PORT ADMINISTRATION STRUCTURES

(A STUDY RELATING THE CHARACTERISTICS OF PROFICIENCY
AND AUTONOMY IN PORTS)

by

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B.A., University of British Columbia, 1967

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION

in the Department

of

COMMERCE AND BUSINESS ADMINISTRATION

We accept this thesis as conforming to the
required standard

THE UNIVERSITY OF BRITISH COLUMBIA

July, 1968
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This thesis is concerned with the various structures under which ports are administered. It is a curious fact that there are a great number of different types of port administration structures through which the major seaports of the world are administered. One important question out of which this thesis grew is:

Given the variety of port administrative structures, what can be said in defense or in favor of each of these various forms of administration?

This thesis reviews the goals of port activities and the methodology of port operations. Subsequently, the opinions of writers in the field are summarized and outlined. The results of a study of a series of reports by the International Bank for Reconstruction and Development (sections concerning port operations) are then reported. Finally, the thesis outlines the findings of a field study involving the Port of Vancouver, British Columbia, and the Port of Seattle, Washington, U.S.A.

A thesis on such a general subject as Port Administration Structure may, at first, seem too broad and too nebulous for objective study. The necessity of subjecting the present structure of ports' administrative systems in Canada to objective analysis, is reason enough for a government white paper, which is presently in the making at National Harbours Board headquarters in Ottawa. An important
problem of this thesis, is that of holding exogenous variables constant, particularly the variable--the quality of management personnel. In order to find a relationship between the variable, management structure, all other variables have to be held reasonably constant.

A variety of methodologies are used to draw information on the subject. Firstly, there is a review of literature available on the subject of port administration and systems of port administration. Herein, an appeal is made to the statements of professionals or "experts" in port administration. Secondly, a study is made of a series of reports on specific port operations throughout the world. These studies were classified according to (1) type of administrative structure, and (2) quality of port operations. A matrix was set up to correlate the findings. Thirdly, and finally, a field study was made (utilizing interview methodology) on two major ports of the region. The field study report, although admittedly shallow, attempted to analyze the ports around the foci.

1. Structure (also degree of autonomy), and
2. Performance.¹

The most basic conclusion to grow out of this thesis was that, by and large, major seaports are best run--most proficiently run--when they are run by professional

¹This is similar to what was done in the study of reports on world ports by the International Bank mentioned above.
management from the locality of the harbour, and through a structure of administration which is completely autonomous with regards to day-to-day operations, and relatively autonomous with regard to long-run planning.
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CHAPTER I

INTRODUCTION

Statement of Purpose

The purpose of this thesis is to evaluate in terms of efficiency and other goals, where indicated, the quality of various forms of administrative structures of ports. The methodology used was: (1) to draw together some of the current knowledge on port management; (2) to correlate port performance and port authority structures in a study using data from other studies; (3) thereby obtaining some guidelines to effective port operation; (4) to further generate some statistics to test for the efficiency of port management; and finally, (5) to use the information obtained to run a test on two local ports for the purpose of evaluating port management organization.

The task outlined is extremely complex. As Colonel Oram stated in his book, Cargo Handling and the Modern Port (1965): "Firstly, there has never been nor ever will be agreement on how a port should be administered."¹

Despite such pessimistic opinions as this, there have been several attempts to provide useful solutions to the problem of port administrative structures. In Great Britain,

the recent Rochdale Inquiry into the major ports of Britain made a number of recommendations on port administration, including the setting up of a National Ports Authority with wide range of powers. In Canada, the Gibbs Commission of 1932, inquired into the problems of the day which faced Canadian ports. The National Harbours Board was one outgrowth of this inquiry. Moreover, at the present time, there is a white paper on port administration in the making in Ottawa. Therefore, though the task of evaluating port authorities may be a prodigious one--truly formidable at the best of times--it is a job that must be, and is, being done.

The first step towards tackling this problem is, first of all, to review some of the current literature on Port Administration Structures, the latter being the title of Chapter IV, of this thesis. This chapter deals with the advantages and disadvantages of different forms of port administrative organizations, from private enterprise, along the spectrum as far as central government control. The chapter also looks into other types of classifications of port authorities (i.e. municipal, provincial (state), federal, or mixed authorities). Trends in the historical development of different forms of port management are also considered. Throughout this chapter there is extensive reference to theoretical arguments.

Two other chapters precede the chapter on Port
Administration. The purpose of these chapters is to provide an insight into the goals of a port operation, (Chapter II), and a feeling for the inner workings of a port, (Chapter III). Both these chapters should make the problems and complexities of port operations more evident.

The goals and policies of ports (Chapter II) vary widely in content, formality, and importance, from port to port. Moreover, it would probably be very near the truth to say that very few, if any, ports have a complete and consistent formally written set of goals. However, the problem of determining port goals must be dealt with, because any evaluation of operating practice must be made with regard to divergencies from the goals of port operations.

Chapter III, on the Nature of Port Operations, should provide a basic understanding of the workings of a port. There are a great many functions to be performed in any port operation. The number and complexity of these functions depend basically upon three things: (1) the size of the port; (2) the scope of products handled in the port; and (3) the geographical peculiarities of the harbour. Because these three characteristics vary greatly between ports, port operations, in turn, vary also. Therefore, the job to be done by a port authority may alter from place to place. This implies that the nature of the port operations should be functionally related to the type of port authority involved in administering port activities.
Chapter III also delves into the problem of deciding what is the proper field of functions which the port authority should be filling.

Following the introduction to the atmosphere of port operations, the goals of the port, and some theoretical study of port management, is a small empirical study. Chapter V, entitled Guidelines, is basically an attempt to correlate empirically the type of port administration with the effectiveness of port operations. To accomplish this end, a series of studies by the International Bank for Reconstruction and Development have been utilized. They have provided material on both the type of port authority managing a port, and the quality of port management for a number of different countries. Correlation between quality of operation and type of port management was then used to draw conclusions about which types of port authorities were, by and large, best suited to the operation of a port. A comparison was then made between the results of this study and the theoretical material on port management in Chapter IV.

The next step in the thesis was to try to bring this knowledge to bear on the evaluation of local port management. For this task, it was found necessary, first of all, to decide on some statistics which could be used to give an impression of the performance of a port. Discussion on the use of different port performance statistics form the content of Chapter VI, entitled, Measures of Performance.
A questionnaire was constructed to obtain the information in Chapter VII. Interviews were then conducted with the Port Authorities at Vancouver, British Columbia, and Seattle, Washington, U.S.A.

The eighth and final chapter is a short summary of the contents of the chapters and any conclusions that have been reached.

Some Problems in Thesis Methodology

There are several noteworthy methodological problems encountered in the preparation of this thesis. The most serious problem in evaluating the relative efficiency, or the relative performance of an organization structure, is to try to isolate the two variables which are inter-connecting and meshed into the term "organization." The first of these variables--the one which this paper is concerned with--is often referred to as the formal structure. The formal structure (i.e. the structure as it appears on organization charts), is mainly involved with such things as locations of power, authority, and responsibility. Formal structure considers hierarchical positions rather than the actual people who fill these positions. The nature and ability of the people who embody the structure are the second variable. Herein lies the problem: in any particular situation, it is difficult to say to what extent the strengths or weaknesses of a port authority are due to the formal structure of the port, or to the abilities of the personalities who make up the port authority.
Organizational theorists usually contend that on the average, the proper structuring of an organization adds to the smooth functioning of decision making, and generally, therefore, in this case, a better performing port system. However, it must be recognized that the best formal organization in the world is of little value in the hands of poor administrators, or incapable management.

Because it was too difficult to separate the personalities and capabilities of administrators in different ports from the quality of the formal structure of those ports, it was not done. It is important, however, to recognize the bias inherent in this study from the failure to differentiate between the quality of management and the quality of the formal management structure. The study has, by ignoring this differentiation, assumed that good and poor management have been spread evenly through all types of structures. This assumption is not entirely valid, because in many cases, a capable port authority would be able to exert some pressure towards changing its formal structure of control.

Another major problem encountered in this study was the problem of classifying data into different categories. For example, a set of categories which pertain to be more less inclusive of all ports, is the system of categories

\[2\text{This separation was performed to some extent in the International Bank studies. Therefore, the material of Chapter IV only partially contains this bias.}\]
which ranges from free enterprise to direct central government control. Most ports don't fit neatly into any one of these slots though. Most ports have elements of many different forms of control involved in their operating decisions. The "port authority" generally has the final say in the provision of all service functions of a port. Usually, however, the port authorities allow different organizations to perform specific functions within the port boundaries. For example, in a nationally-owned port, all stevedoring and towage services may be performed by privately-owned companies. In fact, the port authority may have confined its own activities to the provision of certain fixed facilities such as lighthouses, jetties or breakwaters, and a well-dredged approach channel, as well as overall coordination of port planning. Even the construction or maintenance of these facilities may be contracted out to private firms. In summary, the overall complexity of a port operation may defy simple categorization.

This brings us to the ever-present problem of the social sciences—the existence of other variables. Flere writes:

The varying forms of control: the differing degrees of intervention by national and local governments: valuable trades of little volume and less valuable trades of great volume: much impounded water here and many open berths there: ancient city quays with later additions in one place and, in other places, entirely modern ports cut out of green fields or the coastal desert: accretion and situation on one coast and erosion on the other; all these things and many more like them; make it dangerous to rely exclusively upon abstract theorising about ports.3

Although the central point Flere is making is not the problem which the many variables of different port operations impose upon the field researcher, but the problem of the theorizing on port operations because of the many variables operative in ports; the same problem of holding other variables constant faces the field researcher. Flere's next statement, in fact, shows how the problem also affects the researcher.

Indeed, it is often difficult enough to make a comparison on one given point, which will be at once simple and valid between two or three ports.\textsuperscript{4}

In other words, the different ports have so few common elements amongst them it is perhaps somewhat elusive to speak of a port industry. The basic functions they perform may be the same, but the myriad of combinations of means of performing these functions is the complicating factor.

Summary

The purpose of this thesis is to come to some conclusions about the most effective forms of port management. The method of study has involved, basically, a review of theoretical materials, a study based on observations of other studies, and direct research into some local ports. The main problem with such a study, is to hold the many other variables operating in ports constant while a check could be made between two variables: (1) standard of performance, and (2) type of formal structure of the port authority.

\textsuperscript{4}Loc. cit.
particular, there is the problem of distinguishing between incapable management force from an effective or ineffective organization structure.
CHAPTER II

GOALS OF PORT OPERATION AND DEVELOPMENT

The statement of national goals or national policies with regard to transportation, in general, and ports, in particular, allows one to evaluate the workings of the transport or port system. Without these policies, the analyst must impose his own framework of values on the output of the port system. Moreover, national goals permit means-end analysis to take place, the advantage here being that it is not the forte of the social scientist to prescribe ends, but rather to arrive at methods of reaching ends prescribed by others.

There is a variety of goals which a government may legislate for the "acceptable" working of a transport sector. For instance, port policies may be framed to encourage economic growth of the country, or to aid special sectors of it. Policies may have the general concept of efficiency and the proper allocation of resources in mind. National ownership or free-enterprise may be dominant in the philosophy a country may wish to follow in managing its ports. This chapter is concerned with these policies and others, which have direct influence on the operation of a country's ports.

Economic and financial goals often seem overriding in port operations. This attitude embodied in efficiency
terminology is summed up in the following quotation:

For upon an increased volume of international commerce lies one of the best hopes of mankind: efficient ports, financially secure and economically sound, yet operating as cheaply as possible will contribute much to that end.¹

Expanding a country's export trade is an important goal of most every country and, especially of those countries which are suffering from a chronic balance of payment deficits. Port charges are often one cost in a string of costs, which go to make up the price the final customer has to pay for a product bought abroad. Classical economic theory tells us that a reduction in port charges and the cost of servicing a ship in port, would have a direct effect on shipping charges.² But because there are few, if any, perfect markets in this world (even in shipping) the question as to who benefits from reduced port costs, is liable to be a complex one for which to find a simple answer.³ It is, however, logical to assume reduced port charges, other things being equal, will result in lower prices for export products abroad, and accordingly a greater


²The cost to the ship owner of having his ship call at a port is dependent on many factors, one important one being the turnaround time of the ship from arrival to departure. Ten thousand dollars a day is not regarded as abnormal as the cost of harbor time for many of today's ships.

³Peter C. Omtvedt's Report on the Profitability of Port Investment. The conclusion is reached that in the case of
Increasing port efficiency is only one way (however, in all probability, the best way) of reducing port charges and thereby stimulating the export trade of a country. Additionally, port authorities may adjust rates so as to subsidize exports at the expense of imports, a type of cross-subsidization. This policy has the further effect of protecting home industries from imported goods, much in the way a tariff would—the "hidden tariff" effect.

