APPENDIX X

REPORT ON AN EVALUATION OF ECONOMIC IMPACT OF PILOTAGE COSTS

Prepared by

R. M. CAMPBELL

Associate of Kates, Peat, Marwick & Co.
Toronto, Canada

August 1967.

TABLE OF CONTENTS

	Page
1. Summary	708
2. Purpose	708
3. Procedure	709
4. What is the Relative Impact of Pilotage Costs on Canadian Trade?	709
5. What is the Trend in Pilotage Costs?	710
6. How Do Pilotage Costs Influence Vessel Operations?	711
7. Does the Cost of Pilotage Service for Access to Canadian Ports Cause Traffic to be Diverted to U.S. Ports?	712
8. Would the Canadian Economy Benefit if More of the Cost of Pilotage Were Assumed by the Government?	713
9. Index to Data Schedules and Graphs	714

1. SUMMARY

1.1 In 1963 the cost of pilotage services for access to Canadian ports of trade accounts for about 90c per $1,000 of the final value of merchandise traded. This is less than one-tenth of one percent. Even if all costs of pilotage, including those now borne by government, were paid by shipping, the cost would average $1.05 per $1,000 of the final value of the goods traded. Pilotage costs are too small relatively to have a noticeable impact on trade.

1.2 A comparison of 1963 pilotage dues in Canadian districts and ports and major U.S.A. and European ports and channels shows that the dues charged in Canada are substantially lower for medium and large ocean vessels, and in some cases higher for very small vessels. Most ocean vessels engaged in Canadian overseas trade are medium and large in size and the trend to larger vessels will continue. While total pilotage costs to the ports of Montreal and the Great Lakes are higher than the cost of pilotage for access to most European ports and New York, the reason is simply the greater distances involved in access to these inland Canadian Ports. On the whole, the costs of pilotage for services performed in Canadian waters compare very favourably with pilotage costs in U.S.A. and European waters.

1.3 The trends in shipping and in the value of trade versus pilotage costs indicate that the relative impact of pilotage costs has been declining moderately since 1963.

1.4 The attention that the cost of pilotage has received in submissions to the Royal Commission on Pilotage is mainly because these costs are not subject to the discipline of the market place in the same way as are most other costs of vessel operations. The main recourse vessel operators, agents and shippers have in the direct control of pilotage costs is representation or protest to appropriate government officials or agents.

1.5 It is a common experience, wherever prices and utilization of services or resources are regulated by governments under conditions which vary widely, that anomalous situations do develop. However, this evaluation has been confined to the question of whether pilotage costs, in general, present a serious threat to Canadian trade and the Canadian economy.

1.6 Pilotage costs are more significant relative to the trade carried in ocean vessels to and from the ports of the Great Lakes. However, most traffic which might conceivably be diverted because of the relatively small proportion of costs attributable to pilotage requirements would not be a serious loss to Canada. Some of it would be diverted to Canadian lake vessels and some, principally U.S. grain, might go by other U.S. ports. In general, there is very little Canadian trade lost and very little trade diverted from Canadian trade routes because of pilotage costs on the St. Lawrence Seaway and Great Lakes.

1.7 It would not be in the long term interest of the Canadian economy to have the government bear all or most of the cost of pilotage services. At the same time, there are situations where government assumption of some of the cost burden and some of the risk in maintaining a high level of service is justified.

2. PURPOSE

There are five main questions to which this evaluation is directed:

(a) What is the relative impact of pilotage costs on Canadian Trade?

(b) What is the trend in pilotage costs?

(c) How do pilotage costs influence vessel operations?

(d) Does the cost of pilotage service for access to Canadian ports cause traffic to be diverted to U.S. ports?

(e) Would the Canadian economy benefit if more of the cost of pilotage were assumed by the government?

3. PROCEDURE

The data required for this analysis is contained in Schedules which appear at the end of this report. Estimates and sources are explained in the Schedules. The main questions posed above are dealt with individually in the following sections. The benchmark year used for evaluation is 1963 because estimates of the value of both international and coastwise trade by Canadian port and district are available for that year.

4. WHAT IS THE RELATIVE IMPACT OF PILOTAGE COSTS ON CANADIAN TRADE?

Based on 1963 data, the cost of pilotage per $1,000 of trade carried is estimated as follows: (*Schedule 1*)

Great Lakes overseas trade	$1.80
Atlantic and lower St. Lawrence ports, domestic and international trade	$ .76
West Coast ports, domestic and international trade	$1.03
Total trade affected by pilotage costs (exclusive of trade carried in foreign flag lakers)	$ .90
Impact of total pilotage costs including government costs	$1.05

On the average, pilotage costs amount to less than one dollar per thousand dollars of merchandise trade, or less than one-tenth of one percent. Such a small component of total costs cannot affect trade by any appreciable amount.

Nonetheless, occasions have been mentioned in the hearings of the Commission in which pilotage costs figured in trade negotiations*. These are situations where the alternatives for trade exchanges are very close, and the handling of commodities is very efficient, leaving little leeway for cost adjustments. In such cases, very small differences in the final price of alternate trades or routes can be decisive. *In such situations, any small component of total cost could just as well be blamed for resulting trade decisions.*

Where competitive margins between trade alternatives are so small, the general economy does not stand to lose or gain much, whichever way the trade goes. Such small margins in a relatively free market simply indicate that other alternatives are almost equally attractive.

It should be noted that the impact figures used here are averages. The actual impact for particular goods trades will vary considerably. *Schedule 10* shows an example of the incidence of pilotage costs on aluminium shipments. It amounts to $.72 per ton, or about $1.60 per $1,000 worth of product. This is partly the result of the fact that pilotage costs are incurred by the raw product, and also because the shipments were not in large amounts (about 2,000 tons) in terms of shipping quantities.

Another example of a cost impact which is greater than average is the case of an ocean vessel going to Fort William in ballast for a load of wheat. The average ocean bulk cargo export load in 1964 was about 10,000 tons. Such a cargo of wheat has a total delivered value of about $660,000. Round trip pilotage costs for access to Fort William average about $3,000 (*Notes to Schedule 3*); that is, about $4.50 per $1,000 of grain, or about 1¢ per bushel. This is about three times the average impact of pilotage costs for overseas trade with the Great Lakes ports. Part of the reason is that the boat was empty one way, while most vessel traffic is loaded both ways. Another vessel with high value inbound and outbound cargoes would carry between 3.0 and 5.0 million dollars of goods with about the same pilotage costs per round trip or $.60 to $1.00 per $1,000 in goods trade.

*See Transcript of Evidence, Royal Commission on Pilotage, Volume 31, Page 3,487; Volume 104, Page 12,956/7, 12,964/9 and 12,976/9.

Another related aspect is the comparative cost of pilotage for access to Canadian ports and other international ports. Before remarking on any such comparison of international pilotage dues it must be acknowledged that this subject could become extremely involved because the requirements and conditions for pilotage service port to port, channel to channel, are dependent to a degree on local and specific marine, weather, traffic and economic characteristics.

Graphs 1, 2 and 3 at the back of the appendix compare pilotage dues in selected areas of Canada, U.S.A. and Europe, taking into account the size of vessel and length of channel over which service is provided. Some variable factors not considered are the marine hazards involved, special circumstances such as locks, volume of traffic, the general standard of living in the economy from which local pilots are recruited. However, the main variables apparent in the differences in pilotage dues amongst different ships, harbours and channels are distance and vessel size. Vessel size is measured in different ways; sometimes draft alone is used which reflects loading, sometimes gross registered tonnage, cargo tonnage, etc.

The pilotage costs, especially when pilot boat fees are included, are much lower for the same vessel over the same channel distance for large vessels (GRT 20,000) in Canadian waters than in the sample of European and U.S.A. ports and channels. Pilotage service for medium to small size vessels (GRT 6,000 to 8,000) appears cheaper on the average in Canadian waters although the amount of difference is reduced. With small vessels, that is vessels with shallow draft or under 6,000 GRT, Canadian pilotage costs are in some cases appreciably higher and in others as low or lower. Continental European pilotage rates in particular increase steeply with the size of vessel and navigation distance. At the other extreme pilotage costs in the Seaway and Great Lakes are the same for all vessel sizes.

Of course, the total cost of pilotage for ocean vessels trading at Montreal or above is greater than the cost to most European ports and New York because of the great length of the channels and lockage systems leading to Montreal and above.

5. WHAT IS THE TREND IN PILOTAGE COSTS?

During the period 1961 to 1965 the total cost of pilotage to shipping rose 71% for the overseas trade of Canadian and U.S.A. Great Lakes ports, and 25% for the trade of all other Canadian ports subject to pilotage costs.

The main components of the increase in cost of pilotage to the trade of the Great Lake ports are as follows:

Increased tariffs	+18%
Increased number of vessels	+28%
Other	+13%
Total ($1.18 \times 1.28 \times 1.13 = 1.71$)	71%

"Other" includes a rapid rise in the number of foreign flag lakers, congestion at Seaway locks, increases in the proportion of vessels travelling to the most distant inland ports, and increased vessel size in respect of pilotage tariffs in the Montreal and Quebec districts.

It is more difficult to arrive at the relative significance of different components of pilotage cost changes for the trade of all other Canadian ports. They are approximately as follows:

Increased tariffs	+10%
Other	+14%
Total ($1.10 \times 1.14 = 1.25$)	25%

Most of "other" can be explained in terms of increased size and number of vessels, and in the District of British Columbia changes in mileage also contribute to changes in the overall cost of pilotage.

Schedule 9 contains relevant indices of the trends in trade and pilotage costs. In all cases trade appears to be rising faster than total pilotage costs, that is, the impact of pilotage costs on trade has been decreasing. Total Canadian overseas trade, which is mostly carried in ships from Canadian ports, rose 37% in the 1961 to 1965 period while the total cost of pilotage rose 25%. The main reason that the cost of pilotage rose less than the value of trade is that the relative impact of Canadian pilot tariffs decreases with larger vessels and the size of vessels in ocean trade has been increasing steadily during this period more than offsetting increased pilotage tariffs.

During this same period the cost of pilotage rose approximately 71% for the trade of the Great Lakes ports while the volume of trade in terms of tonnage rose 82%. The value of this trade has not been estimated directly except for 1963 and 1964. However, the proportion of this tonnage that is high value general cargo has increased from about 23.4% in 1961 to 37.7% in 1965. This change in cargo mix could result in a value increase per ton of average overseas cargo by as much as 30% to 40% which would mean an increase in the total value of this trade 1961 to 1965 of 136% to 144%; in contrast to the 71% increase in cost of pilotage. It is therefore apparent that the relative impact of pilotage on Seaway Trade has been declining.

Looking to the future, the trend toward larger, faster and more specialized vessels will continue. Even where pilotage tariffs are scaled to ship size and cargo volume, the scaling still favours larger ships. This is particularly true on the Seaway above Montreal, where pilotage fees are not related to vessel size. Faster and more specialized vessels call at fewer ports per vessel round trip and, on the whole, operate under more intensively planned and controlled schedules. The effect is to reduce the frequency of pilot service requirements per vessel round trip.

6. HOW DO PILOTAGE COSTS INFLUENCE VESSEL OPERATIONS

In submitting the matter of pilotage costs to the attention of the Royal Commission on Pilotage, shipping interests tended to show those costs as a proportion of ship disbursements on specified port calls and routes. However, this does not provide a very realistic picture, because these disbursements are only a small part of the total cost of vessel operations. In order to evaluate the economic significance of any particular cost, it must be considered in relation to total operating costs or total operating revenues.

For example, it is shown in the Commission's Exhibit 959 that pilotage costs for a vessel picking up a cargo of grain at Fort William for Oran, Algeria, amounted to $2,802.37. (Les Escoumins to Fort William and return). The port charges at Montreal, Three Rivers and Fort William (excluding pilotage) were $1,624.44; thus total pilotage fees and port charges amount to $4,426.81. Pilotage costs were 63.3% of the ship disbursements included in this Exhibit. If Seaway tolls had been included, they would have amounted to about $4,900.00, making the total $9,326.81; and pilotage charges would have amounted to 30% of disbursements. However, the total cargo of grain amounted to about 12,250 tons, and a typical charter rate for this shipment would be about $8.00 per short ton, or approximately $98,000 for the trip. This vessel took thirty-five days (allowing four days to unload at Oran) to earn $98,000, or about $2,800 a day. The cost of pilotage listed in this Exhibit amounted to about one day's earnings of the vessel, or about 3%.

This example is fairly representative of the relative cost of pilotage to bulk cargo shipping via the Great Lakes ports, where these costs are the highest in Canada because of the long Seaway route which requires the services of pilots in many places. The relative impact of pilotage costs is usually lower where vessels are loaded both ways or carry general cargo.

This is not to say that the cost of pilotage, in particular, to Great Lakes ports is entirely insignificant. In the case of smaller vessels and partial loads and routes involving many port calls, the significance of pilotage costs may be much larger. Conversely, when vessels are loaded in both directions, or are larger, the significance of the fees is considerably less (in the Great Lakes where pilotage fees are *not* related to vessel size and draft).

Moreover, vessel operators, agents and shippers often compare particular costs, such as pilotage, against their own operating margins and profits. In many instances, no doubt, pilotage fees represent amounts equal in absolute measure to such margins and profits. Therefore, it is natural that the cost of pilotage is regarded by some as having a very significant impact on their business.

Wherever costs are subject to the discipline of a market process, there is a continual adjustment of those costs which reflects the realities of supply and demand conditions. In the case of pilotage, the employment and payment of pilots is usually required and regulated by law. Therefore, the main recourse for vessel operators, agents and shippers is to make representation or protest to the appropriate government officials or agencies. This, in part, explains why the cost of pilotage has received so much attention in submissions to the Commission.

