia...', op.cit., p.33.

114. Ibid., Fremantle Branch Records, N28/206, transcripts of evidence March 1936, pp.430-1 and p.615.

115. Commonwealth Arbitration Reports, vol.26 (1928), pp.878-880.

116. FHT, Annual Report, 1927-28, pp.10-11.

117. Burley, op.cit., p.212.

118. Ibid.

119. FPA 106/25/1, internal memo on cargo-handling by F. Stevens, 24 August 1925.

120. Ibid.

121. FHT Annual Report, 1924-25, p.10.

122. WWF Fremantle Branch Records, N28/7, minutes, 13 October 1924.

123. FPA 106/25/1, internal memo on cargo-handling, op.cit.

124. Lowenstein and Hills, op.cit., p.16.

125. Report of Royal Commission into Pillaging of Ship's Cargoes, (Canberra, 1921).

126. Ibid., p.24.

127. Ibid., p.16.

128. Ibid., p.24.

129. W.A. L.A. P.D., vol.XLIII (1912), p.1921.

130. WWF Fremantle Branch Records, N28/228, memo on shift work, 2 July 1935.

131. Burley, op.cit., p.212.

132. FPA 63/10B/4, internal memo from Mr. Stratford, Wharf Manager to Secretary, 18 February 1910.

133. Ibid., 63/14, unsigned letter to Stevens, Secretary of FHT, from a lumper's wife, 9 November 1914.

134. Ibid., internal memo from Captain Clark to Stevens, 10 January 1914.

135. Commonwealth Arbitration Reports, vol.8 (1914), p.76.

136. WWF Federal Deposit, T62/11/6, letter from Secretary of FLU to General Secretary of WWF, 24 November 1931.

137. Ibid., Secretary of FLU to General Secretary of WWF, 1 April 1930.

138. Ibid., Fremantle Branch Records, N28/142, Fines Receipt Book, 13 January 1924 - 5 May 1934.

139. Ibid., N28/206, transcript of evidence before Justice Beeby op.cit., pp.517-9.

140. Ibid., p.624.

141. Ibid., Federal Deposit, T62/11/6, letter from Mr. Cook of FLU to Mr. Healy, General Secretary of WWF, undated but circa March 1939.

142. Ibid.

143. In 1937-38 daily employment averaged 1,948; at December 1938 5,730 workers were licensed to work on the waterfront, so on an average day only a third of the workforce would have been employed. Statistics from Burley, op.cit., p.210.

144. WWF Federal Deposit, E171/39, 'Report into Conditions on the Waterfront at the Principal Ports of the Commonwealth', 1939, a Report to the Attorney-General by the Hon. J.N. Lawson, Minister for Trade and Customs.

CHAPTER 6

The Development of Port Facilities at Fremantle
1903 to 1939

In Chapters 3 and 4 we examined the growth and changing composition of port activity at Fremantle between 1903-04 and 1938-39. The volume of trade grew from 692,000 to 1.8 million tons; shipping tonnage increased from 1.4 million tons to 4 million tons; passenger movements dropped from about 46,000 to less than 28,000 per annum. Fremantle was called on to make provision for a wide range of cargoes and ship types. Mail steamers and passenger liners in particular placed heavy demands on the port for increased depths and rapid turnround. The objective of this chapter is to trace the physical evolution of the port in response to these demands.

The 'physical' changes to the port were the outcome of a complex process of decision-making and adjustment in which a large number of actors played a part, amongst whom the most important were the Fremantle Harbour Trust (FHT), government, shipowners and consignees. Moreover, in Western Australia's small community the port served as a visible symbol of progress, and plans for port development were a matter of widespread public discussion and debate. During our period a number of 'battles' occurred over the appropriate port facilities and their locations - 'battles' which even a succession of 'expert' reports failed to completely resolve. As we will see, Fremantle's development (or non-development) in consequence was not merely a mechanical response to trends in trade and shipping; it was the result of a complex interaction between a multitude of social, political and economic influences. We commence with a schematic, bird's-eye view of the physical growth of

Fremantle, based on J. Bird's 'Anyport' model. This is followed by a brief discussion of the advantages and (limited) disadvantages of C.Y. O'Connor's port. We next chart the major endeavours to make Fremantle a 'first class port': the provision of increased depth of water; the ill-fated dock; the battle of the plans in the 1920's; the development of bulk grain handling in the 1930's. But despite the plans and schemes for port development the lay-out of the port had changed little by 1939: a remarkable testimony to the soundness of C.Y. O'Connor's work.

1.   An overview of port development

In order to provide a preliminary overview of Fremantle's physical growth and to place it in a broader perspective, it is useful to consider J. Bird's 'Anyport' model of seaport development. Bird argues that all major ports experience similar stages or eras of physical development because they exist to serve essentially the same world shipping fleets.[1] Bird suggests that there are six eras of port development, although he stresses that the eras are not clear-cut as installations from earlier eras can continue in use. The 'Anyport' model was based on the experience of British ports and, of course, there is no guarantee that all Australian ports followed a similar sequence of development. Table 6.1 shows how Fremantle fits into the 'Anyport' model.

The first or primitive era of port development began in 1829 with the foundation of the colony of Western Australia by Captain James Stirling. The second era of marginal quay extension did not occur at Fremantle but the third era of marginal quay elaboration began with the construction of a small jetty near Arthur's Head in 1832. The fourth era, of dock elaboration, was not necessary at Fremantle owing to the

Table 6.1

Eras in the Development of Fremantle

Era	General characteristics of each era	Evidence for each era at Fremantle
1. Primitive	Establishment of port on an estuary. The port develops lineally along the water-front, with storage and handling facilities being established.	Ships anchored in Gage Roads with lighterage.
2. Marginal quay extension	The lineal development of the port begins to outstrip the areal growth of the town.	Nil.
3. Marginal quay elaboration	The construction of jetties and hithes (cuts in the river bank) which increase port capacity without greatly increasing the area of the port.	Jetties provided from Fremantle shoreline, with lighterage continuing for larger vessels.
4. Dock elaboration	The opening of wet docks.	Nil.
5. Simple lineal quayage	Over 1,500 ft. of uninterupted quayage, with 26ft of water minimum alongside.	Commenced with opening of Inner Harbour 1897.
6. Specialized quayage	Provision for large scale industry and bulk cargoes, with deep water.	Commenced with provision of deep water access to Outer Harbour in 1955.

Source: J. Bird, Seaport Gateways of Australia , (London, 1968), pp. 6-12; p.96.

small range of tides (two feet nine inches at ordinary spring tides). The fifth era of simple lineal quayage commenced with the opening of the Inner Harbour in 1897. The latter development, which was discussed in more detail in Chapter 2, was conceived, designed and mainly carried out by C.Y. O'Connor. It involved the removal of the rock bar at the mouth of the Swan River, the building of two moles at the mouth, dredging the harbour to 30 feet below low water mark, building about 7,000 lineal feet of timber wharves and equipping them with sheds and cargo-handling appliances.

Fremantle's wharves were of the marginal type (constructed along the shoreline) rather than the finger piers (built at right angles to the shore) found in most other Australian ports. The latter had only a narrow opening providing access to the shore; they provided a maximum number of berths for a given length of foreshore and were adequate for cargoes and vehicles using ports in the early years of the 20th century. But as trade and motor traffic increased, the narrow approach ways became bottlenecks and traffic was forced to queue in order to get access to the wharves. This problem led eventually to the adoption of marginal wharves. It says much for O'Connor's foresight that, in the 1890's, he chose this type of wharf for Fremantle. Fremantle was the first Australian port to enter Bird's era of simple lineal quayage: Melbourne and Sydney, for example, did not enter this era until 1917 and 1929 respectively.[2]

The success of C.Y. O'Connor's scheme is underlined by the fact that Fremantle's physical lay-out remained basically unchanged throughout the first half of the 20th century (See Figure 6.1). The southern quay of the harbour, Victoria Quay, had a length of 5,055 feet and was used mainly for mail steamers and general cargo traffic. Work on North Quay commenced in 1901 and by 1903 it had reached about 2,000 feet in length. The completion of North Quay in 1916 brought the total length of wharfage in the harbour to 9,875 feet. North Quay was used mainly for the handling of grain exports and bulk cargoes. The total length of wharfage remained about 10,000 feet until 1938 when it was extended slightly to 10,177 feet. Therefore between 1903 and 1939 the length of wharfage grew by about 44 per cent; over the same period cargo traffic grew by over 150 per cent. At first sight these statistics imply that port capacity was outstripped by the demands of trade. But length of berthage alone is not a reliable guide to the port's capacity to efficiently service the needs of port users.

A rough guide to the physical adequacy of port capacity can be obtained from Table 6.2 which shows the tons of cargo handled per lineal yard of quay between 1903-04 and 1938-39.

Prior to the First World War European ports averaged 600 tons per yard of quay per annum but Fremantle averaged only 270 tons.[3] However, this was not mainly because Fremantle was an inefficient port; rather, it indicates the presence of substantial excess capacity. Fremantle was a port of call rather than a terminal port and average cargo loaded and discharged per vessel was low, making it difficult to

Figure 6.1

The Port of Fremantle and the Swan River

N

Indian Ocean

Freshwater
Bay

Butler's
Hump

Point Walter

Blackwall Reach

Rocky
Bay

Preston
Point

Swan River

Road Bridge

Rail Bridge

Inner Harbour

Rous Head

North Breakwater

Arthur's Head

South Breakwater
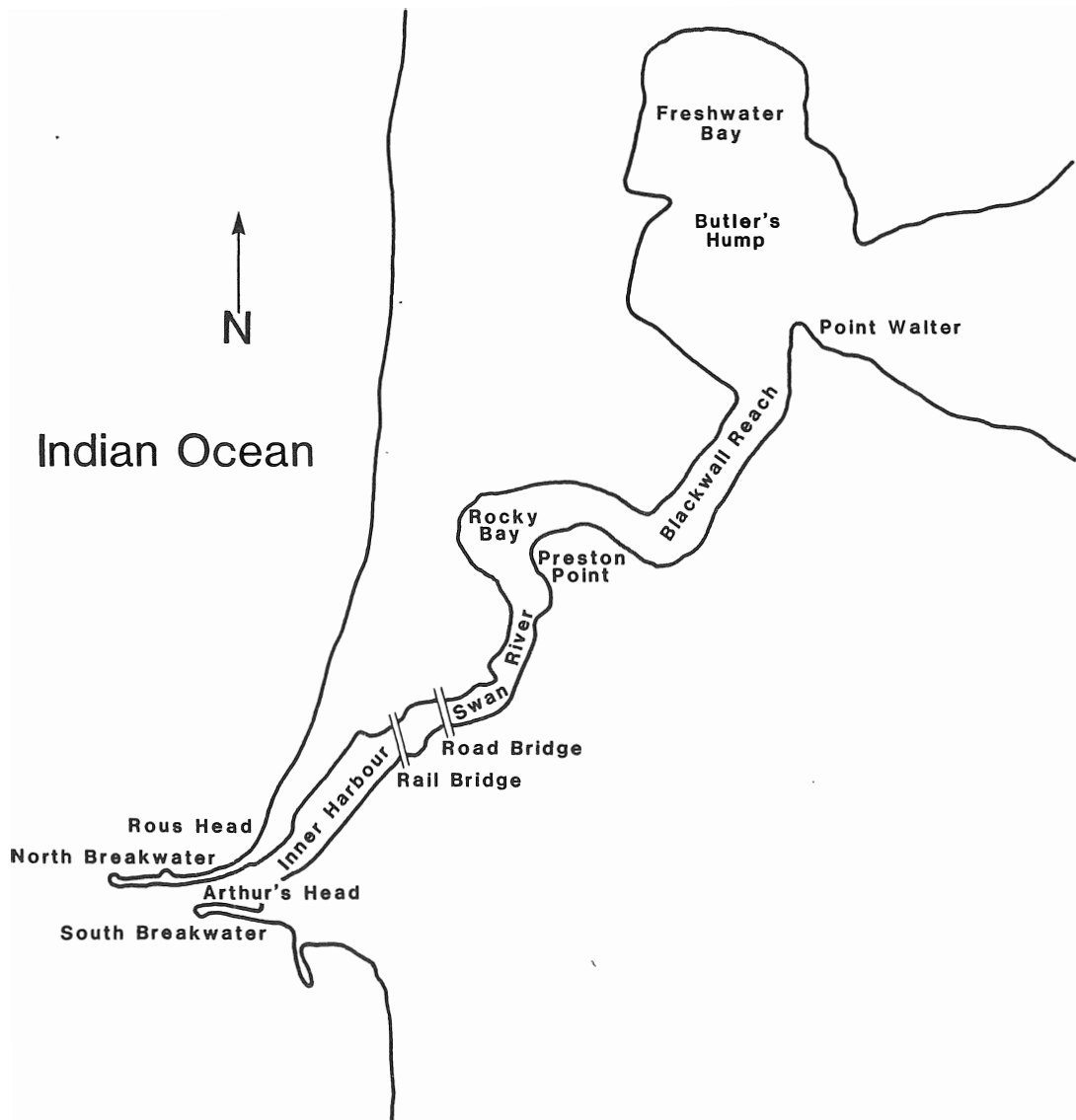
Scale: ½ mile to an inch.

Source: Adapted from F.W. Tydeman, Report
on Port of Fremantle, 3 vols. (Perth,
1949), vol.3. Appendix 1.

Table 6.2

Cargo Tonnage Handled Per Yard of Quay,
1903-04 to 1938-39

Year	Tons per yard of quay	Year	Tons per yard of quay
1903-04	296	1921-22	246
1904-05	322	1922-23	213
1905-06	270	1923-24	276
1906-07	244	1924-25	341
1907-08	237	1925-26	379
1908-09	201	1926-27	462
1909-10	239	1927-28	501
1910-11	297	1928-29	545
1911-12	291	1929-30	541
1912-13	325	1930-31	510
1913-14	347	1931-32	482
1914-15	253	1932-33	493
1915-16	238	1933-34	431
1916-17	238	1934-35	486
1917-18	149	1935-36	460
1918-19	174	1936-37	475
1919-20	256	1937-38	508
1920-21	250	1938-39	518

Sources: Report on Fremantle Harbour and Cross River Communications by the Engineer-in-Chief, (Perth, 1927), p.8; Battye Library, Perth, Public Works Department Archives Deposit, 460/30, memo from Mr. Stileman, Engineer-in-Chief, to Under-Secretary for Public Works, 7 March 1930; FHT, Annual Reports.

achieve a high tonnage of cargo per yard of quay. Even so, Fremantle's performance was not radically different from that of other Australian ports such as Melbourne and Sydney.[4]

In 1927, Stileman, the Engineer-in-Chief, suggested that 500 tons per yard of quay was a reasonable target for Fremantle.[5] According to this benchmark, by the late 1920's the port was operating close to its maximum sustainable capacity. The depression led to reduced trade levels and consequently pressure on port facilities was also reduced, increasing again only in the late 1930's. Improvements in port organisation and the introduction of mechanical cargo-handling equipment enabled the Inner Harbour to adequately serve the needs of port users until the 1950's when a new era of specialised quayage and Outer Harbour development began.

2.   Some advantages and disadvantages of C.Y. O'Connor's port

A sound physical infrastructure was not Fremantle's only asset: she had only a minimal tidal range removing the need for expensive wet-docks; the port was free of strong currents and serious wind, fog and other weather problems; and only minimal maintenance dredging was required to maintain channel depths. As we saw in Chapter 3, these advantages, combined with her geographical position and favourable railway connections, helped her become Western Australia's 'premier' port.

Did C.Y. O'Connor's port have any disadvantages? One problem was that the harbour bottom consisted of mixtures of sand, clay and calcareous sandstone. This type of bottom made the construction of concrete wharf walls extremely costly. Thus Fremantle's original wharves were built on less durable timber piles. These were subjected

to the ravages of seaworms (Teredo Navalis) which can make themselves felt in jarrah piles within eight weeks.[6] Fremantle's wharves had a life of only 10 to 15 years and by 1911 some parts of Victoria Quay had collapsed, threatening to topple cranes into the water.[7] The FHT was forced to undertake renovations which cost £65,725 up to 1911-12. The FHT wanted to use concrete piles but was pressured by the government to continue using jarrah piles in order to protect the local timber industry.[8] They were eventually allowed to encase the piles in ferro-concrete sleeves as a preventive measure. In 1923 it was again necessary to begin replacing the timber quays; the work was completed at South Quay in 1938 and at North Quay in 1943. The harbour bottom was also to pose massive obstacles to the construction of a dry-dock, an issue we consider in detail later in the chapter.

Problems caused by the harbour bottom were, however, less serious in the long run than those posed by the presence of road and rail bridges upstream of the port site. Captain Stirling's decision to place the capital Perth and the Port, Fremantle, on opposite banks of the Swan River, meant that cross-river communications were essential. As we will see later in the chapter numerous plans for up-river development of the port were made but they all foundered on the difficulty and cost of bridge re-location. In fact the bridges proved a more formidable constraint on Inner Harbour development than did the rock bar in the 19th century. Therefore, port development was not simply a passive response to externally imposed changes in trade and shipping technology; it was shaped by a complex interaction between forces originating from within as well as outside Western Australia.

The relationship between Fremantle's development and shipping technology was, in fact, something of a 'chicken and egg' conundrum.[9] One might have expected the port to dominate the relationship because it required investment in long lasting infrastructure while ships, with a life span of 20 to 30 years, were relatively short term investments. So ships would tend to adapt to existing facilities at Fremantle and other Australian ports. However, in the long run, it was the ports which adapted to demands generated by shipping companies and port users. Although assured of a captive market for a large proportion of Western Australia's trade, the FHT did not exploit its monopoly power and disregard the needs of port users. Support for harbour deepening and a dry-dock was, as we will see, based largely on the notion that such facilities were part of the equipment of a 'first class port'. It was recognised that 'port facilities must therefore be kept not only abreast but rather in advance of average requirements; otherwise serious congestion and economic waste will be inevitable'.[10] However, although the FHT claimed that they endeavoured to make maximum use of existing facilities before planning costly extensions, there was, as we will see, a tendency to plan far in excess of demand and disregard financial criteria. In this respect, ports were no different from other public enterprises in the early years of this century.[11]

3. The deepening of the Inner Harbour

Between 1903-04 and 1913-14 the tonnage of cargo grew by about 50 per cent to 1,044,000 tons; over the same period the net tonnage of shipping grew by about 80 per cent to 2.6 million tons. This expansion put pressure on port facilities: as Table 6.2 shows, cargo tonnage handled per lineal yard of quay grew to a record 347 tons by 1913-14.

In July 1912, Stevens, Secretary of the FHT, had expressed concern that 'already the harbour accommodation was not coping with the trade of the port'.[12] Stevens feared that there was no margin at all to work on and if an upset, such as a strike occurred, congestion was inevitable. Ships were often forced to queue in Gage Roads while they waited for a berth.[13] However, it was the tendency towards larger ships rather than increasing numbers of ships, which posed the major problems for the port.

The average ship calling in 1913-14 was a 3,000 tonner, compared to only 1,800 tons in 1903-04. But, as we saw in Chapter 4, the port needed, on occasion, to cope with much larger vessels, usually mail steamers or passenger liners. By the mid-1920's ships of 10,000 tons and over accounted for about 20 per cent of port entries.[14] Such vessels required deep-water berths and rapid cargo-handling and could not be catered for by simply adding to wharf footage.

The interest in harbour expansion was increased by the decision of the Commonwealth in 1911 to establish a naval base at Cockburn Sound south of Fremantle. Stevens was later to describe Cockburn Sound as 'a magnificent sheet of deep water, measuring eight miles long by four miles wide, all entirely protected from ocean influence'.[15] The federal government acquired a strip of land along the edge of the Sound but it remained undeveloped when plans for the naval base were dropped in 1918. However, in a speech in February 1912, Mr. G.F. Pearce, Commonwealth Minister for Defence, predicted commercial as well as naval development of Cockburn Sound. He also raised the possibility of Fremantle being 'the port of the great Australian continent and not of a State'.16 The possibility of Fremantle being a port of call for giant

steamers, from which cargo and passengers would be trans-shipped by smaller vessels or (after the opening of the Trans-Continental Railway in 1917) by rail to the eastern states, was a tantalizing prospect, periodically surfacing throughout the port's history, but, unlike the idea of an outer-harbour, never reaching fruition.

The development of a commercial outer-harbour was supported by Mr. Fanstone, Director of Naval Works, in March 1912. He argued that up-river development would involve pulling down the road and rail bridges, resuming urban land and extensive dredging - all very costly. In his view Cockburn Sound offered 'the only adequate means of supplying the necessary deep-sea shipping accommodation'.[17] Sir John Forrest criticised Fanstone for trying 'to ram down their throats his opinions about a commercial harbour'.[18] The FHT strongly favoured up-river expansion which offered sufficient space 'to take all the shipping of Australia for all time with ease and in perfect safety'.[19] Stevens, who had worked as C.Y. O'Connor's secretary before he came to the FHT, argued that the founder of the harbour had always favoured up-river expansion.[20] Moreover, the development of the outer-harbour would lead to 'the sacrifice of valuable vested interests and the building of an entirely new town at Cockburn Sound, the wiping out of existence of the present Swan River lighterage trade and the certain imposition of increased charges both on ships and goods'.[21] Commercial interests generally favoured up-river expansion. The Perth Chamber of Commerce suggested that the Cockburn Sound proposal was merely a ploy 'to lure the State into bearing some of the cost of their [the Commonwealth's] naval harbour'.[22] However, there was some opposition on environmental grounds to bringing ocean shipping up-river:

> The city does not want it; the country, as much interested
> as the port or capital, would refuse assent to a scheme
> that would turn the waters of the banks into a wilderness
> of dingy wharves and factories, with perpetual volumes of
> smoke from shipping driving over the city.[23]

Nevertheless, the final decision was for up-river expansion: development of the Outer Harbour had to wait until the 1950's. As we will see, the use of the ill-fated dock wall provided two new berths and temporarily eased the pressure on the port as far as berth footage was concerned. But the deepening of the harbour proved a more time consuming and costly undertaking.

Prior to the First World War, the deepest draft vessel to visit Fremantle was the Scottish Shire Line's Argyllshire of 10,500 tons. She entered in April 1912 drawing 29 feet 5 inches and, after taking on 500 tons of bunker coal, left drawing 30 feet one and a half inches. But several months later the Trust was alarmed when the Blue Funnel Line's steamer Nestor of about 15,000 tons and drawing 31 feet was diverted from Fremantle to Albany, ostensibly because of a lack of adequate deep-water berths at Fremantle.[24] News of plans for deepening of the Suez Canal confirmed the FHT's fears that vessels drawing 33-35 feet would soon become frequent visitors to Fremantle. In 1913 the FHT pressed the government to deepen the port to 36 feet, stressing that 'they do not intend to shoulder the blame for inadequacy in an important national institution like Fremantle Harbour'.[25] In 1914 the Royal Commission on the Dominions urged Australian authorities to consider deepening their harbours and suggested that 'a first class harbour should provide a working depth of not less than 40 feet'.[26] This may have had some influence on the government, because in 1916 it agreed to deepen the harbour to 36 feet. But the FHT was provided with such a meagre trickle

of loan funds that work proceeded very slowly. By 1923-24 dredging of the entrance channel and about five-sixths of the Inner Harbour was finished; the work was finally completed several years later. But the outbreak of the First World War had caused a dramatic slump in trade and shipping: by 1917-18 shipping tonnage had plummeted by 60 per cent. In 1915-16 a record wheat crop had piled up on the wharves, owing to the scarcity of shipping. There was clearly no urgency for port expansion.