Cross-subsidization may not be limited to aiding the export sector, but may be intentionally or otherwise, aimed at benefiting other sectors of the economy. The World Bank Study of 1963 observed that government agencies in Spain were receiving port services at much lower prices than were charged to private enterprise. This, they said was giving

reduction of total port costs:

The diversion of savings in costs of ship's time is subjected to the mechanism of the market in such a fashion as to ensure the consumer of benefiting by the larger part of the amount being saved. This is because the competition is so keen as to allow no profits higher . . . than are necessary for depreciation and other costs, and for a rate of interest on investments not above that prevailing for industry in general, p. 13.

East African Rail and Harbours Authority was under obligation to the government to keep charges down on agricultural commodities (the countries' main exports), but allow any losses to be made up by charging higher prices on manufactured goods, (the countries' main imports).

undue advantage to public enterprises and should be eliminated because of the misallocation of resources taking place.

A more general type of subsidization for exports is accomplished by reducing the port charges to such a low level that the port must operate, year after year, at a loss. The government then gives grants or very low cost loans to finance operations and expansion, which may otherwise have been financed out of higher port charges and resulting port profits. One example of such a policy is provided by Spain. Spain has kept her port charges so low that she has had chronic deficits for years. In 1958, for example, all Spanish ports, taken together, lost 108 million pesetas, after interest and operating expenses (leaving only two ports with a profit). After including depreciation on port equipment (another 100 to 200 million pesetas), all ports showed losses. With the further inclusion of depreciation on fixed capital and interest on capital (other than loan capital) invested in the port (use of 6 per cent interest rate), this would raise the total port deficit well in excess of one billion pesetas. 6

Because it is generally believed most ports are to some extent monopolies, especially in the area which is in close proximity to them, (often referred to as their hinterland) 7

6Ibid., p. 235.

7A study by Ross Robinson of the University of British Columbia, in a doctoral thesis, entitled, Spatial Patterns of Port-Linked Flows: General Cargo Imports Through the Port of Vancouver, 1965, throws some doubt on the theory of
ports are able to administer prices. This means that ports often have a large degree of discretion in making charges above cost of service. Policies might be such as to set prices on a value-of-service basis, or a highest price possible basis. Competition from the airlines for international freight has been dealing largely in high value merchandise, which usually bears the heaviest costs. The Rochdale report of 1962, voiced some fear as to the future losses of high value merchandise from the ports, which would result in disproportionately large losses in revenues. This illustrates the fact that British port charges have deviated to a large degree from a cost-of-service basis.

Efficiency and low cost operations may also be national goals. They would be sought after because of the desire to avoid the economical misallocation of resources which may as easily occur to ports as elsewhere. Among the problems facing Spanish ports, the World Bank considered

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the misallocation of resources to be the most central one.

The central problem facing Spanish ports is one of an imbalance among the various elements of port capacity. There has been heavy investment in port infrastructure such as wharves and breakwaters. . . . At the same time insufficient funds have been devoted to the other components of port capacity. This is particularly true of loading and unloading equipment. . . .

It is difficult to say, however, how intentional many of these policies or practices are. Rather, many of them may have evolved historically. From several of the International Bank's studies, one might easily form the impression that many active port policies or practices around the world are historically evolved and haphazardly legislated rather than scientifically determined. A government may have as a motive one thing, for example, the expansion of the export sector. The resulting policies may lead to a port's financial recession. The Rochdale Report was, by and large, an inquiry into the standard practices (or active policies) of all the major British ports with the primary purpose of critically evaluating the rationale behind these practices.

Rochdale found some ports in Britain were making repeated losses, while others were making large gains. Among the recommendations to come out of the report was the recommendation that all ports be made financially independent.

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9International Bank - Spain, op. cit., p. 228.
of the government unless special circumstances dictated the need for government assistance. This special need was to be considered as something apart from the ordinary, and reasons for this need were to be explicitly stated. The Rochdale Committee did not recognize that under average circumstances, external benefits arose from port operations to the community at large.

There are in our view, no social or other reasons why the port should have to be subsidized by the taxpaper; it is not in this way that an efficient and economic port system can be achieved.10

The committee presumably expected that with this policy they would be able to reduce such unplanned and unfavorable effects as: chronic losses, unplanned cross-subsidization, and general misallocation of resources. These effects often snowball out of policies which attempt to use a port to provide services that are not in line with commercially viable practices.

The Rochdale Committee explicitly stated that British ports should operate, not as tools of government policy, but as commercial undertakings.11

Separation of port policies into good or bad categories would be a substantial study in itself. For the purposes of this paper, it suffices to allude to such books as the Rochdale Report, which argues

10Rochdale Report, op. cit., p. 80.
11Ibid., p. 60.
intensively for certain port policies rather than other less desirable ones.¹²

Beyond basically economic and financial goals, there are other goals which ports and port authorities are subject to. For instance, the pervasiveness of a political philosophy, whether it be capitalism, socialism, communism, or some other 'ism' may be a factor influencing the organizational setup of a country's ports. The dominance of laisser-faire capitalistic philosophy in the United States during the latter half of the nineteenth century and the earlier part of the twentieth century, led to a much stronger dependence on private corporations (especially railroads), for the earlier development of American ports than elsewhere.

During the last half of the nineteenth century, the railroads were the dominant factors in developing the commercial waterfront at most of the important seaports...¹³

However, the nature of the port operation and the process of port development were such that the private corporation was more or less eclipsed by different forms of public authority in the United States.¹⁴

¹²The reader is also urged to read "Port Economics" by Flere (in the Bibliography), to obtain an understanding of port policies as they are criticised and evaluated through economic theory.


¹⁴Fair's survey, in 1954, of the types of port administration in the United States revealed that private corporations accounted for only 3 per cent of United States port
The influence of the "isms" is further demonstrated around the world by very centralized control of ports in many countries. Similar to the influence of "isms" is the degree of dependence different countries put on either competition or coordination for regulation of port investments. The establishment of a National Port Council in Britain was the result of a desire for more coordination of port investment and less reliance on the forces of competition. Moreover, more coordination of Canadian ports was one of the basic premises underlying the establishment of the National Harbours Board.

Before the National Harbours Board was established, there was evidence of competition between some of the harbours. . . . One of the purposes for which the board was established was to avoid competition between Canadian ports.15

Robinson's thesis revealed the great interdependency of many of the ports of Southern British Columbia.16

Robinson went from there, to point out probable effects of authorities he surveyed (61 authorities surveyed--two of which are private). Moreover, one of the two private ports has had its majority interest bought out by the city in which it is located. Source: M. L. Fair, Port Administration in the United States, pp. 61, and 70-71.


non-coordinated investment activity in these ports future development.

Social and moral goals are also evident in port policy. Just treatment of users is an attitude which lies behind legislation preventing rate discrimination not based on cost differentials, from being widely or openly practiced. Moreover, organizations are often required to give due consideration to safety of transport, as well as efficiency. The International Bank's study of Nicaragua recommended that the principal port - Corinto - provide "a separate tanker berth, away from the freight pier," in order to increase safety as well as expand capacity.¹⁷ Just what weight was given to the safety aspect is difficult to say, but the mission's failure to calculate the economic value of such a project, as the various missions from the International Bank were usually inclined to do, would leave the impression that increased safety was an important consideration in that investment proposal.

Transportation theory has recently been involved in system optimization rather than sub-system optimization theory.¹⁸ This means that there has been some shift to


¹⁸Inattention to the total system in an attempt to maximize a sub-system, has recently resulted in the Physical Distribution Theory. This type of analysis may reveal to a company the advantage of using, for example, higher cost
inter-mode coordination of operations and investment. In Canada, the recent National Transportation Act (1967), set up the Canadian Transportation Commission. This means that all the modes of transport are now under one common organization. One of the most probable effects of the commission will be the coordination of inter-modal transport competition. Competition affecting the port is usually that between road and rail, and coastal shipping, or between airlines (freight and passenger), and overseas shipping. The effects of such competition has been the loss of passenger servicing by passenger ships and liner ports, to the airlines and airports. The Rochdale Report presented the following table to show the effects of the growth of air usage on transport by sea, in Great Britain. (Table I, next page).

A single authority may wish to gather information on cross-elasticities of demand for these competitive services, which they would use to aid policies of investment coordination. The main implication of the trend to total system optimization is that sometimes port authorities may have to forego otherwise attractive (or to make otherwise unattractive) investment, in order to maximize the welfare of the total system. (Refer to footnote No. 18).

transportation such as air freight, rather than say, rail freight, because of the implications air freight has to the need for warehousing. In this example, the total storage and freight bill might be cheaper under air freight, even though the freight bill (here the sub-system) is, by itself, more expensive.
### TABLE I

GROWTH OF AIR AND SEA TRAVEL AND TRANSPORT BETWEEN THE UNITED KINGDOM AND ABROAD

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<th>1938</th>
<th>1948</th>
<th>1960</th>
<th>1961</th>
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<tr>
<td><strong>Passengers carried</strong> (thousands)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air</td>
<td>179</td>
<td>918</td>
<td>5,945</td>
<td>7,017</td>
</tr>
<tr>
<td>Sea</td>
<td>4,716</td>
<td>3,722</td>
<td>6,826</td>
<td>7,063</td>
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<tr>
<td><strong>Goods carried</strong> (thousands tons)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Air</td>
<td></td>
<td>22</td>
<td>256</td>
<td>292</td>
</tr>
<tr>
<td>Sea</td>
<td>102,000</td>
<td>66,000</td>
<td>90,000</td>
<td>85,000</td>
</tr>
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Source: Board of Trade, Ministry of Aviation, Estimates by Ministry of Transport.*

*Rochdale, op. cit., p. 18.
The policy attempting to decasualize the labour forces of many ports in Canada, the United Kingdom, and the United States, springs as much or more from humanitarian (or social) reasoning as from economic logic. In 1956, an enquiry into the labour unrest on the docks in Great Britain was made by a commission headed by the Honourable Mr. Justice Devlin, (known as the Devlin enquiry). "The Report" concluded that "the ideal is that both sides [labour and management] should pool the ideas they have for keeping the labour force content and happy." 19

Another labour policy also possibly at odds with efficiency is that of changing the labour force from a foreign content to a national one. This is a policy which has been popular with some African nations, heretofore under European rule. In East Africa, for instance, the East African Rail and Harbors Authority has instituted a program of "africanization." This, they have briefly outlined in their annual statements. 20

Port goals may be just the extension of a country's political goals in some cases. The International Bank argued for recognition of Benghazi, Libya's second port, for reasons over and above economic efficiency. Benghazi is located in a


separate province from Tripoli (Libya's major port), and the existence of provincialist patriotism, would make a program of concentrated port development on Tripoli, ignoring Benghazi, a politically unsound action. Therefore, the World Bank recommended mitigating the more economically favorable plan of almost unilateral development of Tripoli, with a plan for some development of Benghazi.

The mission has been aware of the keeness of the Cirenaican Government to develop the facilities of the port (Benghazi). . . . The fact that Benghazi is one of the capitals of Libya, and also the capital of Cirenaica, . . . the mission is satisfied nevertheless that some improvements to the existing harbour are needed.21

Moreover, aesthetic goals, such as urban beautification, may or should play a part in port policy. In the port of Vancouver, for instance, there is much consternation over port development schemes which have failed to consider the beauty of Vancouver city.22

What is more, there is also active in many ports of the world, the desire for growth much akin to the national desire for gross national product growth. "Bigger and

21International Bank, Libya, pp. 240 and 242.

22In a recent port seminar (the Fourth Annual Meeting of the Canadian Transportation Research Forum, May 2, 1968), Dr. Hardwick, head of the Geography Department at the University of British Columbia, stated that there were many concerned citizens of Vancouver, himself among them, who were dismayed at the Port Authority in Vancouver Harbour developing the waterfront without consideration of the urban beauty of Vancouver. He referred specifically to land reclamation, and new bulk loading facilities in the harbour.
"better" ports may either spring from political desires for aggrandizement, or as Galbraith argues, this desire for growth may have an internal source. He argues in *The New Industrial State*, that the technostructure, the specialists running the corporation (in this case, the port), follow the growth goal in their own best interests.

This goal (growth) also commends itself strongly to the self-interest of the technostructure. Expansion of output means expansion of the technostructure itself. Such expansion, in turn, means more jobs, with more responsibility, and hence more promotion and compensation.23

Therefore, it can be seen that there are a great number of goals and policies, both formal and informal, at work framing the different decisions in the port. Probably, the most characteristic attribute of these goals and policies is that they are contained in no single document. An official of the National Harbours Board told me that the fact Canada did not have a complete and unified port policy was a big impediment in carrying out port research. He said, in effect, that this forced the researchers to fall back upon their own conceptions of what was good or bad port policy.