Vessel operators have some latitude for minimizing the costs of pilotage by taking one or more of the following steps:

1. Make the fullest possible use of the cargo capacity of particular vessels.
2. Minimize the number of ports of call to load and unload.
3. Use larger vessels where the cargo volume makes it feasible to do so (particularly in the Great Lakes trade where pilotage fees are unrelated to vessel size).
4. Minimize delays at Great Lakes ports, locks and channels which result in pilots being detained.

All of these measures contribute to greater productivity, a desirable objective from both private and public points of view. However, since the cost of pilotage is a small part of vessel costs, the minimization of pilotage provides only a weak incentive to take such measures most of the time.

Nonetheless, there are other very strong cost incentives at work today promoting the trend to larger vessel size, faster and more systematized operations, and less wandering from port to port to load and unload. In general, trends in shipping are bringing about a reduction in the amount of pilotage service that will be required per ton of cargo carried.

7. DOES THE COST OF PILOTAGE SERVICE FOR ACCESS TO CANADIAN PORTS CAUSE TRAFFIC TO BE DIVERTED TO U.S. PORTS?

The major Canadian water trade routes for which foreign (U.S.A.) alternatives exist are those through the ports of the Great Lakes and St. Lawrence River.

The extra distance inland via the Seaway at reduced speed adds, on the average, between five and eight days to a round trip vessel voyage from any major Western European port to New York. At $2,000 total vessel operating costs per day, this extra time costs between $10,000 and $16,000 per vessel trip. The average Seaway tolls paid per round trip amount to $5,400. The average total pilotage cost is about $3,000. The cost of pilotage for similar average vessel size in New York is about $500*. This means that the extra pilotage costs of sailing directly into the Great Lakes is $2,500. This added to the cost of extra distance, Seaway tolls and time, totals between $17,900 and $23,900 extra cost per vessel round trip. Extra pilotage costs, therefore, contribute roughly 10.5% to 14.0% of this differential.

*Pilotage costs in New York harbour are based on draft at $10 a foot and docking pilot fees.

In 1964 the average cargo carried one way in foreign flag ocean ships was about 4,350 tons, or 8,700 tons per round trip. The extra cost to a vessel of using the Seaway route instead of loading at New York was roughly $1.40 to $1.85 per ton of cargo carried. Of this differential, 29c was accounted for by pilotage. With most general cargo, on which ocean rates range from $30 to $100 a ton, 29c is not a decisive amount. Conference rates for general cargo formerly included over the wharf loading and unloading from railway cars, trucks or storage, and as of 1965 these costs have been passed on to the shipper and averaged $1.80 per ton. Obviously these shipping lines feel that this amount of increase will not seriously divert traffic.

In the evidence given before the Commission (Transcript of Evidence, Volume 104, Page 12,966), mention was made of occasions when steel from Hamilton has been routed through New York instead of through the Seaway. It was indicated that pilotage costs were taken into account when such alternatives were considered. However, the evidence indicated that the reasons for such routing were not to save on direct shipping costs, because these were greater for the New York route by as much as $6.00 per ton. Service to the customer determined the routing in these instances. The large volume of dry cargo traffic through the port of New York affords more frequent vessel service to many more ports of the world than is feasible at Great Lakes ports.

On the other hand, bulk cargo traffic can be sensitive to small changes in the price of alternative routes. However, such losses of ocean bulk traffic as may occur due to marginal cost situations are not likely to have any serious consequences for the Canadian economy. Some U.S. grain might be diverted to U.S. coastal or Gulf ports. Another possibility is that more of the U.S. grain exports would be transferred in lakers (usually Canadian-built and operated) to lower St. Lawrence River ports for shipment thence in ocean vessels.

The main Canadian interest in the Seaway is the facility it affords for movement of bulk cargoes to and from Canadian ports in special laker vessels and the access it affords to direct ocean-borne general cargo trade. Neither of these interests is seriously threatened by pilotage costs.

Also, about 10% or one million tons of Canadian iron ore now delivered to U.S. mills through Great Lakes ports could be delivered almost as cheaply through U.S. Atlantic Coast Ports*. This would represent a diversion of traffic from the Seaway route and, in some cases, from Canadian laker vessels. It would probably not mean any loss of trade to Canada, although it could mean less cargo carried in Canadian ships.

8. WOULD THE CANADIAN ECONOMY BENEFIT IF MORE OF THE COST OF PILOTAGE WERE ASSUMED BY THE GOVERNMENT?

Except in very particular circumstances, there is little to be gained by government subsidization of the cost of a component of a transportation system where the cost is relatively small and, to some degree, controllable by actute management. If trade must be subsidized, then it will need more assistance than the relief provided by free vessel pilotage.

However, there are two conditions under which government cost participation is justified. The first is where the present scale of operations would not provide adequate support for pilotage service. In order to maintain such pilotage service and to be able

*See Page 6 of "Analyses and Recommendations" and Pages 31 and 32 of Section A—"Study of Potential Iron Ore Traffic Volume Through the St. Lawrence Seaway". Contained in "St. Lawrence Seaway Tolls and Traffic Analyses and Recommendations" prepared for the St. Lawrence Seaway Authority, Ottawa, by J. Kates and Associates, Queen's Printer, Ottawa, 1966. See also "Economic Analysis of St. Lawrence Seaway Cargo Movement and Forecast of Future Cargo Tonnage" prepared for the Under Secretary of Commerce, U.S. Department of Commerce, Washington, D.C. by the Stanford Research Institute, Pages 31 and 32. Distributed by CLEARINGHOUSE for Federal Scientific and Technical Information, U.S. Department of Commerce, Reference No. PB 169,965.

to enforce standards for that service it is necessary for the government to bear part of the cost, such as provision of pilot boats and administration, and if necessary part of the cost of a qualified pilot. Such circumstances are to be found among the smaller St. Lawrence Gulf, Atlantic and Pacific ports.

Secondly, there are circumstances in which the government should bear all or part of the risk involved in overhead costs of administration and adequate staffing of the pilotage service. An example of the latter is the Welland Canal where periodic shortages of pilots can result in much larger costs to shipping in general than the direct costs of pilotage services. In order to avoid these shortages, it is necessary to maintain an adequate reserve of pilots at the Canal in order to handle daily and seasonal fluctuations in demand. In order to maintain a great enough safety margin, or reserve, it is justifiable for the government to underwrite the risk of having more pilots available than may be needed. Rates can still be adjused to cover the average cost of pilotage services.

The best means of assuring that pilotage costs are adequately controlled is for shipping to pay directly for these services with government assistance or underwriting only in those marginal and strategic situations indicated above.

9. DATA SCHEDULES AND GRAPHS

Note: Values are expressed in Canadian dollars
Tonnages are expressed in short tons

Schedule	1	Summary of Pilotage Costs Relative to the Value of Trade
Schedule	2	Cost of Pilotage to Shipping Related to Access to Canadian Ports
Schedule	3	Cost of Pilotage to Shipping Apportioned by Nationality of Merchandise Trade Shipped
Schedule	4	Cargo and Vessel Traffic in the Overseas Trade of the Great Lakes Ports
Schedule	5	Apportionment to Waterborne Trades of the Unrecovered Cost of Pilotage Incurred by the Canadian Government
Schedule	6	Value of Trade Through Canadian Ports in 1963
Schedule	7	Overseas Trade of Canada and the United States Through the St. Lawrence Seaway
Schedule	8	Overseas Merchandise Trade of Canada Relative to Pilotage Costs, 1963-1966
Schedule	9	Trends in Trade and in Pilotage Costs
Schedule	10	Port of Kitimat—1963
Graph	1	Comparative Pilotage Dues—Large Ships
Graph	2	Comparative Pilotage Dues—Medium Ships
Graph	3	Comparative Pilotage Dues—Small Ships

NOTES TO SCHEDULE 1

The impact of pilotage costs on Canadian trade in 1963 is summarized for three port groups as follows:

Great Lakes Overseas Trade—This is trade through the Canadian ports on the Great Lakes which is carried almost entirely in foreign ocean vessels along with the trade of the U.S. Great Lakes ports. These vessels are required to use pilots in the Great Lakes, in harbours, and connecting channels and in addition they are required to pay pilotage dues in the districts of Cornwall, Montreal and Quebec.

Atlantic and Lower St. Lawrence Ports Trade—Practically all of the trade of these ports is carried in vessels which are subject to the compulsory payment of pilotage dues.

West Coast Ports—Pilotage on the West Coast is used mainly by ships in foreign trade operations.

SCHEDULE 1

Summary of Pilotage Costs Relative to the Value of Canadian Trade—1963

(Canadian Dollars)

	Pilotage Costs			Pilotage Costs Per $1000 of Trade		
	to Shipping[1]	to Canadian Gov't.[3]	Value of Trade[4]	to Shipping	to Gov't.	Total
	In thousands of dollars			$	$	$
Great Lakes Overseas Trade	893	39	497,000	1.80	.08	1.88
Atlantic and Lower St. Lawrence Ports, Total Trade	3,511	713	4,645,000	.76	.15	.91
West Coast Ports Foreign Trade	1,596	252	1,545,000	1.03	.16	1.19
Total of above Canadian Trade subject to pilotage	6,000[2]	1,004	6,687,000	.90	.15	1.05

[1]Compiled from Schedules 2 and 3.

[2]This excludes 11 thousand dollars cost of pilotage to shipping at Churchill and 194 thousand dollars to foreign flag lakers in the Great Lakes basin, Schedule 3.

[3]Compiled from Schedule 5.

[4]Value of trade subject to pilotage cost compiled from Schedule 6.

SCHEDULE 2

Cost of Pilotage to Shipping Related to Access to Canadian Ports

(in thousands of Canadian dollars)

	1963	1964	1965
Great Lakes Ports			
Great Lakes—Cornwall Districts	703	735	867
Montreal—Quebec Districts	190	199	258
	893	934	1,125
Atlantic and St. Lawrence River Ports, Montreal and below			
Montreal—Quebec Districts	2,706	2,911	3,347
Other Eastern Districts	805	833	841
	3,511	3,744	4,188
West Coast Ports	1,596	1,698	1,787
Foreign Flag Lakers	194	199	144
Churchill	11	10	11
Total	6,205	6,585	7,255

SOURCE: Compiled from Schedule 3.

NOTES TO SCHEDULE 3

The right hand column totals come from schedules to the studies made by McDonald, Currie and Co., for the Royal Commission on the cost of pilotage under Part VI* and VIA** of the Canada Shipping Act. The columns proceeding leftward provide an apportionment of these costs by relevant trade and district classifications.

Pilotage services are administered and costs are recorded by districts. However, the trade of a particular port group may be carried in vessels which pay pilotage service in several districts. For example, the overseas trade of both U.S. and Canadian Great Lakes ports is carried in vessels which pay for pilotage in the Great Lake districts and the districts of Cornwall, Montreal, and Quebec. In addition, vessels carrying the trade of the ports in the Montreal-Quebec Districts also pay for part of the total pilotage service provided in these districts.

Pilotage Services in the Great Lakes and Cornwall Districts

Pilotage in the three Great Lakes Districts is administered under Part VIA of the Canada Shipping Act and pilotage in the Cornwall District comes under Part VI of this Act. All four districts serve ships carrying the trade of both U.S. and Canadian Great Lakes ports. The vessels subject to pilotage requirements are foreign ocean vessels which carry overseas trade only and foreign flag lakers engaged in inland trade only.

*See Appendix IX, Part I, Royal Commission's Report.

**See Part V, Royal Commission's Report.

The total cost of pilotage paid for by shipping in these districts in 1963 was $2,536,000. A direct estimate was made of the pilotage fees paid by foreign flag lakers on the basis of the number of transits made through the Seaway for which pilots were provided (during pilotage shortages these vessels were frequently given waivers). This estimate came to $194,000 for 1963 leaving a balance of $2,342,000 which is divided in the ratio of 70:30 between the overseas trade of the U.S. and the Canadian Great Lakes ports, namely $1,639,000 and $703,000. This ratio is based on the tonnages of goods carried in this trade in 1963 (see Schedule 4). The ratio of U.S. to Canadian overseas trade in tons varies year to year and the cost of pilotage ascribed to nationality of trade is varied accordingly. If the cost of pilotage to the Canadian trade of the Great Lakes ports was based on the primary destination or origin of ships the share in 1963 would have been only 15% of the total cost after deducting the portion paid by the foreign flag lakers. However, many vessels trade at both Canadian and U.S. ports of the Great Lakes each round trip. Therefore, the tonnage traded by each nation appears to be a better basis for apportioning pilotage costs.

Pilotage Services in Montreal-Quebec Districts

In order to estimate the proportion of pilotage costs borne by vessels engaged mainly in overseas trade with the Great Lakes ports, an estimate was first made of the total pilotage costs incurred by these vessels in the entire St. Lawrence River and Great Lakes system.

Exhibit 959 (exhibits of the Royal Commission on Pilotage) provides a sample of vessel disbursements including pilotage costs for vessel round trips between overseas and Great Lakes ports. On the basis of this sample (from Exhibit 959 excluding trips that were not made to Great Lakes ports) the average cost of pilotage was $3,000 in 1963. This includes the cost of pilotage in the Quebec, Montreal, Cornwall, and Great Lakes districts.

There were 992 vessel round trips through the Seaway in overseas merchandise trade in 1963 (see the *Traffic Report of the St. Lawrence Seaway*, 1963, Table 5, page 6). Using the 1963 estimated average pilotage cost per vessel round trip, the total cost of pilotage for this trade is $2,976,000. Dividing this is the proportions of Canadian/U.S.A. overseas cargo tonnage trade of 30/70 produces pilotage cost totals of 893 and 2083 thousand dollars respectively. The differences between these totals and the respective pilotage costs in the Great Lakes and Cornwall districts are the pilotage costs incurred in the Montreal and Quebec districts.

In the estimates for 1964 and 1965, direct estimates of the pilotage costs in the Great Lakes and Cornwall districts to foreign flag lakers were made first and deducted from the total of pilotage costs to shipping in these districts. The balance of these costs were then divided between Canadian and U.S. trade as indicated above in proportion to the tonnages of these trades. The pilotage costs incurred in the Montreal-Quebec districts were calculated using the ratio of these costs to costs incurred in the Great Lakes and Cornwall districts as estimated in 1963.