The deepening of the harbour left an enduring legacy: it almost doubled the capital cost of the port.[27] In 1927, Mr. Stileman, the Engineer-in-Chief, argued that the deepening was unnecessary: 32 feet would have been sufficient to float 95 per cent of ships calling at Fremantle.[28] By that date the deepest draft vessel handled was the White Star Line's Ceramic of 18,600 tons which drew 33 feet 10 inches. As a result of the deepening, Fremantle provided a depth in excess of that then available in the Suez Canal. The result was that in 1925 the capital debt per lineal foot of berthage at Fremantle was £217 compared to £182 at Sydney, £203 at London, £169 at Liverpool, £128 at Glasgow and £200 at Bristol.[29] Although these statistics were affected by numerous factors, including differences in port facilities and variations in accounting practices, they suggest that Fremantle was over-capitalised by the mid-1920's. The need to service a large capital debt goes a long way towards explaining the level of port charges at Fremantle, an issue we explore more fully in the next chapter.

4.   The dock that never was

From the turn of the century onwards the need for a dry-dock was regularly discussed in local newspapers and parliament. All seemed to agree that a dock was essential if Fremantle was to be a first class

port. In May 1906 a visiting ship's captain summed up the prevailing
attitude when he declared that 'Fremantle as a port is a very pretty
arch without a keystone until it gets a dock'.[30] Consequently, debate
tended to focus on details such as whether a graving (fixed) or floating
type was best and where a dock should be located. Little consideration
was given to the financial viability of the dock, although it was
recognised that it was unlikely to operate at a profit.[31]

Mr. Palmer, the Engineer-in-Chief, estimated that European ports
had one dock for every 300,000 tons of shipping entering;[32] on this
basis Fremantle could have justified at least two as early as 1900. But
Fremantle was only an intermediate port for most of its shipping.
Shipowners tended to concentrate repair work at terminal ports where
their own technical staff could supervise the work. Mr. Day, local
agent of the Orient Company, had stated that as long as his company's
vessels could scrape back to their terminal ports they would not dock at
Fremantle.[33] Clearly, mail steamers would use Fremantle's dock only in
an emergency. Even interstate vessels treated eastern states ports as
their terminals. Melbourne and Sydney were already equipped with
graving docks. Thus the only regular users would have been the small
vessels engaged in Western Australia's coastal trade. Tramp shipping
went where costs were lowest, usually to an Asian port.

The nearest foreign port with dry-docking facilities was
Singapore, some 2,500 miles to the north of Fremantle. A ship steaming
westwards would have to travel 4,500 miles to Durban to obtain dry-
docking facilities. Thus a ship damaged in the vicinity of Fremantle
and in need of a dry-dock faced a long and expensive journey,
particularly if under tow. However, accidents were not likely to

provide much employment for a dry-dock. Approaches to the federal government and British Admiralty for subsidies on the grounds that the dock would strengthen the defences of the region were unsuccessful. Naval experts contended that the Singapore base provided adequate facilities and protection for the west coast of Australia.[34] This view predominated until Singapore fell to the Japanese in 1942, shattering the faith that Australia had placed in the power of Britain's armed services.

In 1910 the FHT estimated that a dry-dock would be used only 12 times per year, with an average stay of seven days.[35] In short, there was no justification for extensive ship repair facilities at Fremantle. The only function a dry-dock would have performed was as a symbol of the community's achievements but, as we will see, even as a symbol, it was to be a costly failure.

The first proposal for a dock in Fremantle Harbour was made in 1895 by Mr. Dillon Bell, Engineer for Harbours and Rivers.[36] He proposed that a wooden dock be constructed at Arthur's Head but C.Y. O'Connor, the Engineer-in-Chief, considered this to be impractical. The following year the government appointed Mr. C.N. Bell, a consulting engineer from New Zealand, to design a dock for Fremantle. Bell considered the following sites suitable for a dry-dock: Arthur Head, Rous Head, the north and south sides of the harbour between the road and railway bridges, Preston Point and Rocky Bay (See Figure 6.1, p.221) He recommended the choice of Rous Head on the grounds of its accessibility. However, no action was taken by the government until 1904 when, under pressure from public opinion, it requested Mr. T.W. Keele, Engineer for Harbours and Rivers in New South Wales to prepare

another report on the site for a dock.[37] Keele examined the sites considered by Bell and concluded that Rocky Bay was best. However, he thought that Butler's Hump, in Freshwater Bay (the site currently occupied by the Royal Freshwater Bay Yacht Club) was preferable as the Bay could be developed into a full scale harbour. Both the Rocky Bay and Butler's Hump sites would have required relocation of the existing rail and road bridges across the river. The proposals for constructing port facilities in Perth created alarm in Fremantle circles. A representative of the Fremantle Citizen's League urged the government to build the dock in Fremantle 'as an assurance that the permanency of the Port was no longer in doubt'.[38] However, the government baulked at the cost of re-locating the bridges across the river and this sealed the fate of Keele's proposals. Thus the 'battle of the sites' continued with only two contenders, Arthur's Head and Rous Head. The Engineer-in-Chief, Mr. Thompson, favoured the latter site, but before going ahead the government called for yet another report from a British engineer, Sir Whatley Eliot.

Eliot favoured Rous Head but expressed fears that the porous nature of the rock could make exclusion of water during the construction process somewhat difficult. He suggested ·the use of a diving bell to aid in laying the concrete floor. His proposed graving dock was 560 feet by 94 feet and was estimated to cost £ 325,000 plus £ 28,000 for subsidiary works such as alterations to railway tracks and existing port facilities. The dock was to have an entrance at each end and be divisible into two compartments so two vessels could be dealt with simultaneously.

Dredging and excavation work commenced in 1908. In November 1910, Mr. Ramsbotham, an English engineer experienced in dock construction, was appointed to take charge of the dock works. Mr. Ramsbotham reported that the diving bell technique was unsuitable and suggested that the difficulties were so great the site should be abandoned or used for berthing a floating dock. Sir Whatley Eliot was consulted again and he agreed that the diving bell method was unsuitable and that coffer dams be used instead. But this increased the estimated cost to £ 422,000. On May 30 1912, drilling operations revealed the existence of a large cave only fourteen feet below the steel sheet piling dam built to allow construction of the north wall of the graving dock.[39] In a vain attempt to fill the cave, 171 barrels of cement and six tons of ashes were tipped in. Several caves were eventually discovered, the bottom of one being 67 feet below low water mark. The plan had been to construct the dock in the dry by pumping the area behind the piling dam dry. But the sea flooded in through the caves in such volume that it was impossible to pump the area dry. Ramsbotham estimated that construction in the wet would increase the cost of the dock to £725,000. He recommended abandonment of the scheme.

On 27 June 1912 the Minister for Works, Mr. W.D. Johnson, announced the dropping of the scheme. The work already carried out would be used for a concrete quay for deep draft vessels. However, even this project was eventually abandoned on the grounds of cost and only timber wharfage built. The only other benefit derived from the work put into the dock was the dredging to 36 feet. The government stated that the final cost of the dock work up to abandonment was £ 207,417.[40] This represented about twenty two per cent of total loan expenditure on

harbours and rivers between 1908 and 1912. Such a waste of public money
was a serious matter for the small Western Australian economy and, not
surprisingly, little more was heard of plans for a dock.

In 1925 a deputation representing the Fremantle Council and
local business interests approached the Labor Premier, Collier, with
another request for a dock. The deputation was somewhat taken aback
when the Premier read them a letter from the local representative of the
Overseas Shipowners' Representatives Association which said that a dock
' must involve a very large expenditure of public money for a very
occasional and disproportionate advantage to shipping or to the
public.'[41] Sir George Buchanan, in his 1926 report on the harbours of
Australia, suggested two sites for docks at Fremantle but did not go
into the question very fully.[42] The then Engineer-in-Chief, Mr.
Stileman, recognised that a dock was uneconomic but still considered one
to be 'part of the necessary equipment of a first class terminal
port'.[43] Some approaches for a dock were made to the government in the
1930's, mainly with the aim of boasting local employment.[44] But the
loss of over £200,000 proved a salutory lesson, and no government was
prepared to repeat the mistake.

One small slipway, built in 1898, catered for vessels up to 850
tons. Temporary repairs to larger vessels were carried out at the
wharves, sometimes under water, to enable them to reach a port with dry-
docking facilities. The only dock ever available at Fremantle was a
small floating one operated within the harbour by the American navy
during the Second World War. But, to this day, one legacy of the dock
fiasco remains: in 1910 Pietro Porcelli was working on a statue of C.Y.
O'Connor and included on the statue four plaques depicting O'Connor's

engineering projects. Aware of the work in progress on the dock Porcelli decided to include it in the plaque of Fremantle Harbour. Visitors to the port can still see the dock that never was.

5.   The battle of the plans

Port trade and shipping underwent a burst of activity in the 1920's: by 1924-25 cargo tonnage was just over double and shipping tonnage three times their respective levels in 1917-18. Table 6.2 shows that cargo tonnage handled per lineal yard of quay passed its pre-war peak in 1925-26, when it reached 379 tons. Three years later it reached 545 tons, the highest level ever attained in the period covered by this thesis. Not surprisingly, this increased activity led to revived calls for port expansion.

Numerous plans for port expansion were proposed but the 'Battle of the Plans' focussed on three major schemes of port development: the Buchanan Scheme (1927), the Stileman Scheme (1927) and the Gibb Scheme (1929). We will consider each in turn.[45]

Sir George Buchanan's plan, which was incorporated into his general report on harbour facilities in Australia, proposed the construction of 54 berths upstream from the existing ones. He divided his plan into four stages:

1. Removal of the existing railway bridge to a site further upstream and the extension of the wharves up to the existing road bridge. This would provide 4,100 feet of marginal wharfage with depths to be dredged to 30 feet.

2. Removal of the existing road bridge or its conversion to an opening span bridge. Extension of marginal wharfage as far as Point Brown to provide an additional 3,200 feet.

3. Continuation of marginal wharfage from Brown Point to Direction Point to provide an additional 4,700 feet of wharfage.

4. Rocky Bay development with finger piers to give an additional 16,300 feet of wharfage.

Buchanan estimated the cost of his scheme at £6,747,600. He further recommended that Fremantle should get a dry or floating dock as this was 'part of the necessary equipment of any first class port'.[46]

In 1927, Stileman, the then Engineer-in-Chief, put forward a different scheme for up-river development. He proposed re-siting the road and rail bridges at Point Brown, far enough up-river to provide room for an additional 11 berths. Further development of the port was to be seawards, north of the river mouth. Stileman estimated that his up-river scheme would cost £3.2 million but he gave no estimate for his seawards scheme.

Stileman's limit of 11 berths for further up-river development arose from his concern about the need to maintain adequate cross-river communications. As early as 1917 the FHT had alerted the government to the need for removal of the road and rail bridges.[47] Heavy floods in July 1926 caused the collapse of part of the railway bridge and focussed attention on the need to replace these ageing structures. Stileman assumed that Buchanan wanted a combined road-rail bridge at Blackwall Reach and argued that 'a harbour having a total length of nearly three miles, with no communication between the wharves on the two sides, other than by a bridge at one end, is very seriously handicapped'.[48] He was also opposed to opening span bridges which tended to lead to long delays as vehicles and shipping waited to pass. If land and shipping traffic was to flow smoothly, high-level bridges or tunnels were required. However, these were extremely costly: the Sydney Harbour Bridge, for example, cost the New South Wales government in the region of £9 million. Hence Stileman's scheme, proposing seawards expansion in the long-term, appears to have been fundamentally sound.

Stileman's case for port expansion was based on his predictions of future wheat production. He estimated that by 1936 4.5 million acres would be under cultivation giving a state crop of 60 million bushels (1.6 million tons) of which about 730,000 tons would be shipped from Fremantle. According to Stileman, port trade statistics suggested that for every ton of wheat exported at least three tons of other cargo was handled. Using this assumption, total port trade was estimated to reach about three million tons by 1936. Assuming that 500 tons of cargo could be handled per yard of quay (above the actual figure of 462 tons in 1927) an additional 7,900 feet of quay was needed to cope. Stileman's prediction rested on dubious assumptions and was ultimately defeated by the onset of depression: by 1936 port trade was only 1.5 million tons.

Stileman had proposed that new railways be built to open up the hinterland for wheat production. There was certainly a close connection between railway expansion, the extension of land settlement and the expansion of wheat output. Of the 2,724 miles of railway built between 1906 and 1933 over two-thirds served the wheat growing areas.[49] However, this railway building encouraged over-production which worsened the industry's plight during the 1930's depression. In an attempt to reduce handling costs bulk handling was introduced, an issue we explore later in the chapter.

The FHT agreed with Stileman that expansion was necessary but strongly opposed his detailed plan. Stileman's proposal for seawards development was rejected. The FHT's pilots noted that modern mail boats are built up to 70 feet above the water level and 'when knocked dead are like great bladders utterly unable to be held without four or five tugs and, if possible, shore capstans'.[50] They considered a sheltered up-

river harbour was essential for such ships. Stileman proposed that the width of the channel be only 800-900 feet, compared to 1,400 feet in the existing harbour; also, that it was wasteful to provide 36 feet throughout the harbour, 32 feet would be adequate in the new extensions. The FHT maintained that 1,400 feet was necessary in order to swing ships safely but Stileman retorted that 'the 1,400 feet width is, in my opinion, a fetish'.[51] He argued that the FHT's opposition to an Outer Harbour was 'based on a prejudice which admits of no alternative to up-river extensions'[52], and it is clear that the FHT had never seriously considered Outer Harbour development. The President of the Perth Chamber of Commerce called for commercial interests to have a say in harbour development, claiming that the FHT was 'unfairly expected to abide by the decision of engineers'.[53] The government, however, strongly supported Stileman. The Premier, Collier, criticised the Commissioners of the FHT, claiming that some 'attended a meeting of the trust for a hour, and that is all they see of the harbour'.[54] He supported the opinions of a professional engineer, rather than those of a man like Stevens, 'who has had only a clerical training'.[55]

In September 1928 the Leader of the Country Party, Mr. A. Thomson, called for the appointment of a select committee to inquire into Stileman's scheme. In the course of his reply, the Minister for Works, Hon. A. McCallum, rallied to Stileman's defence and took the opportunity to criticise Sir George Buchanan's proposals. McCallum pointed to defects in Buchanan's cost estimates, and claimed that none of his suggestions in a similar report on ports in South Africa had been acted on. Moreover, he claimed Buchanan had been struck off the role of the Institute of Civil Engineers for 'unprofessional conduct'.[56]

The government's antipathy to Buchanan appears to have arisen from the feeling that he spoke more about politics than about engineering while in Western Australia. Buchanan was critical of government interference in the running of the port and, in particular, its use as a 'tax-collection organisation'.[57] In a letter to the West Australian in April 1928, Buchanan claimed that the Premier's remark that 'it is for them [the FHT Commissioners] to administer the harbour as they find it, not to consider extension schemes', was a 'damning indictment' of port administration in Western Australia.[58] No responsible English politician, he suggested, would use such language about, say, the port authority of Liverpool. Although Buchanan was undoubtedly right to deprecate detailed government interference in port administration, in Western Australia's small community it was unrealistic not to expect government, business and the general public to take a keen interest in port affairs. Such interest, of course, did not always contribute to sound decisions. As Mr. McCallum pointed out, the graving dock provides an example where, 'instead of the advice of engineers being openly sought without restriction, and that advice being accepted, politics were brought in and local agitation was listened to, with the result that over a quarter of a million of the people's money now lies at the bottom of the ocean'.[59] He stressed that the government was not prepared to allow this to happen again. The motion for the select committee was defeated but the government, bowing to political pressure, agreed to a further inquiry into the port's development.

In February 1929 Mr. Rustat Blake, of Sir Alexander Gibb and Partners, arrived in Western Australia to examine the plans for the development of the port. In July 1929 the final report (henceforth

referred to as the Gibb Report) was presented to the government. The Gibb Report declared that 'Harbour extensions on the general lines of the recommendations contained in the Report of the Engineer-in-Chief, Public Works Department, are calculated to give results which are in the best interests not only of the Port, but of the State as a whole'.[60] In particular, the Gibb Report sided with Stileman rather than the FHT on the question of channel depth and width. Thus the FHT, striving for the best possible port facilities, had clearly not paid enough attention to economic realities.

Some minor changes to Stileman's scheme were recommended, including reducing the planned number of seawards berths from 45 to 30. Buchanan's extensive up-river development was not favoured because of the problem of providing adequate cross-river communication. Moreover, it was pointed out that Buchanan's cost estimates were defective: a more realistic estimate, including items such as dredging and road and railway works, came to £13.5 million, double Buchanan's estimate. The Gibb Report estimated that the cost of its version of Sileman's scheme was 16 million, of which 75 per cent was for Outer Harbour development.

Table 6.3 summarises the basic features of the three schemes. All three envisaged up-river development even though this involved pulling down bridges, resuming expensive land and extensive dredging. The number of up-river berths ranged widely, from 11 to 54. Only the Stileman and Gibb schemes provided for seawards development. Interestingly, the cost estimates suggest that there was little difference in cost between major up-river development (Buchanan's scheme) and minor up-river development followed by seawards development

TABLE 6.3

Basic Features of the Buchanan, Stileman and Gibb Schemes

		Buchanan	Stileman	Gibb
1.	Length of quay (in feet)			
	Up-river	28,900	6,100	6,200
	Seawards	—	26,700	20,000
2.	Number of berths			
	Up-river	54	11	11
	Seawards	—	45	30
3.	Estimated cost (£m)			
	Up-river	13.5(1)	3.2	4.0
	Seawards	—	12.8(2)	12.0
	Total	13.5	16.0	16.0

Notes: (1) Gibb's estimate. Buchanan's own estimate was £ 6,750,000 but excluded dredging etc.

(2) Gibb's estimate. Stileman gave no estimate of the cost of seawards development.

Source: F.W. Tydeman, Report on the Port of Fremantle, 3 vols (Perth, 1949), vol.2, pp.76-85.

(Stileman and Gibb's schemes). Up-river development had the attraction of being cheaper, at least initially. However, a thorough re-costing of the schemes in the late 1940's found that their cost had increased threefold;[61] this increase was more than double the increase in the general price level. This suggests that the greater part of the increase in costs was due to omissions and errors in the original estimates, rather than increases in the prices of labour and materials. In particular, the cost of land resumptions required for port facilities and adequate road and rail access appear to have been understated in the original estimates. The 'Battle of the Plans' exemplifies the pre-war approach to port planning: the focus of attention was on structural excellence rather than economy; costing procedures were often rudimentary. This laxity of costing and investment procedures appears to have been a common feature of public investment in the early years of the 20th century.[62]

All three plans overestimated the expansion of port trade. The Gibb Report, for example, predicted that, given past trends, trade would reach 2.6 million tons by 1932-33. On this basis, an extension of the harbour was 'an urgent and immediate necessity, and should be taken in hand without delay, since important works of the character required take considerable time for their construction'.[63] But the onset of depression meant that the predicted trade flows failed to materialise and this, with the accompanying financial stringency, led to the shelving of plans for port expansion. The 'Battle of the Plans' was finally resolved not by technical experts or even by political force but merely by the dismal power of economics.

The depression years, although years of relative quietude in port development, were not devoid of change. Table 6.2 shows that cargo handled per yard of quay averaged 490 tons during the 1930's, about 40 per cent above the level of the 1920's. This points to a gain in efficiency due partly to reorganisation and minor improvements to existing facilities: the FHT strived to make the best of what they had.[64] But the gain in efficiency was mainly due to the increasing use of bulk handling.

Cargoes such as coal and phosphates were handled in bulk using the FHT's cranes by the end of the first decade of the 20th century. In 1920 the Anglo-Iranian Oil Company (now known as British Petroleum) erected oil storage tanks at north Fremantle and built a pipeline to carry oil from Victoria Quay to their tanks. The first ship to use the new facilities was the tanker British Fern which arrived on 8 October 1920 and put 7,536 tons of oil into the tanks.[65] There was little oil bunkering done that year but, as we saw in Chapter 3, oil bunkering increased rapidly from the mid-1920's onwards. In 1925 Sir Robert Wylie Cohen, Managing Director of the British Imperial Oil Company, visited Fremantle and observed that the 'cumbersome handling of petrol in tins and cases was costing the consumer a large amount of money'.[66] His Company (now known as Mobil Oil) and the Vacuum Oil Company laid pipelines to North Quay to carry petrol and kerosene. These facilities commenced operation on 8 April 1927 when the tanker Radix discharged the first bulk cargoes of petrol and kerosene. The FHT observed that this was 'another mark in the steady progress of the state'.[67] About two years later the Texas Oil Company (Australia) Ltd. installed a bulk pipeline and shortly before the outbreak of the Second World War

Commonwealth Oil Refineries Ltd. followed suit. All the major oil companies were now represented at Fremantle.[68] However, the major landmark in the progress of bulk handling at Fremantle was undoubtedly the introduction of bulk grain handling, and we now turn to, and consider, this in detail.

6.   The development of bulk grain handling

On 23 August 1904, the steamship _Essex_ left Fremantle for England with 262 tons of locally grown wheat, the first recorded wheat shipment from Western Australia.[69] The first wheat export of any magnitude occurred in 1908-09 when 14,774 tons was shipped from Fremantle. From these humble beginnings wheat exports grew to become a mainstay of the port's trade, although, as we saw in Chapter 3, the progress of the wheat trade was far from smooth and uninterrupted.

The record season in 1908-09 caught the port unprepared: most of the wheat had to be sampled and weighed on Victoria Quay in the midst of the ordinary work of the port. Handling was slow because of a lack of proper equipment and the inexperience of the men. The railway system was not able to supply enough grain to enable ships to be worked continuously. Stevens, the Secretary of the FHT, admitted that there was a 'want of system and confusion'.[70] The FHT lost about 6d per ton of wheat handled as it underestimated the cost of the work. Faced with predictions of heavier crops to come, the FHT was forced to make urgent provision for the wheat trade.

At that time all wheat in Australia was handled in bags. Bulk handling had been developed in the U.S.A. as early as the 1860's and in 1905 Mr. Palmer, the Engineer-in-Chief, had made a detailed examination of American methods. He concluded that:

there does not seem much doubt that, other things being
equal, export in large quantities can be more profitably
carried on in bulk than in bags, in order, however, to
succeed the ships require to be specially suited to or
fitted for bulk trade and a considerable amount of capital
must be laid out in elevating machinery and storehouses.[71]

The advantages of bulk handling included: a saving in the use of
wheat sacks, cheaper handling, faster ship turn round and potentially
lower freight rates, better use of railway rolling stock and higher
prices through improved grading and cleaning of the grain.[72] The FHT
Commissioners believed that bulk handling could enable them to 'rid
themselves, once and for all, of one of the most troublesome of all the
problems to be handled, viz., the question of labour'.[73] However, they
eventually decided to design facilities for handling wheat in bags
rather than in bulk.

There were a number of reasons for the preference for bag
handling. Firstly, the development of bulk handling involved costly
investment in handling equipment, silos, railway trucks and other
facilities. But the volume of grain handled at Fremantle was still
relatively small which limited the port's ability to reap the economies
of scale offered by bulk handling. Even in the late 1930's, Sydney,
Australia's leading wheat port, handled only 0.5 million tons per annum,
compared to over 4 million tons per annum at leading Canadian ports.[74]
Another problem was that shipowners were often reluctant to carry bulk
wheat and, as late as the 1920's, asked for higher freight rates for
bulk wheat than for bagged wheat.[75] Ships had to be specially equipped
with 'shifting boards' to stabilise the cargo.[76] Sailing ships were
particularly vulnerable to shifting of cargo and few shipowners were
prepared to risk carrying bulk grain around Cape Horn. For many years
even ports which shipped wheat in bulk sent some in bags, purely for the

sake of holding and binding the wheat. The cost of insurance was invariably higher for bulk wheat, especially in sailing vessels. There was uncertainty as to whether Western Australia's 'soft' variety of wheat would travel as well in bulk as the 'hard' wheats from North America; some feared that in the absence of the protection of a bag it would be more liable to infestation by weevils. Discharging at the other end also needed to be taken into consideration. In 1911 there were six ports in the United Kingdom equipped with facilities for discharging bulk wheat. But as late as the 1930's only two Japanese ports possessed bulk handling equipment and there was none in any Indian or Chinese port.[77] At ports without bulk handling equipment it was necessary to re-bag the wheat - an expensive operation. When tramp ships arrived to load grain in Australia the final destination was not always known; grain producers would be reluctant to risk loading them in bulk if they could end up going to a port with no facilities for bulk wheat.