At the present time, there is a white paper on port administration being prepared by a committee of experienced port administrators in Ottawa. Objectives of port policy are sure to be one problem on which they will have to make

decisions.

In some of the mature nations in the Western world which possess a formal transportation policy, it would be of some aid in guiding the port sector's policies. Canada, Britain, and the United States, all have statements of overall transportation policy. All three countries stress the urgency of a transportation system, safe and adequate, although above all, efficient and economical.

It is hereby declared that an economic and efficient transportation system making the best use of all available modes of transportation at the lowest total cost is essential to the economic well-being and growth of Canada.24

The United States puts more stress on the functioning of free enterprise than does Great Britain. Great Britain has favored some nationalization of transportation, and stricter regulation of investment (although not of rates), than the United States. Canada appears to favor the middle road between United States and British policies.

CHAPTER III

NATURE OF PORT OPERATIONS

Chapter Contents

The central purpose of this chapter is to outline the nature of port operations. This chapter deals, first of all, with: the various classifications of ports; the various functions performed at ports; and the trade interest in the ports. Secondly, there is a discussion of whom should be performing various port functions. Finally, the coordination of different interests in the port is discussed.

Some General Factors Affecting Port Functions

The size, the topology, and the products of a port are the three main determinants of the functions to be performed in a port. More or less, however, the basic function or functions (when described in broad terminology) are the same, or at least similar, for all ports.

The primary purpose of a port in any part of the world is to provide terminal facilities and services for shipping. The term 'terminal facilities and services' may embrace many functions, the number depending mainly on the geographical position of the port, its size and importance, and the type of trade for which it caters.1

Increasing a port's size, not unlike increasing the size of other corporations, causes the complexities of operations to multiply to the point where one man, or even a few men are unable to proficiently run the port with only their own experience. The complexity of operations necessitates an organization of specialists—a technostructure. With the emergence of this superstructure and the multiplying complexities of coordinating operations, and in the operations themselves, with increasing size, then the nature and relationship of port functions change vis a vis one another, and, what is more, the functions themselves may even change.

The second factor, the topographical characteristics of the port setting—the harbour—modify or change the functions to be performed. Ports are sometimes classified by their natural setting as: river ports, estuary ports, lake ports, or ocean (also deepsea) ports. The provision of certain services may vary with the natural characteristics of a port. For instance, river and river estuary ports, by and large, require more in the way of dredging than other types of ports.

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3For instance, the functions performed become more specialized.
The third factor—products shipped through a port—also reflect on the services provided. Moreover, the extent of passenger services will require special passenger terminals and perhaps a more aesthetically pleasing backdrop than would general cargo. Sometimes, ports are classified according to their type of trade, as: passenger ports, general cargo ports, bulk cargo ports, oil ports, or as a specialist port (i.e. when a few items make up the bulk of the port's trade). The port may alter in its physical structure with the type of products shipped through it.

There is a distinct line of thought today that says,

That the port must be built, or the existing port improved, to take the ship that has been designed to do the job.4

Port Functions

When a ship enters a harbour its first requirement is shelter or calm water. In some places this function has been filled by nature (i.e. the case of natural harbours - Vancouver harbour). In other places, breakwaters and jetties have been required to protect the harbour from rough seas.

Then the ship also requires an entrance channel of sufficient depth to allow for its safe passage into and about the harbour. Dredging usually must be done to provide the requisite depths in the right places on the harbour floor.

In most ports, whether they are situated right on the sea board, e.g. Alexandria and Sunderland; or within easy reach of the sea, e.g. Middlesbrough; or a long way up a river estuary, e.g. London or Calcutta, dredging is necessary to maintain the required depth in the approach channel, either because of shoaling or silting, or because the draught of vessels using the port have increased. . . 5

Then the port must provide such safety features as lighthouses, fog signals, radar, ship-to-shore radio, and buoys and beacons "to mark dredged channels and underwater perils." 6 The port must also provide the services of harbour pilots. The pilots have to be examined on their knowledge of the harbour floor, and certified acceptable by the harbour authority.

Tugs and towage services are required to move large ships about in the harbour when their own manoeuvrability is less than adequate.

If the port is a lighterage port not having berthing facilities for ships, then lighters are needed to move the goods from ship to shore. In this case, the ship may find it necessary to have its own hoists and cranes for unloading. Where the ship is able to be berthed alongside a quay, then shore-based cranes are usually used because of their size or suitability to work on the quay, or because quay owners may specify nonuse of shipboard cranes.

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5 A. J. Brown, op. cit., p. 61.

They [quay cranes] are expensive items . . . and in consequence it is a common practice among quay owners [in most of the world's ports] to require that ships shall use and pay hire for quay cranes rather than use their own gear and let the cranes stand idle.7

Lighterage is generally regarded as uneconomical in peacetime, "mainly because of the extra handling and additional cost and risk involved."8 Even so, of the four million tons of export cargo moving through the port of London, 1 1/4 million tons were loaded overside from craft.9 In 1954, Fair found that New York was the only major port in the United States using lighterage services (except in the case of heavy lifts). Fair recommended that "port[s] should plan the development of facilities which will make such operations [lighterage] unnecessary," or at least, the use of lighterage should be regarded as "a special case."10

Labour is required to perform the stevedoring function of loading and unloading ships. Also, a warehousing function is needed to store goods, prior to loading or after discharge of cargo from ships. Next, inbound cargo must move

7 Ibid., p. 27.
8 Brown, op. cit., p. 57.
from warehouse to truck or train, or perhaps to another ship (coastal vessel or an ocean-going ship), and from thence to its place of destination.

Some ports require lock systems so as to move ships from one level of water to another level. The use of locks allows the port to maintain a stable depth of water, despite tides.

Policing and fire protection functions are also required at ports. Besides, the customs function is performed at the port. Bonding and freeports are functions existing to mitigate the effect of customs (in certain circumstances), on goods in the port.

Ports are often the home of shipbuilders and ship-repairing companies. Hence, the requirement for dry-docking facilities.

The above are the majority of the major facilities and services which need to be provided in a port. Other services, such as provisioning the ships with fuel and stores, setting and collecting port charges, keeping statistics and accounting information, planning port development, promoting traffic, making rules and regulations, and assigning berths, are very important functions to be fulfilled at ports. Even so, the list is still only partially complete.

11 Some ports such as London, are called entrepot ports because cargoes congregate at these ports and then are reshipped elsewhere around the world.
Trade Interests

Fulfillment of many port functions is the responsibility of the port authority. Even so, there can be a large number of trade interests involved in a port.

Commercial agencies include principally:

**Carriers**

- Steamship Operators
- Barge Operators
- Railroads
- Motor Truck Operators
- Air Lines
- Pipe Lines

**Storage Agencies**

- Waterfront General Storage Agencies
- Warehouses
- Grain Elevators
- Free-trade Zones

**Shipper and Shipper's Agents**

- Shippers of Freight
- Receivers of Freight
- Customs Brokers
- Export Agents

**Freight Handlers**

- Stevedores
- Car and Truck Loaders and Unloaders
- Grain Elevators
- Ore, Coal, and other Bulk-handling Terminal Companies
- Cooperage Firms

**Vessel Agents**

- Steamship Agents
- Steamship Brokers
Vessel Service Agencies

Towage Firms  Repair Yards
Vessel Stores Suppliers  Dry Dock Firms
Fuel Suppliers  Suppliers of Water and Power

Financial Institutions

Banks  Insurance Firms

Industry

Waterfront Business Firms  Export Subsidiaries of Warehousing and processing firms

SOURCE: Fair, op. cit., pp. 11-12.

Port Functions--Who Should Perform Them?

The authority and responsibilities of port authorities vary in extent from port to port. In some ports, the port authority may be responsible for the planning, construction, and maintenance of all fixed facilities, and also be the operator of bulk terminals and warehouses, and, what is more, perform all the stevedoring function, as well as most of the other important functions. All in all, such an authority may be consciously attempting to reduce the scope of other interests in the port; perhaps even to having the port nationalized. Another port may wish to perform as few functions as possible. The argument as to who should perform which function is an old one.
There is probably no aspect of port management where there is more disagreement in principle than in the allocation of these duties. [The various daily operating functions].

The stated policy of the National Harbours Board of Canada is:

To provide the necessary major facilities for public use, but to refrain from performing certain services that can be provided adequately by private interests.

The National Harbours Board would then apparently feel that the question as to whom should perform different port functions is a matter of philosophy. Therefore, the National Harbours Board has seen fit to embrace a modified free enterprise philosophy which corresponds to the over-riding Canadian political philosophy.

Different authorities have seen fit to argue as to whom should perform different functions. It would seem that certain port functions, such as the provision of lighthouses, a safe approach channel, and the coordination of divergent interests groups, by and large, fall to the port authority.

[Dredging] . . . is the main preoccupation of a port authority. When [dredging] this duty has been either in many, or inadequate hands, . . . there is the real danger of the port silting up.

12 Oram, op. cit., p. 10.


14 Oram, op. cit., p. 4.
This quotation reveals the author's preference for dredging, being a port authority's function. The Rochdale Committee concurred on this point, by recommending that:

a) port authority, conservancy, and pilotage functions should, wherever practicable, be combined in single authorities.

On the matter of coordination of divergent interests, the Rochdale Committee recommended that this also be the responsibility of the port authority.

e) port authorities should consider how closer co-operation and liaison between all organizations concerned in port operations may be secured.15

Other experts have added their consent to placing conservancy under the port authority.16

Moreover, there is some agreement in the literature as to which functions should be left to private enterprise. Towage, and stevedoring, are two functions which are usually left to private enterprise, although many exceptions could be found to the contrary. For instance,

In the Free Port of Copenhagen, the port authority also carries out all the stevedoring work; it does the warehousing and maintains a transport system.17

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15 Rochdale, op. cit., p. 36. (Underlining author's).

16 Flere, op. cit., in Port Economics, hinted at problems that might arise if conservancy is not performed by the port authority, (p. 13). Furthermore, Fair, op. cit., showed that "dredging of slips and areas not maintained by the Corps of Engineers," was a function performed by the majority of ports in the United States in 1954, p. 50.

17 Oram, op. cit., p. 11.
The National Harbours Board of Canada is one authority which does not do stevedoring. In Vancouver:

Unloading and handling to or from ships slings are performed by a private stevedoring company under contract to the Board, and actual stevedoring is done by private interests.\(^1\)

The Rochdale Committee encountered ports in England where the port authority was the major employer of labour, and others, where the port authority was one employer, among many. The Committee recommended that stevedoring work be performed under the control of, "both the port authority and a limited number of private operators." Moreover, they stated that their decision was based on general observations, and that:

It is difficult, if not impossible, to determine to what extent the efficiency of ports is affected by practice [different forms of authority over stevedoring].\(^2\)

The Rochdale Committee recognized that "the provision of tugs and lighters is usually left to private enterprise." Upon this state of conditions, the Committee made no recommendations for change.\(^2\)

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\(^1\)Rochdale, \textit{op. cit.}, p. 35.

\(^2\)Ibid., p. 32. However, on page 92 of the Report: "Whether tugs are operated by port authorities or by private enterprise is usually a matter of local custom and convenience. There may be some advantage to having a degree of competition in the larger ports, but we are sure that all port authorities should have the right to operate their own tugs if they wish to."
Despite the Rochdale scepticism on the possibility of evaluating different types of terminal operations' management, with the intent of determining the best form of management, Fair was able to reach a conclusion on this point. He reported studies conducted in the Port Development section of the United States Maritime Commission which showed that:

Some of the most efficient operations in cargo handling were to be found when [a steamship-owned or leased terminal with a sufficient number of sailings to justify a stevedoring department].

Another type of operation which "can be and usually are very efficient" is an "independent terminal company or a subsidiary of an industry handling such cargo as sugar, cotton, coffee, and tobacco." In any case, terminal companies which control each step of the flow of goods from inland points to ships' holds were considered preferential under most circumstances. In order for the terminal operation "to approach the precision of an assembly line . . . control [must be] centralized" over the goods when they moved between inland carrier and the ship.  

The literature is more divided on the question as to whom should do the warehousing, operate grain elevators, and run the belt-line railroad. These are three functions which usually seem amenable to either type of control. The more socialistic nations would lean to putting these functions

21Fair, op. cit., pp. 154-155.
under the control of the port authority, while the more
capitalistic would wish to leave these services for private
companies to perform.

According to Fair, warehousing should be privately
operated but "public ownership of waterfront facilities is
sometimes desirable. . . . He recognized, however, that
port authorities at Liverpool and London, England, and
Hamburg, Germany, among others, have given more attention
to warehousing as a port [authority's] function than is
usual at United States ports."\(^{22}\)

Fair's study showed a minority of the U.S. ports in the
study, owned and regulated or operated public-belt railways.\(^{23}\)
Fiere, however, noted that "the governing body of a port
often functions as a private railway company . . . within the
limits of the port estate."\(^{24}\)

In general, the port authority has a bias towards
construction of facilities, and private firms towards the
operation of facilities or the provision of services.