These estimates provide a reasonably accurate apportionment of pilotage costs for the purposes of this report. Direct accounting of pilotage costs could be made from the detailed pilot data compiled by the Department of Transport by recompiling pilotage charges by ship and type of service but there would still be a need for relatively arbitrary apportionment of costs when for example, a ship unloads cargo at Montreal and Toronto and loads at Chicago and tops off at Quebec City.

SCHEDULE 3

Cost of Pilotage to Shipping Apportioned by Nationality of Merchandise Trade Shipped

(in thousands of Canadian dollars)

	U.S.A.	CANADA			Total
	Seaway	Seaway	All Other	Total	
	$	$	$	$	
1963					
Lakes—Cornwall Districts	1,639	703	194	897	2,536
Montreal—Quebec Districts	444	190	2,706	2,896	3,340
Other Eastern Ports			805	805	805
Churchill			11	11	11
West Coast Districts			1,596	1,596	1,596
Total	2,083	893	5,312	6,205	8,288
	2,976				
1964					
Lakes—Cornwall Districts	2,204	735	199	934	3,138
Montreal—Quebec Districts	597	199	2,911	3,110	3,707
Other Eastern Ports			833	833	833
Churchill			10	10	10
West Coast Districts			1,698	1,698	1,698
Total	2,801	934	5,651	6,585	9,386
1965					
Lakes—Cornwall Districts	2,600	867	144	1,011	3,611
Montreal—Quebec Districts	775	258	3,347	3,605	4,380
Other Eastern Ports			841	841	841
Churchill			11	11	11
West Coast Districts			1,787	1,787	1,787
Total	3,375	1,125	6,130	7,255	10,630

SCHEDULE 4

Cargo and Vessel Traffic in the Overseas Trade of the Great Lakes Ports

(percentages in brackets)

Cargo tonnage	Canada 000 short tons	U.S.A. 000 short tons	Total 000 short tons
1959	1,665 (30)	3,812 (70)	5,477
1960	2,561 (35)	4,819 (65)	7,380
1961	1,962 (26)	5,468 (74)	7,430
1962	2,073 (25)	6,167 (75)	8,240
1963	2,328 (30)	5,558 (70)	7,886
1964	2,529 (25)	7,660 (75)	10,189
1965	3,411 (25)	10,071 (75)	13,482
1966	3,129 (22)	11,048 (78)	14,177
Vessel traffic of main port-of-call or origin	**Number of Vessels**	**Number of Vessels**	**Number of Vessels**
1959	371 (20)	1,442 (80)	1,813
1960	451 (22)	1,594 (78)	2,045
1961	343 (16)	1,754 (84)	2,097
1962	336 (16)	1,812 (84)	2,148
1963	350 (18)	1,633 (82)	1,983
1964	397 (17)	1,982 (83)	2,379
1965	521 (19)	2,161 (81)	2,682
1966	505 (19)	2,140 (81)	2,645

SOURCE: Traffic Reports of the St. Lawrence Seaway prepared by the St. Lawrence Seaway Authority and the St. Lawrence Seaway Development Corporation, Queens Printer, Ottawa.

SCHEDULE 5

Apportionment to Waterborne Trades of the Unrecovered Cost of Pilotage Incurred by the Canadian Government—1963

(in thousands of Canadian dollars)

	Overseas Seaway Trade (Ports of the Great Lakes Basin and St. Lawrence R. above Montreal)		Trade of Atlantic and Lower St. Lawrence R. Ports	West Coast Ports	Total		
	U.S.A.	Canada	Canada	Canada	Ottawa HQ [3]	All Other [4]	Total
	$	$	$	$	$	$	$
Great Lakes Basin[1]	− 2	− 1	—	—	25	−28[5]	− 3
Cornwall District[1]	35	15	—	—	6	44	50
Lower St. Lawrence (Mtl.–Que.)[2]	58	25	356	—	48	391	439
Other Eastern Districts	—	—	357	—	11	346	357
West Coast Ports	—	—	—	252	23	229	252
Churchill	—	—	—	—	—	—	—
	91	39	713	252	113	982	1,095

[1]Pilotage costs to the Canadian government related to trade through the Seaway are apportioned on the basis of the USA/Canadian overseas trade volumes measured in tons, that is, 30% to Canada and 70% to the U.S.A. (see Schedule 4).

[2]The pilotage costs to the Canadian government of the Montreal and Quebec districts are apportioned in the same proportions as pilotage paid by shipping (see Schedule 3); that is, $444,000 (13.3%) USA Seaway, $190,000 (5.7%) Canadian Seaway, $2,706,000 (81.0%) Canadian, other.

[3]The Ottawa headquarters costs are shown in the McDonald Currie & Co. schedules, separately for the Great Lakes Basin (Part V, Commission's Report), and for all other districts combined (App. IX, Part I, Commission's Report). The costs for the latter (all districts exclusive of those in the Great Lakes Basin) have been divided in proportion to pilotage costs to shipping in 1963.

[4]All other costs to government include local administration, pilot vessel service and marine reporting service taken from the studies mentioned in Note 3 above.

[5]In 1963, there was a surplus of revenue collected from shipping of $28,442 after pilot salaries and local administration costs were paid.

SCHEDULE 6

Value of Trade Through Canadian Ports in 1963

(in millions of Canadian dollars)

	International Shipping			Coastwise Shipping	Total
	Export	Import	Total		
	$	$	$	$	$
Atlantic and Lower St. Lawrence	2,385	1,320	3,705	940	[4,645][1]
Great Lakes and Upper St. Lawrence					
—Total	385	425	810	820[2]	1,630
—Overseas trade only			[497][3]		
Pacific	1,140	405	[1,545]	822	2,367
Totals	3,910	2,150	6,060	2,582	8,642

SOURCE: Estimates prepared by the Department of Transport, Economics Division, for the Royal Commission on Pilotage on the value of Canadian waterborne cargo traffic in international and coastwise shipping in 1963 and 1957, exhibit 1526. Note that the total of international shipping merchandise trade consists of loaded plus unloaded cargoes. The totals shown for coastwise shipping is the average of loaded and unloaded cargoes by region since to add inbound and outbound coastwise cargo would double the total value of coastwise trade for Canada as a whole.

[1]The totals between brackets represent the traffic which incurs pilotage costs.

[2]Coastwise shipping in the Great Lakes carried in foreign flag lakers is subject to pilotage costs, but shipping between U.S. ports and between Canadian and U.S. ports by Canadian or U.S. lakers does not require pilotage.

[3]See schedule 7 for the estimate of the international trade of the Great Lakes ports exclusive of trade with U.S.A. ports.

SCHEDULE 7

Overseas Trade of Canada and the United States through the St. Lawrence Seaway

	1963 short tons	1964 short tons	1963 %	1964 %
Trade in Terms of Cargo Tonnage[1] (thousands)				
Canada	2,328	2,529	30	25
United States	5,558	7,660	70	75
Totals	7,886	10,189	100	100

	1963 $	1964 $
Trade in Terms of Value[2] (in millions of Canadian Dollars)		
Canada	497	540
United States	1,170	1,615
Totals	1,667	2,155

SOURCES:

[1]Table 8, St. Lawrence Seaway Traffic Statistics, page 19, 1963 and 1964 issues.

[2]The total value of Seaway trade was estimated using the detailed cargo tonnage in the traffic statistics cited above, using value per ton data from various sources but mainly reports prepared by the Chicago Chamber of Commerce on U.S. Great Lakes Ports traffic.

NOTES TO SCHEDULE 8

This schedule was prepared as a supplementary check on the trend in pilotage costs. Part A shows Canada's overseas merchandise trade. Part B illustrates that most of Canada's exports by water are to overseas destinations. However, there are some exports by water to the U.S.A. which are also subject to pilotage costs, mainly those from the Lower St. Lawrence River and Atlantic ports. If we assume that imports arrive in the same transportation manner as exports leave, then total overseas merchandise trade of Canada is an approximation of the trade subject to pilotage costs.

Part C illustrates the trend in relative pilotage costs to shipping. It does not provide an accurate indication of the level of these costs relative to the value of the trade affected, mainly because it excludes some coastwise trade and some trade with the U.S. which pays for pilotage in the districts of Montreal and Quebec. Between 1963 and 1964 there was no substantive change in pilotage rates or requirements and the ratio of pilotage costs per $1000 of trade fell from $1.21 to $1.06. With increases in pilotage rates in 1965 (see Schedule 9), the ratio of pilotage costs to value of trade rose between 1964 and 1965, but not to the 1963 level. Subsequently in 1966, and in spite of a further increase in pilotage rates, the ratio fell off moderately.

SCHEDULE 8

Overseas Merchandise Trade of Canada Relative to Pilotage Costs—1963–1966

Part A—*Total Overseas Merchandise Trade of Canada 1964* (Canadian Statistical Review, D.B.S. 11-003) in millions of dollars

Exports	3,867
Imports	2,324
Total	6,191

Part B—*Total Merchandise Export Trade by Mode of Transport Leaving Canada* (Trade of Canada, Exports by Mode of Transport, 1964 D.B.S. 65-206)—in millions of dollars

	To United States	Other	Total
	$	$	$
Water	837	3,466	4,302
Road	966	106	1,072
Rail	1,872	112	1,984
Air	169	132	301
Pipeline	407	—	407
Mail and Post	5	4	9
Miscellaneous	15	3	18
Total	4,271	3,823	8,093

Part C—*Estimated Total Cost of Pilotage Relative to the Total Value of the Overseas Merchandise Trade of Canada*—in thousands of dollars

	Pilotage[1] Costs	Total Overseas Merchandise Trade of Canada	Pilotage Cost Per $1000 of Trade
	$	$	$
1963	6,205	5,146,000	1.21
1964	6,585	6,191,000	1.06
1965	7,255	6,323,000	1.15
1966	7,650	6,822,000	1.12

[1]Figures for 1963 to 1965 inclusive come from Schedule 2. The figure for 1966 was estimated on the basis of "Comparative Statement of Pilots Earnings and Workload, 1964, 1965, 1966", Department of Transport, Nautical Pilotage Division, Ottawa.

NOTES TO SCHEDULE 9

This schedule provides a comparison of trends in pilotage costs and tariffs relative to trends in the growth of Canada's trade. In Part A, the growth in total Canadian trade and also total non-U.S.A. Canadian trade is contrasted with the trend in costs of pilotage exclusive of pilotage attributable to overseas Seaway traffic. The pilotage related to the overseas Seaway trade is excluded because about 70% is U.S. trade and because the growth in the Canadian Seaway traffic is partly due to switching traffic to the Seaway route and therefore does not represent growth in trade as such.

The index of the costs of pilotage to shipping in Part A is based

on total costs of pilotage to shipping contained in Schedule 1 to the Study on the cost of pilotage under Part VI of the Shipping Act, 1961 to 1965, (Appendix IX, Part I of the Commission's Report), and an estimate of the same data for 1966 based on the Department of Transport, Nautical Pilotage Division reports for the year 1966 and

subtracting

the cost of pilotage in the district of Cornwall and the estimated cost attributable to overseas trade of the U.S. Great Lakes ports going through the districts of Montreal and Quebec.

The indexes in Part A show that pilotage costs to shipping rose 25% by 1965 and 39% by 1966 over the 1961 level. At the same time, the value of the overseas merchandise trade of Canada rose 37% (1965) and 48% (1966). That is, the value of trade has been rising faster than the total cost of pilotage, indicating a moderate decrease in the impact of pilotage costs on trade.

The price index of pilotage is based on data in Schedules 8 and 9 to the Study referred to above (App. IX, Part I, Commission's Report) and a review of revisions to pilotage tariffs 1961 to 1966 inclusive using a medium size of ocean going vessel of 8000 GRT. This index shows that the price of pilotage services rose by 10% in 1965 and by 14% in 1966 over 1961. Since the total cost of pilotage to shipping rose 25% and 39% for those same years, other factors (mainly the number and size of vessels serviced) rose by approximately 14% and 22%. This estimate is derived by dividing the cost of pilotage index by the price of pilotage services (i.e. cost equals price times amount purchased). That is, while the value of overseas trade rose by 37% from 1961 to 1965, the effect on pilotage costs of this increase in trade was only 14%.

Part B of Schedule 9 compares the trends in the total cost of pilotage to overseas shipping of the Great Lakes ports and the tonnage volume of cargo. The cost index is based on the cost of pilotage to shipping in the Great Lakes and Cornwall districts referred to in the first paragraph of the notes to Schedule 3 (page 000), plus the portions of the cost of pilotage attributable to the Seaway trade (estimated) going through the districts of Montreal and Quebec. The data for 1961 includes the gross revenue of the U.S. pilots in the Lake Superior area which became District 3 in 1962. The index on tariffs is based on the revisions to the tariffs, 1961 to 1966. The indexes of tonnage and vessel trends are based on Schedule 4 of this report.

Part B shows that from 1961 to 1965 and 1966 pilotage tariffs on Seaway traffic (the districts of Quebec, Montreal, Cornwall and Great Lakes) have increased in price by 18% and by 22% respectively, while costs of pilotage increased by 71% and 68%. Tonnage data have been used to show a growth of 82% and 91% over the period. This understates the value increase because the high value general cargo portion of this traffic has been increasing. The number of vessels increased only 26% in 1961 to 1966 while cargo tonnage rose 91% in the same period. This indicates a substantial increase in vessel size. Without this vessel size increase the growth in cargo tonnage trade would have required 91% more vessels, this combined with a 22% increase in cost of pilotage per vessel would have increased the total cost of pilotage by 133% (i.e. $1.91 \times 1.22 = 2.33$) instead of 68%.