Adherence to traditional practices also impeded the introduction of bulk handling. British millers were initially unwilling to accept bulk wheat unless it was available at a concessionary rate.[78] During the handling process, dust was automatically extracted from grain handled in bulk. But as late as the 1920's the dust was replaced in the grain before delivery so that the merchant would receive his consignment as it was at the time of 'sample', when he made his original decision to purchase the grain.[79] So it had to be cleaned again later.

It is not surprising, therefore, that the FHT initially provided for the handling of bagged wheat only. By the end of 1910 the port had a large shed on North Quay equipped with five elevators for taking bags

from trucks. The elevators carried the bags either into stacks in the shed or connected with conveyors which carried them across the shed and wharf and into the ship's hold. The appliances worked smoothly but problems were caused by bags bursting in all directions:

> Hundreds of bags reached the Port during the past year in a condition which made it practically impossible to handle them without damage; a number of bags which burst either on the elevators or in the stacks were found, on examination, to be superphosphate bags which had been turned inside out and filled with grain; many, too, were burned through coming in contact with phosphate or lime, and many, again, were old or patched or with holes filled with grass, rags, paper, or whatever else seemed to have been handy to stuff them up with at the moment.[80]

However, the machinery worked well and in 1913-14 the FHT reported that 75,140 bags were placed on one ship in 40 working hours.[81] Wheat handling, however, remained a hard physical task: as we saw in the previous chapter, lumpers had to manhandle bags of at least 200 lbs and sometimes much more. Serious injuries were not uncommon.

The FHT estimated that the 1913-14 grain season brought in £18,300 in port dues and harbour charges; total expenditure by grain ships in Fremantle was estimated at £56,000.[82] It is little wonder that the Trust was somewhat alarmed when drought ruined the 1914-15 season and no surplus was available for export. The following season produced the heaviest crop in the state's history, but, ironically, little could be exported owing to the scarcity of shipping caused by the outbreak of war. Wheat piled up on the wharves and the FHT took urgent steps to protect the bags from the winter rains. This problem was repeated throughout Australia; in the eastern states serious damage was caused to the grain by wet weather and by the actions of mice and weevils. The federal government intervened in the marketing and shipping of wheat in an attempt to improve the situation. In Western Australia, wheat was

marketed through a compulsory wheat pool, organised jointly by the federal and state government, from 1915 to 1922.[83] In 1916 the Commonwealth Line was established primarily to transport Australian exports to Europe. But according to one estimate it would have taken the Line's 15 ships about eight years to shift the wheat surplus of 2.5 million tons![84] The federal government gave the New South Wales government money to aid the construction of storage silos in country areas in 1917. The following year work started on a bulk grain terminal in the Port of Sydney. The latter, completed in 1922, made Sydney the first Australian port to provide bulk grain handling facilities.[85] In Western Australia, an advisory board had recommended the adoption of bulk handling prior to the First World War.[86] But the outbreak of war appears to have halted action on this question and it was not revived until the 1920's.

In July 1924, Westralian Farmers Ltd., a producers cooperative, experimented with bulk handling.[87] The steamer <u>Arna</u> a vessel of 3,250 tons, was partly loaded in bulk. The wheat was sent on board in bags which were then slit and their contents emptied into the ship's hold. But the experiment cannot have been a great success as it was not repeated. This was mainly because freight rates for bulk wheat were about 2 shillings a ton more than for bagged wheat. However, in the 1929-30 season, Westralian Farmers Ltd. found that for the first time they could obtain vessels for shipping bulk wheat at lower rates than for bagged wheat. The experiment with bulk handling was repeated twice and found to be more profitable than in 1924. From 1930 rates for bulk wheat stayed lower than for wheat in bags.

The 1930's depression provided the final impetus for the introduction of bulk handling in Western Australia. In 1930-31 there was a record wheat crop of 53.5 million bushels but the growers received less income than they had in 1920-21 when the harvest was only a quarter of this size.[88] Of the total value of the 1930-31 crop, about 30 per cent was paid out by growers for wheat bags, receiving at country sidings, railage and handling at mills and ports.[89] In evidence given before the Royal Commission on the Dominions in 1913, a leading representative of Western Australian grain producers put their financial position clearly:

> The price is regulated by London Market, and nothing the farmer here can do with his hatful of wheat, will affect it in the slightest. The only way, therefore, to improve the position is to effect savings in cost of production and transport.[90]

The depression starkly revealed the weakness of the farmers' position; the time was ripe for the introduction of bulk handling.

In July 1931 Westralian Farmers Ltd. submitted a proposal to the government for the installation of a bulk handling system, the government to provide port and railway facilities and the company country siding installations. Five country sidings were equipped with experimental wheat bins and in 1932 a limited quantity of wheat was handled in bulk from these sidings to the mills. The wheat bins differed from conventional silos in that they were made from timber and iron obtained from old storage sheds rather than from concrete and they used a cheap portable elevator.[91] The FHT provided temporary bulk elevating equipment on North Quay.

In October 1932 Mitchell's National/Country Party Coalition Government introduced a Bill to establish a trust to operate a bulk

handling system. The Bill proposed to give the trust a monopoly of wheat handling and it was to be financed by a loan to the Wheat Pool of Western Australia, repayment of the loan being guaranteed by the government. The Bill met with considerable opposition, particularly in regard to the granting of a monopoly and the financial arrangements. A Joint Select Committee of both Houses recommended passage of the Bill, subject to amendments, but the Bill was still not passed.[92] Following the defeat of the Bill, in 1933 Westralian Farmers and the Trustees of the Wheat Pool of Western Australia formed a company called Co-operative Bulk Handling to establish a bulk handling system. The company secured leases for storage bins at 48 railway sidings, bringing the total to 53. The company wanted to build more but Premier Collier's new Labor Government (elected in April 1933) refused to grant any more leases pending a full inquiry into the whole question of bulk handling.

The government's concerns were basically twofold. Firstly, a section of the Labor Party, mainly those representing port constituencies, was strongly opposed to the development of bulk handling.[93] They feared the scheme would lead to a loss of employment for lumpers and others involved in the transport and handling of wheat. This fear was not unfounded as it was later estimated that two-thirds less men were required to handle grain in bulk.[94] However, men were still required to trim the bulk grain into the corners of the holds - an arduous task that was not mechanised until after the Second World War. It was estimated that 500-550 lumpers would be displaced permanently; the loss of about £80,000 per annum in wages would have a depressing efect on local businesses.[95] The timing was particularly embarrassing for the Labor Party as the depression had caused the rate

of unemployment to soar to 28 per cent in the early 1930's, making it impossible for most of the displaced lumpers to find work. Secondly, the Collier Government had reservations about bulk handling being run by a monopoly outside of government control. The government favoured a board of management containing representatives of government, consumers, millers, merchants, railways and the FHT, but this was strongly opposed by the wheat producers.[96]

The government finally appointed a Royal Commission, which reported in July 1935. It was estimated that a bulk handling system enabled one man hour of effort to shift 300 bushels of wheat; originally, one man hour of effort shifted only 105 bushels of bagged wheat.[97] Although this was a great improvement, achieved at only one-quarter of the cost of an orthodox system with concrete silos, the FHT considered the system as only 'a bag eliminating method of handling wheat'.[98] It was no substitute for an orthodox system of concrete silos, with ample terminal storage and rapid cargo-handling appliances. At Fremantle it took about 24 hours to load the amount loaded in one hour at Sydney.[99] The Royal Commission recommended that silos with a capacity of one and a half million tons be constructed, but Fremantle did not acquire an orthodox system until after the Second World War. Nevertheless, the Royal Commission found that the Western Australian system was about 2.5 pence per bushel cheaper than bagged handling. In 1935 the total saving amounted to seven per cent of the average price of wheat so that this innovation made an important contribution to the wheat industry's recovery from the 1930's depression.[100] The Royal Commission recommended that Cooperative Bulk Handling be given a state-wide monopoly of wheat marketing and the

government, influenced by the demonstrated advantages of bulk handling, agreed to the recommendation. One spin-off from bulk handling was that by improving throughput per lineal yard of berth, it created about four surplus berths.[101] This reduced the need for any major expenditure on harbour works prior to 1939.

7.   The port and urban environment

Fremantle, in common with Australia's other capital city ports, developed in close proximity to the metropolitan area. Western Australia was unusual in the sense that the port (Fremantle) and administrative capital (Perth) were originally physically distinct, although from the mid-1890's suburbanization began to link the two towns.[102] Although the gold rushes caused rapid population growth in the 1890's by 1901 Western Australia's population was only 184,000. Of this total, approximately 56,700 or 31 per cent lived in Fremantle and Perth.[103] Urbanization in Western Australia increased rapidly in the 1910's and 1920's but was checked in the 1930's with the revival of gold mining.[104] By the 1947 census Western Australia's population had grown to about half a million of whom about half lived in the metropolitan area.

As population increased, so did the pressures on city land use: port operations began to hamper and be hampered by metropolitan land use activities. However, conflicts between port and city were less serious than in older port cities such as Sydney.[105] Nevertheless, metropolitan growth began to encroach upon the port and complicate the provision of land transport links with the port. A comprehensive analysis of port and urban land use activities would require considerable multidisciplinary research into the economic structure of

the City of Fremantle and falls outside the scope of this thesis.[106]
However, it is possible to offer some brief comments about the port's
land transport links and the environmental impact of port operations.

When the FHT was formed in 1903 it found Cliff Street, the main
appoach to Victoria Quay, was crooked, uneven and poorly lit. It was
used by all types of city traffic and was criss-crossed by railway
lines; every week between 4,000 and 5,000 vehicles travelled along the
road to and from the port and about 600 lines of railway trucks were
shunted backwards and forwards across the street.[107] The result was a
congested and 'highly dangerous thoroughfare'.[108] By the end of 1905
the FHT had spent £2,133 on the road and could claim that it was 'a
fine, straight, well-built roadway', with adequate lighting and a broad
footpath for pedestrians.[109]

Fremantle was provided with railway connections to the old sea
jetty in 1891 and, as we saw in Chapter 2, the wharves were actually
administered by the Railways Department before the formation of the
FHT. The railway system, which was narrow gauge (3 feet 6 inches),
developed in two directions: northwards, via Perth, which was the major
route, and southwards, via Robbs Jetty. The northwards route crossed
the Swan River immediately upstream of the port and connected with the
Midland Railway at Midland Junction and, after 1917, provided a
connection to the eastern states via the Trans-Continental Railway.
When the Inner Harbour was built railway lines were laid at the front
and rear of all the cargo sheds making Fremantle the best served port in
Australia as far as railways were concerned.[110] The railway lines in
front of the sheds enabled cargo to be transferred direct from ship to
truck and vice versa, avoiding double handling in the wharf sheds. On

sverage, about 50 per cent of total cargo tonnage was directly transferred between ships and railway trucks or road vehicles.[111] However, rail access between Victoria Quay and the North Quay was via the main line only and both the mainline and the port system operated in a restricted land area behind the wharves. In the late 1940's it was observed that the system had 'grown up over half a century into a cramped lay-out, barely adequate to meet the trade of the moment, not capable of overload, and inefficient in operation'.[112] A major reason for this was the limited land areas available for railway access, especially on Victoria Quay.

Due to data limitations it is possible to clearly distinguish between cargo carried to and from the port by road, rail and other means only in 1938-39.[113] Table 6.4 shows that in 1938-39 almost one-half of the port's cargo was moved by rail, about one-quarter by road and about one-quarter by pipeline. Fremantle had never had a significant transhipment trade and coal bunkering had dwindled to insignificance by 1939. There was originally a bustling lighter traffic on the Swan River between Fremantle and Perth. It reached a peak of 91,000 tons in 1924 but thereafter began a steady decline; in the 1930's it slumped drastically to about 30,000 tons per annum due to the stiff competition offered by the burgeoning number of motor transport firms.[114] The two companies operating lighters ceased operations at the end of September 1938. The fact that almost one-half of the port's trade was carried by rail helped reduce pressure on the road system. By contrast, in Sydney, where the topography made the provision of rail access costly and difficult, only about 13 per cent of port trade was carried by rail, putting considerable strain on the road network.[115]

TABLE 6.4

Transport of Cargo to and from the Port of Fremantle
1938-39

Method	Tons	% of total tonnage
Rail	828,130	47.1
Road	476,303	27.1
Pipeline	419,982	23.9
Coal (over-side into hulks)	12,931	0.7
Lighter	7,291	0.4
Transhipment	12,972	0.7
Total tonnage	1,757,609	100.0

Source: F.W. Tydeman, Report on Port of Fremantle, 3 vols, (Perth, 1949), vol.3, Appendix 19.

Although environmental pressures were probably less of a concern in Western Australia than in the more densely populated and heavily industrialised eastern states, problems did arise from time to time. Earlier in this chaper we saw that concern about the effect of port operations on the Swan River led to some opposition to further up-river expansion. In 1928 the Minister for Public Works also opposed development south of the river mouth on the grounds that it would spoil Fremantle as a seaside resort, turning it into 'a mere mass of wharves and boats'.[116] The advent of oil bunkering and bulk oil handling in the early 1920's, which was discussed earlier, increased the dangers of fire and water pollution. In 1911 the Marine Underwriters' Association of Western Australia requested separate facilities for oil ships and a tighter control of inflammable cargoes. The FHT agreed to make them berth on the north side of the harbour and provide an inspector to prevent smoking and other fire hazards.[117] In the early 1920's further regulations governing night working were introduced.[118] However, these seem to have been mainly directed against the threat of fire because in 1926, when the Orient Steam Navigation Company's _Orama_ collided with the quay and burst an oil pipe, there were no regulations or appliances to guard against oil spills. As a consequence, about 30 tons of oil escaped into the harbour.[119]

Port operations can be potentially hazardous but little thought appears to have been given to the dangers of locating port facilities close to urban areas prior to the outbreak of the Second World War. However, although Fremantle escaped direct wartime destruction, she experienced a serious fire on board a ship in the Inner Harbour.[120] But concern for environmental issues is largely a post-1945 phenomenon and,

as such, falls outside the scope of this thesis. In summary, competition between port and metropolitan land use activities was in its infancy in our period. A breakout from the confines of the Inner Harbour was not necessary until the 1950's, when Fremantle was able, at last, to exploit the deep-water and extensive land areas of Cockburn Sound.

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With the opening of the Inner Harbour in 1897, Fremantle became the first Australian port to enter J. Bird's era of simple lineal quayage. The first four decades of the 20th century saw the harbour progressively deepened to 36 feet, an abortive attempt to provide a dry-dock, modest extensions of wharfage, the provision of more cargo-sheds and handling equipment, and the development of bulk oil and grain handling. However, no special facilities were provided for passengers: the usual practice was to clear part of a cargo shed and use this for baggage and customs clearance. A passenger terminal was not provided until 1960 by which time the ports had already lost the battle for human freight. The improvements and extensions that were made in our period had only a limited impact on the port's physical geography. Numerous schemes for port development were proposed during the 1920's and the issue of up-river versus seawards development became a matter of public controversy. The reports of eminent engineers such

as Sir George Buchanan and Sir Alexander Gibb and Partners confirmed that up-river development was initially preferable but the depression intervened and none of their schemes were implemented. C.Y. O'Connor's scheme provided the port with an infrastructure which coped adequately with the requirements of trade and shipping until at least half-way through the 20th century.

Engineers like C.Y. O'Connor and his successors as Engineer-in-Chief, played a vital role in the development of the port. C.Y. O'Connor demonstrated that with man's growing engineering capability, the emphasis could be on man's wants rather than nature's supply, since ports could be created at sites where geographical conditions were not immediately favourable. C.Y. O'Connor was an outstanding example of 'the general practitioners' of the engineering profession, men who could turn their hands to a wide range of projects, including, in his case, railways and a pipeline taking water about 350 miles from the outskirts of Perth to the eastern goldfields.[121] He was part of 'a vast army of highly competent, creative, and remarkably communicative professionals whose collective field spanned the entire world'.[122] In the Indian Ocean region alone, the ports of Madras, Durban, Colombo, Batavia and Cochin, served as shining examples of man's ability to overcome the challenges of nature.[123] The lives and achievements of the engineers who carved out the physical foundations of the British Empire have not attracted much attention from historians.[124] This is clearly an area worthy of further research.

Engineers, usually preoccupied with structural excellence, were, of course, not the only influences on Fremantle's development. The port's development (and non-development) was the result of a complex

process of decision-making and adjustment in which a large number of interests, including the FHT, government and port users played a part. The FHT, anxious to make Fremantle 'a first class port', strove to gain the depths and other facilities required to service the world's largest ships. Such efforts led them to support schemes, such as deepening the entire harbour to 36 feet, which could not be justified on the basis of usage or harbour finances. Considerations of port prestige tended to lead to building well in excess of demand. In 1934, Mr. McCartney, then Manager of the FHT, gave an interesting insight into the port authority's thinking:

> I feel we are over-efficient mechanically as compared with what we are called upon to do. You may query the necessity for that condition of affairs, because that must represent expenditure which is not earning. The overplus of power is a splendid standby for the farming or shipping community, inasmuch as if they were behind in deliveries on one day, and it were necessary to hasten up on some following day, the surplus of machinery would enable that to be done.[125]

The 'overplus of power' was undoubtedly a splendid standby; it was also an expensive one with major implications for port charges and state budgets. However, the FHT's approach to port development was far from unique; on the contrary, the development of Australia's Western Gateway exemplifies what G. Jackson has aptly termed the 'change and construct' era of port development.[126]

FOOTNOTES

1.   J. Bird, Seaports and Seaport Terminals, (London, 1971), p.67.

2.   Id., Seaport Gateways of Australia, (London, 1968), p.11.

3.   Report on Fremantle Harbour and Cross River Communications by the Engineer-in-Chief, (Perth, 1917), p.8.

4.   Ibid. Post-First World War figures for Melbourne were 297 tons and Sydney 338 tons.

5.   Ibid.

6.   Battye Library of West Australian History, Public Works Department Archives Deposit (PWD), 1481/13, 'The Port of Fremantle. A report on Suggested Improvements and General Extension', typescript dated 31 January 1913, by J. Ramsbotham.

7.   FPA 79/11/1-2, minutes, 5 October 1910 and letter from FHT to Colonial Secretary, 25 March 1911.

8.   Ibid., minutes, 5 October 1910 and 30 June 1911.

9.   For a general discussion see Bird, Seaports and Seaport Terminals, op.cit., pp.87-8.

10. PWD 460/30, memo from Stileman, Engineer-in-Chief, to Under-Secretary for Works, 7 March 1930.

11. See W.A. Sinclair, 'Capital Formation', in C. Forster (ed.), Australian Economic Development in the Twentieth Century, (London, 1971), pp.16-26. For general discussions of public investment see N.G. Butlin, et.al., Government and Capitalism, (Sydney, 1982) and R. Mathews, Public Investment in Australia (Melbourne, 1967).

12. FPA 90/12/3, minutes, 23 July 1912.

13. Ibid., 90/12/1, minutes, 5 January 1912.

14. See Chapter 4, Table 4.6, p.151.

15. F. Stevens, 'History of the Harbour', in J.K. Hitchcock, The History of Fremantle: The Front Gate of Australia 1829-1929, (Fremantle, 1929), p.143.

16. West Australian, (WA), 28 February 1912.

17. Ibid., 4 March 1912.

18.   Ibid., 11 March 1912.

19.   Ibid., 13 March 1912.

20.   FPA 90/12/4, memo from FHT to J.F. Ramsbotham, Resident
       Engineer, Fremantle Graving Dock Construction, 12 December
       1912.

21.   Ibid., 90/12/2, internal memo from Stevens to Chairman FHT, 7
       March 1912.

22.   WA, 22 March 1912.

23.   Ibid., 15 October 1912.

24.   FHT, Annual Report, 1912-13, p.14.

25.   FPA 90/12/4, memo from FHT to Colonial Secretary, 10 October
       1923.

26.   Royal Commission on Dominions: Second Interim Report, 1914
       (Cd.7210), pp.57-8.   The Final Report of the Commission
       (Cd.8462) advocated 38 feet for a first class port.   See J.
       Bach, A Maritime History of Australia, (Melbourne, 1976),
       pp.342-3.

27.   F.W. Tydeman, Report on the Port of Fremantle, 3 vols, (Perth,
       1949), vol.2, p.48.

28.   PWD 1163/27, memo from Stileman to Under-Secretary for Works, 28
       November 1927.

29.   Ibid., 679/21, memo from Stileman to Engineer for Harbours and
       Rivers, 3 December 1929.

30.   The Morning Herald, 15 May 1906.   The quote is from Captain
       Marchbank of the S.S. Dongola.   See also WA, 2 March 1906,
       22 March 1906, 23 March 1906, 4 April 1906, 3 May 1906 and
       11 May 1906.

31.   PWD 563, 'Report on Size and Description of the Proposed Dock at
       Fremantle', by C.S.R. Palmer, Engineer-in-Chief, 1 December
       1904.

32.   Ibid., 'Preliminary Report', from Palmer, Engineer-in-Chief to
       Under-Secretary PWD, 10 June 1904.

33.   W.A. P.D., L.A., vol.XXXII (1907), p.1333.

34.   PWD 476/11, memo from Agent General of W.A., London, on meeting
       with Representative of Admiralty, 5 May 1910.   See also WA,
       27 June 1935.

35.   FHT 62/10, memo from FHT to Engineer-in-Chief, 12 March 1910.

36.   PWD 1472/24, typescript summarising history of Fremantle Dock proposals, 18 August 1933.

37.   A.T. Bonds, 'Early History of the Port of Fremantle', Port of Fremantle Quarterly, vol.3 (1969), p.22.

38.   WA, 28 April 1906.

39.   This and the following sentence draws on Bonds, op.cit., p.23.

40.   W.A., P.D., L.A., vol.XLVI (1913), p.860.

41.   PWD 1472, letter from OSRA (Perth Branch) to Premier, 12 August 1925; WA, 15 August 1925.

42.   Sir George Buchanan, Report on Transport in Australia with Special Reference to Port and Harbour Facilities, 2 vols., (Canberra, 1927), vol.2, p.53.

43.   PWD 1472, memo on 'Fremantle Harbour Docking Facilities', by Stileman, 19 December 1927.

44.   WA, 25 July 1933 and 27 January 1934.

45.   Sir George Buchanan, Report on Transport in Australia with Special Reference to Port and Harbour Facilities, op.cit., pp.50-3; Report on Fremantle Harbour and Cross River Communications, op.cit., pp.3-12; Sir Alexander Gibb and Partners, Report on the Fremantle Harbour, (Perth, 1929).

46.   Buchanan, op.cit., p.53.

47.   FPA 95/20/1, minutes, 20 February 1920.

48.   Report on Fremantle Harbour and Cross River Communications, op.cit., p.9.

49.   S. Glyn, Government Policy and Agricultural Development, (Perth, 1975), p.63.

50.   FPA 114/27/2, internal memo from Harbour Master and Pilots to Secretary of FHT, 8 December 1927.

51.   PWD 1163/27, memo from Stileman to Under-Secretary for Works, 'Fremantle Harbour - Improvements and Extensions', 28 November 1927.

52.   Ibid., 'Comments by Engineer-in-Chief on Harbour Extension Proposals Put Forward 8 June 1928 by the Secretary Fremantle Harbour Trust', 10 September 1928.

53.   WA, 31 August 1928.

54.   _Ibid._, 6 September 1928.   See also W.A., _P.D._, L.A., vol.79 (1928), p.582.