For purposes of cataloguing port operations as social­
istic or capitalistic, the following analysis might be
employed. If we observe that a particular port authority is

\(^{22}\)Fair, op. cit., p. 124.

\(^{23}\)Ibid., p. 54.

\(^{24}\)Fiere, op. cit., p. 12.
involved in providing services usually reserved for private enterprise, then it might be regarded as socialistic; if not, it would tend towards a capitalistic system of organization. The functions of a port may be placed, for simplicity, on a continuum from those normally filled by the port authority, to those filled by private enterprise.

**Normally Harbour Authorities Responsibility**

1. Coordination of different interest groups.
2. Planning of port facilities.
3. Dredging.
4. Provision of lighthouses, buoys, radar, etc.
5. Police and fire protection.
6. Operation of locks.
8. Survey and sound harbour.

**The Grey Zone**

10. Belt line railway.
11. Warehousing, grain elevators.

**Normally Privately Supplied**

12. Towage.
15. Lighterage and barge operations.
17. Stevedoring.

Moreover, the continuum central ownership, rent, lease, and private ownership may be used to indicate whether functions are privately controlled, or controlled centrally by the port authority.

An explanation as to why some services are best
provided by the central authority, others by decentralized decision makers, might be given in terms of the nature of the services provided—i.e. are they public services or private services? A public service like the provision of a lighthouse, or the dredging of a channel, are such that it is difficult to say how much different individuals or firms benefit from them. A private service, such as a towing service or a stevedoring service, can be shown to benefit certain shipowners (i.e. those on whose ships these services are applied) and not to benefit others. (i.e. those not using certain towage firm services or not requiring towage). Arguments along this line might be used to show why private enterprise may not be as effective as a public enterprise in providing certain port services. Also, the theories of competition, oligopoly, and monopoly, may be used to show the advantages and disadvantages to be derived by having certain supplier combinations for different functions. The use of regulations by the port authority, however, can mitigate to a large extent, the effects of different organizational arrangements.

Coordination of Different Interest Groups in Port

It has been argued that there is a divergence of interests among different groups in a port community. Where the shipowner's interest is fast turnaround so that his ship can be carrying a payload at sea more of the time, the quay
owner's interest is having maximum utilization of his expensive equipment. The shipowner would prefer an abundance of port facilities, with few or no waiting lines. The quay owner, on the other hand, would prefer long queues so that he can be quite confident that his equipment and facilities will be working at maximum capacity. The railway company, like the quay owner, wishes to also get maximum utilization of his equipment. He will wish to add more cars or locomotives only if the marginal revenue of the additional cars exceeds their marginal cost. In this world of monopolies, ologopolies, and great fixed facilities, with little or no opportunity cost, the price system cannot be counted on to automatically coordinate operations. What is called for is an outside power to resolve differences among interests, and to make regulations that are in the general interest of the port.

It is somewhat surprising that the Rochdale Committee found there was a unanimity of interest in the port. The unanimous interest, it is argued, is in favour of speedy turnaround, and therefore few queues. The report, however, cites only the cases of the shipowners, the merchants, and the port authority. No reason is given why a reduction in queues is in the interest of the port authority, though.\textsuperscript{25}

The economically ideal operation (at any given level of

\textsuperscript{25}Rochdale, op. cit., p. 90.
output) is one which minimizes the total cost of the port system—to the shipowners, the merchants, the quay owners, and the railways, et cetera. This is the position a port authority with commercial goals may wish to reach through operation and regulation. Other port goals may, however, complicate this simplified economic position.
CHAPTER IV

PORT ADMINISTRATION STRUCTURES

This chapter proposes to deal with some of the theory which has been written on different forms of port authority structures, and the pros and cons of each form. Some mention is made of the trends in the inception of these various structural forms. Moreover, some space is allocated to discussion of the need for a port system superauthority.

Private Company Port

A sampling of American Ports by Fair in 1954, revealed that only three per cent of United States ports were administered by private companies. Closer examination of the individual ports concerned, showed that each of these ports have had special developmental problems. In fact, the financing of a private port development seems to be the biggest drawback in the effective utilization of this form of port authority.

A large cargo port requires great sums of money to create, maintain, operate, and develop, and normally private enterprise would not be able, even if willing, to put up the money.\(^1\)

By itself, this statement seems unrealistic because

\(^1\)Flere, op. cit., p. 52.
many examples can be found where private enterprise has been able to put up large sums of money for various investments. However, the investments which have drawn large sums of private capital are not usually public utilities, and are therefore able to maintain somewhat more distant from government regulations than public utilities (also ports) can.

For this last reason, private enterprise would be unable to extract the profits that a port in a monopoly position might confer upon it. Furthermore, private company ports have to compete with non-profit public ports. Unlike the latter, they "are subject to the regulation of normal governmental laws, including the labour and anti-trust laws" in the United States. What is more, free enterprise ports cannot rely on public subsidy and must make the necessary capital improvements from earnings. Bonds can be issued, but private companies are unlikely to obtain the favourable interest rates which a public port authority might obtain.

A further disadvantage of private enterprise operating large seaports, is that they are not in a favourable position to appropriate shore land necessary for the most economic development of the port.

An additional negative result, springing from private ownership, is a bias, favouring certain interests in the port, namely, the private enterprise's own interests.

If the port is privately owned ... to obtain a high (return) on their invested capital they will be

\footnote{Fair, \textit{op. cit.}, p. 69.}
interested in the highest possible utilization of their equipment. In consequence they will be reluctant to invest in new equipment as, assuming a constant flow of goods, such investment would result in less utilization.3

The principle advantage of a private company port is that it ensures a commercial type of management—divorced from the exigencies of politics.

The overwhelming disadvantages related with this particular form of control has in general lead to its abandonment throughout the world.

Ports as Public Corporations

In the United States, Public Corporation Ports may be Bi-State (3 per cent), State (6 per cent), District (3 per cent), and Municipal or County, (14 per cent).4 This type of administration is the most popular type in the United States.

In Britain, public trust ports are in reality only different to public corporations in that they have a broader interest group of representatives composing their boards. Commonly, representatives of national government departments, the local community, merchants, shipowners, and public wharfingers, as well as representatives of labour, and the Ministry of Transport, are found on the governing boards of trust ports.

3Omtvedt, op. cit., p. 15.

4Percentages as per Fair, op. cit., p. 61.
On the other hand, public corporations may be controlled by a particular level of government.

In Canada, the National Harbours Board is a public corporation but it is different from other public corporations in that it is involved in governing a number of ports. The type of control it exercises might be thought of as the centralized control of a super-authority.

Comments on the public corporation port varies with the political unit to which it may be attached. The Trust Port, not tied particularly to any political authority, seems to be in high favour in Britain. The Rochdale Committee noted overwhelmingly favourable opinions given on trust ports by selected respondents. Moreover, the 1930 Royal Commission on Transport was quoted by the Rochdale Committee as follows:

We are . . . of the opinion that the best kind of authority to own docks and harbours is a Public Trust. . . .5

The advantages of this type of administration are chiefly:

(1) their power to shoulder the heavy financial burden which the provision and maintenance of docks entails; (2) the representation which they offer to those using the port in the course of business and organization whose interests are affected, often vitally, by its efficiency and success; (3) their freedom from political considerations; and (4) their impartial policy in relation to all forms of transport wishing to use the ports.6

5Rochdale, op. cit., p. 37.
One of the main disadvantages of the Trust Port is the tendency of its board to become unwieldy in size, and therefore, an ineffectual policy maker.

The size of Board varies from port to port, being as high as 42 in the case of the Clyde Navigation Trust, and as low as 15 at Leith. 7

The Rochdale report, commenting on this problem laid down the number 'fifteen' as the absolute maximum number of representatives which should be on a governing board. When attempts are made to rigidly limit the number of representatives on a Trust Port's board, the big problem becomes deciding who should be represented. (Criticisms are bound to arise as to who was selected and to who was not). 8 Moreover, the Rochdale Committee felt less emphasis should be placed "on members being elected or appointed to represent any particular interest." 9

Another recommendation which the Rochdale report made with respect to Trust Ports was that the members of the board receive a fee. "The purpose of this provision will be self-evident," the report stated. In any case, the fee should reduce the degree of partisanship of different board representatives.

As to the other type of public corporations, i.e.

7 Brown, Tooth, and Dove, op. cit., p. 4.

8 The Rochdale Report noted that this was a familiar criticism, op. cit., p. 39.

9 Loc. cit.
those connected with a particular political body, they all suffer, more or less, from the same fault—the fault of partisan political intervention in port affairs. "... politics and ports are not ideal bed fellows."^10

To the extent that governments keep out of port affairs in the short-run operation, then to that extent the public corporation may be an effective Port Authority Structure. In the United States, Fair observed:

While the several corporations are limited to the authority granted by the state or local government in their Articles of Incorporation, and are subject to possible veto of their actions by the chief executive and/or legislative body of the State, they are designed to provide maximum freedom of action in development and administrative activity, and the maximum insulation from the currents of partisan politics.11

The Independent Commission

The Independent Commission might be related to a State (5 per cent), a District (1 per cent), or a Municipality or County, (14 per cent).12 This type of administration is more likely than a public corporation, to have political overtones in many of its operating policies. Whereas, Fair, (in the United States) regards independent

10 Oram, op. cit., p. 9.
11 Fair, op. cit., p. 67. (Underlining is writer's).
12 Ibid., p. 61. (Fair's study is the source of the percentages given).
commissions as being "largely removed from the currents of politics." The British writers have tended to emphasize the political nature of appointment and the overall general proximity of these commissions to partisan politics. However, the word, "Municipal" rather than the word "Independent," is used as an adjective to describe the British Commissions. Possibly these commissions might be separated into two groups, one of greater political influence, (Municipal Commissions) and the other of lesser influence, (Independent Commissions). At any rate, the degree of autonomy the port administrative body exercises, tends to be a key factor in authors' various opinions as to the quality of port operations. For example, the following quotation restates the attitude that politics do not mix with port management:

The administration and development of a municipal port undertaking can become a matter of contention in local politics and, in such circumstances the victorious policy may not always be the true economic port policy.14

The Government Department

When a government department is the port authority, there are a combination of disadvantages, the greatest of these being government interference in port affairs. The likelihood of authority from a distance is increased. Moreover, port policy may be set out so as to apply

13 Ibid.
14 Flere, op. cit., p. 52.
uniformly to all ports. Because of the great diversity in different ports’ problems, and many particular circumstances which are peculiar to individual ports, uniform policy is more liable to be a hindrance than an aid.

However, the government department as a port authority also has its advantages. Government authorities should have adequate financial resources at favourable interest rates which can be borrowed for port operation and development. A nationalized port system might further reap the benefits to be derived from overall planning, especially, the reduction of wasteful duplication of facilities. Perhaps national planning might bring with it the effective coordination of the various arms of transport. Furthermore, the authority can maintain an impartial position with respect to the involvement with various forms of transport in the port.14

The overriding argument with regard to all these advantages of nationalization would seem to be the tremendous diversity of port operations and the unlikelihood of any overall plan effectively directing the various port operations.

Nevertheless, it must be borne in mind that many smaller ports are unable to afford to maintain an expensive administrative structure. Then, small ports might need to be satisfied with a less costly form of authority, perhaps the

14Flere, op. cit., pp. 53-55.
Government Department type of authority. This formal structure is presently used for administration of the numerous smaller Canadian ports.

Trends in Authority Structures

The following table outlines the trend in the type of port authorities which have been set up in the United States, in various periods:

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<thead>
<tr>
<th>Types</th>
<th>Number Established by Period</th>
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<td></td>
<td>Prior to 1921</td>
</tr>
<tr>
<td>Government Departments</td>
<td>5</td>
</tr>
<tr>
<td>Independent Commissions</td>
<td>7</td>
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<tr>
<td>Public Corporations</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Fair, op. cit., p. 78.

The British, on the other hand, show a preference for nationalization of their port industry. In Canada, ports are considered public utilities, and it is felt that a centralized public corporation type of control (National Harbours Board) is to be preferred over other types of administration. This latter form of control has the advantage of isolation from politics on day to day decisions. (Note, however, large investment decisions such as the Roberts Bank Development have been very much in the realm of political forum). The
A National Port Authority

The Rochdale Committee became:

Increasingly aware in the course of [their] inquiry that a fundamental defect in the organization of ports in this country [Britain] is the lack of any central planning.¹⁴

The report illustrates the need to coordinate capital expenditure on port development, to stimulate port research, and prior to that, to produce and stimulate production of port statistics, and meaningful and comparable accounting procedures amongst ports, and generally, "to promote and assist the efficient exercise and performance by the ports of their functions."¹⁵

The disapproving of the theory of the proximal hinterland has shown that ports at a great distance from one another, may be in competition together; hence, in nearly all situations, there is some need for coordination of investment. The provision of a central pool of highly qualified staff is an additional advantage of a national port's authority (or advisory board).