SCHEDULE 9

Trends in Trade and in Pilotage Costs Indexes 1961 = 100

Part A—Pilotage Costs and Trade of Canada Exclusive of Seaway

	Pilotage Costs to Shipping Related to Canadian Overseas Trade Exclusive of Pilotage above Montreal	Price Index of Pilotage Exclusive of Seaway above Montreal	Value of Overseas Merchandise Trade of Canada
1961	100	100	100
1962	103	105	100
1963	106	105	112
1964	113	105	134
1965	125	110	137
1966	139	114	148

Part B—Seaway Pilotage Costs and Traffic

	Pilotage Costs to Shipping Related to the Overseas Trade of the Great Lakes Ports	Price Index of Pilotage Related to Seaway Traffic	Canadian and USA Great Lakes Ports Overseas Trade	
			Cargo Tonnage	Vessels
1961	100	100	100	100
1962	115	104	111	103
1963	118	112	106	95
1964	146	112	137	113
1965	171	118	182	128
1966	168	122	191	126

SCHEDULE 10

Port of Kitimat—1963

Total Tonnage In (deep-sea)	369,579
Total Tonnage Out (incl. coasters)	127,908
Total Tonnage Out (deep-sea)	106,548

Total Pilotage Cost of 78 deep-sea vessels: $78 \times 1{,}161.00 = \$90{,}558.00$

51 of the 78 total vessels carried out 106,548 tons of aluminum product.

$\frac{51}{78} \times \$90{,}558$—Pilotage allotment for 106,548 outgoing tons of aluminum product = \$59,211.00

Balance of pilotage = \$31,347.00 on incoming raw materials to make total plant production of 185,571 tons of aluminum. Some of this incoming raw material entered into the 106,548 deep-sea outgoing product.

$$\frac{106{,}548}{185{,}571} \times \$31{,}347.00 = \$17{,}993.00$$

Total pilotage cost attributed to 106,548 tons outgoing deep-sea:

$$= \$59{,}211.00 + 17{,}993.00 = \$77{,}204.00$$

$$\text{Pilotage Cost per Ton} = \frac{77{,}204.00}{106{,}548.00} = \$0.72$$

Value of aluminum per ton—\$450

i.e., cost of pilotage is \$1.60 per \$1000 of aluminum traded by water.

SOURCE: Royal Commission on Pilotage Exhibit 140, see also Vol. 10, pages 1151 to 1154, transcript of evidence.

Note to Graphs on Comparative Pilotage Dues—1963

The main sources of data for the Graphs are tables of comparative pilotage dues for typical vessels filed with the Royal Commission on Pilotage as Exhibits 82, 882, 884, and the Commission Hearings volume 95, pages 11877 and 11914.

Some dues not shown in these tables were estimated using the pilotage tariffs shown in the Canada Ports and Shipping Directory, 1963, for Canadian examples. Other examples were estimated on the basis of dues shown in the Exhibits for other ship sizes. In two cases dues for the large vessel example are omitted because the vessel is too large for the channels in question.

Data for U.S. ports as shown in the Exhibits is in U.S. dollars and for the purposes of these graphs have been converted to Canadian dollars using an average premium rate of 7½ percent for 1963.

Where two pilotage dues are shown, the difference represents charges levied for pilot boat services. At most foreign ports pilot vessel charges are also scaled to vessel size.

Graph I shows that in almost all cases the pilotage dues are appreciably lower in Canada for large vessels over comparable distances. Graph II shows that the dues for medium vessels are mostly lower in Canada taking vessel size and distance into accounts. Graph III shows that the difference between foreign and Canadian pilotage dues is least for small vessels and in some examples Canadian dues are appreciably higher.

The main difference appears to be that foreign pilotage tariffs are scaled much more steeply to vessel size than in Canada. On the whole Canadian pilotage dues appear to be lower than foreign pilotage dues.

The data for the graphs are shown by nationality and in order of length of channel requiring pilotage service in the table on the following page.

DATA FOR GRAPHS ON COMPARATIVE PILOTAGE DUES

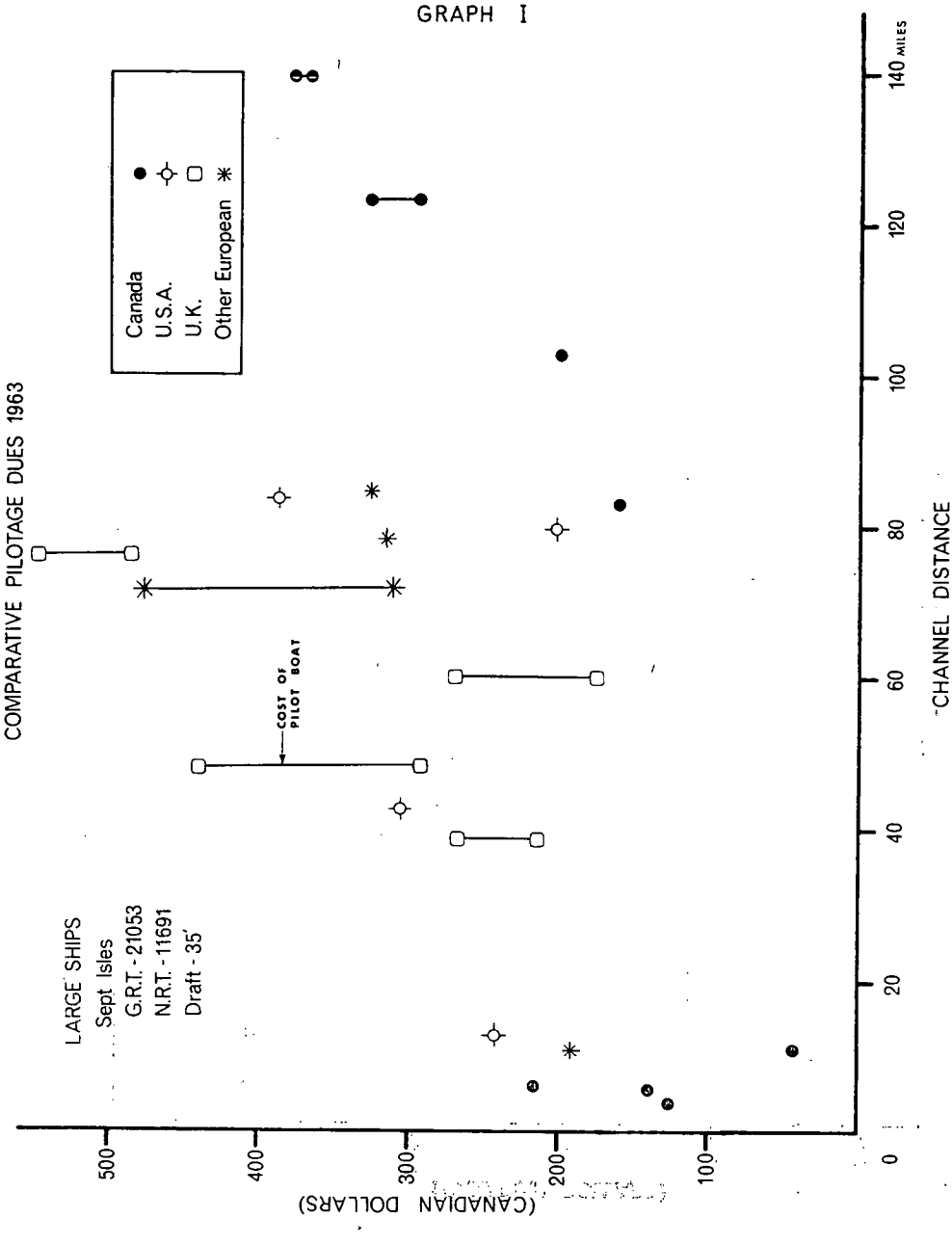
Port or Channel	Approximate Channel Distance One Way	Pilotage Cost 1963		
		Large Vessel	Medium Vessel	Small Vessel
	(Miles)	$	$	$
Canada				
Halifax	4	127e	66	45
Sydney, N.S.	6	219e	95	54
St. John, N.B.	6	140e	93	88
Montreal Harbour	11	41	36	32
Montreal–Cornwall	83	160	160	160
British Columbia	80	230e	126	107
Cornwall–Kingston	103	200	200	200
Les Escoumains–Quebec	123	295/325	153/183	129/159*
Quebec–Montreal	139	369/379	211/221	179/190
United States				
Boston	13	244	163	154
New York	42	310	206	196
Puget Sound	80	206	206	206
Columbia River	84	390e	194	139
Albany, N.Y.	129	†	284	272
United Kingdom				
Manchester	35	†	113/176	81/128
Glasgow	38	213/268	136/192	102/157
Southampton	48	294/441	178/273	173/262
Liverpool	60	174/270	110/174e	100/160
Thames River	76	485/553	256/301	198/239
Other European				
Le Havre	11	192	95	53
Rouen	72	315/480	308/490	179/285
Hamburg	78	319	148	96
Antwerp	85	328	164	140

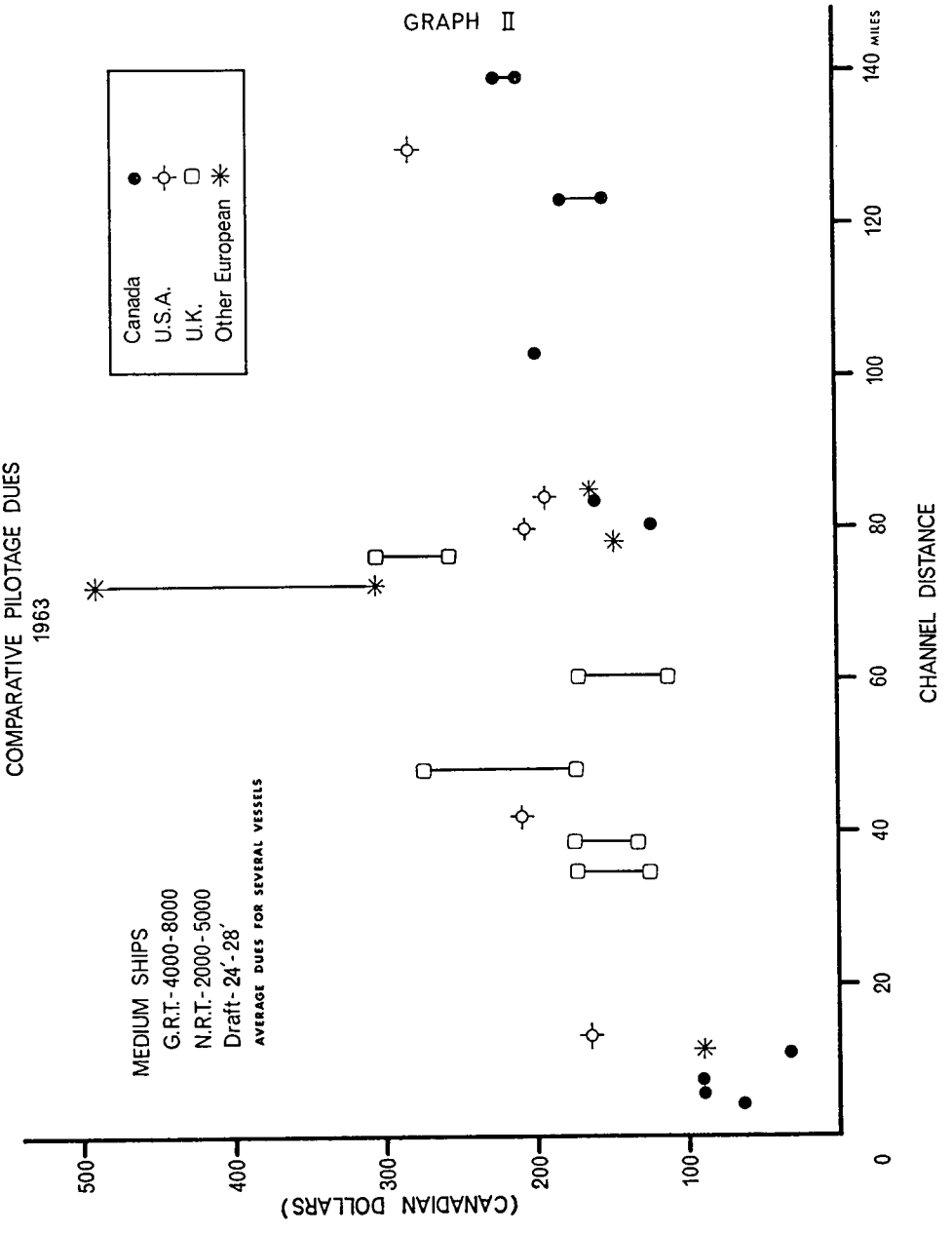
*The second figure includes pilot boat charges.

eestimated.