55.   PWD 1163/27, copy of government reply to a parliamentary question asked by Mr. Brown on 12 September 1928.

56.   Hon A. McCallum, ,M.L.A., Fremantle Harbour. Proposals for Extension. Schemes Outlined and Compared, (Perth, 1928). Speech given in Legislative Assembly on 12 September 1928 and reprinted from Hansard.

57.   Buchanan, _op.cit._, vol.1, p.99.

58.   _WA_, 27 April 1928.

59.   McCallum, _op.cit._, p.14.

60.   Sir Alexander Gibb and Partners, _op.cit._, p.8.

61.   Tydeman, _op.cit._, pp.84-5.

62.   Sinclair, _op.cit._, pp.16-26.

63.   Sir Alexander Gibb and Partners, _op.cit._, p.6.

64.   Changes included the reconditioning and extension of wharves and the provision of increased shed space. See FHT, _Annual Reports_.

65.   PWD 4432/21, letter from FHT to Engineer-in-Chief, 7 February 1927.

66.   FPA 101/25/5, minutes, 9 January 1925.

67.   FHT, _Annual Report_, 1926-27, p.16.

68.   _Ibid._, 1937-38, p.7.

69.   Data from Western Australia, _Year Book_, 1902-4.

70.   FPA 78/09/4, notes on interview with the Commissioner of Railways, 14 June 1909.

71.   _Ibid._, 109/07/2, 'Report on Methods and Cost of Handling of Wheat in the United States of America', by C.S.R. Palmer, 19 July 1905.

72.   _Ibid._, 92/10/1, Copy of notes to Premier on reasons why Fremantle adopted bag handling (undated).

73.   _WA_, 26 September 1910.

74.   Burley, _op.cit._, pp.200-4.

75. G.D. Snooks, <u>Depression and Recovery in Western Australia 1928/29-1938/39</u>, (Perth, 1974), p.43.

76. FPA 92/10/1, Extract from a letter written by the London agents of Messrs. H.G. Barker and Co., 16 September 1910. See also letter from Secretary S.A. Farmers' Coop Union. Ltd., to FHT, 27 December 1911. The following two sentences also draw on these two sources.

77. <u>First Progress Report of the Parliamentary Standing Committee on Public Works</u>, (Adelaide, 1934), p.59.

78. <u>Bulk Handling of Wheat: Reports of Investigations Conduction by Direction of Hon. J. Lindsay Minister for Works and Labour</u>, (Perth, 1932), p.12.

79. B. Cunningham, <u>Cargo Handling at Ports</u>, 2nd Edition, (London, 1926), p.135.

80. FHT <u>Annual Report</u>, 1910-11, p.8.

81. <u>Ibid</u>., 1913-14, p.13.

82. <u>Ibid</u>., pp.13-14.

83. See Glyn, <u>op.cit</u>, Appendix 2, pp.150-4, for a survey of wheat marketing in W.A.

84. R. McDonell, <u>Build a Fleet Lose a Fleet</u>, (Melbourne, 1976), p.53.

85. C.R. Bickford, 'The Handling of Bagged Wheat at Glebe Island, N.S.W.', <u>Journal of the Institution of Engineers (Australia)</u>, vol.3 (1931), pp.325-9.

86. FHT, <u>Annual Report</u>, 1913-14., p.14.

87. J. Sandford, <u>Walter Harper and the Farmers</u>, (Perth, 1955), p.134. This paragraph is based on this source.

88. Co-operative Bulk Handling Ltd., 'A Co-operative Enterprise', undated pamphlet in the Fremantle Port Authority Library.

89. Snooks, <u>op.cit</u>., p.43.

90. FPA 123/13/1, Copy of evidence of Mr. W. Oliphant, manager of the W.A. Producers' Union, 1913.

91. Snooks, <u>loc.cit</u>.

92. See the record of debate in W.A., <u>P.D</u>., vol.89 (1932). The bill was introduced on 7 September 1932, the second reading passed on 11 October and the report of the Select Committee received on 22 November.

93. B.K. Hyams, 'The Political Organisation of Farmers in Western Australia 1914-1944', (MA thesis, University of Western Australia, 1964), p.138.

94. Report of the Royal Commission on the Bulk Handling of Wheat, (Perth, 1935), p.xix.

95. WA, 25 October 1932 and 4 November 1932.

96. Hyams, loc.cit.

97. FPA 104/35/2, letter from FHT to Chairman, Royal Commission on Bulk Handling, 2 April 1935.

98. FHT, Annual Report, 1935-36, p.8.

99. Burley, op.cit., p.203.

100. Snooks, op.cit., p.43.

101. FPA 99/32/2, internal memo from manager, Mr. McCartney to Chairman of FHT, 27 October 1932.

102. C.T. Stannage, The People of Perth, (Perth, 1979), pp.240-51.

103. Data from B.J. Shaw and J.T. Jackson, 'A Comparative Study of Residential Development in Perth and Fremantle in 1880: Some Initial Findings', Australia 1888, Bulletin No.5 (September 1980), p.151.

104 G.D. Snooks, 'Development in Adversity 1913 to 1946', in T. Stannage (ed.) A New History of Western Australia, (Nedlands, W.A., 1981), p.257.

105. See A. Roberts, 'Planning Sydney's Transport 1875-1900', in M. Kelly (ed.) Nineteenth-Century Sydney. Essays in Urban History, (Sydney, 1978), pp.24-36; M. Tull, 'The Development of Port Administration at Sydney, 1901 to 1936', The Great Circle, vol.4 (1982), pp.92-104; G. Wotherspoon (ed.) Sydney's Transport. Studies in Urban History, (Sydney, 1983).

106. For interesting studies of competing land-uses in Sydney see the following two articles by P.R. Proudfoot: 'Wharves and Warehousing in Central Sydney, 1790-1890', The Great Circle, vol.5 (1983), pp.73-86; 'Maritime Land Uses in Central Sydney 1890-1970', The Great Circle, vol.6 (1984), pp.110-21. For a thorough study of competing land-uses in Hobart see R.J. Solomon, Urbanisation: The Evolution of an Australian Capital, (Sydney, 1976).

107. FHT, Report for the half year ending 30 June 1905, p.12.

108. <u>Ibid</u>.

109. <u>Ibid</u>., <u>Report</u> for the half year ending 31 Decmeber 1905, p.15.

110. A.T. Bonds, 'The Economics of Outer Harbour Development in the Port of Fremantle', (MA thesis, University of Western Australia, 1969), p.74.

111. Calculated from data in FHT, <u>Annual Reports</u>. The FHT's <u>Annual Reports</u> give data on cargo handled direct between ships and land transport, between ships and lighters and through the sheds, but, for our purposes, the usefulness of this data is severely limited by the fact that it does not distinguish between cargo travelling by rail and cargo travelling by road.

112. Tydeman, <u>op.cit</u>., p.130.

113. See footnote 110.

114. Battye Library, Harbour and Lights Department Deposit 335, memo from Chief Harbour Master to Under-Secretary for Works, 5 October 1921; memo from Inspecting Accountant to Under Treasurer, 10 November 1939.

115. C.R. Bickford, 'The Development of the Port of Sydney', <u>Journal of the Institution of Engineers (Australia)</u>, vol.29 (1957), p.121.

116. McCallum, <u>op.cit</u>., p.9.

117. FPA 80/12/1, letter from FHT to Secretary of Marine Underwriters' Association of W.A., 5 December 1911.

118. FHT, <u>Annual Report</u>, 1923-24, p.12.

119. PWD 1566/26, memos from Engineer for Harbours and Rivers to Engineer in Chief, 2 September 1926 and 7 September 1926.

120. J.K. Ewers, <u>The Western Gateway: A History of Fremantle</u>, 2nd edition, (Nedlands, W.A., 1971), p.148.

121. For an interesting account of C.Y. O'Connor's life and achievements, see M. Tauman, <u>The Chief. C.Y. O'Connor</u>, (Nedlands, W.A., 1978.).

122. F.J.A. Broeze, K.I. McPherson, P.D. Reeves, 'Engineering and Empire: The Making of the Modern Indian Ocean Ports', paper prepared for the Asian Studies Association of Australia, Fifth National Conference, Adelaide University, May 13-19, 1984, p.23.

123. <u>Ibid</u>., esp. pp.11-21.

124. See R.A. Buchanan, 'The British Contribution to Australian Engineering: The Australian Dictionary of Biography Entries', <u>Historical Studies</u>, vol.20 (1983), pp.401-19; and the same author's 'Institutional Proliferation in the British Engineering Profession 1847-1914', <u>The Economic History Review</u>, vol.XXXVIII (1985), pp.42-60.

125. Minutes of Evidence, <u>South Australian Committee on Public Works</u>, (Adelaide, 1934), p.119.

126. G. Jackson, <u>The History and Archaeology of Ports</u>, (Tadworth, U.K.), 1983. pp.10-11.

CHAPTER 7

The Financial Performance of the Fremantle Harbour Trust
1903 to 1939

In the previous chapter we examined the physical development of the port between 1903 and 1939. The FHT's financial capability obviously had a major impact on the port's response to changes in trade, ship and passenger flows. Without adequate finance new construction and even routine maintenance could be inadequate, resulting in a lower quality of port services. However, between 1906-07 and 1938-39 the capital invested in port works increased from £ 1,404,000 to £ 3,069,000. In 1906-07 about £ 2.5 was invested for every ton of cargo handled and in 1938-39 about £ 1.7, a contrast which suggests that the port was over-capitalised in the early years of this century.[1] In order to understand how the FHT financed this investment we will examine port income and expenditure patterns, charging practices, sources of capital funds and the profitability of port operations.

The port was such an apparent financial success that shipowners complained that the government was using it as 'a taxing machine'. In effect, the government was accused of exploiting the port's monopoly powers to provide a source of general revenue. We will examine the extent to which this complaint was justified. However, before we can deal with charging practices it is necessary to discuss the legislative constraints on financial policy and the FHT's revenue sources and expenditure patterns.

1.   The legislative framework

When the FHT was established in 1903, the Commissioners stated that their aim was 'to cheapen the port and to provide efficient and rapid services'.[2] But they quickly found that they had limited power to make changes, particularly in the area of finances. Although the FHT's

legal responsibilities were discussed in detail in Chapter 2, it is useful to include here a summary of those relating to port finances.

The Fremantle Harbour Trust Act 1902, which established the FHT, instructed it to pay surpluses to Consolidated Revenue after deducting operating costs, interest on borrowed funds and the cost of providing a sinking fund for the redemption of the capital debt. However, there was controversy over the value of the capital to be vested in the Trust and until this was settled, it was not possible to make interest and sinking fund payments. The Trust simply paid all surplus revenue into Consolidated Revenue: in the first three years of operation alone payments totalled £155,000. The FHT Commissioners complained that they had requested instruction from the government on financial objectives but 'the most that was ever attained was that the Commissioners were desired to work the Harbour to the best advantage possible, from all points of view, and to render it popular with the trading and shipping communities.'[3] This was hardly an illuminating 'guideline', and in order to make its intentions clearer the government passed an Amendment Act in 1906.

The Amendment Act provided the government with the power to revise port charges if revenue was considered either excessive or insufficient to meet the needs of the port. The FHT was required to provide interest of three and a half per cent on loan funds and make a contribution of one per cent of the capital debt to a sinking fund. A Renewals and Replacement Fund was established to provide for the replacement of assets. However, the appropriations to the fund were to be limited to £2,000 per annum, a move that appears to have been designed to allow the government maximum access to port profits. This severely limited the FHT's ability to fund investment from internal sources, an issue we explore later in the chapter.

The 1906 Act also gave the Trust power to levy a Harbour Improvement Rate not exceeding one shilling per ton on all goods discharged and shipped through the port. This was designed to raise funds for the ill-fated dock discussed in the previous chapter.

The Trust calculated that in order to meet the cost of the statutory charges required under the new Act they needed to increase wharfage rates by 30 per cent.[4] However, the government indicated that it regarded port taxation as 'a fair means of supplementing our revenue' and ordered the Trust to collect three shillings per ton extra inwards wharfage on alcoholic beverages, cigars, cigarettes, preserved meats, grain, flour, bran, pollard, chaff, fodder, sugar (and by-products of same), cement, malt, lubricating oils and grease, fire bricks and clay.[5] Although the surcharge appears to have been imposed on a rather random selection of items, one may suspect that the choice of items was affected by the political bargaining of some importers. In 1907 the general wharfage rate for cargo handled through the sheds was increased by 30 per cent to three shillings per ton, plus a surcharge of three shillings per ton on the above cargoes. At the same time as the rates were increased the government ordered the FHT to abolish outwards wharfage on goods, including agricultural produce processed within the state. The government took the opportunity to bring the rates at the state's other ports into line with those at Fremantle and to provide that goods which paid wharfage at any one state port could be admitted into any other state port free of wharfage.[6] Before we discuss the reasons for these moves it is, however, necessary to examine the FHT's revenue sources and expenditure patterns.

2.   The FHT's revenue sources and expenditure patterns

When the FHT took office in 1903, it inherited a scale of charges devised by the Department of Railways and the Harbour and Lights

Department. As at most ports, the charges fell into two main groups: those levied on ships and those levied on cargoes. Dues on ships were based on the tonnage of vessels, a system generally accepted throughout the British Empire and dating back to the British Merchant Shipping Act of 1854. Dues on cargoes were based on the freight ton (2,240 lbs) or the measurement ton (40 cubic feet) depending on which yielded the greatest revenue. Charges against ships were usually paid by the shipping companies and charges against cargoes by the consignees.

Table 7.1 illustrates the major revenue sources in selected years between 1910 and 1939. Wharfage rates, which were designed to cover the cost of providing wharves and related facilities, were levied on each ton of cargo landed or shipped. Despite some exemptions and concessions to be discussed shortly, wharfage rates provided the main source of revenue, accounting for 43 per cent of the total in 1938-39. Cargo-handling charges, also levied on each ton of cargo handled, were the next most important source of revenue, accounting for 33 per cent of the total in 1938-39. As we saw in Chapter 2, the FHT was the only Australian port authority to undertake the task of cargo-handling, and it is clear that it made an important contribution to port revenues.

In 1938-39 tonnage rates, designed to cover the cost of maintaining harbour channels and lights, accounted for 11 per cent of revenue. The Harbour and Lights Department had assessed tonnage dues on the size of ships and had taken no account of the amount of work a ship did while in port. This discouraged liners from calling to land or load small cargoes. For example, ships trading with India were in the habit of calling at Fremantle to land small cargoes of between 100 and 150 tons. These cargoes included cornsacks, woolpacks and other commodities required by farmers. The shipping companies had complained that port dues were eating up the profits from handling these small cargoes and

Table 7.1

Major Components of the Fremantle Harbour Trust's Revenue
Selected Years, 1909-10 to 1938-39

Revenue	1909-10 £'000	%	1919-20 £'000	%	1929-30 £'000	%	1938-39 £'000	%
Cargo-handling(a)	34	25.4	95	33.7	178	31.7	170	33.2
Wharfage(b)	65	48.5	91	32.3	227	40.5	219	42.8
Tonnage(b)	7	5.2	54	19.1	81	14.4	54	10.5
Pilotage(b)	7	5.2	15	5.3	23	4.1	23	4.5
Harbour Improvement Rate	2	1.5	9	3.2	30	5.3	29	5.7
Miscellaneous	19	14.2	18	6.4	22	4.0	17	3.3
Total	134	100.0	282	100.0	561	100.0	512	100.0

Notes: (a) Includes revenue from handling and stevedoring charges, crane and wheat gear hire.

(b) Including surtax from 1920 onwards. See text.

Source: FHT, Annual Reports

that if dues could not be reduced they would by-pass Fremantle. The West Australian cargo would then have to be trans-shipped from Melbourne or Sydney, adding to the cost of these agricultural supplies[7]. In 1905 the FHT persuaded the government to allow ships working cargoes which did not exceed one-quarter of their net registered tonnage to get a concession of 50 per cent off tonnage dues. This concession saved vessels working small cargoes about £1,750 in 1905-06 and, according to the FHT, 'should certainly be counted in any arguments that may be used in favour of popularising the port'.[8]

In 1938-39 pilotage accounted for four per cent of revenue. Prior to the inception of the FHT this had been calculated on the draught of vessels which meant that a small sailing ship could pay almost as much as a steamship. In their first year in office the FHT Commissioners ordered that pilotage should be based on a vessel's net registered tonnage in order to make the charges more equitable.[9]

We have already seen that in 1906 the FHT was granted power to levy a Harbour Improvement Rate not exceeding one shilling per ton on all goods discharged and shipped through the port. This was originally designed to raise funds to pay for the proposed dock and was levied at 6d per ton on inwards cargo from July 1908 onwards. Once established, inertia appears to have set in, because it was still in existence in 1939 yielding six per cent of revenue. A similar fate befell a 'temporary' surtax of 20 per cent imposed in August 1917 to boost port revenue which had been severely reduced by the outbreak of the First World War. Remarkably, the Harbour Improvement Rate and War Surtax survived until 1956 when they were both absorbed into the general tariff. As we will see later, the survival of the war surtax contributed to a chorus of criticism of port charges throughout the 1920's and 1930's.

Table 7.2 illustrates the major expenditure items in selected years between 1909-10 and 1938-39. The major item of expenditure was capital debt charges, covering interest and repayment of borrowed funds, although these fell from 59 per cent to 40 per cent of total expenditure between 1909-10 and 1938-39. The heavy burden of capital debt charges reflected the substantial investment that was required to establish and expand the port. These fixed costs had to be serviced regardless of the state of trade and shipping: and, as we shall see, this could be a serious problem when trade was depressed. Cargo-handling costs were the other major category of expenditure, accounting for 38 per cent of total expenditure in 1938-39. A detailed analysis of cargo-handling costs was undertaken in Chapter 5, where it was found that at least 70 per cent of outlays went on wages, a reflection of the labour intensive nature of cargo-handling.[10]

Maintenance expenditure included dredging, repairs to wharves and cargo sheds and general port maintenance. This category grew to 13 per cent of total expenditure in 1929-30 but was cut-back in the 1930's and by 1938-39 accounted for only seven per cent of total expenditure. Administrative expenses included office salaries and expenses, Commissioners' fees and general expenses. This category increased slightly in relative importance after 1920 but also accounted for only seven per cent of total expenditure in 1938-39. Pilotage expenses averaged about five per cent of total expenditure and covered the cost of the Harbour Master's Department, pilots salaries and the cost of running the pilot boats.

Expenditure on cargo-handling and pilotage can be directly set against revenue items and it is apparent that cargo-handling was much more profitable than pilotage. The contribution of cargo-handling to port finances and the general profitability of port operations will be

Table 7.2

Major Components of the Fremantle Harbour Trust's Expenditure
Selected Years, 1909-10 to 1938-39

Expenditure	1909-10 £'000	%	1919-20 £'000	%	1929-30 £'000	%	1938-39 £'000	%
Maintenance	5	4.5	19	8.5	46	12.8	29	7.0
Cargo-handling	29	26.4	84	37.5	157	43.6	156	37.9
Administration	5	4.5	10	4.5	21	5.8	28	6.8
Capital debt charges	65	59.1	95	42.4	109	30.3	164	39.8
Pilotage	5	4.5	10	4.5	19	5.3	23	5.6
Miscellaneous	1	0.9	6	2.7	8	2.2	12	2.9
Total	110	100.0	224	100.0	360	100.0	412	100.0

Note: Where percentages do not add to 100.0 this is due to rounding.

Source: FHT, Annual Reports

considered in detail later in the chapter. Tonnage rates were ostensibly designed to cover the cost of providing and maintaining channels and lights but such expenditure was included under the general heading of maintenance. Wharfage rates, the main source of revenue, covered all remaining costs.

3.   The distribution of port charges

The above discussion of the FHT's revenue sources has shown that most income came from cargo-handling and wharfage charges which were borne by consignees, not shipowners. The desire to attract shipping and keep freight rates low led the FHT to collect more revenue from goods than from ships. The mail steamer concession provides a glaring example of the bias in favour of shipping.

When the FHT Commissioners assumed office in 1903 they found that mail steamers paid a consolidated charge of £30 to cover all port charges. In Chapter 2 we saw that this concession, which was introduced at Albany in 1892, was adopted at Fremantle as part of the attempt to lure the mail steamers to use the new Inner Harbour. The Trust protested that mail steamers sometimes worked as much as 900 tons of cargo, handled large numbers of passengers and took gold at very payable freights 'and were thus enjoying a most distinct advantage over their less pretentious sisters'.[11] In 1903 a steamer of 2,000 tons, entering with a full cargo and sailing empty, normally paid £93 in dues.[12] Naturally, the mail companies vehemently objected to the proposed loss of this valuable concession and claimed that the government had promised to maintain the concession for the life of the current mail contract. This was eventually conceded by the government and the concession continued to the end of February 1905.

Figure 7.1 illustrates the percentage share of earnings paid by consignees and shipowners between 1911-12 and 1938-39. In 1911-12 cargo

Figure 7.1

The Percentage Share of the Fremantle Harbour Trust's Revenue
Contributed by Consignees and Shipowners, 1911-12 to 1938-39
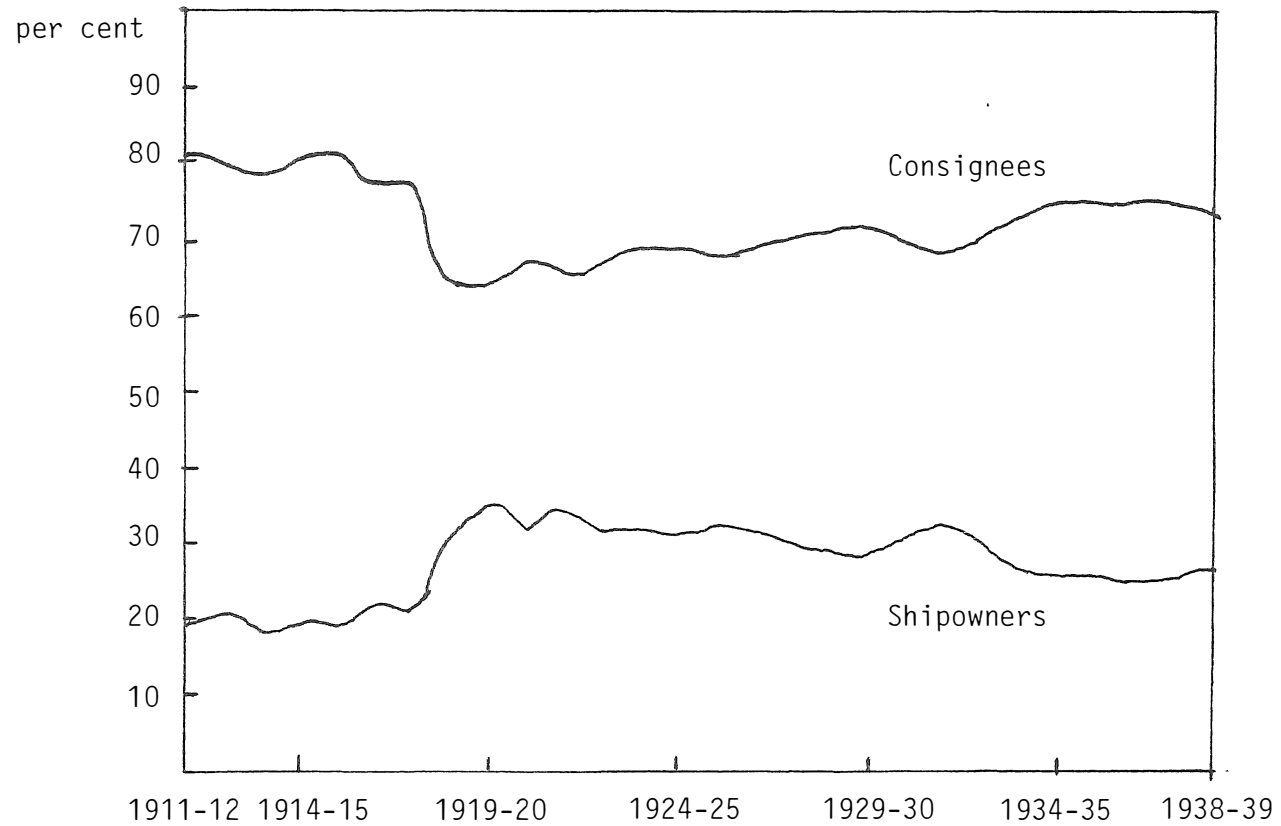
Source: FHT, Annual Reports.

owners contributed 81 per cent of port revenue, shipowners 17 per cent and miscellaneous services 2 per cent. The percentage paid by shipowners reached a record 35 per cent in 1919-20 due to a surge of shipping arrivals following the end of the First World War. However, thereafter the trend was downwards, and in 1938-39 shipowners contributed 26 per cent of earnings and consignees 73 per cent.