Summary

In summary, an ideal port authority for a major port would be one that would be completely isolated from politics in matters relating to day to day operations, and

¹⁴ Rochdale, op. cit., pp. 53-59.
¹⁵Ibid.
even somewhat autonomous from governments on the establishment of long-range policies. However, a port system could probably benefit from the establishment of a central port authority as an aid and a coordinator of port operations and development. Otherwise, port control should probably be locally exercised. Local control exercised by professional management with perhaps a representation of various port interests is most generally favoured.
CHAPTER V

GUIDELINES FOR PORT MANAGEMENT

Nature and Purpose of Chapter

The contents of this chapter have grown out of a study of secondary sources, all of which made reference to: (1) the nature of organization through which the port was run, and (2) the quality of a port operation and its management.

It is freely admitted here that formal organization of the port hierarchy is not the sole, and may not even be, the predominant factor determining the quality of a port operation. Nevertheless, this writer feels that certain types of organization are usually more amenable to, or less in conflict with, the efficient operation of a port.

A study series consisting of reports on the economic development of different countries was chosen for secondary research data. The International Bank for Reconstruction and Development organized consulting missions which were then sent to different countries requesting an appraisal of their economic sectors. The transportation sector was analyzed to some degree in every study. Moreover, most of the studies presented an analysis of ports. The information available was usually sufficient to determine the two desired characteristics of port structure and
efficiency. First of all, a methodology (to be described later), was utilized to determine whether the country's port's governing body was a: (A), Private Enterprise; (B), Autonomous Government Body; (C), Semi-autonomous Government Body; (D), a Special Government Department; or (E), two or more government departments dividing their responsibilities functionally. Secondly, another methodology (also to be described later), was employed to determine the "quality" of port operations, i.e. whether it is: (1) good; (2) average; (3) poor; or (4) very poor. Thirdly, these two characteristics were made into a matrix, so that some idea could be graphically obtained of the correlation between type of formal structure and quality of operation. The results obtained are shown on the chart on the next page. Footnotes provided are used to explain some problems encountered in placing different countries' ports into specific squares on the matrix.

The ultimate value of such a study is to provide guidelines to effective port management structures. It might be argued that the study results or implications are only relevant in the context of developing countries because only data from developing countries was utilized. This is probably true, to some extent. For example, one would expect the managerial class of most underdeveloped countries to be less sophisticated than those of developed countries. This undoubtedly would affect the proficiency of port operation
<table>
<thead>
<tr>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
<th>(D)</th>
<th>(E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Enterprise</td>
<td>Autonomous Gov't. Agency</td>
<td>Semi-Autonomous Gov't. Agency</td>
<td>Special Gov't. Dept.</td>
<td>2 or more Gov't. Depts - functional Division</td>
</tr>
<tr>
<td>(1) Good (Above Average)</td>
<td>Syria (1955)</td>
<td>East Africa (Kenya '61 (Tanganyika '63) Iraq (1952)</td>
<td>Nigeria (1955)</td>
<td></td>
</tr>
<tr>
<td>(3) Poor (Below Average)</td>
<td></td>
<td></td>
<td>Nicaragua (1963) Spain (1963)</td>
<td></td>
</tr>
<tr>
<td>(4) Very Poor</td>
<td></td>
<td></td>
<td></td>
<td>Turkey (1951) Venezuela (1961)</td>
</tr>
</tbody>
</table>

**CHART I**

**REPRESENTATION OF THE CORRELATION BETWEEN TYPE OF PORT MANAGEMENT AND QUALITY OF PORT OPERATIONS (by country)**
FOOTNOTES TO MATRIX CHART I

1. **SYRIA:**
   
   One port of any consequence, developed and run by a private company. Government owns 90 per cent of the capital. Government guarantees a 5 per cent dividend on investment. Government has imposed regulations and has controlled commerce so as to aid port. Therefore, Syria's major port (Latakia) is really operating under a very autonomous government agency.

2. **EAST AFRICA:**

   The controlling body--The East African Rail and Harbours Board--is an autonomous government body, but it is responsible for both railways and harbours.

3. **NIGERIA:**

   At time of Mission, Nigeria was in the process of switching from E-1, "a multiplicity of organizations responsible for port operation and maintenance." This condition has "for a long time been recognized to be a limiting factor in their [the port's] efficient operation and development," to B-1, an autonomous public corporation.

4. **MOROCCO:**

   Little information, although the information that is available, is very specific with regard to determining the two coordinates.

5. **NICARAGUA:**

   Port system is by and large, a mixed economy, although Cortino--a government port--by itself handles 75 to 80 per cent of ocean-borne imports and exports. Cortino is under the control of the national railway (public owned). Other government ports are under customs' control.
6. **LIBYA:**

Mission recommended the creation of an "autonomous federal authority" to run the main port (Tripoli). Such an organizational change should reduce inflexible procedures of government control and difficulty in obtaining authority for expenditures which hamper efficiency at present.

7. **TURKEY:**

Little information, however, information which is available, is useful in determining coordinates.
although it might not affect (to the same degree, anyway) the organizational system of the port authority. However, it would be foolish to go too far and imply that this study is completely inapplicable to developed countries. A 1967 study by the Department of Economic and Social Affairs of the United Nations entitled "The Turn-around Time of Ships in Port," used the following statement in a conclusion to the article:

There is no clear-cut demarcation of developed and developing countries in so far as ports are concerned--some ports in the so-called developing countries have been in existence for hundreds of years and have developed over the years in a similar manner to the ports in the developed areas, so that quite often their problems are similar in nature. Furthermore, most of the specialized ports in developing countries and especially those for handling bulk commodities such as oil and ores are highly developed. The main problem are ties in the area of the heterogeneous "general" cargo. 

Therefore, what is said here may have direct relevance to the organization of port authorities in developed countries.

Two basic problems with methodology were: (1) setting up meaningful coordinates, and (2) placing particular ports objectively into particular matrix boxes.

The coordinate, Type of Management, was set so that the types ran from the most decentralized (A on Chart I)²


²Refer to Chart I, p. 56 for name descriptions corresponding to letters A - E, used here in parentheses.
to the most centralized; similarly, from the most autonomous port authorities, (A), to the least autonomous port authorities, (E). Of course, in reality, it does not follow definitely that if a port is nominally administered from a government department, (D), or from several government departments, (E), this port's management will be any less autonomous in its decision making than a private enterprise port, (A), or a public enterprise port, (B). One might imagine, for conceptual purposes, a private enterprise authority, or a public corporation authority, controlling several ports with an iron hand, from an office in an isolated inland city, far removed from the major ports under its control. Some would argue, for example, that the National Harbours Board of Canada is too far removed from some of the major ports, (notably, Vancouver), under its jurisdiction, to effectively exercise the power it holds over operations. On the other hand, one could conceive of a government department loosely exercising control over one or two ports in the vicinity of the department's offices. Even though a certain nominal type of port authority may not entail a corresponding degree of autonomy or centralization in a particular port, the degree of autonomy is generally implied by the type of authority. This is so because certain types of organization seem to be more conducive to decentralized and autonomous management, with strong local management, than do other forms of organization.
Next, specific ports were affixed as private enterprise, et cetera, according to how the International Bank labelled them. However, some problems did arise in classifying port authorities. Syria, nominally a private corporation port, did in actuality, seem more to resemble a public corporation. Nicaragua presented further difficulties by having several ports of various organizational types. Luckily, though, the mission there, had limited its study to the public ports of Nicaragua, of which one - Cortino - was of overwhelming importance, and this author felt it necessary to ignore the less important ports in the study. What is more, in other cases, where there were small ports having divergent types of authorities, or sometimes no authority, at all, they were then usually omitted in this study.

Nigeria was in the interesting position of changing over from one type of management organization to another type, at the time of the Nigerian report. However, most of the other reports were more or less explicit in typifying the port authority. The following statements, thereabouts, illustrate the degree of precision with which the different studies categorized various port authorities:

1. The Port Authority of Thailand (PAT) which was established as a semi-autonomous government corporation is . . .

3Refer to footnote 1 of Chart I, p. 56.

2. The Port of Basra (Iraq), an autonomous public agency. . . .5

3. Each of the principal ports has . . . an autonomous public body which in practice operates in advisory capacity to the port director. . . . Most of the important decisions on port construction and to a lesser extent port operation, appear in practice to emanate from Madrid (Spain). . . .6

In general, statements like those presented above, appeared in each report to give a general indication of the type of port administrative body. Classification is not simple, as is illustrated by problems evident in the quotations. In the third quotation, "autonomous public body" seems to be inconsistent with most of the important decisions . . . emanate from Madrid." Further reading though, would allow a finer basis for classification.

The second coordinate—the quality of port operations—was divided into four parts from good (1), to very poor, (4). The ordering is obvious. These terms are much more nebulous than the organizational typologies. Fortunately, value judgments were usually made in the individual studies by the reporting missions. The judgments present in the reports were refined according to the following criteria: (1) the profit picture; (2) tonnage increases alluded to; (3) quality of investments, and investment planning; (4) physical state of the port; (5) quality of statistics produced; (6) actual capacity with respect to needed capacity; and (7),

5International Bank - Iraq, op. cit., p. 609.
6International Bank, Spain, op. cit., p. 234.
A port was given a "good" performance rating when the report went out of its way to say how capably the port was run. Specific statements—usually more than one—were given as to the excellence of port management for each port system in the "good" classification. Moreover, it was further required that the port did not err too badly with respect to many of the seven criteria given in the preceding paragraph. For instance, a chronic and sizable loss would be a minus factor. Nevertheless, breaking even was not considered any worse than making a profit, unless profit goals were stated or implied by the report.

An example of a "good" performance port authority is the Syrian one. Statements such as:

The port appears to be well managed and in recent years has earned on its paid-in capital a modest profit which rose to over 5% in 1953.7

An "average" port was indicated by statements to the effect, or a balancing of favorable and unfavorable comments. Some weaknesses were noted in the case of each of the "average ports."

By and large, its [Port Authority of Thailand] administration has been satisfactory in present years. Some cause for concern about the future has, however, been created by the replacement of the former top management of the Port Authority with a Director and

7International Bank - Syria, op. cit., p. 145.
two Deputy Directors who have had no prior professional experience in port management. 8

A "below average" or poorly run port was recognizable by statements to the fact, and an overbalancing of negative factors.

A "very poor" port had the characteristics of a "poor" port--accentuated somewhat, with recommendations for sweeping changes in management and management processes by the mission.

At this point, it is important to note the bias in the evaluations. Because the comments of the studies were primarily economic criticisms (unless otherwise stated), the studies were very inclined to over-value economic characteristics, e.g. the profit picture, and to under-value other characteristics, e.g. social and political value of nationalizing the work force. For example, the report mentions in the case of Ceylon:

The Commission [for the major port] has also had to follow the broad government policy of "Ceylonization" of labour at serious cost to efficiency, particularly in man-hour output. 9

It would be difficult to evaluate this practice without knowing what it was worth to the Ceylonese Government to nationalize its labour force. The major limitation with the classification of ports is the subjective nature of the process. The method used to avoid intensification of the

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8International Bank, Thailand, op. cit., p. 145.

9International Bank, Ceylon, op. cit., p. 611.
former problem was to use a series of works--each similar to one another in presentation--as was the International Bank for Reconstruction and Development series. Moreover, it was necessary to be fairly explicit in setting out the criteria for different categories, in order to gain objectivity in reporting. A four-part value classification was used to avoid the problem of refining too far. Even so, there were cases which seemed borderline, (e.g. Spain, Class 3 or 4?), and there were sometimes two ports in one class, one of which seemed superior to the other (e.g. Turkey before Venezuela?).

A third problem--that of limited information--was met in two ways. The first was to footnote those which, with limited information, seemed to classify well, stating that there was a dearth of information, i.e. Morocco and Turkey. The second way was to delete those studies for which the information was insignificant to determine coordinates, (e.g. Kuwait, Jordan, Jamaica, and British Guiana).

Interpretation of Matrix

The first statement which should be made here is that there is obviously a very limited number of studies from which to draw any firm or even tentative conclusions. Also, there is only one exhibit in the Private Enterprise column, and it could have just as reasonably been placed in Column B--the Autonomous Government Agency. Therefore, any conclusions or implications drawn will have to omit the
private enterprise type of organization.