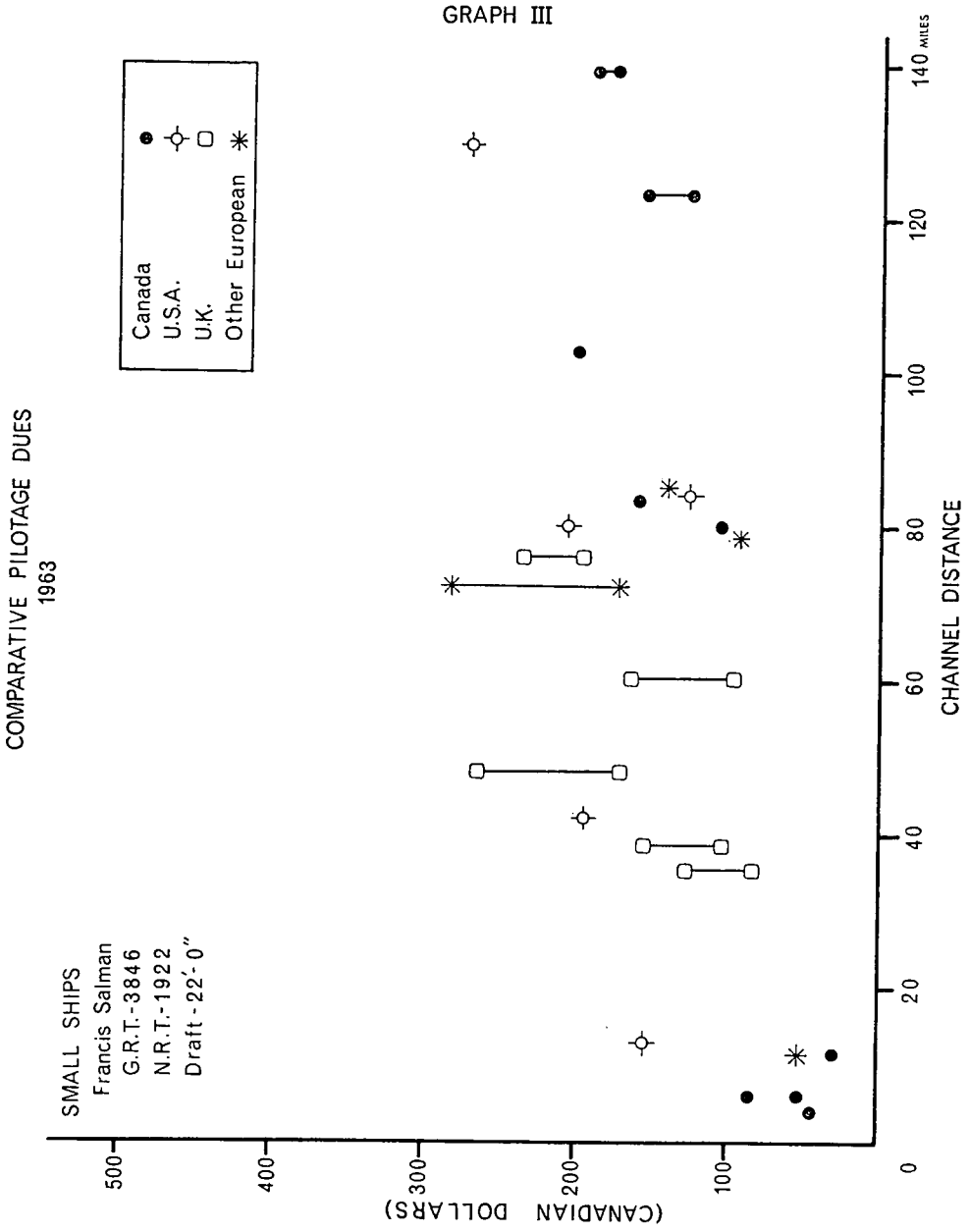
†vessel is too large.

GRAPH I


COMPARATIVE PILOTAGE DUES 1963
LARGE SHIPS
Sept Isles
G.R.T. - 21053
N.R.T. - 11691
Draft - 35'
Canada
U.S.A.
U.K.
Other European
COST OF PILOT BOAT
(CANADIAN DOLLARS)
500
400
300
200
100
0
20
40
60
80
100
120
140 MILES
CHANNEL DISTANCE


GRAPH II
COMPARATIVE PILOTAGE DUES
1963
MEDIUM SHIPS
G.R.T.- 4000-8000
N.R.T.- 2000-5000
Draft- 24'-28'
AVERAGE DUES FOR SEVERAL VESSELS
Canada
U.S.A.
U.K.
Other European
(CANADIAN DOLLARS)
500
400
300
200
100
0
20
40
60
80
100
120
140 MILES
CHANNEL DISTANCE

GRAPH III


COMPARATIVE PILOTAGE DUES
1963
SMALL SHIPS
Francis Salman
G.R.T.-3846
N.R.T.-1922
Draft - 22'-0"
Canada
U.S.A.
U.K.
Other European
(CANADIAN DOLLARS)
500
400
300
200
100
0
20
40
60
80
100
120
140 MILES
CHANNEL DISTANCE

APPENDIX XI

REPORT ON THE RELATIVE MERITS OF VARIOUS CRITERIA USED OR WHICH MIGHT BE USED TO CALCULATE PILOTAGE DUES

Prepared by

RICHARD LOWERY

Member Royal Institution of Naval Architects
Vice President Society of Naval Architects & Marine Engineers

March 1965.

Appendix XI

Preamble

Before considering suitable criteria on which Pilotage Dues might be based I believe it would be most helpful if we reviewed some of the present methods used to charge for Pilotage and other services to shipping, their history, their philosophic background and their efficacy so far as achieving their objectives are concerned.

The review will, of necessity, be incomplete and in condensed form, dealing only with those aspects which appear to have a direct bearing on the problem presently before the Royal Commission on Pilotage.

Shipping by its very nature requires and demands for its proper, efficient operation and development, a wide variety of services provided for and to it, not only in the countless ports to and from which it desires to trade, but also in the approaches to such ports, along coastlines and on the shipping routes themselves.

The nature and quality of the services provided and the charges applicable thereto, determine to a great extent the volume of trade and the frequency, size and types of vessel which will operate in any given area. All things being equal, the better the service and the more modest the cost, the greater the resulting trade, since there is little doubt that trade and services or facilities are to a large extent interdependent. It is for this reason that forward looking countries, ports and others connected with serving shipping are constantly improving services and facilities to not only meet, but to anticipate changing trading demands in order to allow shipping itself to improve its own efficiency and standards of service.

It is well known that the most efficient carriage of goods by water is achieved by using the largest possible vessels which a trade can accept, taking into account such matters as quantities and types of cargo to be handled, rates at which cargoes can be assembled or distributed, quantities which can be held in warehouses at any time, corresponding frequency of sailing and type and quality of port facilities, including arrangements for berthing and unberthing vessels without delay, loading and discharging cargo rapidly etc.

It is obvious that large vessels also demand greater channel depths and widths and less tortuous courses than do small vessels.

Improvements in services and facilities cost money which must be recovered by charges against shipping, and as has been mentioned previously the improvements are quite often made in order to attract ships of a size or type not hitherto experienced.

If charges are to recover in whole or in any predetermined part, the costs of the improvements and services, they must be based upon estimates of numbers, sizes and types of vessels to be handled.

Since however the annual costs of services are fairly well fixed, resulting as they do, largely from capital expenditures and maintenance costs and upon the provision at all times of adequate numbers of specially trained personnel, most services not easily charged for on a direct cost basis are levied as the result of determining the annual recovery desired, and attempting to spread this recovery figure over all ships using the services on some reasonably individual and equitable basis.

Shipping services in this category include such items as pilotage, dock and harbour dues, wharfage, light dues, canal dues, drydock charges, use of tugs, etc. Almost all of these services are charged for, by Authorities throughout the world (with one or two notable exceptions), on either Gross Registered Tonnage or on Net Registered Tonnage, or on a combination thereof, or on some system involving other variables together with Gross or Net Tonnage.

There is no consistency of approach, some authorities basing charges for a particular service on Gross Tonnage, others for exactly similar services using Net Tonnage as the basis.

There are many reasons for this, some explainable, others not. The principal reasons being however (a) lack of any single deciding authority, (b) incomplete or uninformed ideas about the relationship between Net and Gross tonnage and what

they really mean, and (c) so long as authorities collect the desired total annual amounts they are not particularly interested in the strict logic or fairness of individual applications.

Comments on Tonnage

The tonnage regulations presently applied by most countries, although not identical to each other, are the end result of many modifications to the regulations in the British Merchant Shipping Act of 1854, which modifications have been intended to preserve rather than to abolish the original concept that Gross Tonnage would reflect a vessel's capacity or size and Net Tonnage would reflect its earning capacity.

This in turn was based upon a theory or line of reasoning which assumed that some shipping services should be charged for on the basis of "Services Rendered" whilst others should be on the basis of "Ability to Pay". Where the former applied, Gross Tonnage would be used and where the latter was more appropriate, Net Tonnage would be the basis for charges.

Before examining the fitness of these two parameters for achieving such objectives it may be profitable to consider how they were created, how they have changed and what they presently represent.

Maritime history indicates that long before the Christian Era there existed in China, for example, some system of measuring the relative sizes of ships, other records indicate, with lack of detail, the fact that measurements of capacity were in use in certain restricted areas and trades in the 13th Century.

It is clear therefore that there has always existed a desire to measure or compare the sizes of ships, either for taxation purposes or the levying of dues for services not readily chargeable on the basis of direct cost.

Carrying capacity or size of ship was the original popular base on which to charge, but few if any could properly define what this was and how it could be calculated, particularly when vessels carried multifarious cargoes, neither the individual unit details, nor the final total cubics or weights of which were known.

Dissatisfaction with arbitrary and frequently variable assessments spurred the search for more appropriate measurement techniques.

At that time there was considerable trade between England and France in the transport of full cargoes of wine in barrels or 'tuns' and it was relatively easy to compare such vessels according to the number of 'tuns' which they could carry.

Barrels of different sizes carried in different ships led to some confusion, eventually however wine barrel sizes were standardized and estimates were made for vessels not carrying wine based upon their apparent capacity to do so.

The standardized 'tun' decided upon in the 15th Century had a capacity of 252 gallons and a weight of 2240 lbs. This virtual accident seems to have given rise to the ton as a measure of weight which remains at 2240 lbs (in North America referred to as the 'long ton'). The estimated carrying capacity of any ship in 'tuns' was called 'tunnage' and later became 'tonnage'.

For 200 years this method was used to assess various 'taxes' and port dues on ships. Changes in trade and lack of confidence in the calculations when applied to non-wine carriers led to many and varied changes in comparing the capacity or 'tonnage' of ships and in the 17th Century the tonnage was determined by simply multiplying the length by the beam by the depth and dividing by a number varying between 94 and 100.

All early changes had one thing in common, and that was a desire to express true relative carrying capacity. Due however to the earlier 'tun' being a unit, both of cubic capacity and of weight, there was no clear picture as to whether 'tonnage' reflected cubic capacity or weight of cargo which could be carried.

In any event the matter was not at that time important, since the two variables were closely related, the design of ships was primitive, the ships were sailing vessels, simple and relatively similar to each other and there was no clear understanding of individual ship technical characteristics.

The essential thought was that ships should pay taxes and dues according to their size which in turn was taken to mean generally in accordance with their earning power.

From the 17th Century to 1854, changes in ship design stemming from growth in world trading, and from improved knowledge regarding ship design and to cope with the advent of steam propulsion, had caused or encouraged changes in the methods of measuring vessels, the eventual result at that time being that 'tonnage' reflected the deadweight or weight of cargo a vessel could carry.

The British Merchant Shipping Act of 1854 included however an entirely new method of measuring tonnage, based upon careful studies made over many years, and designed to correct the more obvious weaknesses of the then existing methods of calculation.

Although many changes have been made since 1854, the method proposed at that time is the basis of all present tonnage laws and regulations of all principal maritime nations. The basic idea in these rules was that 'dues rendered for services to vessels should be based on tonnage. Tonnage should be a measure of a vessel's earning capacity. The internal space in a vessel available for the carriage of cargo or passengers measures its potential earning capacity, therefore tonnage should be in proportion to such capacity'.

The Act of 1854 reflected this principle by stating that 'the whole internal space of a ship should be measured in order to establish her capacity'. It further stated that space devoted to crew or navigation or any spaces in superstructures not available for cargo should be exempted from measurement for tonnage.

In an effort to measure 'earning capacity' (which was then assumed to be related to cargo space), and in order not to 'penalize' modern vessels propelled by machinery, the volume of the space devoted to propulsion machinery was deducted from the original capacity figure.

This resulted in two tonnages, one before deductions were made, and one the net result after deductions, they accordingly became known as Gross Tonnage and Net Tonnage, in each case the tonnage was the relevant capacity in cubic feet divided by 100.

The divisor of 100 was selected by the simple process of figuring the tonnages of hundreds of existing vessels by the proposed new rules and finding that the aggregate would be the same as under the old rules if the divisor was made 98.7. The number 100 was chosen because (a) it was close to 98.7, (b) it was a very easy divisor and (c) it slightly reduced most existing tonnages and so pleased shipowners.

It is interesting to note that after all the effort expended on the new rules the eventual objective was clearly that of finding a basis for charging for services rendered related to 'ability to pay' and which would be more appropriate in individual cases than hitherto, but which would produce the result, whereby application of the same rate per ton, would return about the same total income as the old method.

The tonnage laws have been almost continuously modified in attempts to keep pace with changes in ship design and philosophy, such changes were brought about for example, by the introduction of double bottoms, carriage of water ballast in such bottom tanks and peaks, carriage of coal in bunkers, later by carriage of oil in tanks, at one time by the increasing sizes of engine rooms and later by the advent of more compact engine rooms, by variations of approach regarding apparently unrelated items like efficiency of closing appliances, details of Master's accommodation, chart rooms, laundries, silencers in funnels, etc. All these changes aimed at making Net Tonnage reflect 'ability to pay', surely a complex and devious path to achieve an apparently simple but not necessarily appropriate objective!

The present rules are a nightmare of complexity, inconsistency and irrelevancy, they have always been illogical and behind the times, they have continued to confuse cargo hold space with earning ability, they have therefore, for example, reduced the tonnage of ships with engine rooms, not at first realising that propulsive power enhanced

earning ability, later, when very powerful machinery could be packed into smaller engine rooms they then confused large engine space with large power. Even today they penalize vessels with modern compact engine rooms compared with those having wasteful engine room volume.

They have concerned themselves with such matters as the shape and volume of the light and air spaces above engine rooms, volume of cargo hatches, size of shaft tunnels, silencers in funnels, etc., but the principal cause for complaint arises from the treatment afforded 'exempt' spaces which are not included in either Gross Tonnage or Net Tonnage. For the purpose of tonnage measurement it can, in fact, be said that such spaces simply do not exist.