Fremantle was not alone in obtaining more revenue from goods than ships. In 1928 for every £100 received in revenue from ships, the goods carried by the ships paid the following at these ports:13

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                £
Fremantle  239
Sydney     309
Melbourne  282
Adelaide   250
London     106
Liverpool   76
Glasgow    159
Bristol    150
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Thus in Australia about 27 per cent of port revenue was contributed by ships compared to about 45 per cent in the United Kingdom. This discriminative pattern of charging may have been the result of a series of rule-of-thumb pricing decisions but it seems more plausible to suggest that it reflected the relative lobbying powers of shipowners' and consignees. We will examine the shipowners' attempts to reduce port charges in the next section of the chapter.

In addition to the discrimination between goods and ships, there was secondary discrimination between exports and imports. We have already seen that in 1907 the government levied a surcharge of three shillings per ton on some imports and ordered the FHT to abolish outward wharfage charges on goods. The timing of these moves was dictated by the fact that Western Australia had to cease levying customs duties on interstate trade in 1906. The West Australian government had feared that after federation in 1901 the state's rural and manufacturing

industries would be exposed to overwhelming eastern states competition. Consequently, it negotiated a unique arrangement whereby Western Australia was allowed to progressively reduce customs duties on interstate trade over a period of five years.[14] Thus in 1907 the government increased wharfage rates on imports in an attempt to compensate local manufacturers for the loss of protection from eastern states producers. Similarly, the abolition of wharfage rates on exports was designed to assist the state's rural industries. At that time Melbourne and Sydney, for example, allowed all exports through free of wharfage charges. The FHT, alarmed at the potential loss of revenue, successfully resisted moves to abolish all outward wharfage and wool, hides, timber and ore continued to pay wharfage.[15] However, when the Harbour Improvement Rate was first levied in 1908 the government insisted that it should apply only to imports.[16]

This kind of discrimination in favour of exports was widespread in Australia: where exports were charged for the rate was often only one-half of that for imports.[17] In 1920 the FHT estimated that they had provided £60,000 worth of special machinery and facilities to handle grain and flour that could not readily be used by other cargoes. The Trust calculated that if the 11.5 million bags of wheat shipped between 1907 and 1920 paid the same outwards wharfage rate as applied in South Australia, this would have earned it about £44,000. So £44,000 represented the value of the indirect subsidy to the wheat industry. If similar calculations were made for other primary commodities and manufactured articles, the total subsidy would have been of the order of £100,000. The Commissioners protested 'against the onus of providing a State subsidy', and declared that the subsidy should be paid directly by the government and not hidden in the cost of harbour operations.[18]

Sir George Buchanan, in his report on Australia's ports in 1926 stressed that everything that used a port should contribute to port revenue. He argued that if allowing exports the free use of ports was sound, it would be logical to allow them also the free use of the railways![19] In order to compensate for the revenue lost from exports the FHT had to levy higher charges on imports; as one contemporary put it: 'the consumer pays for the pastoralist'.[20] However, the concessions to exports need to be seen in the context of Australia's policy of 'protection all round'.

Following the introduction of the Lyne Tariff in 1908, the policy of protecting Australian industries from overseas competition became an accepted plank of federal government policy. Supporters of the tariff argued that protection would increase real wages in manufacturing industry, attract immigrants and increase self-sufficiency.[21] However, primary producers complained that the protection granted to manufacturers increased their costs of production; tariffs led to a shift of income distribution in favour of manufacturing industry. The complaints of primary producers were eventually met, with the aid and approval of the Country Party, by the provision of 'protection all round'.[22] In the 1920's guaranteed price schemes for farm products, marketing boards and other forms of rural regulation became widespread. The concessions in port charges at Fremantle were thus only a small drop in the huge ocean of government assistance to industry. Wharfage on all exports was not reimposed until 1965, eloquent testimony to the deeply entrenched practice of 'protection all round'.

4.   The port as 'a taxing machine': port charges in the 1920's and 1930's

The outbreak of the First World War created a shortage of shipping capacity and led, inevitably, to rising freight rates. Rising freight rates helped to create a boom in ship building and by the early 1920's there was a worldwide surplus of shipping tonnage.[23] Declining prosperity forced shipowners to scrutinize closely all costs, including seamen's wages, canal dues and port charges. Worldwide depression in the 1930's only exacerbated the over-tonnaging in the industry and reinforced the pressure to reduce costs. Therefore it is not accidental that during the 1920's and 1930's there was a chorus of complaints about the level of Australian port charges.[24] The FHT, in particular, was criticised for being used as 'a taxing machine', because during the 1920's it paid surpluses averaging £100,000 per annum to Consolidated Revenue.[25]

At the outset it should be stressed that most complaints came from shipowners operating liners rather than from those operating tramps. As we saw in Chapter 4, liners were organised into conferences and offered regular services over specified routes unlike tramps which went wherever there was cargo. In 1913 the conference lines formed the Overseas Shipping Representatives' Association (OSRA), which quickly became an influential body.[26] In 1926-27 11 liners of the leading British line, the Peninsular and Oriental Steamship Navigation Company (P and O), made 51 visits to Fremantle and paid £4,482 to the FHT for port dues and pilotage alone.[27] This represented about three per cent of the total revenue earned from ships in that year. The FHT, other Australian port authorities and even governments, could not ignore

complaints from the conference lines which provided the majority of Australia's vital overseas shipping links.[28] Tramp ships, on the other hand, had no representative organisation in Australia and, as we saw in Chapter 4, became less frequent visitors to Australia during the inter-war years.

One area of complaint was the existence of dual charges for light dues. In 1915 the federal government took over responsibility for coastal lights and asked the states to adjust their charges so that there would not be two taxes for the same service.[29] However, only the Hobart Marine Board ceased levying light dues. In Western Australia the government reduced light dues by 50 per cent to $\frac{1}{2}$ d per net registered ton. However, in June 1919 they were increased to 1d per gross registered ton. The West Australian Committee of the Australian Oversea Transport Association estimated that in 1928 light dues paid by overseas shipping companies totalled £17,664, while the cost of the service was only between £1,500 to £2,000.[30]

In 1917 the FHT had imposed a temporary war surtax of 20 per cent on port charges but this was retained after the war ended. Naturally, the shipowners wanted it abolished. In the early 1920's the FHT also repeatedly suggested to the government that the surtax should be abolished but the government refused on the grounds that it needed the revenue.[31] The government claimed that the surtax merely 'represents the difference between existing and prewar rates'.[32] Between 1918 and 1927 it yielded about £346,000 in additional revenue.

Another bone of contention was the retention of a compulsory pilotage service from the sea to Gage Roads. In 1924 a strike by the deckhands and firemen manning the Trust's pilot launches forced many

ships to steam in and out of Gage Roads and in some cases the Inner Harbour by themselves.[33] The FHT decided that compulsory pilotage between the sea and Gage Roads was unnecessary and issued circulars to this effect. But the Labor Government of Philip Collier refused to sanction the move on the grounds that its timing suggested that it was an attempt to punish the workers for going on strike.[34] It would have led to the retrenchment of about a dozen members of the Seamen's Union. The Trust was forced to issue circulars reimposing compulsory pilotage, a move which, not surprisingly, provoked strong protests from shipping and business interests.[35] The Commissioners wrote directly to the Colonial Secretary stating that they 'deeply resent' such interference.[36] Although the Commissioners' political insensitivity played a major role in the demise of the proposal, financial considerations helped sway the government.[37]

From its formation in 1903 to 1938-39 the FHT paid a total of £2.5 million to the West Australian government.[38] The only two occasions when the Trust failed to pay the government anything both occurred during the exceptional years of the First World War. It is little wonder that Sir George Buchanan, in his report on Australian ports, criticised the government for using Fremantle as 'a taxing machine'.[39] But the FHT itself was not keen to be used as such. In 1913 the Secretary, Stevens, told the government that 'it was an axiom in port management the world over to keep the port dues as low as possible'.[40] Port authorities, together with many other public enterprises, appear to have regarded it as a public duty to keep charges as low as possible.[41]

The surpluses paid to Consolidated Revenue contradicted a resolution passed at the Premier's Conference in 1923:

> A profit should not be made out of harbour charges, naturally affecting freights which are a most important matter to Australia; if revenue has to be raised it is very desirable that it should be derived from some other source.[42]

However, Western Australia was not the only state to use ports for revenue raising purposes. The Melbourne Harbour Trust was forced to pay one-fifth of its revenue to the state, and during the 1920's alone it contributed £1.2 million to the Victorian government, while the Sydney Habour Trust paid a similar amount to the New South Wales government.[43]

However, it was not clear whether the 1923 resolution was meant to apply to Australian ports as a whole or to ports within a state or to individual ports. In 1927-28 the FHT paid £133,850 to Consolidated Revenue but the state lost £118,721 on the state's other ports, leaving an overall surplus of only £15,129.[44] Thus if the state's ports were considered as a whole, the government could not be accused of excessive taxation. Other states, with the exception of New South Wales, also made overall surpluses from port operations. In 1927-28 the net surplus for the four states of New South Wales, Victoria, South Australia and Western Australia was £14,940.[45] Thus for Australia as a whole port revenues do not appear to have been excessive. However, the Conference Lines contended that revenue from the main ports should not have been used to subsidize the minor ports. This view was supported by Sir George Buchanan who declared that ports should be self-contained financially and any surpluses should be used to build up reserves, reduce charges or extinguish capital debt.[46] A Commonwealth Committee

on the Co-ordination of Transport in Australia, which reported in 1929, also endorsed this approach:

> As outports have been established for developmental purposes, it would seem reasonable that losses sustained at these ports should be met from Consolidated Revenue, as State revenues will be enhanced from other sources as a result of the settlement and development of the areas served by such outports; otherwise their establishment would not be justifiable on economic grounds, and must be the result of government policy. In either case, it would appear reasonable that losses at such ports should be recouped directly from State revenues, and not by the taxation of trade at the main ports, where the bulk of the overseas shipping is handled.[47]

But the federal government had no power to impose pricing policies over the states and its proposals were never implemented.

In Western Australia port charges were set to cover:

(a) cost of operating the services, including repairs to and maintenance of assets;

(b) interest on capital;

(c) contribution to a sinking fund to renew assets within the term of their useful and effective life;

(d) contribution to a reserve for seasonal fluctuations, unforeseen circumstances, etc.[48]

The West Australian government declared that it was acceptable to use revenue from profitable ports to subsidize unprofitable ones, 'provided the charges at the profit earning port were not so high as to prejudicially react on the interests of the state as a whole'.[49] In practice, this meant that charges at Fremantle would not be allowed to get too far out of line with those in other states.

Economists usually argue that port charges should be based on the cost of providing the relevant services.[50] However, as late as the 1960's, P.E. Stonham observed that in Australian ports

> the rates are set according to the 'custom of the port' and are rarely related to the marginal or average private

or social costs of port investment in static facilities.
The custom of the port may embody all sorts of historical
and rule of thumb factors.[51]

The principle that charges should be cost based means that cross-subsidisation should not occur. But as we have seen apart from cross-subsidisation between Fremantle and less profitable ports, there was cross-subsidisation between exports and imports and between ships and goods. Economists generally argue that if a government wishes to subsidize a group of port users it should do so by means of an explicit subsidy and not through tariff concessions which force port authorities to increase the burden of charges on other users. As we saw earlier, this was precisely the line of argument put forward by the FHT in the 1920's. But the FHT's plea fell on deaf ears and port charges continued to be determined by a variety of pressures including revenue requirements, political bargaining and state development policies, as well as historical inertia. It is ironical that the loudest complaints about port charges came from shipowners - the group that probably gained most from the arbitrary and discriminative pattern of charging.

Despite the complaints from shipowners little had changed by 1939. However, in Sydney the finances of the port authority were separated from those of the state in 1935.[52] The question that remains, however, is how significant were charges at Fremantle and other Australian ports? Did they lead to higher freight charges?

An estimate for 1928 suggests that all port charges, pilotage and light dues paid in Australia totalled less than 2 shillings per ton of cargo handled. At an average freight of 70 shillings per ton this represented only 3 per cent of a vessel's income.[53] This implies that the level of port charges was unlikely to be a major influence on the

willingness of shipowners to call at Fremantle and other Australian ports. The availability of cargoes, the speed of ship turnround, the state of labour relations and other 'quality' factors probably had more impact on port choice.

A survey of port charges paid by a wheat ship in the mid 1930's found that the average charge per ton of cargo at leading grain loading ports was as follows:[54]

Australia	Fremantle	1s 2d
	Sydney	1s 3¾d
	Melbourne	1s 0d
	Adelaide	2s 5d
Canada	Quebec	0s 11¼d
	Montreal	1s 1d
	Vancouver	0s 6¾d
Argentina	Buenos Aires	1s 7d
	Rosario	1s 2d
South Africa	Capetown	1s 1d
	Durban	1s 1d

With the exception of Adelaide, Australian port charges did not compare unfavourably with overseas ports. Therefore Stevens, Secretary of the FHT, was justified in arguing that Fremantle's dues were no deterrent to a ship calling:

> I think that if the port was given free it would make no appreciable difference in freight, and any concession made would merely be a transference of revenue from the coffers of the State to the pockets of the shipowner.[55]

Complaints about port charges, Stevens believed, were 'simply trotted out by the [shipping] Companies as a hardy annual and may possibly be used as a bogey to frighten the community into the idea that the port charges are responsible for increases in freight, which is distinctly not so.'[56]

In 1933, Mr. John Curtin, the future Labor Prime Minister, argued that Suez Canal dues imposed a much greater burden on overseas trade than did port charges:

any enterprising American gangster will cheerfully admit
that the best way to cover up a big job is to get a
subordinate punched for a small one. Hence, apparently,
the attack by the shipping interests on the Fremantle
Trust while very little is said concerning the imposts
levied by the Suez Canal Company.[57]

However, in the early 1930's shipowners were also campaigning
for a reduction in Canal dues. One of the Canal's most vehement critics
was Sir Arnold Wilson (not a shipowner) who pointed out that it
generated annual revenue of about £9 million and paid dividends of over
forty per cent. He claimed that the Company behaved as a monopolist and
had been charging what the traffic would bear; the Suez Canal was 'a
vital artery, tenanted by growths once beneficient but now parasitic
upon the life-stream of overseas commerce.'[58] The behaviour of the Suez
Canal Company contrasted markedly with that of the FHT which, as we saw
earlier, strove to keep charges down to the lowest practical level
consistent with its commitments.

In Chapter 4 we saw that liners tended to do a 'milkround' of
the Australian coast in search of cargoes. The ships had to pay dues in
each port visited and this was the real source of the complaints about
Australian port charges. Although charges at Fremantle and most other
Australian ports were reasonable, the repeated port calls made total
port charges rather high. As K. Burley has observed, 'if the economy of
the country required a multiplicity of port calls it is shortsighted not
to have devised a more appropriate form of taxation.'[59] But the states
jealously guarded their autonomy in these matters and, to this day,
Australia lacks an integrated system of port charging.

5.   <u>Sources of capital funds</u>

The availability of capital funds was obviously a major factor affecting the port's ability to respond to change. The sources of the FHT's investment outlays by the FHT between 1909-10 and 1938-39 are shown in Table 7.3. It is apparent that most of the capital funds were derived from external sources, namely government loan funds appropriated on an annual basis. Investment funded from internal sources was fairly unimportant, except in the late 1920's. In order to understand this pattern of investment funding, it is necessary to discuss the relationship between loan redemption and depreciation in some detail.

Loan redemption refers to the repayment of funds borrowed to finance the initial purchase of assets. Depreciation is usually regarded as the cost of using an asset and allocates portions of the purchase cost as a charge against revenue over the estimated life of the asset. The FHT provided for loan redemption by contributions to the state sinking fund and depreciation by means of annual transfers to a Renewals Fund, established in 1906. The objective of both sinking fund and depreciation measures was to secure from revenue a satisfactory cash flow in relation to debts and to this end either a sinking fund or a depreciation measure or a combination of the two, was equally satisfactory, provided that prices were stable and the general profitability and liquidity position of the port was adequate in relation to its financial commitments.[60] However, the transfers to the renewals fund were limited by statute to £2,000 per annum which, although possibly adequate provision in the early 1900's, was certainly not so by the 1930's. Despite repeated requests from the FHT the limit of £2,000 remained unchanged until the early 1960's, a reflection of the

Table 7.3

Sources of the Fremantle Harbour Trust's Investment Funds
1909-10 to 1938-39
(£'000)

	External funds	Internal funds	Total Gross Investment	Internal Funds as a % of the total
1909-10	41	2	43	4.7
1910-11	28	2	30	6.7
1911-12	50	1	51	2.0
1912-13	39	6	45	13.3
1913-14	65	5	70	7.1
1914-15	106	*	106	-
1915-16	54	2	56	3.6
1916-17	49	2	51	3.9
1917-18	42	1	43	2.3
1918-19	46	1	47	2.1
1919-20	46	*	46	-
1920-21	46	2	48	4.2
1921-22	49	1	50	2.0
1922-23	42	2	44	4.5
1923-24	38	2	40	5.0
1924-25	56	8	64	12.5
1925-26	67	10	77	13.0
1926-27	63	18	81	22.2
1927-28	127	19	146	13.0
1928-29	122	13	135	9.6
1929-30	218	8	226	3.5
1930-31	66	1	67	1.5
1931-32	38	1	39	2.6
1932-33	62	1	63	1.6
1933-34	92	2	94	2.1
1934-35	98	4	102	3.9
1935-36	100	7	107	6.5
1936-37	79	8	87	9.2
1937-38	31	2	33	6.1
1938-39	34	5	39	12.8

Notes: In 1907-08 about £20,000 was spent from loan funds but, apart from this, new investment prior to 1909-10 appears to have been funded from revenue. In 1908-09 the accumulated value of gross capital expenditure from revenue was only about £8,000.

* = less than £1,000.

Source: FHT, Annual Reports.

determination of successive governments to keep a tight control over port surpluses.[61] But as the FHT was not making adequate provision for depreciation its recorded surpluses overstated the profitability of port operations. The FHT lamented the fact that it lacked the power to build up adequate internal reserves for depreciation and replacement of assets: 'we have no chance to get away from the stigma the shipping people level at us of being collectors for the Government'.[62] The FHT had to increase its loan liabilities in order to finance the replacement of assets and, in fact, tended to treat the small Renewals and Replacement Fund as an investment. The government appears to have recognised that the situation was unsatisfactory because in 1926, Premier Collier wrote to the Overseas Shipping Representatives Association as follows:

> It is, indeed, open to some doubt that the full revenue, including the surtax, exceeds by any appreciable sum the costs of the services of the harbour, including the provision of wastage, obsolescence, and contingencies.[63]

However, such recognition was rather expedient, serving mainly to justify the government's unwillingness to reduce port charges, and no change was made to the port's financial arrangements. By 1939 about £1.2 million had been spent on reconstruction of Victoria Quay and North Wharf of which 92 per cent had been funded from loan votes.[64] Moreover, only about one per cent of total assets had been financed directly out of the Trust's revenue.

The practice of increasing loan liabilities in order to finance replacement of assets effectively forced the FHT to raise port revenues and hence charges to a level sufficient to ensure that the growing debt could be serviced. But if adequate loan capital had not been forthcoming or sufficient revenue had not been raised, the Trust would

have been forced to abandon or postpone the renewal of assets, with possibly serious consequences for the quality of port services. In the 1930's falling trade threatened to create such a situation, but as we will see, the FHT was insulated from the worst effects of the financial crisis by its highly profitable cargo-handling operations. Other ports, lacking income from cargo-handling, were not so fortunate. For example, in 1931-32 capital debt charges absorbed 90 per cent of the Sydney Harbour Trust's income leaving a mere 10 per cent for administration and maintenance.[65] As a result, development and maintenance programmes had to be drastically curtailed.

One problem facing the FHT was that by 1926-27 it had paid £337,000 in sinking fund contributions and surpluses totalling £1.1 million to the treasury but had had nothing written off its capital debt. Thus net profits were depressed as the Trust was paying interest on capital stock which was obsolete and in some cases no longer existed. But in 1927 the federal government and states signed the Financial Agreement in which the federal government agreed to assist the states to repay their capital debts and the interest thereon.[66] The Australian Loan Council was established to co-ordinate the borrowings of the federal government and the states. As part of moves to meet the new arrangements, the treasury agreed to reduce the FHT's capital debt by the amount of its sinking fund contributions but allowed no credit for interest earned on the sinking fund investments. However, in future sinking fund contributions were applied directly to the reduction of loan capital.

In summary, it is clear that the FHT's financial autonomy and, in particular, its ability to build up internal reserves, was extremely

limited. It was necessary to go cap-in-hand to the government every year in order to get adequate funds for port development and reconstruction. The FHT preferred that the port's development was not subject to the vicissitudes of the budget process but argued in vain for a greater ability to retain internal funds for development. Fremantle had to directly compete with other public enterprises and projects for funds. Loan expenditure on harbours, rivers and associated works averaged five per cent of total loan expenditure in the 1920's and nine per cent in the 1930's. Fremantle captured, on average, about 40 per cent of this loan expenditure. In the final chapter we will attempt to assess whether or not these funds enabled port development to keep pace with the expansion of port activity.

6.   Financial performance and profitability

An overview of port revenues, expenditures, surpluses and payments to Consolidated Revenue, can be obtained from Table 7.4. The FHT recorded a deficit on only one occasion during its first 36 years of operation. Over the whole 36 years it earned an average of £74,000 per annum or £48,000 per annum in 1910-11 prices.[67] Of course, the latter measure is a very crude approximation of the real surplus earned, largely because port charges do not measure all the social benefits or costs of port operations and because of deficiencies in the accounting data. Before examining measures which give a more complete picture of the FHT's financial performance we will, however, consider the profitability of cargo-handling operations because these help explain the Trust's ability to record continued surpluses.

As we saw in Chapter 2, the FHT acquired responsibility for cargohandling on the wharves in 1904 and was the only Australian port

Table 7.4

Financial results for the Fremantle Harbour Trust,
1903-04 to 1938-39
(£'000)

Year	Revenue	Expenditure	Surplus	Payments to Consolidated Revenue
1903-04	84	34	50	48
1904-05	98	43	55	53
1905-06	94	40	54	54
1906-07	96	93	3*	35
1907-08	116	104	12	11
1908-09	103	101	2	2
1909-10	134	110	24	10
1910-11	177	120	57	30
1911-12	170	129	41	28
1912-13	200	147	53	77
1913-14	204	154	50	44
1914-15	180	140	40	29
1915-16	187	162	25	18
1916-17	176	175	1	+
1917-18	163	166	(3)	−
1918-19	186	184	2	−
1919-20	282	224	58	50
1920-21	302	231	71	71
1921-22	282	227	55	56
1922-23	282	224	58	47
1923-24	357	253	104	97
1924-25	421	280	141	131
1925-26	443	297	146	113
1926-27	500	340	160	142
1927-28	536	393	143	134
1928-29	589	415	174	161
1929-30	561	360	201	194
1930-31	423	306	117	121
1931-32	376	279	97	103
1932-33	399	290	109	105
1933-34	365	299	66	87
1934-35	431	323	108	102
1935-36	443	347	96	91
1936-37	473	374	99	87
1937-38	511	409	102	97
1938-39	512	412	100	99

Notes: * The Auditor General observed that adequate provision had
not been made for capital debt charges. In his view, the
Trust lost about £7,000. See FHT Annual Report, 1906-07,
p.20.