The twelve examples used here do show a definite pattern—the more proficient ports being more autonomous. If we assume a causal relationship, and a direction of causality (the only logical direction), then the pattern might be described mathematically as follows:

\[
\text{Quality of Port Operations} = f \text{ (degree of autonomy)}
\]

\[Q. \text{ P.O.} = f (A)]\)

(degree of port authority)

Where 'f' is positive, and the bounds of the relationship are autonomous government agencies (not anarchy), at one end, and a functionally divided control by government departments at the other end.

The reason the direction of causality is pretty well determined is because it is unrealistic to assume that the degree of autonomy of port authorities is a function of the quality of different port operations. Therefore, we are left with the relationship:

\[Q. \text{ P.O.} = f (A), \text{ rather than } A = f (Q. \text{ P.O.})\]

This relationship is even more obvious when the exceptions to the pattern are examined. Nigeria indicated that many major operational problems were associated with her previous system, (E), and was at the time of the report, switching over to (B), which this study indicates as a more favorable form of organization. The other exception, Libya,
was hampered according to its mission, by its present port organization. The mission, itself, recommended Libya change the authority of its major port to an autonomous government agency, (B).

Recurring throughout these studies has been the different missions reluctance to analyze smaller ports (probably for lack of time). They have generally confined themselves to analyzing the larger ports, in some detail. A notable exception was made in the case of Nigeria. The mission analyzed Nigeria's technique of changing over to another type of port authority, for all sizes of ports. They concluded that the changeover was too complete, and that many of the smaller ports would not be able to afford superstructures required by an autonomous agency form of control. They recommended that the new authority be limited to Lagos, and Port Hartcourt, the two largest ports.

... the mission feels this authority [the new authority] should have been limited to Lagos and Port Hartcourt, the only ports where unified operations and an integrated port policy is urgently needed. They then argued that one present government department should continue as "a separate government department to carry out control of the other [smaller] ports."

Therefore, any implications drawn from this particular study are from the nature of the study limited to larger world ports.

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10International Bank, Nigeria, op. cit., p. 531.
Chart I includes the dates of each study, beside the respective countries. This was done because the studies were conducted at various times over a fifteen-year period. One might have expected time (progress) to be a factor in the quality of port operations. However, the degree of the "progress" factor does not seem to affect the results of the study, as the dates seem to be spread pretty randomly about the chart.

Results Compared with the Literature

To reiterate, this study would lead one to believe that autonomous authorities—authorities decentralized from the national government, and otherwise local in their approach to port management—are preferable for the operations of large and medium-sized seaports.

The study conducted by Fair in the United States in 1954, noted that:

A substantial majority of the port communities represented in this study have established port authorities, the extent of whose powers and local position suggest a surprising agreement on the general characteristics of good port administration.\(^{11}\)

Fair, then, lists these general characteristics of good port administration, the first of which is that the authority be "a body constituted outside the normal pattern of government bureaucracy, which normally administers a separate port fund

\(^{11}\) Fair, Port Administration in the United States, op. cit., pp. 73-74.
and, therefore, does not hand over income to the general fund of the city, county, or state." In other words, the port authority should be a separate public body, which is financially autonomous. Fair's second general characteristic of good management requires that there be "no conflict or ambiguity in regard to the relation of the port authority to established government units." This requirement segregates the port authority from politics and therefore political decision making with respect to port policies. A third general characteristic further removes the port authority from "partisan politics" by removing the port officials "appointment, terms, and salary," away from politics. A fourth general characteristic of good port management states that the area in which the port authorities are autonomous should be sufficient to allow it "broad discretion in the method of exercising the functions of administering the port." A fifth, sixth, and seventh general characteristic endows the port authority, respectively, with autonomy in staffing; autonomy from local, municipal, and county boundaries; and autonomy from government interference or supervision (except long-run accomplishments). The eighth and final characteristic of good port management is the only one listed which seems removed from autonomy considerations.

12 Ibid.
13 Ibid.
It is concerned with financial advantages.\(^{14}\)

The Rochdale Committee noted in its interviewing, a similarity of opinion on the type of organization which should run a port:

Those who have given evidence to us have been overwhelmingly of opinion that, wherever possible, port authorities should be independent autonomous bodies, administered locally, and self-supporting financially \(\ldots\).\(^{15}\)

The Committee modified the opinion of those they interviewed a little:

We accept the argument that ports should be administered locally, but we do not think that this is necessarily inconsistent with the existence of a small central policy-making office. Indeed, we would regard local management combined with central direction, as often essential for the administration of a group of medium-sized or smaller ports.\(^{16}\)

The Committee's first qualification is similar to the one Fair makes within his seventh general characteristic of good port management. Both sources seem to feel that there is a role for politics or super-authorities in the realm of long-run decision-making. The second qualification is that "smaller ports" (the Committee included medium-sized ports also), may be different enough from the larger ports to require a different form of management. In any case, the analysis must, here, exclude the smaller ports. Furthermore, a conference in 1961, by technical committee on Ports for the

\(^{14}\)The information in the preceding paragraph is largely paraphrased from M. L. Fair's *Port Administration in the United States*, op. cit., pp. 73-74.

\(^{15}\)Rochdale, op. cit., p. 37.

\(^{16}\)Ibid., p. 41.
Organization of American States:

Recommended to the member states that they give priority to consideration of the advantages to be derived in reduction of costs and increased development and efficiency of ports by introduction of port administration having maximum autonomy for their operations.17

What is more, the Committee noted a trend:

In the hemisphere . . . toward adoption of port autonomy systems and professional management, and port autonomy has already been established in most South American countries. . . .18

This review of the literature has tended to show a concurrency with the results pictured in Chart I, page 56. Keeping in mind the statement by the U.N. pamphlet on Ship Turnaround,19 which said that "there was no clear-cut demarcation of developed and developing countries, in so far as ports are concerned . . . this study (Chart I, page 56), would be definite support for the opinions given in the other studies presented above.

The prominent American Economist, John Kenneth Galbraith, in his most recent book, The New Industrial States, made a statement which is a fitting conclusion to this chapter:

The experience with public enterprises, where autonomy is denied, thus [failure] accords fully--and tragically--with expectation.20

17Ibid.
18Ibid.
19Ibid.
20Galbraith, op. cit., p. 103.
CHAPTER VI

MEASURES OF PERFORMANCE

This chapter can be best introduced with a quotation. This quotation expresses the need for quantitative information as a prerequisite to effective port management in the modern port.

As our technology improves, our port system gets more and more complex. The high cost of new ships and new terminals puts a far greater demand on their efficient utilization. No one can afford to make mistakes in planning or operating such systems. To avoid costly mistakes, we must continue to obtain more and more quantitative information, to analyze this information with the most advanced techniques available, to publish this information for those who need it.1

There is an acknowledged demand for port statistics. Many reports on port operation have noted an appalling lack of statistics. For example, the recent Rochdale report in Great Britain (1961), found itself hampered by a lack of important statistical information.

We [the committee] found on several occasions that information about the functioning of ports which we regarded as vital to our enquiries was not regularly produced and could not readily be deduced from the figures available to us. . . . 2

What are the particular statistics which should be gathered? This is the question which comes up as attempts


2Rochdale, op. cit., p. 6.
are made to fill the recognized demand for statistics.
This is not as simple a question as it at first may appear.
A recent local research paper directed towards the Port of
Vancouver, argued that "there is no simple measure of
operating efficiency," because of the complexity of modern
port operations. The authors of this particular paper
feel that the tremendous number of close interactions in
port functions requires a simultaneous look at the overall
effect of a particular policy. To attain this goal, they
have chosen computer simulation methodology as a means of
achievement.

This simulation technique is in marked contrast to a
management system based on control statistics, or a system
whereby management makes changes according to indications
from particular statistics. If, for example, it was felt
that between 55 and 65 per cent berth occupancy was thought
to be desirable for certain types of cargo handling,
then figures below or above this range might suggest certain
courses of action. (For instance, 85 per cent utilization,
combined with slow turnaround (high waiting time), for ships
using a specific facility, may indicate facility enlargement).
The use of statistics in this manner requires considerable
enlightenment on the part of the analyst with regard to port

3J. C. Clapham, and W. J. Sheriff, "Computer Simulation -
A Tool in Port Planning." Paper presented to Canadian
operations. A recent report by the United Nations entitled The Turnaround Time of Ships in Port, points out the need for knowledgeable analysts:

Appropriate evaluation of port productivity measurements based on sound judgement and the most prudent approach to port investment as well as the implementation of appropriate policies, are prerequisites to achieving the highest degree of efficiency.4

This statement strongly requesting the use of statistics (port productivity measurements), is hedged by the requirement that any statistical information obtained is properly utilized.

A series of statistics which would be considered important, are looked at in the remaining part of this chapter. The chapter deals with such operating statistics as turnaround time, and the component statistics of turnaround time; tonnage handled per unit of berth, and/or quay length; gang productivity measures; and berth occupancy statistics. Furthermore, some general statistics reflecting different economic considerations of the port, will be discussed. These will include: indices of the level of charges at a particular port, indices of freight rates to a particular country; port profitability; and costs of passing goods through the port. Other statistics reflecting the size of the casual labour situation; the pattern of ship arrivals; the growth of the port (handling capacity and handling

efficiency), and a measure of the port as a contributor to G.N.P. will also be examined.

Operating Statistics

By a large majority opinion, turnaround time seems to be the statistic of greatest single importance to any port. To give an idea of the immensity of the turnaround problem, the following table is presented:

<table>
<thead>
<tr>
<th></th>
<th>At Sea</th>
<th>Percentage</th>
<th>In Port</th>
<th>Percentage</th>
<th>360 days 100 per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger liners</td>
<td>225</td>
<td>62.5</td>
<td>135</td>
<td>37.05</td>
<td>100</td>
</tr>
<tr>
<td>Cargo liners</td>
<td>145</td>
<td>40.27</td>
<td>215</td>
<td>59.72</td>
<td>100</td>
</tr>
<tr>
<td>Deep-sea tramps</td>
<td>205</td>
<td>56.94</td>
<td>155</td>
<td>43.05</td>
<td>100</td>
</tr>
<tr>
<td>General purpose tankers</td>
<td>290</td>
<td>80.55</td>
<td>70</td>
<td>19.44</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Arnljot Stromme Svendsen, 'Seeverkehr und Schiffahrtswirtschaft' (Sea Transport and Shipping Economies) Bremen, Institute for Shipping Research, 1958.*

In manner of explanation, the report stated "The figures quoted above may seem high for time in port. . . . However, one must take into account that the days at sea incorporate a twenty-four hour day, seven days a week, without regard to normal working hours, . . . whereas in port this is not the case," (p. 6), and "Furthermore, from
The Rochdale Report saw fit to use these figures, rounded off in their Report, despite the very tenuous nature of these calculations.\(^5\) (Refer to page 75 for explanation).

Other quotations as to average amounts of time spent by cargo ships in port, vary from 40 to 60 per cent of the year. The cost implication of this port time is equally large.

The cost effects of the turnaround process of a ship at its terminal ends has been variously estimated at accounting for between 30 and 60 per cent of the operating costs of a ship.\(^6\)

The turnaround process can best be broken down into three component parts:

First, delays which occur before a ship actually enters a port; secondly, the time required by the ship operator to service his vessel for the future voyages; and thirdly, the time required for discharging and/or loading cargo which is closely allied to port productivity.\(^7\)

A breakdown of turnaround time into component parts is a good way of isolating problem areas. For instance, Table I, page 21, of the chapter was broken down by the figures given, one cannot be certain as to how they were derived, or from what sources they were obtained."\(^\text{(p. 7)}\).

\(^5\)Rochdale, op. cit., p. 112.

\(^6\)Turnaround Time, (U.N.), op. cit., p. 7.

\(^7\)Ibid., pp. 1-13.
analysis as follows:

40 per cent at sea. (Actual twenty-four hour periods).

45.7 per cent in port as dead time for week-ends, holidays, and non-working hours.

14.3 per cent as actual days of twenty-four hour working periods available for working cargo.

The implication here is that:

Nearly 75 per cent of the 60 per cent quoted as being the 'time in port' could possibly be eradicated if twenty-four hour day, seven-day week work periods were applicable.

The main difficulty with trying to determine:

The size and seriousness of the turnaround time for ships in port is... a complete and utter lack of accessible factual data.

This is the problem mentioned earlier in this chapter.

The interpretation of data, even if available, has to be tempered by awareness of many of the factors involved in turnaround time of ships. These factors vary from the weather (rain, snow, and fog), to labour strikes. Seasonality of particular cargoes, unexpected bunching up of arrivals, and political events, such as the recent Middle East Crises, affect particular ports' turnaround performances.

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8 Ibid., p. 6. The assumption of an average five-day week of eight hours a day is made for purposes of analysis.