Only spaces 'permanently' closed in and available for cargo are measured for tonnage, and exemption of any space above the Tonnage Deck can be achieved by fitting openings with closing appliances of a 'temporary' nature. Such temporary closing appliances do not affect the normal ability of such spaces to carry cargo and the rule runs counter to International Load Line Rule attitudes which encourage really effective means of closing openings based on an overriding desire for safety.

For vessels not designed for deadweight cargoes, designers fit openings in shelter decks or superstructures with closing appliances of a type to obtain minimum penalty in freeboard and yet have such spaces 'exempt' from tonnage measurement and so from the payment of dues.

This situation reaches its climax in the case of 'open shelter deck' vessels, where by having one tonnage opening comprising one four foot long hatch fitted with 'temporary' closing appliances, an entire tween deck extending the full length of the ship is totally exempt from tonnage measurement. Such a vessel can have both gross and net tonnages some 30% less than a vessel of exactly similar size and external appearance but which has not a 'tonnage opening' in the corresponding deck.

While many countries are supposed to measure tonnage according to one common standard, there are many differences in detailed application which result in considerable variations in tonnage for exactly similar vessels.

The United States, for example, treats passenger accommodation in its own way, and does not measure water ballast spaces below the Tonnage Deck, the British do measure such spaces and as a result Canadian Upper Lakers have Gross Tonnages 10% to 13% higher than their U.S. counterparts and so pay a premium to transit the St. Lawrence Seaway; some countries limit deductions for crew space, others even measure length, breadth and depth differently. Even where different countries desire and seriously attempt to achieve uniformity there are bound to be differences since the rules are so complex that personal interpretation varies.

The Tonnage Rules have never been radically changed since 1854, they have only been patched up from time to time; they have inhibited ship design and safety by their pre-occupation with matters totally unrelated to what should have been their true objective, namely, to be a proper basis upon which to charge for shipping services.

As Dr. J. Bruhn, M.R.I.N.A., said in 1925, "It would seem to be a comparatively easy thing to find a rational measure of the size of ships which could be used for the purpose of assessing port dues, etc. Unfortunately a 'scientific' method was adopted about a hundred years ago, and ever since it has been found necessary to add continuously small 'scientific' increments to it until a complete Chinese puzzle has been created."

To cap it all, the many modifications to the regulations over the years have resulted in a situation where neither gross tonnage and/or net tonnage represents the size of a ship, its capacity, or its earning ability. Paradoxically, the main obstacle to wholesale revision of tonnage rules, or to the production of a completely new system based upon more appropriate parameters, has always been related not to tonnage itself but to its application as a basis for collecting money.

Throughout the world literally thousands of unrelated authorities or companies charge for an almost never ending, constantly growing, list of shipping services on the basis of existing tonnages and no new, universally accepted single system could possibly

produce the same income results to each of these thousands of unrelated authorities without wholesale revision of rates based upon painstaking analyses of past records and careful forecasting of the future, taking into account types and numbers of ships being serviced at present and likely to be serviced in the future.

Such authorities may believe that present methods of measuring and charging may not be perfect but it is much easier for them to leave the system as it is, with adjustments being made to the rates from time to time to achieve desired income results. The unfairness of this thought process is that it makes no attempt to correct for inequities existing in the relative charges levied between ship and ship.

On this subject I would like to quote W. MacMillan, M.R.I.N.A., (Transactions 1959), he states in part—"However good the reasons for simplification of tonnage rules may appear to some naval architects, sweeping revision seems to me to be quite unrealistic and to hold no hope of support from the shipping industry. There is too great a weight of legislation, of one sort or another, and too many economic factors, dependent upon tonnage, to admit of serious consideration being given to drastic change".

To add to the confusion and to the entrenchment of present tonnage rules, there are many unrelated regulations relating to safety, crew numbers and qualifications, classification of type of ship, provisions respecting wireless telegraphy, limitation of liability, classification society fees, operational and capital subsidies, etc., which are all based upon tonnage.

Further, as stated previously, there is not and never has been any consistency throughout the world insofar as deciding what type of service should be based on 'net tonnage' and what type on 'gross'. This is not of course necessarily bad, since the principal requirement is not essentially to base charges on either 'services rendered' or on 'ability to pay', but rather to have some convenient way to meet annual expenses by charging each vessel sufficient on any reasonably just basis.

It is this last factor which condemns the present tonnage laws since there can be little doubt that they do result in certain ships and ship types paying disproportionately more or less for shipping services than would be the case under any system based upon reasonable equity.

Sir Stanley Goodall, Vice President R.I.N.A., put the matter in a nutshell when, in referring to the fact that tonnage was not a suitable criterion to use as a basis for shipping charges, he added: "It may have been the original idea a hundred years ago, when a cargo ship was a shell into which goods could be loaded and blown from one port to another".

I believe that the foregoing comments, incomplete as they are, will have served to show that apart from habit and convenience, there is neither special merit nor magic in the continuing use of 'tonnage' (gross or net) as a basis for determining appropriate charges for shipping services.

They further demonstrate that any other system chosen, does not need to be and in fact cannot hope to be, perfect and proper in each and every application; such other system should however be based upon convenience, simplicity of application and consistency of results between similar ships of any nation, and it should result in all ships paying for services on a reasonably comparative basis.

As has been stated earlier, the two factors normally assumed to apply to shipping services are (1) physical size of ship, presumed to relate to value of 'services rendered', and (2) capacity of earning spaces on a ship, presumed to relate to 'ability to pay'.

We have observed that although 'gross tonnage' and 'net tonnage' were originally, and to some extent still are, intended to reflect these factors, they are in fact most imperfect instruments for the achievement of the intended results.

It may at this time be reasonable and proper to give some thought to the two concepts mentioned earlier and to consider just how appropriate they are as bases for assessing shipping service charges.

'Ability to Pay' and 'Value of Services Rendered'

In essence the principle of determining how much to charge a vessel for any service rendered to it on the basis of its 'ability to pay' appears to be totally at variance with all modern practice which is almost without exception based upon concepts of payment for value of service rendered.

On a personal basis, when a man flies in a plane, rides on a bus, travels on a toll road or visits a theatre or exhibition, he is not charged according to his personal wealth, but in accordance with the proportionate value of the services presumed to have been rendered to him, an important point to note, however, is that since human beings are very similar to each other in size and weight etc., the services rendered in each case are in fact exactly the same.

If we consider normal charges made to business ventures for services rendered, we find a generally similar application and that is, that by and large, 'services' are paid for on the basis of value of the services themselves and not on the earning ability of the venture or unit receiving the service.

Charging a ship, which is a business venture, on its apparent 'ability to pay' is really charging it on its indicated profitability and is therefore a very sophisticated type of tax on potential income.

In the early days of shipping when this concept was conceived and became popular, it was really assumed that (a) all shipping operations were profitable, (b) relative size of ship or cargo capacity indicated relative profit, and most important, (c) ships could not operate profitably without service.

It was therefore reasoned that any service rendered to a ship, no matter how trivial or how significant the service might be, was really a service performed by an essential partner in the venture and this partner should therefore be paid on a basis commensurate with the apparent profitability of the venture.

Even if this concept is accepted as being reasonable and fair, it is obvious that no formulated system could possibly achieve the desired end, since there is no possible way of measuring a vessel when built and determining at that time, for all time, the relative potential earning power of that vessel compared with all others of all types built before it and of all those to be built over subsequent years.

Despite the somewhat plausible reasoning relating to the applicability of the 'ability to pay' concept when related to shipping, present thinking would probably lead to the conclusion that 'value of services rendered' would in almost all cases be a much more appropriate and reasonable basis to use for charges for shipping services. The real difficulty lies in determining the relative value of the services rendered to different vessels, bearing in mind the inescapable fact that the cost of some services is greatly increased by the necessity of making particular provision for large vessels.

In dealing with the 'ability to pay' concept the point was made that most charges for service to both individuals and corporations are based, roughly at least, on the value of services rendered.

In the case of corporations various parameters are used, but few aim at recovery on basis of 'ability to pay'. In the case of personal services the charges are per person, but as noted previously, the services rendered are similar to all persons availing themselves of such services.

These situations are, however, not strictly analagous to the provision of shipping services, since ships are of many different sizes and types and in performing any similar task on a large vessel it is almost certain that the service rendered will be superior in worth to such service performed on or for a small vessel.

Further, when considering services rendered to individuals and charges for same on a per person basis without respect to individual wealth, it should be remembered that few, if any, of the services offered to individuals are provided basically to serve the special requirements of the rich, thereby increasing the cost to the poor, by giving them services in excess of those they personally require.

It cannot be denied, however, that many shipping services, at least in extent and quality, are and have been provided to cope with large vessels, and in many instances are more costly and numerous than would be required by small vessels alone.

It is therefore obvious that, at least with respect to such special services, large vessels should bear a greater burden of cost than would be indicated by apparent immediate value of direct services rendered.

I believe that pilotage may be considered to be in this category, the problem then, is to find a reasonably equitable basis for charges, bearing in mind, if not taking into detailed account, the many disparate variables affecting the true relative value of the services rendered.

Pilotage

Let us now leave shipping services as a general topic and consider particularly the services rendered by Pilotage Authorities and give some thought to possible suitable methods of charging for Pilotage services.

In its simplest possible context, the use of a Pilot by a ship could be looked upon as the temporary engagement of a specialist whose reasonable proper annual income is presumed to have been determined by taking into account such factors as his training, skill, experience and responsibility and relating them to the values appropriate to the particular society in which he exists.

Since this is his only source of income, and since he and his companions must be available at all times, then if each vessel piloted in any given district consumes about the same amount of a pilot's time, one could suggest that Pilotage should be charged on each ship simply on the basis of total target salaries plus operating expenses divided by number of ships per year.

On this basis the fee would be the same no matter what the size or type of ship; the services might be said to have been charged for on the basis of the apparent cost of the 'services rendered'. Such a method would, however, obviously not be as reasonable and logical as the foregoing words would appear to indicate.

For example, without big strange vessels, pilotage services might not have been needed in the first place, or, if needed, could possibly have been handled by less skilful pilots who presumably would be worth less than those necessary for piloting vessels of considerable size. In any event, it is obvious that any system which does not charge larger ships more than smaller ones would be neither acceptable nor workable.

Before we can properly consider what parameters or methods of application would be appropriate for assessment of pilotage charges, it would appear to be worthwhile giving some thought to pilots and to pilotage; what pilotage involves, what it achieves, and more particularly what affects the value of pilotage service rendered.

For the purpose of this report, legal aspects of pilotage will be ignored, only the physical act of piloting and the factors affecting the ease or difficulty thereof will be considered.

In the normal course of their duties, pilots must have an intimate knowledge of local physical and weather conditions in their particular district; they must also however, if they are to perform with maximum efficiency, be able to board vessels of many types, often for the first time, and taking into account not only local conditions as they exist at that time, but also all significant and applicable conditions relating to each particular ship, recommend or take all proper action to ensure that the pilotage assistance given will result in the desired operation being executed and concluded in a safe, seaman like and expeditious manner.

When a pilot boards a strange ship some of the variables in which he must be interested, and which vary between ship and ship, and which affect pilotage and ship handling to a greater or less degree include:

The physical dimensions of length, breadth and depth.

The drafts both forward and aft and the corresponding trim.

The propeller tip immersion.

Whether the vessel is in lightship, ballast or loaded condition, since this affects the relationship of the amount of vessel above the water subject to wind effects, and the amount under the surface affected by water currents. This relationship affects side drift.

The relative shape and disposition of the areas above and below the water surface, since this affects the ability of the vessel to hold course under various wind strengths and directions.

The type of underwater hull shape (large forefoot cut-up etc.) since these also affect a ship's performance under certain conditions.

The number and direction of rotation of propellers.

The relative fullness or fineness of the hull form.

Whether the propeller(s) are fixed or controllable pitch.

The relative power of the propulsion machinery.

The type of propulsion machinery, e.g. whether it is steam, diesel, turbo-electric, etc.

If steam machinery, whether boilers are coal or oil fired, scotch type or watertube.

Type of steering gear, relative rudder size and time to put helm over.

The last seven items listed affect the ability or otherwise of machinery to operate steadily at low power, the relative ability of machinery to accelerate, decelerate or go astern, the reaction time between giving a machinery action order and the action actually taking place etc.

All of the foregoing variables relate to ships themselves as physical engineering products, in many cases pilots will either know or will readily recognise characteristics of ships they board, in others they will have to ask questions and seek advice from the Captain and Officers who will or who should know the idiosyncracies of their own vessel. However he achieves the end result, it will be essential for the pilot, if he is to give maximum useful assistance, to clearly understand or judge how any ship he boards will behave under any set of circumstances or conditions—sometimes under emergency conditions.

Type, quantity and efficiency of navigating equipment varies from ship to ship, communications within ships vary, and these together with the relative efficiency of crews, determine the speed and accuracy with which orders are executed. The pilot's special value is, however, related to his particular knowledge of local conditions, and how they affect the ship handling under various changing circumstances.

Such local conditions include permanent situations arising from geophysical characteristics of the district, including the varying depths of water available, the widths and complexity of channels or approaches, the relative exposure to or protection afforded from the elements under varying situations arising from state of tide, current direction and strength, wind force and direction, and rain, hail, snow and fog, density and direction of traffic, etc.

The foregoing comments, whilst by no means complete, do, by their very recital, tend to give an exaggerated idea of the skill needed and of the complexity of pilotage operations. Many of the factors involved will be 'felt' or at least determined by a skilled pilot in a few minutes. He is an expert and this is part of his job.

It should be of interest to note that in the many variables related and unrelated, which has been cited as indications of the sum total of skill and responsibility involved in a pilotage operation such factors as the internal shape of a ship's structure, the degree of light and air provided to the engine room and the earning value of cargo are not included. Nor should they be, they and dozens of the other equally irrelevant factors are however not only taken into account but are often of great importance in the computation of tonnage figures and hence on fees based upon tonnage.