+ = less than £1,000.

Source: FHT, Annual Reports

authority to undertake this task. In its 1913-14 <u>Annual Report</u> the FHT

had declared that:

> the work of handling cargo at the port must stand as much
> as possible alone, and must just pay its cost with as bare
> a margin of profit to meet unforeseen eventualities as is
> possible or safe.[68]

However, as Table 7.5 shows, between 1904-05 and 1938-39 the

Trust earnt an average surplus of £13,000 per annum from cargo-

handling. On four occasions the FHT would have made an overall loss but

for the profits from cargo-handling. In Chapter 5 we saw that in the

early 1930's the FHT and other employers were able to extract a feverish

pace of work from the lumpers and this, together with the ten per cent

wage cut imposed by the Arbitration Court in 1931, led to soaring

profits from cargo-handling. In 1931-32 the FHT's profits from

cargohandling reached a record £45,000 and accounted for 46 per cent of

total net profits. The FHT in consequence reduced their rates for

cargo-handling to about the same level as they were in the 1920's.

However, for the rest of the decade profits averaged about £22,000 per

annum, well above the average for the period 1904-05 to 1938-39. The

FHT used revenue from cargo-handling to compensate for dwindling revenue

from other sources. For example, the slump in trade caused revenue from

wharfage charges to fall by £98,733 or 44 per cent between 1929-30 and

1931-32. Thus the FHT's cargo-handling operations provided it with a

valuable financial life-line.

In 1925 R.S. MacElwee suggested that the financial performance

of a port can be assessed by examining cost per ton of cargo

handled.[69] Table 7.6 gives average cost per ton of cargo handled by the

FHT between 1910 and 1938. Revenue per ton of cargo is included to show

the other side of the equation. It is necessary to stress that cargo

handled is only one dimension of port use; the data give only a very

Table 7.5

Financial Results of Cargo-handling Operations, 1904-05 to 1938-39

(£'000)

Year	Revenue	Expenditure	Surplus
1904-05	27	23	4
1905-06	26	21	5
1906-07	26	20	6
1907-08	27	23	4
1908-09	25	19	6
1909-10	34	29	5
1910-11	38	33	5
1911-12	43	38	5
1912-13	60	49	11
1913-14	64	53	11
1914-15	51	43	8
1915-16	64	57	7
1916-17	70	63	7
1917-18	57	54	3
1918-19	56	48	8
1919-20	95	84	11
1920-21	96	84	12
1921-22	91	76	15
1922-23	87	73	14
1923-24	116	98	18
1924-25	135	121	14
1925-26	140	128	12
1926-27	169	163	6
1927-28	194	186	8
1928-29	183	188	-5
1929-30	178	157	21
1930-31	155	112	43
1931-32	131	86	45
1932-33	125	92	33
1933-34	117	96	21
1934-35	133	110	23
1935-36	134	112	22
1936-37	144	125	19
1937-38	162	143	19
1938-39	170	156	14

Note: Revenues and expenditures from cranes and grain plant are included.

Source: FHT, Annual Reports

Table 7.6

Average Revenue and Cost Per Ton of Cargo Handled,
Selected Years, 1910 to 1938

Year[1]	Average revenue per ton of cargo[2] (pence)		Average cost per ton of cargo[3] (pence)	
	current	constant 1910-11 prices[4]	current	constant 1910-11 prices[4]
1910	48	48	16	16
1920	76	43	35	20
1930	72	42	33	19
1938	78	46	37	22

Notes: [1] Three year averages centred on the years shown.

[2] Derived by dividing total revenue by total tons of cargo handled.

[3] Derived by dividing total costs by total tons of cargo handled.

[4] Deflated using Butlin's implicit GDP deflator. See Appendix B.

Source: Western Australia, Statistical Registers

rough notion of trends in revenue and cost per unit of output. Table 7.6 shows that average cost per ton of cargo in constant prices increased by 38 per cent between 1910 and 1938, suggesting a decline in port efficiency. Average revenue per ton of cargo in constant 1910-11 prices fell by about four per cent between 1910 and 1938. This suggests a modest decline in the level of port 'taxation'. Ironically in real terms port 'taxation' appears to have been at its lowest in the 1920's and 1930's, the period when cries that the port was 'a taxing machine' were at their loudest.

In order to obtain a more complete picture of the port's financial performance we will now employ some measures commonly used by accountants.[70] It is necessary to stress that these measures can be presented only with great reservation. They are open to criticism because they are affected to a large degree by managerial policies with regard to depreciation. Moreover, the accountants' concept of a rate of return is quite distinct from the economists'. The accountants' measures indicate the return on total capital whereas economists are more concerned with the return on marginal capital. Many of the port's assets, such as wharves, are fixed or relatively immovable and have few alternative uses: the return on such 'sunk' capital would not have normally influenced investment at the margin. However, if a low rate of return on total capital is considered evidence of bad management, the financial backing for marginal investment schemes may not have been forthcoming. Of course, a low rate of return on total capital may have been due to government policy or other influences beyond the control of the FHT. If, when due allowance is made for outside influences, the historical rate of return is still low, one might legitimately question

the capacity of the FHT to carry through a new investment which in competent hands would at least cover its 'social opportunity costs'.[71] Therefore, although a financial rate of return does not reflect the real rate of return to society from employing resources in a particular way, it does provide an approximate check on managerial performance.

Table 7.7 shows selected measures of financial performance between 1906-07 and 1938-39. The first measure (column 1) is the operating ratio which shows the relationship between working expenses (which exclude capital debt charges) and earnings. The operating ratio suggests that there was a marked deterioration in financial performance during the First World War and although this deterioration was partially reversed in the early 1920's, when trade and shipping recovered from the effects of the war, the pre-war level of performance was never regained. This permanent decline was probably due to a combination of cost and revenue factors. Between 1903 and 1936 the FHT's permanent staff grew by about 314 per cent but trade grew by only 148 per cent in tonnage terms and only 36 per cent in real values.[72] Although overstaffing may have contributed to the fall in operating efficiency, it is important to note that the FHT's administrative responsibilities expanded significantly in 1904 when it took over cargo-handling. On the revenue side, as the port's export trade grew, so did the proportion of cargoes totally exempt from wharfage charges. Grain, for example, was an exempt cargo which grew from 23 per cent of exports in 1909-10 to 53 per cent of exports in 1929-30. As we saw earlier, in 1920 the FHT estimated that lost revenue on all exports totalled about £ 100,000. Thus the discriminatory tariff made a major contribution to the decline in the FHT's financial performance.

Table 7.7

Indicators of Financial Performance, 1906-07 to 1938-39
(percentages)

	(1) Operating Ratios	(2) Operating Surplus/ Net Fixed Assets	(3) Net Profits/ Net Fixed Assets
1906-07	38.3	4.2	0.2
1907-08	33.7	5.6	0.9
1908-09	34.7	4.8	0.1
1909-10	33.1	6.3	1.7
1910-11	30.5	8.7	4.0
1911-12	35.4	7.6	2.8
1912-13	38.1	8.4	3.6
1913-14	40.7	8.0	3.3
1914-15	37.1	7.0	2.5
1915-16	44.8	6.3	1.5
1916-17	53.7	4.9	0.1
1917-18	51.2	4.6	-0.2
1918-19	50.6	5.3	0.1
1919-20	46.4	8.6	3.3
1920-21	44.3	9.4	4.0
1921-22	44.9	8.5	3.0
1922-23	42.6	8.8	3.1
1923-24	40.9	11.4	5.6
1924-25	40.7	13.4	7.5
1925-26	41.7	13.5	7.6
1926-27	44.7	14.1	8.2
1927-28	50.7	12.9	7.0
1928-29	48.6	14.1	8.1
1929-30	45.2	12.6	8.2
1930-31	43.5	9.3	4.5
1931-32	40.5	8.6	3.8
1932-33	40.5	9.0	4.2
1933-34	42.5	8.1	3.2
1934-35	43.2	8.6	3.8
1935-36	46.2	8.1	3.3
1936-37	46.8	8.7	3.4
1937-38	48.3	9.1	3.5
1938-39	48.3	9.1	3.5

Notes: 1906-07 is the first year that data on the value of the FHT's assets is available. Until 1929-30 only assets purchased from revenue were depreciated. On the assumption that sinking fund payments were an approximate substitute for historic cost depreciation, the cumulated totals of sinking fund payments were used to derive rough estimates of the FHT's net fixed assets prior to 1929-30.

Source: FHT, Annual Reports.

The second measure (column 2) in Table 7.7 is the ratio of operating surplus (earnings less working expenses) to net fixed assets. This indicates that the FHT earned on average return of 8.7 per cent per annum between 1906-7 and 1938-39. However, the third measure (column 3), the ratio of net profits (operating surplus less capital debt charges) to net fixed assets probably provides a closer approximation to the true profit and loss position. The latter measure indicates that the FHT earned an average rate of return of 3.6 per cent per annum. Between 1906-07 and 1938-39 the long term yield on government bonds averaged 4.8 per cent.[73] This suggests that, except in the 1920's, which according to the above measures appears to have been a relatively prosperous decade, the FHT was not earning a 'market' rate of return. Nevertheless, the financial performance of the FHT appears to have been highly creditable when compared with other public enterprises such as railways.[74]

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We have seen that port operations at Fremantle were consistently profitable, yielding the FHT an average annual profit of £74,000. The continued payment of surpluses to Consolidated Revenue led to complaints from the Conference Lines that the port was being used as 'a taxing machine' and that port charges were too high. But the government and the FHT were not significantly exploiting the port's monopoly power:

except in the 1920's the FHT failed to earn a 'market' rate of return. Moreover, inadequate depreciation provisions meant that the recorded surpluses overstated the profitability of the port; conversely, for many years surpluses were understated as capital debt charges were paid on capital stock that was obsolete or in some cases no longer existed.

As for port charges, they do not appear to have been excessive but they were undoubtedly highly discriminatory: the main beneficiaries were shipowners and exporters and the main losers importers and consumers. This distribution of port charges was a reflection of the relative political bargaining power of these groups. The desire to attract shipping, mollify the Conference Lines and keep freight rates low, led the FHT to collect more revenue from goods than from ships. In 1907 the West Australian government abolished wharfage charges on most exports and increased them on imports in an attempt to protect the state's rural and manufacturing industries from eastern states competition. Discrimination in favour of exports was in fact widespread throughout Australia and was consistent with the practice, adopted in the early 1920's, of providing 'protection all round'. The FHT, as a state enterprise, was merely the meat in the sandwich of economic interests competing in the political arena. Given the constraints under which it operated, the FHT must be judged an efficient financial enterprise.

Footnotes

1.   Calculated from data in FHT, Annual Reports.

2.   FPA 15/03/3, letter from FHT to Hon. Mr. Taylor, Colonial Secretary, 5 December 1903.

3.   FHT, Annual Report, 1906-07, p.4.

4.   Ibid.

5.   FPA 3/07/8, copy of memo from Hon. J.D. Connolly, Colonial Secretary, to Hon. the Premier, 22 January 1907.

6.   FHT, Annual Report, loc.cit.

7.   FPA 22/06, memo entitled 'Rearrangement of Port Charges on Ships', 29 September 1906.

8.   Ibid.

9.   FHT, Half yearly Report, 30 June 1903, p.10.

10.   See Chapter 5, p.177.

11.   FPA 22/06, 'Rearrangement of Port Charges on Ships', op.cit.

12.   Ibid., 31/03, 'Comparative Return Showing What Would be the Port Charges Payable By a Steam or Sailing Vessel of 2,000 tons ...', 1903.

13.   A.G. Whitlam, 'Australian Port Charges', The Economic Record, Supplement (1930), p.212.

14.   J. Hutton, Manufacturing Industry and Western Australian Development, (Nedlands, W.A., 1966), p.9.

15.   FHT, Annual Report, 1907-08, p.6.

16.   FPA 3/07/9, letter from Colonial Secretary to FHT, 29 December 1906.

17.   Whitlam, op.cit., pp.210-11.

18.   FHT, Annual Report, 1919-20, p.16.

19.   Cited by Whitlam, loc.cit.

20.   FPA 92/20/1-2, 2nd Interstate Conference of Harbour Authorities, report of debates, 1920.

21.   There is an extensive literature on the costs and benefits of tariffs. See, for example, E.A. Boehm, Twentieth Century

Economic Development in Australia, 2nd edition, (Melbourne, 1979), ch.6; W.A. Sinclair, *The Process of Economic Development in Australia*, (Melbourne, 1976), ch.6; Committee of Economic Inquiry (Vernon Committee), *Report of the Committee of Economic Inquiry*, 2 vols., (Canberra, 1965), vol.1, chs.13 and 14.

22.   The phrase 'protection all round' is attributed to John McEwen, deputy prime minister and leader of the Country Party in the 1960's. For a discussion of the development of 'protection all round' see N.G. Butlin, A. Barnard, J. Pincus, *Government and Capitalism*, (Sydney, 1982), ch.4.

23.   See H.J. Dyos and D.H. Aldcroft, *British Transport. An economic survey from the seventeenth century to the twentieth*, (Leicester, 1971), pp.320-31; J. Bach, *A Maritime History of Australia*, (Melbourne, 1976), ch.XIII; B.M. Deakin and T. Seward, *Shipping Conferences. A Study of Their Origins Development and Economic Practices*, (Cambridge, 1973), pp.39-43.

24.   See K. Burley, *British Shipping and Australia 1920-1939*, (London, 1968), ch.5.

25.   Data on surpluses is from Table 7.4, p.294.

26.   Bach, *op.cit.*, p.301.

27.   FPA 20/27/2, 'Return Showing Payments Made by Peninsular and Oriental Company During Year Ending 30th June, 1927'.

28.   For discussion of the relationship between the conference lines and Australia, see Bach, *op.cit.*, chs.VIII and XIII, and Burley, *op.cit.*, ch.5, *passim*.

29.   M. Tull, 'The Development of Port Administration at Sydney, 1901 to 1936', *The Great Circle*, vol.4, (1982), pp.92-104.

30.   Battye Library of West Australian History, Harbour and Lights Department Deposit (HL), 16/5/448, letter from AOTA State Joint Committee W.A. to Hon. Chief Secretary, Chief Secretary's Department, 18 November 1929.

31.   FPA 101/20/1, minutes, 20 May 1927.

32.   HL 16/5/448, letter from Chief Secretary to AOTA State Joint Committee W.A., 16 January 1930.

33.   FHT, *Annual Report*, 1924-25, p.13.

34.   FPA 30/24/2, memo from Under Secretary, Colonial Secretary's Department (C.S.D.), 6 January 1925, citing letter from Mr. Houghton of Seaman's Union.

35.   Ibid., letter from FHT to Under Secretary, C.S.D., 23 March
        1925, listing groups that have complained about the re-
        imposition of pilotage.

36.   Ibid., letter from FHT to Hon. Colonial Secretary, 23 December
        1924.

37.   See Sir G. Buchanan, Report on Transport in Australia with
        Special Reference to Port and Harbour Facilities, 2 vols,
        (Canberra, 1927), vol.1, p.97.

38.   Data on surpluses is from Table 7.4, p.294.

39.   Buchanan, op.cit., p.97.

40.   HL 16/5/448, memo from FHT to Under Secretary, C.S.D., 9
        February 1927.

41.   W.G. Shepherd, Economic Performance Under Public Ownership,
        (Newhaven, 1965), ch.4.

42.   HL 16/5/448, cited in letter from AOTA W.A. State Joint
        Committee to Chief Secretary, 20 May 1930.

43.   Burley, op.cit., p.193.

44.   Whitlam, op.cit., p.214.

45.   Ibid.

46.   Buchanan, op.cit., p.69.

47.   Cited in Tull, op.cit., pp.100-1.

48.   HL 16/5/448, memo from Under Secretary to Hon. Mr. Keenan, 13
        June 1930.

49.   Ibid

50.   For a discussion of the application of economic principles to
        port charging see I.G. Heggie, 'Charging for Port
        Facilities', Journal of Transport Economics and Policy,
        vol.VIII (1974), pp.3-25; B.J. Thomas, 'Port Charging
        Practices', Maritime Policy and Management, vol.5 (1978),
        pp.117-32; P.E. Stonham, 'User Costs in Port: an Australian
        Study', Australian Economic Papers, vol.8 (1969), pp.178-92.

51.   Stonham, op.cit., p.180.

52.   Tull, op.cit., pp.101-3.

53.   K. Trace, 'Australian Overseas Shipping, 1900-1960', (Ph.D
        thesis, University of Melbourne, 1965), p.288.

54. *Royal Commission on the Wheat Flour and Bread Industries*, 2nd Report, (Canberra, 1935), p.151.

55. FPA 102/24/1, memo from FHT to Hon. Mr. Drew, 31 July 1924.

56. HL 16/5/448, letter from FHT to Hon. Mr. Kitson, Acting Minister, Colonial Secretary's Office, 16 January 1929.

57. *The Swan Leader*, 19 May 1933.

58. A.T. Wilson, *The Suez Canal. Its Past, Present, and Future*, (London, 1933), p.159. See also D.A. Farnie, *East and West of Suez*, (London, 1969), ch.31.

59. Burley, *op.cit.*, p.197.

60. See S. Johnson, 'Financial Policies for Ports', paper given at Conference of *The International Association of Ports and Harbours*, London, 1971.

61. FHT, *Annual Report*, 1931-32, pp.3-4. For a detailed examination of post-1945 port finances see A. Bonds, 'The Economics of Outer Harbour Development in the Port of Fremantle', (MA thesis, University of Western Australia, 1969).

62. HL 16/5/448, memo from FHT to Under Secretary C.S.D., 9 February 1927.

63. Ibid., letter from Premier to OSRA, 12 February 1926.

64. FHT, *Annual Report*, 1938-39, p.18.

65. Tull, *op.cit.*, p.99.

66. For details see V.M. Levy, *Public Financial Administration*, (Sydney, 1972).

67. The estimated return in 1910-11 prices was calculated using the implicit GDP deflator given in Appendix B.

68. FHT, *Annual Report*, 1913-14, p.10.

69. R.S. MacElwee, *Port Development*, (New York, 1925), p.128.

70. See K.A. Tucker, (ed.), *Business History. Selected Readings*, (London, 1977), Appendix One, 'Interpreting Accounting Data and Business Records', pp.399-406.

71. Economists define the opportunity cost of an action as the value of the foregone alternative action. Social opportunity cost includes the opportunity cost to society rather than just to one firm or individual.

72.   For staff numbers see Chapter 2, p.48. The percentage growth
        rates for trade are based on five year averages obtained
        from Chapter 3, p.73.

73.   Calculated from M.W. Butlin, _A Preliminary Annual Database,
        1900/01 to 1973/74_, (Canberra, 1977), Table IV.16.

74.   See N.G. Butlin, et.al., _op.cit._, chs. 9 and 10.

CHAPTER 8

The Development and Performance of the Port of Fremantle 1903-1939;
Summary and Conclusions

In this thesis we have examined the development of the Port of
Fremantle between 1903 and 1939, a period commencing with the formation
of the Fremantle Harbour Trust and terminating with the outbreak of the
Second World War. The purpose of this chapter is twofold: firstly, we
will summarize the conclusions of previous chapters and, secondly,
assess the performance of the port and, in particular, the extent to
which port facilities kept pace with the requirements of trade and
shipping.

1.   -Summary

In 1829 Captain James Stirling founded a colony on the banks of
the Swan River. The search for potential agricultural areas, water and
building supplies, led him to locate the capital Perth some twelve miles
upstream from the mouth of the Swan River. A rock bar made the river
impassable for ocean-going vessels so Stirling located the port,
Fremantle, at the mouth of the Swan River. Ships were forced to anchor
offshore and lighter their cargo ashore. Fremantle acquired a poor
reputation amongst mariners as the anchorage was very exposed and bad-
weather frequently delayed cargo-handling during the winter months. The
overseas mail steamers, which since the late 1880's had provided a
regular mail and passenger service between Britain and all the
Australian colonies, refused to call at Fremantle. They preferred to
call at Albany, some 250 miles to the south of Fremantle, because it
offered a safe deep-water harbour.

From the 1830's onwards various proposals were made to create a safe harbour at Fremantle but nothing was done until the gold rushes of the 1890's. Record cargo and passenger flows threatened to choke the port and the transport system generally. The opening of a rail link between Albany and Perth in 1889 meant that Albany posed an increased threat to Fremantle's passenger and cargo trade. The government of John Forrest 'spared no effort and no money' in its attempts to lure the mail steamers to Fremantle and combat the competition from Albany. After detailed investigations C.Y. O'Connor, the State's Chief Engineer, persuaded the government to build a harbour in the Swan River. At a cost of £ 1.5 million C.Y. O'Connor blasted away the rockbar, dredged a 30 foot channel in the river, constructed wharves and wharf sheds and provided road and rail access to the wharves. It was claimed that Fremantle was now 'a model of what a modern harbour should be'.[1] By the beginning of the 20th century the mail liners had switched from Albany to Fremantle and Fremantle had become the first and last port of call on the Australian coast for the majority of liners steaming between major Australian ports and Europe. Fremantle lacked, however, a sound system of administration, because control of the port was split between four government departments. The departure of the Premier, John Forrest, for federal politics in 1901 led to a short period of political instability which delayed attempts to reform port administration. But the following year the Fremantle Harbour Trust Act was passed and from the 1 January 1903 the Fremantle Harbour Trust (FHT) became the central administrative authority for the port.

Control of the FHT was vested in the hands of five part-time Commissioners. However, although ostensibly the major port controllers,

the Commissioners did not have direct control over all the activities carried-on within the physical boundary of the port. In Fremantle a wide range of public and private organisations supplied a wide variety of services to a multiplicity of users. The FHT, in common with most other Australian port authorities, supplied 'static' facilities such as deep-water channels, wharves and wharf sheds. However, from 1904 onwards, it also undertook the provision of cargo-handling services on the wharves, a unique responsibility for an Australian port authority. The control of cargo-handling operations gave the FHT access to a valuable source of revenue and encouraged it to provide mechanical equipment (principally cranes) often lacking in other Australian ports.

The port's administrators, from Commissioners downwards, had a tradition of long, often lifetime, service to the FHT. For example, Mr. G.V. McCartney, Manager of the FHT between 1929-1950, spent 47 years in the service of the Trust. Mr. F. Stevens, the FHT's first Secretary, served for over one quarter of a century. Such lengthy service meant that port policy tended to follow well established patterns: not always an asset in the first four decades of the 20th century when the port was called on to respond to substantial changes in the level and pattern of port activity.

Between 1903 and 1939 Fremantle experienced major changes in cargo and passenger flows and in ship movements. Passenger flows were never a major component of port activity and fell in this period from about 46,000 to 28,000 per annum. Cargo flows grew by 160 percent in tonnage terms but by less than 25 percent in real values. This relatively modest growth was a direct reflection of the performance of the West Australian economy. After the gold boom peaked in 1903 Western

Australia entered an era of slower growth. The economy remained basically orientated to primary industry as secondary industry, handicapped by competition from eastern states producers after federation in 1901, grew only slowly. Primary exports, especially wheat, grew dramatically in the 1920's but suffered severe setbacks during the 1930's depression. As a result of the slower growth of the economy once the gold boom had subsided, Fremantle declined in importance as a national port although she remained a leading bunkering port. At the eve of the Second World War the port's main exports were wool, grains, timber, flour and oil (for bunkers); the main imports were fertilizers, manufactured goods, oil and coal. Within Western Australia Fremantle's dominance was never challenged due mainly to its proximity to the metropolitan area and the development of a Fremantle-centred transport system. Within a global context, she remained a relatively minor port serving a sparsely populated corner of the British Empire.