9 Ibid.

10 Ibid., p. 5.
The analyst has often to take many factors at a port into consideration in order to properly evaluate the turnaround situation there.

Another operating statistic of value as an indicator of port operating efficiency is gang productivity. The ultimate statistic for relating man-hour productivity was given by one source to result from:

Having a commodity group list common to all [stevedoring] companies together with a common tonnage measure in either weight or volume for each commodity group, and a common method of determining manhours utilized for each group.\textsuperscript{11}

The study by the United Nations on turnaround time further specified the elements which should be included or excluded in a measure of labour productivity.

Measurements of [gang] productivity . . . should normally include removal and replacing of hatch tents, opening and closing of hatches but should exclude idle time due to adverse weather conditions affecting work, shifting of the vessel to other berths, or any other interruption beyond the control of labour. . . .\textsuperscript{12}

This study further layed out what it considered to be the important classifications of cargo for relating labour productivity therewith associated:

(i) general cargo.
(ii) parcels of homogeneous cargo such as bales, drums, bags, bundles, cases, rolls, etc.
(iii) bulk cargo such as grain, coal, ore, phosphates, etc.

\textsuperscript{11}Permanent Technical Committee on Ports, op. cit., 35.

\textsuperscript{12}United Nations, Turnaround Time, op. cit., p. 17.
(iv) special cargo such as perishable fruit, refrigerated cargo, and heavy lift cargo.13
Of course, the figures resulting will still be affected by extraneous factors such as the number and technological advancement of cranes for loading and unloading.

A third statistic of use as a measure of operating efficiency is rate of berth (or quay) tonnage productivity.

This statistic is affected by such things as:
The length of berths, amount of surface water, depth of water, shed and storage surface, as well as the capacities of port equipment, and 'cranes, types of cargo, rate of loading and discharging, number of working hours per day, number of working days per year, and the type and tonnage of vessels likely to be calling at port.'15

Therefore, complete analysis of a statistic requires research into all these possible factors affecting it.
Control statistics can be established for a particular port over time, and compared with ports whose figures should be roughly comparable. The United Nations report declared that:

Satisfactory, but by no means excellent port productivity is considered to be achieved when ten tons of general cargo turnover is reached per day, for each metre of berth.16

13Ibid., p. 18.
14Loc. cit.
15Ibid., p. 16.
16Loc. cit.
A fourth statistic of operating efficiency is berth utilization. The United Nations report recommends the following procedure for calculating this statistic:

A time factor expressed in hours for each length of berth or metre of berth occupied each day, expressed as a percentage of usable time, should be noted. It is of utmost importance to make a clear distinction as to occupancy of berths by working vessels, which may then be called productive berth occupancy as compared to unproductive berth occupancy which refers to use of berths by vessels moored alongside for purposes other than commercial operations within the port (ship repairs, fitting, painting).17

Two other useful statistics with which to measure operating performance might be crane utilization and increases in through-put (or changes and rates of changes in any of the other statistics).

Measures of Economic Performance

How well a port is performing economically speaking, might be represented by, first of all, how much it costs a port to move various commodities through it; secondly, the level of charges; and thirdly, the profitability of the port (which is the same as the difference between costs and rates).

Probably, the best measure of a port's economic performance (considering that many ports of the world are operated as public utilities), is the cost of moving cargo through the port. The true economic costs are difficult to

17 Ibid., p. 18.
measure. Nevertheless, there is pressure on ports to use costing techniques so that rates might be built upon costs more equitably and more commercially. Furthermore, any distortion in the allocation of resources would be minimized. Along these lines, the Rochdale Committee recommended that:

Ports' operations should be costed more frequently and in greater detail with the aim of making individual activities self-supporting.18

The costs of passing cargo through the port will be, to some degree, reflected in freight rates. The ships' port costs include the costs of hiring cranes, stevedoring, dues on cargo, and net registered tonnage, and the opportunity costs of the waiting time—(ship idle time). Therefore, the Rochdale Committee cites as evidence of inefficient port handling of grain, the fact:

That freight rates on grain cargoes to this country (Britain) are higher than on similar cargoes from similar points of origin to the major near continental ports...19

However, freight rates also register many other influences, as well as port costs, and one must be careful before basing an argument concerning port inefficiency directly on freight rates. For instance, one might be led to conclude that since the freight rates are noticeably higher c.i.f.20 to the United Kingdom than to Holland and Germany, that

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18 Rochdale, op. cit., p. 223.
19 Ibid., p. 164.
20 c.i.f. refers to the cost of shipping goods inclusive of c. (cost) + i. (insurance) + f. (freight).
British ports are more inefficient than, for instance, Dutch ports, in handling ore. The Westinform Report (May, 1962) defined this particular cost differential as being related to ships' size, and ports potentiality to handle the large ore carriers, rather than as strictly a handling problem. However, an index of freight rates would be a useful indicator. At least, it would call for explanations of variations from the norm of nearby ports handling similar cargoes.

More specifically, indices of various port charges would be useful in pinpointing problem spots. However, the task of comparing port charges between ports is no easy task, as was pointed out by the Rochdale Committee.

One further measure of a port's economic performance is its profit or loss picture. Nevertheless, any value judgments on a particular port must be made with reference to the profit goals of that port.

Miscellaneous Performance Measures

The labour problem which includes a large number of strikes, very high wages, and "goldbricking" or "feather-bedding" among other things is often at least partially


\[2\] *Ibid.*, p. 73. The text alludes to the "pitfalls" that were encountered in trying to draw comparisons.
attributed to the casual labour system at ports. In order to set things aright, schemes have been proposed and tried for decasualization of port labour, the world over. Therefore, the degree to which a port is still employing casual labour might be an indicator of potential labour strength or weakness. The Rochdale Committee recommended:

a) The interested parties should press ahead with arrangements for the greatest possible degree of decasualization of dock labour, within the Dock Labour Scheme.

b) Where this is not already the case, port authorities should have adequate statutory powers to formulate the conditions under which employing firms will be given licenses to operate within ports and should take active steps to reduce the number of employees to a reasonable level.2,3

Therefore a statistic such as the degree of casual labour is probably one good measure of a port authority's competence. The specific role of the port authority in a decasualization scheme might further enlighten the analyst as to how progressive management is.

Some measure of port growth, especially when vis a vis strong competition (perhaps from foreign ports), might be an indication of a port's success. Increase in throughput might be one such useful statistic of port growth.

A similar measure of a port's performance might be its impact on the local or regional community. Just as figures are obtained to show the additions to G.N.P. that

2,3 Ibid., p. 145.
result from other industries, so should the port industry try to give a measure of its contribution to G.N.P. 24

24 Note a recent pamphlet by the U.S. Dept. of Commerce-Maritime Administration, entitled, The Economic Impact of United States Ocean Ports, 1966. This does not seem to be a very sophisticated attempt to tackle this problem. Nevertheless, it is an attempt.
CHAPTER VII
A FIELD STUDY

This chapter encompasses the methodology and results of a study of two major ports.¹ The intent of the study is to find the nature of the relationship between port autonomy and port proficiency in two actual ports (the Port of Vancouver and the Port of Seattle). A finding of a positive correlation between autonomy and proficiency would be supportive of the hypothesis that: autonomously operated ports—ceteris paribus. Because it is not possible to measure directly the amount of autonomy or the degree of proficiency, indicators of autonomy and of proficiency are selected. These indicators are then utilized to communicate an impression as to the degree of autonomy and of proficiency in each port.

A meaningful comparison of any two ports entails the recognition of the many different characteristics peculiar to each port. The salient differences of the ports of Vancouver and Seattle are, therefore, compared early on in the chapter.

The ports of Vancouver, British Columbia, (the

¹"Ports," in this case, refer to major seaports only, (Ports which are able to bear the expense of an elaborate technostructure).
National Harbours Board), and Seattle, Washington, U.S.A., (The Seattle Port Authority) were chosen for this field study because of their (1) size, (similar and substantial), (2) the controversy surrounding the proficiency of the Vancouver Operation, and the less controversial Seattle Port, as a contrast, and (3) the proximity of the ports to the writer's residence.

The interview method was used to gather the information required, and was based on a loosely structured questionnaire so as to encourage--by probing--the expression of circumstances peculiar to each port's operation.

**Methodological Problems**

How proficient a port, given its natural geographical limitations, may be is dependent upon many factors: the quality of the port's management; the nature of operating statistics produced; and the sphere of responsibilities in which the port is involved.

Rigorously speaking, management quality can only be judged by the quality, number, and nature of management decisions and activities. A comprehensive evaluation of a port management therefore, of necessity, must be beyond the scope of this thesis. This study, therefore, was forced to concentrate on meaningful statistics. For example, the number of specialists having degrees were tabulated, and it was assumed that quantity of personnel with degrees and
quality of decision making are directly related. Furthermore, the location of key personnel relative to operations was noted, the assumption here being that management on location is to be preferred to management from a distance.

Port Statistics tell some of the story of port proficiency. Not only do particular pieces of statistical datum tell a story as to management proficiency, but also the mere existence of certain statistical data is valuable as an indicator of management proficiency. Moreover, specific data are frequently unavailable to the public (and even if it were available, seasoned expertise would be needed in order to interpret it). Then the best a researcher might do in a non-depth study, would be to find to what degree certain statistical information was available to management. Accordingly, the basic purpose of Chapter VI was to determine which statistics are the most necessary to provide background for proficient decision making in a port. The questionnaire was designed so as to find which of these statistics were regularly produced at Vancouver, and at Seattle.

5This assumption is based on Galbraith's description of management decision making by the "Technostructure" in The New Industrial State. (Refer page 27 of this thesis).

6See Chapter IV, pp. 49-53.

7This statement is explained in detail in Chapter VI.

8See pages 72-74.
Moreover, since it was agreed upon in the literature that a Port Authority exercising a broad scope of authority was to be preferred over a narrow scope of authority over operations. The questionnaire was designed to determine the scope of each port's authority.  

Finding indicators of autonomy, or the degree of decentralization of control over port activities, is a difficult task. The location of authority for spending decisions is one indicator that is used; the location of "staff" another; and the nature and scope of decisions-on-location is a third.  

As the above analysis shows, measuring these focii (autonomy and proficiency) is an approximation procedure. The quality of the resulting classifications depends, firstly, on the representativeness of the indicators; secondly, on the quality of data obtained on the indicators, and finally, on the weighting procedure that is used to bring the indicators to a common denominator so as to compare and classify individual ports.  

Seattle - Vancouver: An Introduction and Comparison  

Both Seattle and Vancouver are natural harbours. The entrance channel to Vancouver's harbour, Burrard Inlet, has a controlling depth of thirty-nine feet. Seattle's harbour,  

9See pages 33 to 42. The relevant question here is: "what activities should a port authority become involved in?"
Elliott Bay, has harbour depths ranging from 150 feet to 900 feet. The jurisdiction of the Port of Vancouver has been "some fifty square miles of water area within Burrard Inlet" until 1966, when the area was expanded "to nearly 200 square miles of water area, extending clear to the United States Border." Elliott Bay, on the other hand, encompasses a total harbour area of 5,300 acres (8.3 square miles).

The Port of Seattle has 22 terminals which are "used for handling dry commercial cargo." Vancouver provides "24 deep-sea berths and three berths for coastal shipping."

One basic difference in Seattle's operations from Vancouver's operations, is that Seattle operates on a 24-hour day, seven days a week shift, whereas Vancouver operates on a forty hour a week shift. Another difference in operations comes from the fact that Seattle's Port Authority is the authority for Seattle's International Airport, as well as the port. Vancouver's National Harbours Board is the authority for only Vancouver's port. The statistical table on the next page will indicate further similarities and differences between the two ports.

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A STATISTICAL REVIEW FOR THE PORT OF SEATTLE
AND THE PORT OF VANCOUVER (1967)

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Port of Seattle</th>
<th>Port of Vancouver</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total tonnage through port</td>
<td>16,000,000 tons</td>
<td>23,000,000 tons</td>
</tr>
<tr>
<td>2. Foreign destination or origin</td>
<td>approx. 18% of tons</td>
<td>approx. 55% of tons</td>
</tr>
<tr>
<td>3. Book value of port capital</td>
<td>$85,500,000+</td>
<td>$40,000,000</td>
</tr>
<tr>
<td>4. Depreciation</td>
<td>$1,850,000++</td>
<td>$590,000</td>
</tr>
<tr>
<td>5. Revenue</td>
<td>$6,770,000</td>
<td>$7,084,000</td>
</tr>
<tr>
<td>6. Profit</td>
<td>$10,580,000+++</td>
<td>$150,000**</td>
</tr>
<tr>
<td>7. Administration costs</td>
<td>$1,480,000++</td>
<td>$790,000</td>
</tr>
</tbody>
</table>

* All dollar figures in the table are Canadian dollars. The exchange rate is assumed to be $1 Canadian = $1.08 American.