The main purpose of the foregoing recital was to demonstrate that pilotage is the application of seamanship supported by special knowledge of local conditions, and that the factors to be taken into account are so many, so varied, and often so unrelated,

that there is and can be no simple formula which will truly reflect the value of the services rendered in every case over a wide variety of ship sizes and types. Even the same ship on successive voyages can create or be subject to entirely different conditions and a ship which is easy to handle in one district can well be a nightmare in another.

The 'idealistic' way to charge for pilotage services would be to have a competent judge or judges stationed in each district to assess in each individual case the true relative value of the services rendered, taking into account all of the relevant factors applying to each individual ship and operation. This is patently ridiculous and impractical, from the point of view of both the Pilotage Authority and that of the Ship Operator. The results would be chaotic and subject to challenge, the Pilotage Authority would be unable to forecast its income and it would be impossible for the Shipowner to forecast his expenses.

Failing this 'idealistic' system and faced with deciding upon one overriding factor which would best express both the 'ability to pay' and the 'value of services rendered' I have no hesitation in suggesting that the best possible basis upon which to work would be one relating to the physical size of a ship.

Existing Methods

No useful purpose would be served in setting out here in detail the methods used to charge for Pilotage services throughout Canada. To highlight the lack of consistency however, I may say that I understand that seven districts charge on Net Tonnage, fourteen on Net Tonnage and Draft, one on Gross Tonnage, Draft and Mileage, one on Draft alone, one on a per trip basis and three with fixed charges between stated points.

A similar survey of 15 countries and their 70 pilotage districts (Captain Heenan, May 24th 1964) showed that 16 use Gross Tonnage alone or in a combination with Draft and/or Mileage, that 30 use Net Tonnage alone or in combination with Draft and/or Mileage, the remaining 24 use Draft, Mileage, Deadweight or other combinations or variables.

It must be obvious that they cannot all be right or even reasonable in their charges as between ship and ship. It is, however, equally certain that rates applied on the present basis is in all cases aimed at producing a predetermined total annual revenue. Any new system must therefore be based upon general application, simplicity and a reasonable division of charges between ships using the service. It must also, when applied, produce similar annual revenues.

Consideration of proposed new methods

We now appear to have determined the following with respect to Pilotage and Pilotage charges:

1. There is no single permanent parameter related to a ship's dimensions which can determine either a vessel's ability to pay or the value of services rendered to it.
2. There is also no complex assembly of variable factors related to a ship's dimensions which will achieve either of these ends.
3. Taking into account the wide assortment of permanent and conditional variables it does appear as though the physical size of a ship will give the best general basis upon which to charge Pilotage Dues, since more than any single, or any combination of all other variables, this best reflects the overall relative difficulty, responsibility and value of the operation.
4. Neither Gross Tonnage or Net Tonnage truly achieves this objective and in any event they are unsatisfactory for the other reasons set out in this report.
5. Any new system should return similar total revenues for handling similar ships in any year.

6. Few existing vessels should have to pay substantially more or less than they paid under the old system.
7. Vessels which do pay more should be those which examination indicates have, in fact, been paying less than their fair share in comparison with other vessels, and vice-versa for vessels whose Pilotage charges will be substantially reduced.
8. New rules should have no appreciable effect on ship design or seaworthiness.

Let us now consider some of the parameters which could be applied.

Gross and/or Net Tonnage

I do not think I need to labour this point further, undoubtedly the major causes for dissatisfaction with tonnage as a base are (1) lack of uniformity of measurement and (2) the fact that some ships, like open shelter deckers, have large earning spaces which are included in neither the Gross nor the Net Tonnages. Such vessels present the same problems and receive the same services as other similar size full scantling vessels but pay less for such services. While I believe this to be unfair and have written at some length to this effect, it should be realized that owners of such vessels and many others believe that a benevolent attitude should be taken with regard to open shelter deckers.

Length

This parameter would have the advantage of extreme simplicity, and length is certainly a most important factor in measuring pilotage difficulty. The relative importance of length is however dependent upon local conditions. Its major disadvantage is that if it were to be used in assessing pilotage fees on a 'rate per foot' basis then small vessels would pay far too much and large vessels far too little.

The relative size of vessels varies as the cube of the dimensions and I would therefore prefer the use of length^3 to length. Length^3 would not, however, in my opinion be satisfactory, since the relative breadth and depth of ships varies considerably and using length^3 would ignore such variations. Ships operating in and out of Canadian ports vary considerably so far as beam and depth relative to length are concerned, due principally to Canada having a mixture of ocean-going and Great Lakes and coastal type vessels. If length or length^3 was used as a basis, local upper lakers would, in my opinion, pay more than their fair share when compared with ocean-going vessels having the same length.

Draft—(alone or with other measurements)

There can be no doubt that in many districts, draft is very important in measuring pilotage difficulty and responsibility. In others it is not as important as length, and in many instances in fact, as has been pointed out previously in this report, the amount of the ship out of the water is of more concern than the amount in the water. Charging a vessel on its draft at any time or on any variable including draft at any time has the disadvantage of requiring draft to be determined for each and every operation with increased complexity in assessment and collection of fees.

If we now consider statutory Summer draft rather than actual draft at time of pilotage, we run into further difficulties which are not immediately apparent.

Firstly, it would appear illogical to use Summer draft as a major element in determining pilotage fees, draft is either an important factor or it is not; on occasions or in areas where it is important, it is surely the draft at the time of the pilotage operation which is significant, not the maximum Summer draft to which the vessel can load at any time.

Further, whilst most cargo vessels have Summer freeboards, (and therefore Summer drafts), assigned in accordance with International Regulations, such regulations do not apply to a wide variety of ships including warships, fishing vessels, pleasure yachts,

vessels not carrying passengers or cargo, and ships of less than 150 tons gross, and there could be trouble in attempting to determine the proper corresponding draft to apply on such vessels.

Further, statutory or Summer draft is not necessarily directly connected with either size or depth of ship since other factors including reserve buoyancy, relative structural strength and integrity and anticipated zonal weather conditions all affect maximum Summer drafts. Tankers have deep drafts relative to other vessels of similar size due to their strength and degree of compartmentation, lakers also have proportionately deep drafts due to the relatively sheltered nature of their zones of operations and passenger vessels can have more than one statutory draft depending upon a variety of conditions.

It can be seen therefore that statutory Summer draft is (a) not really very suitable as a basis for pilotage charges and (b) in any event application of statutory draft would not be without complication.

Length, Beam and Draft

It has been suggested that a numeral obtained by multiplying together length, beam and draft, would be a good basis for assessing pilotage fees and there can be no question but what these three factors do seriously affect pilotage, sometimes they may be the three most important factors, in other cases they will not be.

Such a numeral would in my opinion be fairly satisfactory, the length and beam components should not cause too much trouble but the problems associated with both the applicability and the determination of appropriate draft to be used in the calculation would be as stated previously.

Size of Vessel (as expressed by $L \times B \times D$)

If we are looking for one relatively simple, unchangeable and appropriate parameter to use as a basis for the assessment of pilotage fees, as stated previously I believe that the effective external size or bulk of a ship is the major determinant, and that this can be reasonably expressed by a numeral obtained by multiplying together the length, breadth and depth.

Such a method would not, of course, be perfect, nor would it apply with equal fairness to all ships or to all conditions, it would however, in my opinion, satisfy the desirable elements set out previously more satisfactorily than any other, also being a cubic numeral it would bear a reasonable relationship to existing tonnages.

It must, however, be appreciated that any formula which uses depth in this fashion will take no account whatever of the size or of the amount of the ship above the deck to which the depth is measured, accordingly all spaces above this deck, including poops, bridges, forecastles and erections for passenger spaces, etc., will be excluded and will therefore have no effect on the numeral or on the fees derived from its application.

Bearing in mind that two of the most serious complaints made against present tonnage regulations are with regard to (1) spaces classed as 'exempt' and not measured at all and (2) spaces measured and included in Gross Tonnage but deducted to give Net Tonnage, there may be resistance to any formula which does not provide for assessment on the basis of absolute, total bulk.

I myself do not view this weakness in any formula as being too serious, the old concept based upon 'ability to pay' visualized the volume of all earning spaces as a proper basis, I do not believe that we should be dedicated to determining volume of earning spaces. From the point of view of pilotage charges at least, I believe that reasonably comparative indications of bulk will be sufficient since bulk itself is not a pure determinant and it will never be possible to cover all factors in one formula.

Providing the depth as measured, substantially represents the effective basic depth of a ship I do not think we need be concerned too much about not having every possible cubic foot included.

For the vast majority of modern cargo ships and tankers, erections are fairly comparative in size, passenger vessels have large superstructures but the basic depth used for such craft will, in any event, almost certainly be comparatively greater than that applicable to other vessels of similar length.

If the aforementioned apparent basic disadvantages of having a formula involving depth are accepted, we will then be in general agreement with the statements and suggestions made by Captain J. A. Heenan in correspondence supplied to me by the Commission.

In Captain Heenan's memo of July 4th [1963], he states in part:—

> "I have long believed that when pilotage dues were first assessed on the tonnage and/or draught of a ship, such methods of assessment became generally acceptable internationally for two reasons: first, they made for simple calculations and, secondly, no better method was advanced. What is important, however, is the actual size of the ship, whether she be loaded or in ballast.
>
> The pilot is paid for his verbal advice regarding the safe passage of a ship (or, when requested, his actual navigation and handling of the ship), due regard being given to his special local knowledge, especially of tidal conditions that vary with changing weather. The relative ease or difficulty of his task depends more on the size of the ship than on its measured tonnage.
>
> The dimensions of a ship do not change. My thought is that a unit could be derived from a consideration of the registered length, breadth and depth of any given ship. Such a unit could be matched with existing pilotage dues and a comprehensive scale could then be developed."

Captain Heenan's proposal which is set out in considerable detail in his further memo to Mr. G. W. Nadeau of January 30, 1964, suggests that each ship should have a fixed unchangeable number or 'ship unit' obtained by multiplying registered length, breadth and depth together and dividing by 10,000. This would be multiplied by a 'District' or 'Port Unit' expressed in dollars and/or cents to determine the Pilotage Dues Payable.

The 'District' or 'Port Unit' to be calculated to arrive at a value which when multiplied by the unchangeable 'Ship Unit' would provide pilotage dues, which when averaged among several ships of various sizes would equal their total pilotage revenue now received under the present method.

I am in agreement with the principles and objectives set out in Captain Heenan's correspondence, it is only in the details appertaining to the proposed methods of calculating both the 'ship' and 'port units' that I disagree.

Dealing first with the 'ship unit'. Captain Heenan proposes that this should be obtained by multiplying together the Registered Length, Depth and Breadth and dividing by a suitable divisor. One of the great advantages of using these 'registered' dimensions is the fact that they are invariably included among ship's papers.

They do, however, possess certain most unfortunate disadvantages which I will now deal with in some detail.

'Registered Length' has a rather cumbersome definition and due to changes in ship design, particularly with regard to stern arrangements, there can be variations in 'registered length' when measured by different authorities. I do not however believe this to be very important since a difference of say 5 feet in a 400 foot ship, whilst quite unlikely, would only affect the 'ship unit' value by one and one quarter per cent. I therefore consider 'Registered Length' to be a suitable dimension for our purposes.

So far as 'Registered Breadth' is concerned, I believe this also to be a satisfactory dimension. The definition is simple, being 'the extreme outside breadth of the vessel, measured over the side plating, but not including guards or rubbing strakes'. There appears to be little room for misunderstanding here, and if for example the 'Registered Breadth' of any vessel was quoted incorrectly by a relatively large amount as much as say 3", then on a 50 foot beam vessel this would only affect the 'ship unit' value by one half of one per cent.

It is only when I consider 'Registered Depth' that I run into very serious trouble in accepting the three registered dimensions as being suitable for our purpose.

'Registered Depth' is the 'depth of a ship measured inside the ship on the centre-line at amidships, from the underside of the 'tonnage deck' down to the tops of the floors or the tank top'. As can well be imagined, due to the wide assortment of internal arrangements on ships, there is a great variety of Registered Depths possible on similar ships having the same external depths. It will be further noted that the 'Registered Depth' is measured at amidships and as some vessels have stepped tank tops, the depth is often quite different at amidships from that applying in other places throughout the length. Some vessels have tank tops which are not level but are sloped from the center line to the sides of the ship and this type of situation also further complicates the true meaning of 'Registered Depth' and its relationship to true depth.

For example, let us consider three typical vessels all having the same external depth to a flush deck; one a tanker, one a general cargo vessel and one an ore carrier. Due to different internal arrangements brought about by differing design and operational considerations, it is probable that the tanker will have no bottom floors at all, the general cargo vessel may have a 4'0" double bottom and the ore carrier a 12'0" double bottom. The 'Registered Depth' of these three vessels which all actually have the same depth, will therefore vary by the relative depths of the double bottom tanks (or by the assumed floor depth in the tanker).

From the foregoing it is quite obvious that 'Registered Depth' in no way represents the depth of a ship.

Added to the foregoing disadvantages we must also remember that 'Registered Depth' is measured to the underside of the 'Tonnage Deck', the 'Tonnage Deck' is the upper deck in all ships which have less than three complete decks; and is the second deck from below in all others.

A complete deck is a permanent deck all fore and aft. Normal hatchways or openings with efficient permanent closing appliances are not considered to interfere with the integrity of the deck or its completeness. However, 'tonnage openings' are considered to be closing appliances of a 'temporary' nature and the integrity and completeness of the deck is assumed to be impaired by their presence.

For this reason an open shelter deck complete for the whole length of the ship except for a four foot long hatchway with temporary closing is not, for the purpose of the Tonnage Regulations, considered to be a complete deck. An open shelter deck vessel, therefore, has as its tonnage deck the deck below the shelter deck.

For explanatory sketches with regard to the foregoing comments on 'Registered Depth' see Appendix 'A'. (Sheets 1 and 2)

We thus see that if our 'ship unit' uses depth measured to the underside of the tonnage deck, it will give open shelter deck type vessels virtually identical advantages to those presently enjoyed by such vessels under present tonnage regulations.