Turning from cargo flows to ship movements, we found that between 1903 and 1939 shipping tonnage rose by about 180 percent although the number of ships calling increased by only six percent. In order to understand the implications of these changes for the port it was necessary to examine ship types, sizes and technology. Vessels calling at Fremantle fell into three main groups: liners, tramps and tankers. As far as liners were concerned, Fremantle was just one port of call on the Australian run, and they generally discharged or loaded less than 15 percent of their cargo at Fremantle. Despite this, their role as 'mail boats' and passenger carriers, together with their large size, ensured that they had the greatest impact on the port. Normally, the only full cargoes handled at Fremantle were bulk commodities and

interstate general cargo. The high proportion of part cargoes, often poorly stowed, impeded cargo-handling and helped Fremantle acquire the reputation of being a 'slow' port. In the inter-war years liners spent longer time on the Australian coast doing a 'milkround' in search of cargoes; they took parcels of 'tramp' cargoes reducing employment opportunities for tramp shipping. One legacy of the 'milkround' was that shipowners incurred multiple port and handling charges, leading to complaints about the level of charges at Fremantle and other Australian ports. Liners led in the tendency towards increased ship size: by 1939 passenger liners over 20,000 tons were regular visitors to Fremantle and cargo liners averaged between 8,000-14,000 tons. By contrast, tramps and tankers rarely exceeded 6,000 tons and 10,000 tons respectively.

Overseas shipping, principally British, accounted for the bulk of shipping activity, although the distinction between overseas, interstate and intrastate shipping was rather blurred in our period. Interstate shipping began a slow decline after the First World War due to the withering away of interstate coal imports as oil replaced coal as a bunkering fuel and the opening in 1917 of the Trans-Continental Railway which offered passengers an alternative to the long sea voyage around the coast. Intrastate shipping was never a major part of port activity but provided vital services to the outlying areas of Western Australia.

Although by 1939 steamships and motorships of increasing size were calling at Fremantle, the port itself and the technology of cargo-handling remained much as it was at the turn of the century. Homogeneous cargoes such as coal, oil and wheat were handled in bulk using mechanical devices such as cranes, pipelines and elevators, but

the handling of the more heterogeneous general cargoes remained a labour intensive task. The basic requirements for lumpers were 'a mighty arm, a hard muscle, and a large strong back'. Even the FHT, which showed more willingness than other port authorities to supply mechanical equipment, used only limited numbers of labour saving devices such as mobile cranes and electric trucks. Wharf labouring was a hazardous and dangerous occupation; all too often there was 'blood on the cargo'. But as long as labour was plentiful the system of casual employment enabled employers to obtain labour where and when they wanted it at least cost. Given the irregular nature of shipping and trade it was more economical to hire casual labour than use mechanical equipment which could not be discharged when trade was slack. Other factors explaining the persistence of manual methods included technical limitations in the design of machines, wharves and sheds, and opposition from the lumpers themselves. Thus economic, technical and social factors combined to retard the adoption of more capital intensive methods of production. But in this Fremantle did not stand alone as general cargo-handling remained technologically backward the world over.

Although cargo-handling technology was relatively static in our period, the FHT's endeavours to make Fremantle a 'first class port' led to numerous changes in port facilities during the first four decades of the 20th century. The FHT's focus of attention was, however, restricted to the Inner Harbour. Development of that 'magnificent sheet of deep water' at Cockburn Sound had to wait until the 1950's. In 1916 the FHT began the deepening of the Inner Harbour to 36 feet, despite the fact that as late as 1927 32 feet would have been sufficient to float 95 percent of ships calling at Fremantle. The deepening, which was

principally for the benefit of liners, almost doubled the capital cost of the port. But there is no evidence that the FHT ever attempted to get liners to make a commensurate contribution to port revenue. On this, and other occasions, considerations of port prestige led the FHT to overlook the implications of costly developments for port charges and state budgets. In 1908 the FHT began the construction of a dry-dock at Rous Head but after the expenditure of £ 207,417 the project had to be abandoned when large caves were discovered beneath the floor of the partly completed dock. Such a waste of public money was a serious matter for the small West Australian economy and little more was heard of plans for a dry-dock. During the 1920's port trade and shipping underwent a burst of activity, which, not surprisingly, led to calls for port expansion. Numerous plans for port expansion were proposed all of which tried to overcome the barrier to up-river development posed by the existing road and rail bridges. However, the 'Battle of the Plans' was eventually resolved by the onset of depression, which led to a slump in port activity and the shelving of plans for port expansion. The 'Battle of the Plans', however, exemplified the pre-war approach to port planning as costing of the proposals was rather rudimentary; the focus had been on structural excellence rather than economy. Bulk oil handling facilities were provided in 1922 and in 1932, in the midst of the depression, the bulk handling of grain was introduced in order to help Western Australia's beleaguered farmers. But all these improvements had only a minor impact on the port's physical geography. Thus C.Y. O'Connor's scheme provided the port with an infrastructure which coped adequately with the requirements of trade and shipping for over half a century.

The FHT's financial capability obviously had a major influence on the provision of port facilities. Between 1906-07 and 1938-39 the capital invested in port works increased from about £1.4 million to £3.1 million. Most of the capital was derived from an external source, namely government loan funds appropriated on an annual basis. This was not because the FHT was an unprofitable enterprise; on the contrary, the FHT earnt an average annual surplus of £74,000. The port was such an apparent financial success that shipowners complained that the government was using the port as 'a taxing machine', that is, exploiting the port's monopoly powers to provide a source of general revenue. But we found that such 'exploitation' was, by the standards of today, extremely limited; except in the 1920's the FHT failed to earn a 'market' rate of return. The FHT was forced to go cap-in-hand to the government every year in order to get adequate funds for port development because the government was determined to keep control of port surpluses and prevented the FHT from building up adequate internal reserves for depreciation and replacement of assets. One of our tasks in the next section of this chapter is to assess whether or not the funds available to the FHT were sufficient to enable port facilities to keep pace with the expansion of port activity.

2.   Measuring Port Performance

At the outset it is necessary to stress that it is extremely difficult to make a precise assessment of the performance of a port.[2] Port performance depends on a multitude of influences including administrative structure, managerial and labour efficiency, trade and ship flows, imposed technology, hinterland development, pressures of city land use and government policy. Adequate data for analysis of key

indicators of performance such as ship turnround, labour productivity and profitability is often lacking in modern ports and is certainly very limited in our period.[3] Port performance can probably best be assessed in comparative terms but comparisons are complicated by variations in the powers and operating practices of port authorities and by differences in cargoes and handling methods. Moreover, there are difficulties in making comparisons with overseas ports. Most British ports, for example, have evolved in a piecemeal fashion over the centuries,[4] whereas Australia's capital city ports were established from 'greenfield' sites in the 19th century. Australian ports were usually constructed with considerable excess capacity to allow for future growth and, therefore, as we shall see, low throughputs cannot necessarily be taken as a sign of inefficiency. Also during the 19th century, engineers constructing Indian Ocean ports, such as Madras and Colombo, had to overcome considerable physical obstacles and were forced to provide extensive facilities at one go, even if such facilities were in excess of the short-term needs of trade and shipping.[5] Nevertheless, the work of overseas writers on ports, such as Sir George Buchanan, does provide some yardsticks which can be used to evaluate the performance of the Port of Fremantle between 1903 and 1939. The question of efficiency is usually approached from three inter-related perspectives: physical, financial and administrative. We will consider each in turn.

3.   Physical Efficiency

In view of the difficulties involved in measuring the physical efficiency of ports, it is helpful to follow the approach adopted by the Commission of Inquiry into the Australian Maritime Industry, which reported in 1976. The Commission considered the question of the

adequacy of Australia's ports under the following rather Spartan classifications:[6]

1. Adequacy of water.

2. Adequacy of wharves and cranes.

3. Adequacy of land behind the wharves.

4. Adequacy of access to the wharves.

We will use these classifications to structure our discussion of the physical efficiency of the Port of Fremantle. It should be stressed that simply measuring stocks of physical assets such as wharves and cargo-handling equipment does not give an indication of sustainable handling rates for ships and cargoes which use a port. The latter depends on the capacity of the port to clear the transit sheds and deliver the goods to the consignees in the shortest possible time. An indication of capacity in this sense is provided by the amount of cargo handled per lineal yard of wharfage per annum and ship turnround, measures we also consider below.[7]

The first classification, namely the adequacy of water, refers to the safety of harbour approaches, the depth of water channels and the general ease with which ships can negotiate the port's approaches. Fremantle is basically a safe port, free of strong currents, fog, wind and serious weather problems. In our period the only serious accident in the immediate vicinity of the Inner Harbour took place in 1916, when the Ulysses ran aground just south of the entrance channel. However, this was due to pilot error. The narrow curved entrance to the Inner Harbour limited ships to about 750 feet in length but as late as 1939 the average length of ships calling was only 450 feet and the largest 658 feet. As a result of a decision taken in 1916, Fremantle increased

channel depths from 30 feet to 36 feet. The fact that in 1939 about 90
per cent of vessels calling drew less than 28 feet suggests that this
was more than adequate. Therefore, as far as water was concerned,
Fremantle had no significant deficiencies.

With respect to the second classification, namely the adequacy
of wharves and cranes, it is important to note that C.Y. O'Connor
provided Fremantle with marginal wharves (built along the shore line)
rather than the finger piers (built at right angles to the shore) found
in most other Australian ports. As trade and motor traffic increased,
eastern states ports found that the narrow approach ways to finger piers
frequently caused bottlenecks; traffic was forced to queue in order to
get access to the wharves. Thanks to O'Connor's foresight this problem
was largely avoided at Fremantle.

Between 1903 and 1939 the length of wharfage increased by 44 per
cent to 10,177 feet, whereas the tonnage of cargo grew by about 160 per
cent. At first sight these statistics suggest port capacity was
outstripped by the demands of trade but, as we suggested in Chapter 6,
length of wharfage alone is not a reliable guide to the capacity of the
port to service the needs of users. A more useful guide to the physical
adequacy of port capacity can be obtained by examining the amount of
cargo handled per lineal yard of quay per year. Prior to the First
World War Fremantle averaged 270 tons per yard of quay per annum which
was low by European standards but not radically different from levels at
other Australian ports. What this suggests, of course, is that
Australian ports were generally constructed with considerable excess
capacity. At Fremantle there was £2.5 invested for every ton of cargo
handled in 1906-07 and £1.7 invested for every ton of cargo handled in

1938-39, a contrast which confirms the picture of over capitalisation at least prior to the First World War. In the late 1920's the port handled over 500 tons per yard of waterfront, which was close to its maximum sustainable capacity. The depression led to reduced trade: pressure on port facilities was also reduced, rising again only in the late 1930's. Post 1939 improvements, including the introduction of mechanical handling equipment, enabled existing wharfage to serve the needs of port users until the 1950's.

As far as cranes were concerned, Fremantle was probably the best equipped port in Australia. By the late 1920's the FHT had purchased sixteen 3 ton gantry cranes and six run-about cranes of 2-3 ton capacity. Most Australian port authorities were reluctant to incur the expense of providing cranes; consequently ships were forced to rely on their own gear for loading and unloading cargo. The FHT's greater willingness to supply cranes was undoubtedly due to the fact that it was the only Australian port authority to be directly engaged in cargo-handling. But, as we saw in Chapter 5, even at Fremantle, very little mechanical equipment was used in the movement of general cargo across the wharves. However, this was true of ports the world over. We can conclude that Fremantle's wharves and cranes were generally adequate to meet the needs of trade and shipping.

The third and fourth classifications, namely the adequacy of land behind the wharves and the adequacy of access to the wharves, can be conveniently considered together. The land area required at wharves depended on the types of cargo handled and the methods of transport. By 1939 bulk cargoes such as coal and wheat were railed to and from the port and were not normally stored on the wharves. General cargoes,

however, consisted of large numbers of individual packages destined for large numbers of consignees; they required extensive space for trucking, stacking and sorting operations. In practice, the situation was complicated by the fact that exports and imports were normally departing and arriving simultaneously so that when cargo flows 'peaked' congestion could easily occur if sufficient transit storage was not available. In 1939 almost one-half of the cargo handled on Victoria Quay required transit storage in the port area; the rest entered or left the port without passing through the wharf sheds.[8] Cargo was normally stored for three days free of charge in the wharf sheds after which consignees incurred storage charges. The storage charges were designed to discourage consignees from using wharf sheds for long term storage because if cargo remained for too long in the wharf sheds considerable congestion and inefficiency could result. Private companies provided warehouses for long term storage outside the port area.

Due to a lack of data it is not possible to examine the growth of transit storage in our period but in 1949 Fremantle had about 289,200 square feet of shed space capable of accommodating about 14,250 tons of cargo. In addition, there was about 28,000 square feet of open-air storage space, suitable for cargoes such as timber which could be stored under tarpaulins. This storage space was considered to be adequate for the port's needs in the late 1940's.[9]

In Chapter 6 we saw that ample road and rail access was provided to the wharves. Fremantle, in fact, was the best served port in Australia as far as railways were concerned. The land area for railway access, especially on Victoria Quay, was limited, but this was not a critical problem. In general, prior to the Second World War, port

operations were not seriously constrained by metropolitan land use activities.

In summary, our discussion of water channels, wharves and cranes, land area behind the wharves and access to the port, suggests that Fremantle's physical facilities were adequate to cope with the requirements of trade and shipping between 1903 and 1939. However, we also need to consider ship turnround as this provides a better guide to the quality and reliability of port services.

After the First World War Australian ports acquired a reputation for slow turnround due primarily to delays in the loading and unloading of cargo. In Chapter 5 we saw that labour costs accounted for at least 70 per cent of the total cost of cargo-handling operations. Thus the performance of the labour force had a crucial impact on cargo-handling efficiency and ship turnround. However, during the 1920's restrictive practices and industrial unrest by lumpers, seamen and other maritime workers, led shipowners to complain that cargo-handling rates fell about 20 per cent between 1914 and 1928. At Fremantle, restrictive practices reduced labour efficiency by about 15 per cent and continuity of work was severely disrupted by strikes in 1917 and 1919. The average overseas vessel spent four days in port. But the 'Dog Collar Act' of 1928 broke the power of the Waterside Workers' Federation and led to a reduction in restrictive practices and strikes in all Australian ports. Although the 'Dog Collar Act' was not applied to Fremantle after 1929, the threat of its application cast a long shadow over union activities in the 1930's. The onset of depression and widespread unemployment enabled stevedores to extract extra efforts from men desperate for continued employment. At Fremantle, during the 1930's

labour gangs discharged 14.5 tons of cargo per hour, or about 20 per cent more than in the 1920's. The average turnround time for overseas vessels at Fremantle was halved to two days. Complaints from shipowners about slow turnround did not resurface until after 1939. However, the gains in cargo-handling efficiency and turnround were achieved at considerable social cost, as, for the average lumper, the pre-war waterfront was a dismal place characterised by low and irregular earnings and poor working conditions.

4.   Financial Performance

In Chapter 7 we considered various measures of financial performance including the cost per ton of cargo handled, the operating ratio and the financial rate of return on the FHT's financial assets. It was stressed that the limitations of these measures and the lack of adequate provision for depreciation made it difficult to make meaningful calculations of profitability. The available evidence showed that the FHT's net profits as a proportion of net fixed assets averaged 3.6 percent between 1906-07 and 1938-39, whereas over the same period the yield on long term government bonds averaged 4.8 percent per annum. This suggests that the FHT was not, on average, earning a 'market' rate of return. The behaviour of the operating ratio indicated that there was a decline in operating efficiency after the first decade of this century. This decline was attributed in part to overstaffing but mainly to the growing loss of revenue as cargoes exempt from wharfage accounted for an increased share of port trade.

Turning to the question of port charges, we found that there was a very uneven distribution of taxation on port users. The main gainers were shipowners and exporters and the main losers were importers and

consumers. In 1938-39 shipowners contributed only 26 per cent of port revenue and consignees 73 per cent. Many exports were exempt from wharfage charges. As we saw in the previous chapter, this distribution of port charges was determined by a variety of pressures including political bargaining and state development policies. The exemption of exports from wharfage charges, for example, was designed to assist the state's rural industries and was consistent with the practice of providing 'protection all round'. Economists argue, however, that port charges should be cost based and if a government wishes to subsidise an industry it should do so directly and not through the tariff structure of a port authority. Thus Fremantle's charging practices failed to satisfy the prescriptions of economists.[10] Nevertheless, <u>given</u> the constraints under which it operated, I judged the FHT to be an efficient financial enterprise.

It should be noted that our yardsticks of financial performance failed to capture the full economic impact of the port on the city of Fremantle and the West Australian economy. A comprehensive economic assessment would need to take into account all of the social costs and benefits of port operations and the connections between port and city development. As we observed in Chapter 1, there is no comprehensive urban history of Fremantle in our period; further research is required into the economic, political and social structure of the city before the contribution of the port can be disentangled. This thesis offers only a partial contribution to understanding Fremantle's emergence as a 'port city'.

5.   Administrative Efficiency

In the 1920's Sir George Buchanan developed a number of yardsticks for evaluating port administration which, to this day, are cited with approval by world experts on ports.[11] In view of this, we will use Buchanan's yardsticks to examine the administrative performance of the Port of Fremantle between 1903 and 1939. The yardsticks are as follows:[12]

1. The whole of the foreshores within the port area should be under the absolute control of the state, either directly or by delegation of power to a public corporation or trust.

2. Administration of the port should be free from political influence.

3. The port authority should include representatives of organisations interested in the port's welfare.

4. The ports should be self-contained financially and revenues should be applied solely to its maintenance and development, any surplus being used to build up reserve funds, reduce port charges or extinguish capital debt.

5. Port charges should be uncomplicated, easily collected and levied so that there is an even distribution of taxation on port users. No portion of the community should be taxed for the benefit of another section and everything using the port must make a reasonable contribution towards its upkeep.

6. Capital charges should be adjusted so as to avoid undue burden either in the present or the future, and adequate arrangements should be made for the ultimate liquidation of the capital debt.

7. Development should invariably be kept ahead of actual trade requirements, as a growing port is never really completed.

Firstly, we will consider the FHT's area of jurisdiction. It was given direct control over the Inner Harbour, an area of about 152 acres of land and 250 acres of water, and also control over an Outer Harbour, which covered a vast area of 114,000 acres. The road and rail bridges across the Swan River posed an obstacle to up-river development but generally speaking adequate land was available for port development in our period.

When Buchanan stated that port administration should be free from political influence he was presumably referring to day-to-day administration. It would have been unrealistic to expect governments to remain aloof from major planning decisions which had the potential to affect the well-being of all West Australians. We have seen that discussions over the proposed dock, up-river development and bulk-grain handling involved the FHT, government, business and the community at large. However, even day- to- day administration was not free from government intervention. In particular, governments intervened to preserve revenue and to protect rural interests. For example, the FHT was forced to exempt most exports from wharfage charges; to use jarrah rather than concrete wharf piles in order to protect the local timber industry; and to continue a surtax introduced during the First World War despite repeated requests by the FHT for its removal. It is apparent that the FHT failed to satisfy Buchanan's requirement that port administration should be free from political interference.

Buchanan's view that the port authority should include representatives of organisations interested in the port's welfare was undoubtedly based on his experiences of British ports. For example, the Mersey Docks and Harbour Board, which had been established in 1857, had 28 members of which 24 were elected by dock rate payers (shipowners and merchants).[13] But port users had no formal representation on the FHT. The five part-time Commissioners who controlled the FHT were appointed by the government. However, the men selected usually came from organisations involved with the port and given that they were appointed only on a part-time basis, undoubtedly gave de-facto representation to user interests. Nevertheless, port users lacked the direct

representation which Buchanan considered essential if a port was to be run efficiently.

We have already seen that financial arrangements fell seriously short of Buchanan's guidelines: the continued payment of surpluses to Consolidated Revenue led to complaints that the port was 'a taxing machine'; the FHT was prevented from building up adequate reserves for replacement of assets; there was a very uneven distribution of taxation on port users.

Finally, it is difficult to precisely assess whether or not port facilities kept ahead of trade requirements, but an approximate assessment can be made. Figure 8.1 illustrates indices of port investment and shipping tonnage (1909-10 = 100).[14] Both investment and tonnage rose until the outbreak of the First World War, when tonnage slumped dramatically. The cessation of hostilities led to a rapid recovery in tonnage but it continued to lag behind investment, particularly in the 1930's. By the late 1930's Fremantle had 18 berths but only one-third were usually in use at any one time.[15] The FHT had, as we saw in Chapter 6, always striven to provide an 'overplus of power'.

In summary, it can be seen that Fremantle fell well short of Buchanan's ideals, especially in the area of port finances. Buchanan himself concluded that 'in no State perhaps is the need for a reform in methods of administration more urgent than is the need in West Australia'.[16] He recommended that the Trust be given greater independence. But the government was unwilling to agree to any proposals which might affect revenue and resented his criticism of government interference in the running of the port. As we saw in

Figure 8.1

Indices of Port Investment and Shipping Tonnage, Fremantle, 1909-10 to 1938-39

1909-10
= 100

(Semi-log scale)

Investment (Running total, gross, 1910-11 prices)

Tonnage
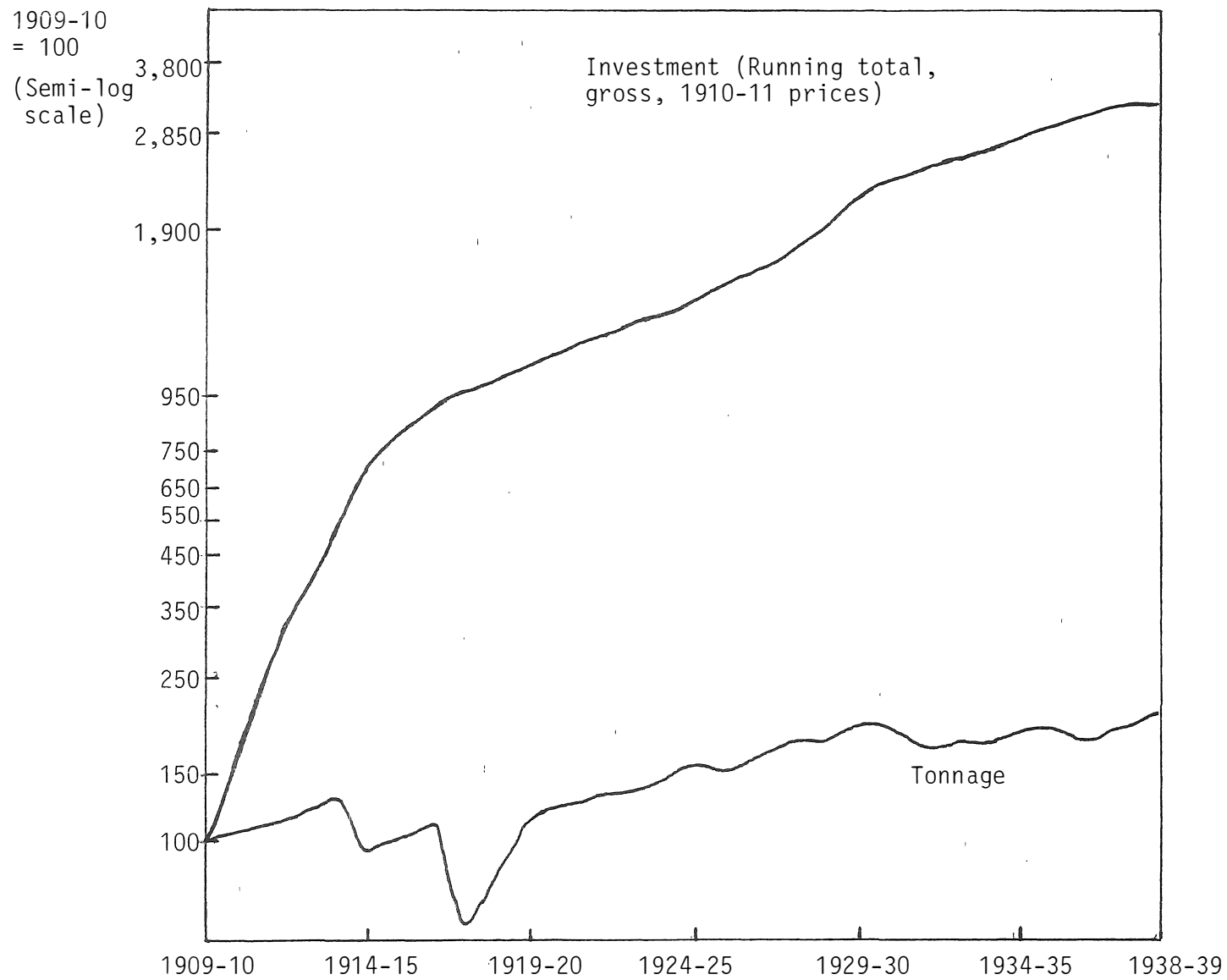
Chapter 6 the government attempted to damage Buchanan's credibility by claiming he had been struck off the role of the Institute of Civil Engineers for 'unprofessional conduct'. The FHT had to wait until after the Second World War to receive even minor increases in autonomy. However, no Australian port would have fully satisfied Buchanan's criteria; we saw in the last chapter that the siphoning off of port profits and uneven distribution of taxation were common elsewhere.