+ This figure includes the value of the land upon which port facilities sit. The balance sheet asset figure for the port and airport combined, was $128,000,000 (U.S.). The airport was recently assessed at $35,000,000, and was undergoing expansion, here assumed to be $4 million. Further, the port operates a $10,000,000 marina, which was also subtracted from the $128 million.

++ Depreciation. It was assumed that the airport accounted for 30 per cent of the depreciation.

+++ This figure is 70 per cent of the net profit for the combined port and airport operation. The figure includes $11,350,000 in tax revenue.

** The Authority paid a grant in lieu of municipal taxes of $25,000.

++ Administration costs for the port are estimated to be 70 per cent of the administration costs for the combined operation.
The interview below contains the interview questions and the respondents' answers in the interviews at Vancouver and Seattle.

I. Interview and Selected Responses

Q. How would you describe the formal administrative structure of the Port Authority? Have you an organization chart?
A. See diagrams on pages 95 and 96.

Q. How many staff are there in the office of the Port Authority?
A. Vancouver: Approximately 200.
    Seattle: Approximately 415.

Q. How many specialists (defined in ensuing discussion as University graduates), are amongst the staff?
A. Vancouver: Three; they are engineers and are in the Engineering Department.
    Probe: Why are not more University graduates hired?
    Answer: Because a university degree is of relatively little value to a port administrator. What is required is a working knowledge of port operations, and this can only be obtained through experience on the job. (The respondent then stated that only one person in the port authorities' office had had working experience in any other port than Vancouver).

    Seattle: Of the white-collar staff (approximately 285 persons), between one-third and one-half have University degrees.
    Probe: What is Seattle's policy with regard to handling graduates?
    Answer: It varies with the requirements of the job. For instance, the engineers must have degrees, but not draftsmen. Most people in Planning have a degree.

Q. What training programs are available to the staff of the port authorities' office?
A. Vancouver: Nothing formal.
    Seattle: A program which is more akin to a social welfare program than a "port administration" training program exists. No other formal programs exist.

II. Q. Which of the following are functions of the port authority?
a) Planning of port facilities?
    Vancouver: Yes. This is mainly a task of Ottawa.
    Seattle: Yes.
b) Provision of lighthouses, buoys, radar, etc.?
   Seattle: Yes.

c) Operation of Locks?
   Vancouver: None in Vancouver.
   Seattle: Ballard Locks are operated by the Army Engineers—a Federal Government function.

d) Sound and Survey the Harbour?
   Vancouver: Yes. Also responsibility of D.O.T.
   Seattle: Yes.

e) Belt line Railways? f) Towage? g) Drydockings? h) Motor Truck Operations?
   (answer for (e) to (h):
   Vancouver: No. Private Cos. responsibility.
   Seattle: No. Private Cos. responsibility.

i) Coordination of different interest groups?
   Vancouver: How is this done—through what institutionalized patterns?
   Vancouver: There is a Port Planning Board which represents a diversified group of port interests. Moreover, an executive of N.H.B. sits in and chairs the meetings. The Planning Board has to date made several recommendations to N.H.B. which have been proceeded upon.
   Seattle: There is no institutionalized arrangements by which various port interests are represented in the Port Authorities decision making. They may appeal certain decisions of the Authority, but are very seldom, if ever, successful.

j) Police and Fire Protection?
   Vancouver: Partial responsibility. N.H.B. has four harbour patrol boats (police).
   Seattle: Yes.

k) Assignment of Berths?
   Both Seattle and Vancouver assign berths which the respective authorities operate, on the first come, first serve basis. They refuse, however, to impose upon private terminal operators any order of preference in berthing.

l) Lighterage and Barge Operations? m) stevedoring?
   Answer for (l) and (m): These are the responsibility of private companies at both ports.
**Seattle**: Yes.

o) Warehousing, Transit Shed Operations, and Grain Elevators?  
**Vancouver**: No. Private companies or leased operations.  
**Seattle**: Yes.

p) Bunkering, Storing, Crewing, Repairing?  
Private company responsibilities in both ports.

q) Collection of Statistics?  
**Vancouver**: Yes.  
**Seattle**: Yes.

III. Which of the following statistics is (regularly) collected on the port?

a) Vessel Turnaround? What is the composition of this statistic?

**Seattle**: Load/unload times are collected for all ships, but not on an individual ship-by-ship basis. There are no statistics on waiting time. There is very little waiting time for any of the facilities with the exception of the grain elevator. No statistics of servicing time available either.

**Vancouver**: Aggregate load/unload times are collected for N.H.B. operated facilities only.

b) Gang productivity?  
Neither the **Vancouver** or the **Seattle** port authorities collect statistics on gang productivity.

c) Berth Utilization?  
**Seattle**: Yes. For all facilities.  
**Vancouver**: For N.H.B. operated facilities only.

d) Berth Tonnage Productivity?  
**Seattle**: Yes. Not on a vessel by vessel basis but as aggregates.  
**Vancouver**: For N.H.B. operated facilities only.
e) Crane Utilization?
Both Seattle and Vancouver keep these statistics basically for purposes of fixing rental charges (usage charges).

f) Cost of moving various commodities through port?
Extremely little has been done at either port with respect to costing services.

g) Percentage of casual labour as versus steady labour at port?
Neither port authority is involved in this area.

What is the position of the port authority with regard to soliciting the books of private companies in the port in order to compose important statistics? Both ports indicated that such a step was completely beyond their authority.

Which of the above statistics you collect are confidential and not open to the public?

Seattle: It was thought that none were particularly confidential although a certain amount of work would be necessary to gather and compose the statistics from the raw form which they are in. However, it is possible that certain statistics particular to private companies, may be confidential.

Vancouver: All that is not in printed public reports is confidential. This would include any of the statistics mentioned above.

Some Comments on Proficiency

First of all, the organization chart for Seattle reveals a somewhat more sophisticated form of organization than does Vancouver's organizational chart. The staff functions performed by the lawyer, the economist, the accountant, and the marketing specialist, as well as the
engineer and planners show up on the chart as departments. In Vancouver, the only "staff" (as versus line) functions appear to be the engineering functions, and perhaps the personnel or staffing function. The most apparent reason for such a discrepancy in the number of "staff" services performed at these two ports would be the presence of "staff" departments in Ottawa, which perform the needed "staff" or "specialist" services for Vancouver.

For two reasons, the "staff" services at the port of Vancouver are insufficient. The first and the most apparent reason is that the port manager claimed a need for the services of "a statistician, a finance specialist, another engineer, and an economist."\(^{13}\) The second reason would be that there are only twelve to fifteen "specialists" in Ottawa, and they are responsible for twelve ports throughout Canada, individually, as well as coordinating the activities and investments of those twelve ports.

It is true that Vancouver is the largest port under N.H.B., jurisdiction, but even so, Vancouver's total revenue is only approximately one-fifth of the total N.H.B. revenue (1967). Furthermore, port management theory generally regards management at a distance from port operations to be

\(^{13}\) Interview with Captain Johnson, as Port Manager, Port of Vancouver, June 26, 1968.
at a substantial disadvantage to management on location. Seattle seems to have an abundance of "specialist" talent relative to Vancouver. Staff at Seattle, estimated that one-quarter of the white-collar employees (285) are degree holders. That would mean that 71 people hold university degrees. Some of these individuals would be involved in airport operations work only. At any rate, a much larger percentage of the Seattle Authority's personnel have degrees than the Vancouver Authorities personnel.

One problem with obtaining university-trained people in the Port of Vancouver (National Harbours Board), would seem to be the difficulty of moving individuals with academic skills into the existing organizational structure. This structure, at present, has a legacy of people without university training, who have a great many years experience in port administration. Understandably, a rapid introduction of "specialist" personnel to higher level positions would probably be bad on the morale of existing employees. Doing nothing, however, could be at least equally disastrous in terms of proficiency. The port industry is one to which the most sophisticated management tools and skills will soon have to be introduced in order that management can become more effective. Many millions of dollars are at stake in ports such as Vancouver, and the mistakes of an out-dated "technostructure," \textsuperscript{14} could be

\textsuperscript{14}Galbraith, op. cit., p. 71, for definition, also page 15 of this thesis.
In the production of important statistics, Seattle seems to be more proficient than Vancouver. Statistics on turnaround time (load/unload only) are available for the whole Port of Seattle. In Vancouver, the statistic turnaround time is available only for National Harbours Board operated facilities. Similarly, the statistics "berth utilization" and "berth tonnage productivity" are more comprehensive in Seattle than Vancouver.

What is more, Seattle has a wider range of authority in port operations than does Vancouver. Planning of port facilities for Seattle is done by the Seattle Port Authority; for Vancouver, planning is done by the National Harbours Board in Ottawa. Seattle (but not Vancouver) provides lighthouses, buoys, and radar. Seattle has complete authority in sounding and surveying her harbour. Vancouver's Port Authority shares this authority with the Department of Transport. Similarly, Vancouver is only partially responsible for police and fire protection, whereas the Seattle Port Authority is completely responsible for this function. Seattle operates warehouses (also transit sheds) and grain elevators. Vancouver does not. All in all, then, Seattle's sphere of responsibility seems to be wider than Vancouver's. In the literature, the authors seem to prefer a broad sphere of authority to a narrow one. Here again, it would seem that Seattle's mode of operation is to be preferred over Vancouver's.
It is difficult to arrive at the subjective value judgment as to which port is the more proficient, but if a decision must be made, it appears as though Seattle is more proficiently organized for operation than Vancouver.

Some Comments on Autonomy

As shown in the organization charts, much of Vancouver's "staff functions" are performed in Ottawa. For example, the only lawyers, chartered accountants, and economists, are located in Ottawa. Personnel and engineering functions seem to be split between Ottawa and Vancouver. Seattle, on the other hand, seems to be a self-contained unit, having its own legal department, accounting department, public relations department, planning and research departments, amongst others, which Vancouver does not have. In Vancouver, operating decisions seem to be the central concern. Ottawa is mostly responsible for long-run decisions.15

15See pages 95 and 96.

The extent of Vancouver functions is as follows:

Within predetermined policy guidelines set by the Board, the Port Manager performs two very important functions:-

(a) short term
(b) long term

a) Under short term functions, the Port Manager is responsible for the administration and optimum utilization of port facilities. For matters requiring day to day attention, the Port Manager makes decisions and accordingly executes them. Leases up to one year are also handled by the Port Manager. The Port Manager, Vancouver, may purchase materials, supplies, stores and equipment to a maximum of $2,000, and up to a
Summary

The general rule stating that both autonomy of operations and management on location tend to occur with proficient operations seems to have been borne out in this field study of the Port of Seattle, and the Port of Vancouver.

maximum of $200, for office equipment.

b) Long Term Functions

For major matters requiring Board decision, Port Manager recommends:

(a) the long period leases
(b) the capital budget
(c) the operating budget
(d) the amount of reserve to be set up to take care of doubtful and bad accounts
(e) the Port Manager initiates and recommends development plans and projects for the future of the harbour
CHAPTER VIII

A SUMMARY

This thesis set out to examine the various forms of port administration structures. It attempted to make evaluations in light of port goals (especially the goal of economic efficiency).

The methodology employed was, first of all, to examine whatever literature was available on port operations, port goals, port management, and port management structures. Secondly, there was a study of secondary sources which related various port administrative structures to port proficiency. Next, a study was made of the indicators of proficiency. Finally, a field study, using a questionnaire for interviewing purposes, was undertaken on two relatively local ports.

What was repeatedly noted in this thesis was that an autonomous port operation tended to be a proficient port operation. The port management literature (Chapter IV) made this point; the study of world ports (Chapter V) using secondary source material concurred on it, and even the field study (Chapter VII) showed that the more autonomous port authority interviewed (Seattle) tended to be the more proficient one.

There was a major theoretical problem in the way of
concluding that an autonomous port structure is a positive factor in proficient port operations. One important unknown variable is the ability and skill of the people which make up the organization structure. It is a moot point as to whether or not a structure can be analyzed separately from the people who work within it. In other words, for analytical purposes, can one meaningfully separate formal and informal structures and make viable recommendations regarding one or the other. The recommendation made here, namely, that major sea-ports adopt autonomous and locally managed formal structures, rests upon the analytical proposition of being able to separate the formal and the informal structures. To separate the structure from the people manning it may be sensible theoretically, but practically, any decisions made with regard to the quality of a particular structure must analyze the effect of the recommended changes upon the people involved. For example, a centralized form of port management may be sensible in the situation where there are too few people with the required ability to staff the individual ports properly and completely. In this case, the central authority might logically act as a source of staff or specialists.

Most authors of port management and port management structures avoid possible problem areas by recommending the simultaneous "professionalization" of management, with the increasing of the autonomy of port authority structures.
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