In summary, our examination of physical, financial and administrative efficiency has produced a rather mixed verdict. The port provided adequate static facilities for trade and shipping but after the First World War acquired a reputation for being a 'slow' port; however, cargo-handling efficiency and turnround times improved substantially in the 1930's. Given the constraints under which it operated, the FHT was judged to be a successful financial enterprise. But there is no doubt that judged by Buchanan's criteria the FHT was far from an efficient administrative machine. However, in some respects Buchanan was impressed with Fremantle, reportedly describing it as 'the best designed, the best equipped, and certainly the best administered port in Australia'.[17] As an engineer, preoccupied with structural excellence, he probably approved of the 'overplus of power' provided by the FHT and was less concerned with the implications of costly works for port finances and state budgets. In his eyes, the FHT Commissioners were undoubtedly more sinned against than sinning. Thus after making due allowance for the constraints under which the FHT operated, we can conclude that Fremantle was a relatively well run port and served as an efficient gateway for Western Australia between 1903 and 1939. Although the FHT, as the main port controller, deserves most of the credit for

this, it is important to note that the successful working of the port depended upon the combined efforts of many other organisations and actors, including shipping and stevedoring companies, waterfront unions and railway, customs and other government officials. The Port of Fremantle is essentially a community enterprise and as such its successful operation and development between 1903 and 1939 generated considerable benefits to the state of Western Australia and, indeed, Australia as a whole.

Footnotes

1.   *Evening Mail*, 29 October 1906.

2.   For discussion of the problems involved in measuring port performance see R.O. Goss, *A Comparative Study of Seaport Management and Administration*, (London, 1979); B.S. Hoyle and D. Hilling, *Seaport Systems and Spatial Change*, (Chichester, 1984); J.L. Hazard, 'The national role in world port development: United States and Western Europe', *Maritime Policy and Management*, vol.5 (1978), pp.269-88; J.A. Zerby, R.M. Conlon, S.L. Kaye, *A Statistical Analysis of Productivity in 41 Australian Ports: An Exploratory Study*, Centre for Applied Economic Research, University of New South Wales, Working Paper No.10, September 1979; Bureau of Transport Economics and Director General of Transport Western Australia, *A Study of Western Australian Ports*, (Canberra, 1981); F.W. Tydeman, *Report on Port of Fremantle*, 3 vols, (Perth, 1949).

3.   Goss, *op. cit.*, p.34.

4.   See G. Jackson, *The History of Archaeology of Ports*, (Tadworth, 1983).

5.   See F.J.A. Broeze, K.I. McPherson and P.D. Reeves, 'Engineering and the Empire: The Making of the Modern Indian Ocean Ports', a paper given at the Asian Studies Association of Australia, Fifth National Conference, Adelaide University, May 13-19 1984.

6.   Commission of Inquiry into the Maritime Industry, *Report on adequacy of Australia's ports*, (Canberra, 1976), pp.4-6.

7.   See R.S. MacElwee, *Port Development*, (New York, 1925), p.128; T. Rallis, *Capacity of Transport Centres*, (Copenhagen, 1967), pp.40-4.

8.   Tydeman, *op.cit.*, vol.2, p.112.

9.   *Ibid.*, pp.114-5.

10. The complexity of port operation and development appears to have limited the applicability of public utility theory. See W. Cumming, *An Economic Appraisal of Australian Port Administration*, Committee for Economic Development of Australia, Monograph No.48, (Sydney, 1977); I.G. Heggie, 'Charging for Port Facilities', *Journal of Transport Economics and Policy*, vol.VIII (1974), pp.3-25; B.J. Thomas, 'Port Charging Practices', *Maritime Policy and Management*, vol.5 (1978), pp.117-32; P.E. Stonham, 'User Costs in Port: an Australian Study', *Australian Economic Papers*, vol.8 (1969), pp.178-92.

11. See Commission of Inquiry into the Maritime Industry, op.cit.,
     pp.12-13, which repeats many of Buchanan's yardsticks
     without mentioning him by name. J. Bird, Seaport Gateways
     of Australia, (Oxford, 1968), p.234, cites Buchanan's work
     with approval.

12. Sir George Buchanan, Report on Transport in Australia with
     Special Reference to Port and Harbour Facilities, 2 vols,
     (Canberra, 1927), vol.1, p.69.

13. H.J. Dyos and D.H. Aldcroft, British Transport. An economic
     survey from the seventeenth century to the twentieth,
     (Leicester, 1971), p.254.

14. The FHT's annual investment between 1909-10 and 1938-39 was
     deflated using N.G. Butlin's implicit GDP deflator (see
     Appendix B) and then cumulated. The cumulated data were
     then converted to an index (1909-10 = 100).

15. Tydeman, op.cit., p.98.

16. Buchanan, op.cit., p.97.

17. FPA 106/25/1, minutes, 27 August 1925.

Appendix A

Fremantle Harbour Trust Commissioners

Name	Period Served	Background
COOMBE, Thomas Melrose	1903-5	Timber Merchant of Coombe Wood & Co.
HUDSON, Charles	1903-5; 1908-11	Manager, Fremantle Branch of Commercial Union Assurance Company.
LEEDS, Arthur G.	1903-11	Fremantle Manager for Dalgety & Co. Chairman 1907-11.
LAURIE, Robert	1903-7	R. Laurie, Stevedore, M.L.C. Chairman 1903-7.
SANDOVER, Alfred	1903-5	W. Sandover & Co., Merchants.
ALLNUTT, Ernest	1906-13	Managing Director of D & J Fowler Ltd.
EYRES, Thomas	1906-11	N.A.
VILES, Frank	1906-8	Representative of Chamber of Mines.
BARKER, Henry Gell	1909-11	H.G. Barker & Co., Ship and Insurance Brokers.
IRVINE, Charles James	1912-17	Chief Harbour Master, W.A.
OLIPHANT, Arthur Morris	1912-18	Manager, Western Australian Producers' Co-operative Union. Nominated by Perth Chamber of Commerce.
TAYLOR, John Henry George	1912-31	Lumper. Died November 1931.

Name	Period Served	Background
THOMPSON, James	1912-17	Engineer in Chief, W.A. <u>Chairman</u> 1912-17
EVANS, William H.	1913-17	N.A.
NICHOLAS, Frank	1916-17	Representative of Fremantle Chamber of Commerce.
CARTER, Tom	1917-44	Sub-Manager, Fremantle Branch of Dalgety and Co. Ltd. <u>Chairman</u> 1917-44. Nominated by Perth Chamber of Commerce.
MURRAY, Basil L.	1918-25	Died April 1925. Represented Farmers and Settlers Party Political Association.
PAYNE, George Frederick	1918-26	Employed by Elder, Shenton & Co. Ltd., merchants, shipping agents, stock and station agents. Nominated by Perth Chamber of Commerce.
BATEMAN, Lewis Lindsay	1919-29; 1930-56	J & W Bateman Ltd. <u>Chairman</u> 1945-56.
McMAHON, Patrick Gregory	1925-44	Died December 1944.
TANNER, H.W.A.	1927-34	Died January 1934. Primary Industry representative.
SIMPSON, G.W.	1930-1	Public Service Commissioner from 1917 to 1931, when he retired.
WILSON, Kenneth David	1931-50	Accountant of Treasury.
ANGWIN, William C.	1934-5	M.L.A. for North East Fremantle 1904-27. Minister in various Labor governments. Agent General in London 1927-33.

Name	Period Served	Background
MANN, Frederick	1936-56	Secretary of Fremantle Trades Hall.

Note: N.A. = details of background not available.

Sources: FHT, Annual Reports; J.S. Battye, The Cyclopedia of Western Australia, (Perth, 1912); J.A. Alexander (ed.), Who's Who in Australia 1938, (Melbourne, 1938); FPA 35/31, minutes, 20 November 1931.

Appendix B

Trade Statistics

This appendix presents tonnage and value statistics for Fremantle between 1903-04 and 1938-39. 1903-04 was chosen as a starting date because this is the first full financial year for which FHT trade data is available.

In the pre-metric era covered by this thesis, cargo was measured on the basis of one ton equals 2,240 lbs. (deadweight cargo) or one ton equals 40 cubic feet (measurement cargo). The ports assessed cargo on the deadweight or measurement basis, depending on which yielded the greatest revenue. Strictly speaking, the resulting aggregate series of 'revenue tons' are not meaningful for analysis because the unit of measurement is not constant. To establish a constant unit revenue tons calculated on a measurement basis must be converted to a deadweight basis or vice-versa. In practice this is difficult because of data limitations and researchers usually use the combined weight/volume measure. We also follow this procedure and unless stated otherwise all references to cargo tonnages are to 'revenue tons'.

In the early years there were some changes in the conversion factors used to convert commodities handled in discrete units to a tonnage measure. For example, originally wool was converted from bales to tons at 4 bales to the ton, while 5 bales to the ton was used by the end of the period. Generally speaking, these variations had little impact on aggregate tonnages.

It appears that conversion ratios varied from port to port. For example, the Maritime Services Board, the port authority at Sydney, used 2.5 bales of wool to the ton. The rationale for these differences is unclear and they raise doubts about the comparability of statistics

compiled by port authorities. Where we make inter-port comparisons we will use official government statistics of trade values.

Western Australia is the only state to have statistics on interstate trade in the early years of the 20th century. In 1910 the federal Customs Department stopped recording interstate transfers by sea and only Western Australia continued to record such transfers. Thus trade values in other states (with the partial exception of Tasmania) referred to overseas trade only. Table B.2, which gives the value of total trade at Fremantle, includes both overseas and interstate trade. Table B.3 gives the value of overseas trade alone.

In order to make comparisons of trade over-time it is desirable to remove the effect of changes in the price level. Table B.4 gives the value of total trade in 1910-11 prices, calculated using Butlin's implicit Gross Domestic Product deflator. It is necessary to emphasize that there are serious and well documented problems with this deflation procedure: for example, it is unlikely that the components mix of the deflator corresponds with the composition of Fremantle's trade. For this and other reasons, these estimates can give no more than a rough indication of general trends. Nevertheless, this is sufficient for our purposes.

Table B.1

Composition of Total Trade at Fremantle, 1903-04 to 1938-39

('000 tons)

	Exports[1]	Imports	Total
1903-04	187	505	692
1904-05	168	585	753
1905-06	148	484	632
1906-07	101	472	573
1907-08	112	479	591
1908-09	112	391	503
1909-10	190	442	632
1910-11	174	615	789
1911-12	178	594	772
1912-13	277	662	939
1913-14	365	679	1,044
1914-15	138	615	753
1915-16	240	605	845
1916-17	313	533	846
1917-18	207	325	532
1918-19	281	339	620
1919-20	510	403	913
1920-21	373	518	891
1921-22	423	454	877
1922-23	317	441	758
1923-24	447	535	982
1924-25	543	671	1,214
1925-26	623	645	1,268
1926-27	738	808	1,546
1927-28	839	840	1,679
1928-29	856	966	1,822
1929-30	835	991	1,826
1930-31	1,152	569	1,721
1931-32	1,001	551	1,552
1932-33	894	694	1,588
1933-34	729	661	1,390
1934-35	820	747	1,567
1935-36	659	818	1,477
1936-37	609	916	1,525
1937-38	754	971	1,725
1938-39	815	942	1,757

Note: 1 - includes bunker fuels.

Source: FHT, Annual Reports.

Table B.2

Composition of Total Trade at Fremantle
1903-04 to 1938-39

(£'000)

Year	Exports	Imports	Total	Year	Exports	Imports	Total
1903-04	8,891	6,261	15,152	1921-22	10,207	11,483	21,690
1904-05	8,826	6,135	14,961	1922-23	8,371	13,176	21,547
1905-06	8,134	6,163	14,297	1923-24	10,765	13,609	24,374
1906-07	8,011	6,118	14,129	1924-25	10,775	15,185	25,960
1907-08	7,777	5,826	13,603	1925-26	11,104	15,397	26,501
1908-09	7,009	5,795	12,804	1926-27	11,041	17,236	28,277
1909-10	6,393	6,600	12,993	1927-28	13,624	17,014	30,638
1910-11	7,399	7,617	15,016	1928-29	13,059	18,557	31,616
1911-12	7,828	8,384	16,212	1929-30	13,818	17,495	31,313
1912-13	6,805	9,013	15,818	1930-31	14,202	9,798	24,000
1913-14	7,348	8,962	16,310	1931-32	13,373	9,580	22,953
1914-15	3,448	7,762	11,210	1932-33	12,989	11,196	24,185
1915-16	2,944	8,511	11,455	1933-34	14,757	12,041	26,798
1916-17	2,975	8,957	11,932	1934-35	13,991	13,394	27,385
1917-18	2,750	7,307	10,057	1935-36	16,216	14,883	31,099
1918-19	5,010	7,357	12,367	1936-37	18,313	16,837	35,150
1919-20	13,228	10,669	23,897	1937-38	19,252	18,073	37,325
1920-21	8,422	14,236	22,658	1938-39	19,538	16,701	36,239

Notes: Up to 1913 trade data was expressed in calendar years. It has been converted to financial years on the assumption that trade took place at a constant rate throughout the year.

Source: Western Australia, Statistical Registers.

Table B.3

Value of Overseas Trade at Fremantle,
1907-08 to 1938-39[1]

(£m)

Year	Exports	Imports	Total	Year	Exports	Imports	Total
1907-08	6.7	3.2	9.9	1923-24	9.9	6.5	16.4
1908-09	5.5	3.1	8.6	1924-25	10.0	7.8	17.8
1909-10	4.0	3.6	7.6	1925-26	10.3	7.7	18.0
1910-11	5.3	4.2	9.5	1926-27	10.2	9.2	19.4
1911-12	6.6	4.6	11.2	1927-28	12.8	8.7	21.5
1912-13	4.6	5.1	9.7	1928-29	12.2	9.2	21.4
1913-14	3.6	5.0	8.6	1929-30	12.9	8.6	21.5
1914-15	1.6	3.8	5.4	1930-31	13.5	3.8	17.3
1915-16	2.9	4.0	6.9	1931-32	12.5	2.6	15.1
1916-17	3.0	4.2	7.2	1932-33	12.1	3.6	15.7
1917-18	1.8	2.4	4.2	1933-34	13.7	3.4	17.1
1918-19	4.2	3.1	7.3	1934-35	12.9	3.9	16.8
1919-20	12.3	4.8	17.1	1935-36	14.9	4.9	19.8
1920-21	7.5	7.0	14.5	1936-37	15.3	5.4	20.7
1921-22	8.2	4.2	12.4	1937-38	16.5	6.2	22.7
1922-23	7.6	6.3	13.9	1938-39	15.0	5.0	20.0

Notes: [1]   It is not possible to calculate overseas trade values
before 1907-08, as sufficient detail is not provided until
the 1907 edition of the Statistical Register.

See also notes to Table B.2.

Source: Western Australia, Statistical Registers and Commonwealth of
Australia, Year Books.

Table B.4

Value of Total Trade at Fremantle in 1910-11 Prices,
1903-04 to 1938-39

Year	Implicit Deflator[1]	Total Trade[2] £m.	Year	Implicit Deflator[1]	Total Trade[2] £m.
1903-04	0.90	16.9	1921-22	1.71	12.7
1904-05	0.94	16.0	1922-23	1.81	11.9
1905-06	0.97	14.7	1923-24	1.81	13.5
1906-07	0.99	14.2	1924-25	1.87	13.9
1907-08	1.01	13.5	1925-26	1.85	14.3
1908-09	0.97	13.2	1926-27	1.86	15.2
1909-10	1.00	13.0	1927-28	1.88	16.3
1910-11	1.00	15.0	1928-29	1.89	16.7
1911-12	1.09	14.9	1929-30	1.70	18.4
1912-13	1.08	14.6	1930-31	1.54	15.6
1913-14	1.16	14.1	1931-32	1.43	16.1
1914-15	1.28	8.8	1932-33	1.41	17.2
1915-16	1.32	8.7	1933-34	1.46	18.4
1916-17	1.45	8.2	1934-35	1.50	18.3
1917-18	1.52	6.6	1935-36	1.57	19.8
1918-19	1.61	7.7	1936-37	1.66	21.2
1919-20	1.86	12.8	1937-38	1.69	22.1
1920-21	1.81	12.5	1938-39	1.73	20.9

Notes: [1] The implicit deflator is derived by dividing Butlin's current value estimates of G.D.P. by his constant value (1910-11=100) estimates of G.D.P.

[2] Estimate of total trade in constant prices derived by dividing current values by the implicit deflator.

Sources: N.G. Butlin, Australian Domestic Product, Investment and Foreign Borrowing, 1861-1938/39, (Cambridge, 1964), and Table B.2.

Table B.5

Fremantle's Share of the Total Value of Australian Trade,
1903-04 to 1938-39

(Percentages)

1903-04	16.8	1921-22	5.2
1904-05	15.8	1922-23	5.6
1905-06	13.2	1923-24	6.2
1906-07	9.8	1924-25	5.5
1907-08	8.2	1925-26	5.8
1908-09	7.4	1926-27	6.1
1909-10	6.0	1927-28	7.2
1910-11	6.7	1928-29	7.2
1911-12	7.3	1929-30	8.1
1912-13	6.0	1930-31	10.3
1913-14	5.4	1931-32	9.7
1914-15	4.3	1932-33	8.7
1915-16	4.6	1933-34	9.2
1916-17	4.1	1934-35	8.9
1917-18	2.9	1935-36	8.8
1918-19	3.3	1936-37	8.1
1919-20	6.8	1937-38	8.3
1920-21	4.8	1938-39	8.2

Sources: Calculated from data in Commonwealth Bureau of Census and
Statistics, Overseas Trade Bulletins, and Western Australia
Statistical Registers.

Appendix C

Shipping Statistics

There are three main measures of merchant shipping tonnage: gross registered tonnage (grt), net registered tonnage (nrt) and deadweight tonnage (dwt). Gross registered tonnage is based on the total volume of enclosed ship space. Net registered tonnage is based on the total volume of enclosed ship space which can be utilised for passengers or cargo (1 ton = 100 cubic feet). Deadweight tonnage is based on the difference in weight (1 ton = 2,240 lbs) between a loaded and empty vessel. Deadweight tonnage is usually regarded as the best measure of shipping capacity, especially for tankers, but the FHT's statistics show only a vessel's net registered tonnage and gross registered tonnage. The gross registered tonnage of vessels was only published in aggregate from 1919-20 onwards. Throughout the thesis, shipping tonnage, unless otherwise specified, refers to gross registered tonnage.

Table C.1

Net Registered Tonnage of Shipping Calling at Fremantle,
1903-04 to 1938-39

('000 tons)

Year	Over-seas	Inter-state	Intra-state	Total	Year	Over-seas	Inter-state	Intra-state	Total
1903-04	606	673	153	1,432	1921-22	1,042	1,397	130	2,569
1904-05	623	671	196	1,490	1922-23	1,071	1,446	103	2,620
1905-06	612	671	207	1,490	1923-24	1,190	1,566	132	2,888
1906-07	588	767	209	1,564	1924-25	1,257	1,688	161	3,106
1907-08	643	770	190	1,603	1925-26	1,186	1,571	150	2,907
1908-09	643	759	171	1,573	1926-27	1,553	1,609	157	3,319
1909-10	789	909	226	1,924	1927-28	1,535	1,739	175	3,449
1910-11	864	922	226	2,012	1928-29	1,704	1,515	175	3,394
1911-12	951	998	199	2,148	1929-30	1,735	1,861	189	3,785
1912-13	976	1,164	182	2,322	1930-31	1,764	1,507	201	3,472
1913-14	1,033	1,330	206	2,569	1931-32	1,653	1,481	215	3,349
1914-15	702	937	174	1,813	1932-33	1,612	1,668	206	3,486
1915-16	1,037	781	190	2,008	1933-34	1,564	1,715	132	3,411
1916-17	1,249	799	108	2,156	1934-35	1,723	1,827	133	3,683
1917-18	658	304	84	1,046	1935-36	1,700	1,777	170	3,647
1918-19	984	581	85	1,650	1936-37	1,685	1,627	194	3,506
1919-20	1,046	1,112	148	2,306	1937-38	1,897	1,738	152	3,787
1920-21	940	1,297	153	2,390	1938-39	1,995	1,845	167	4,007

Note: . Data prior to 1906-07 have been converted from calendar to financial years.

Source: FHT, Annual Reports.

Table C.2

Number of Vessels Calling at Fremantle,
1903-04 to 1938-39

Year	Over-seas	Inter-state	Intra-state	Total	Year	Over-seas	Inter-state	Intra-state	Total
1903-04	226	267	308	801	1921-22	283	372	134	789
1904-05	223	274	324	821	1922-23	253	318	100	671
1905-06	209	277	268	754	1923-24	249	330	119	698
1906-07	196	269	222	687	1924-25	277	352	110	739
1907-08	211	261	176	648	1925-26	258	316	95	669
1908-09	204	246	136	586	1926-27	329	326	93	748
1909-10	238	260	174	672	1927-28	314	345	92	751
1910-11	250	274	202	726	1928-29	357	297	98	752
1911-12	282	290	214	786	1929-30	339	362	104	805
1912-13	287	326	197	810	1930-31	360	261	99	720
1913-14	298	353	206	857	1931-32	316	263	93	672
1914-15	203	254	224	681	1932-33	304	296	98	698
1915-16	259	227	255	741	1933-34	287	314	76	677
1916-17	331	233	163	727	1934-35	328	332	75	735
1917-18	154	105	117	376	1935-36	297	318	107	722
1918-19	276	198	119	593	1936-37	320	293	119	732
1919-20	291	298	132	721	1937-38	392	312	106	810
1920-21	261	348	138	747	1938-39	426	318	103	847

Note: Data prior to 1906-07 has been converted from calendar to financial years.

Source: FHT, Annual Reports.

Table C.3

Average Size of Vessels Calling at Fremantle, 1903-04 to 1938-39

(net registered tons)

1903-04	1,788	1921-22	3,256
1904-05	1,815	1922-23	3,905
1905-06	1,976	1923-24	4,136
1906-07	2,278	1924-25	4,203
1907-08	2,474	1925-26	4,344
1908-09	2,686	1926-27	4,437
1909-10	2,865	1927-28	4,593
1910-11	2,773	1928-29	4,513
1911-12	2,732	1929-30	4,702
1912-13	2,867	1930-31	4,822
1913-14	2,996	1931-32	4,982
1914-15	2,664	1932-33	4,994
1915-16	2,710	1933-34	5,038
1916-17	2,963	1934-35	5,011
1917-18	2,782	1935-36	5,051
1918-19	2,782	1936-37	4,788
1919-20	3,200	1937-38	4,675
1920-21	3,199	1938-39	4,732

Source: Tables C.1 and C.2.

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