Therefore, since 'Registered Depth' does not, in the first place represent the depth of the ship at all, and since it excludes from the proposed formula any portion of depth associated with open shelter decks, I conclude that this would be a most inappropriate and unsatisfactory depth to use.

This is not, however, to say that there is no depth which will be satisfactory, and I now propose to examine other 'depths' to see if there is one which is suitable.

Vessel depth is one of the factors taken into account in the calculation of vessel freeboards for assignment under the International Load Line Rules and in the event of any vessel not having such a Freeboard Assignment there would still be little difficulty in determining depth according to International Load Line Regulations.

I propose therefore to now give some consideration to freeboard depth as a dimension for possible use in the proposed formula.

In the calculation and assignments of Freeboard, however, two depths are used, the first is the 'moulded depth' which in its simplest form is the vertical distance

measured amidships from the top of the keel to the top of the Freeboard Deck beams side. The other is the 'Freeboard Depth' which is the 'moulded depth' plus allowances for thickness of keel and deck plating, etc.

These two 'depths' possess the merit that they do in fact represent the true depth of the ship to the 'Freeboard Deck' without complications connected with internal structure, depth of double bottoms, etc., such as would arise if 'Registered Depth' was used. For explanatory sketches with regard to 'Freeboard Depth' see Appendix 'B'. (Sheets 1 and 2)

Unfortunately however, the 'Freeboard Deck' is the uppermost complete deck on a ship, which deck has permanent means of closing all openings in its exposed areas and any deck with a 'tonnage opening' is not considered to come within this definition. Therefore, 'depth' for freeboard purposes is, on open shelter deck vessels, also measured to the deck below the shelter deck. Despite the fact that Freeboard Depth is good from the point of view that it is a true depth, it has however, as has been seen, the same disadvantage as 'Registered Depth', insofar as it would again eliminate the open shelter deck in the proposed calculation. It also would incur no penalty for superstructures or erections above the 'Freeboard Deck'. As a matter of further interest, vessels which are alternatively 'open' or 'closed' shelter deck types not only have two gross and two net tonnages, but they also have two 'Freeboard Depths'.

Another difficulty arises from the fact that the Freeboard dimensions are not included in ships' papers, and so it would be necessary to obtain this information from other sources, possibly the Register Books of the various Classification Societies. This would not be without its problems since some ships are not in any published Register (Russian, Polish, etc.) and even Lloyd's Register does not always give all of the Freeboard Dimensions we would require for our purpose. Further, as has been stated previously, all vessels do not have statutory freeboards.

Although I do not think these latter disadvantages would be insurmountable, for the other reasons mentioned, I also reject 'Freeboard Depth' as a suitable depth for the purpose of assessing pilotage dues.

Ideally, what we are looking for is an 'effective' depth which would take account, not only of the physical size of a ship below a basic depth, but also give reasonable effect to superstructures above such depth.

Formulations for such 'effective depth' would not be beyond reasonable ingenuity to conceive but they would be complex, require expert evaluation for each ship and would, no doubt, be subject to challenge.

Formulas have actually been proposed in the past with this approach in mind, including that by G. A. Smith, American Bureau of Shipping, in 1945. His proposal covered volume of hull, sheer additions and volume of superstructures and erections.

In 1959, working along the same lines, H. J. Adams, M.Sc., M.R.I.N.A. suggested that such charges as pilotage, mooring, towing, drydocking, etc., might well be based upon Classification Society's 'equipment numerals'.

Such numerals are used to determine appropriate sizes and quantities of anchors, chain cables, mooring and towing wires and ropes, and the numerals are intended to represent relative 'effective' bulk of a vessel. The equipment required is affected principally by the weight of the ship and by the volume and disposition of superstructures and erections which are or which can be subjected to wind pressure.

The numerals used by different Societies take these variables into account; in some, superstructures and erections are presumed to offer less effective wind resistance as they get higher (wind can escape over or around), others assume that erections not extending to the side of the ship offer less effective resistance to wind pressure than those which do.

All vessels are not Classed, and all Classification Societies regulations are not the same.

To give some idea of the form such numerals take, and the manner in which they are computed, I think it worthwhile to set out for the Commission, in simplified and abbreviated form, information relative to the numeral used by Lloyd's Register of Shipping and also that used by the American Bureau of Shipping.

Lloyd's Register—'Equipment Numeral' is computed by adding together numerals calculated separately for hull, superstructures and other erections.

For the hull portion of a ship, numeral = $L\ (B + d) + .85\ L\ (D - d)$.... 1

Where L = Length B = Breadth
D = Depth to uppermost continuous deck
d = Summer draft in feet

For superstructures (i.e. erections not more than 24" narrower than B)

numeral = $.85\ (l \times h)$ 2

Where l = overall length of superstructure
h = tween deck height

For other erections

numeral = $.75\ (l \times h)$ 3

Equipment numeral = 1 + 2 + 3

The American Bureau of Shipping—Numeral is actually called the 'Equipment Tonnage' and is computed by adding together equipment tonnage calculated separately for the ship under the freeboard deck, superstructures on freeboard deck, next highest tier, third tier above tonnage deck.

Tonnage under Freeboard Deck = $\frac{L \times B \times D \times C}{100}$ 1

Where C = Block coefficient at .80 of moulded depth (never less than .75)

Tonnage of Superstructures on Freeboard deck = $\frac{l \times b \times h \times .75}{150}$ 2

Where b = breadth of superstructure

Tonnage of next tier of superstructures = $\frac{l \times b \times h \times .75}{200}$ 3

Tonnage of next tier = $\frac{l \times b \times h \times .75}{250}$ 4

Equipment Tonnage = 1 + 2 + 3 + 4

Both Societies ignore small erections in their calculations.

In my opinion the foregoing type of numeral, while very suitable for our purpose would be much too complicated to apply and would not be worth the trouble.

The use of such a numeral would render most difficult the task of forecasting appropriate rates for pilotage, which rates would give any desired level of revenues.

Since formulas dealing in detail with superstructures and erections do not appear to be too suitable for us, and since there is no simple way of determining 'effective' depth, we must either abandon depth as a parameter or find one which will be reasonably suitable.

Taking everything into account, I still believe length × breadth × depth to be our best basis, unfortunately however, there is no suitable depth which is (a) recorded on all ships papers or (b) shown clearly on all ships plans.

There is, however, a depth which I believe would be fairly suitable for our purpose and which should not give too much trouble in its determination.

I refer to the 'depth to uppermost continuous deck', without reference to the efficiency of closing appliances on that deck.

See sketches Appendix 'C'. (Sheets 1 and 2).

Use of this depth would have the merit that it would, for example, be measured to shelter deck and accordingly open shelter deck vessels would have dues assessed which would include allowance for shelter deck volume. It would, of course, still ignore superstructures and erections above the uppermost continuous deck, no matter how extensive such erections might be.

Passenger vessels might benefit somewhat and pay proportionately less than at present on a tonnage basis, but only analysis will show if this is so and, if so, by what proportion. In any event, we are stuck with this disadvantage. We either use depth and accept this weakness or we go back to Gross Tonnage which I believe has more and greater weaknesses.

Using 'depth to uppermost continuous deck' would certainly reduce this weakness common to all straight depths, when compared with the other two 'depths' we have considered, namely 'Registered Depth' and 'Freeboard Depth'.

The only type of vessel where we might have some difficulty would be the rare type which has a stepped deck. A typical example is the 'Raised Quarter Deck' type (see Appendix 'C'). In such types it may be advisable to assess an 'effective depth to uppermost continuous deck' by taking into account the relative lengths of the main deck and the raised quarter or stepped position and relate same to produce an average depth.

As previously stated, ships do not by law carry documents clearly defining the depth I propose. Such depth would have to be established by reference to the ships themselves or to plans, or by some other satisfactory means.

In the correspondence given to me by the Commission, there is one statement made by Captain Heenan regarding the establishment of dimensions which may not be on a ship's papers, he says: "... also most, if not all, ships carry a certified plan of detailed particulars of the ship, provided by the builders. I therefore see no difficulty in readily obtaining the measurements required to determine a ship's unit."

So far as length or breadth are concerned I have no worry, they are fairly well defined and, as stated previously, even small differences in methods of measuring would not substantially affect the 'Ship Unit' figures.

I do, however, have some reservations about the ease and certainty with which 'Depth to Uppermost continuous Deck' could be established.

This is, however, an operational problem and one to which the Commission must give careful thought.

In Captain Slocombe's proposal wherein he suggests that length be used as a basis, he states—"In considering possible alternatives to tonnage as a factor in pilotage dues, it is essential to remember that the prime need is simplicity. It should not be necessary to make a computation to find a factor to use in another computation; and the factor chosen should be one that is clearly shown in the ship's documents . . . .".

I am, or was, in full agreement with Captain Slocombe's opinion, and the foregoing report will, I think, bear witness to the fact that I have diligently searched for such a factor.

The trouble is that ships' papers, so far as I am aware, do not contain adequate or suitable information for our purpose, and I believe that whilst a factor recorded in a ship's papers would be preferable, I cannot agree that it is essential.

I believe it is of more importance to choose an appropriate factor which can be fairly readily obtained, than to choose an inappropriate one whose major merit is its convenience and availability.

Certainly, the 'depth' proposed by me will not be as convenient as others mentioned, but I believe it will be much more appropriate.

It should not be beyond the ability of the Canadian Pilotage Authorities, assisted by the many very capable experts working for the Department of Transport, to formulate methods of establishing such depth.

Vessels have to provide a wide variety of information for many purposes and are boarded by many Government officers for many reasons, operators are accordingly conditioned to providing information.

The St. Lawrence Seaway Authority for example needs to know a great deal more about ships transiting the Seaway than can be found in ships' papers or in Register Books. The Seaway Authority therefore requires a form Part II 'Information on Vessel' to be completed and supplied to it.

A copy of the form referred to is appended to this report (see Appendix 'D'), and it will be observed that furnishing inaccurate information is an offence under the Regulations.

I do not think that it would be beyond the ability of those concerned to devise a similar form asking for basic information to allow compilation of the 'Ship Unit' (which calculation could eventually be shown on the same form if desired). Such a form could contain a clear statement regarding the dimensions required and suitable guidance sketches could be included.

An exact definition of 'Moulded Depth to Uppermost Continuous Deck' would be required, but the officers of the Board of Steamship Inspection could undoubtedly advise on this.

If ship operators can supply accurately the information required by the St. Lawrence Seaway Authority, I see no reason why they could not also supply the desired length, breadth and depth.

Pilotage Authorities could use information supplied in this manner subject to verification and amendment later if necessary.

Since it would be difficult to calculate appropriate 'Port Units' without previously having ship data available using the proposed new depth, it might be advisable to have some interval of time elapse before the new scheme became effective, during which time data could be collected, this would give time to calculate and prepare new charging rates to be introduced at a later date.

Admittedly this would be troublesome, but if it is not tackled now I would venture to suggest that it never will be. Reform is never easy, and this problem cannot be more difficult than some of the others being considered by the Commission.

In any event I believe that it will not be as difficult as it at first appears, many ships use the same ports over and over again and the information would only be required once for any ship. The figure would be unchangeable unless any vessel underwent a major and obvious conversion.

Further, whilst as stated previously, this may appear to be a heavy task for Pilotage Authorities to undertake, I believe that the difficulties would not be insuperable if it was first decided that the end result would be worth the effort.

Governments, Port and Canal Authorities and many others are realising more and more that much more data is required regarding ship types, sizes drafts, cargoes, etc., than has been demanded or required hitherto, if proper useful statistical data is to be obtained enabling forecasts to be made of changing trends, to explain changes taking place, and to assist in planning for the future.

In the past, the collection and analysis of such evidence has been a task too cumbersome to contemplate. Today, operators are used to providing an increasing amount of information regarding themselves and their operations and in this age of electronic data processing machines, if such data is collected in a form suitable for programming through computers, the majority of the time and labour consuming calculations and analyses are, or can be, a thing of the past.

In short, if we believe that the information is worth collecting, then I believe that it can be collected, analysed and applied.

Apart from Board of Steamship Inspection who are experts in (a) writing definitions for dimensions etc., and (b) reading ship plans, help could undoubtedly be sought from surveyors of Lloyd's Register of Shipping.

If the majority of data was supplied by owners on the forms provided, then checking and verification could be on a planned basis, not necessarily taking place at the time of corresponding pilotage operations, particularly if the Commission decides to charge on the existing system while collecting data for future application of the new.

Summary

Taking all of the foregoing into account I believe we can conclude that as a basis for Pilotage charges:

1. Neither Gross Tonnage nor Net Tonnage is satisfactory, but Gross Tonnage is preferable to Net.
2. Any formula using 'Registered Depth' cannot be satisfactory.
3. Any formula using 'Freeboard Depth' cannot be satisfactory.
4. A formula using 'Registered Length', 'Registered Breadth' and 'Depth to Uppermost continuous Deck' multiplied together would be fairly satisfactory providing:
   (a) the Pilotage Authorities believe they could establish and enforce the 'Depth' without too much trouble,
   (b) the dues payable could be calculated on this basis to compare reasonably in both total and individual applications with those presently in operation.

As stated many times in this report, such a parameter would by no means be perfect. I believe, however, that it would be reasonable.

If such a 'Ship Unit' system is adopted I would suggest the multiplicand

$$\frac{\text{Registered Length} \times \text{Registered Breadth} \times \text{Depth to Uppermost Continuous Deck}}{\text{Convenient Divisor}}$$

should be called 'Pilotage Numeral' rather than 'Ship Unit'.

If such a system or any reasonable variation thereof is chosen, there should be no great problem in applying it to all ships of all types of whatever nation.

Where the dimensions are in the Metric System a different divisor would, of course, be needed.

Port Unit

Coming now to the 'Port Unit', whilst I am again in general agreement with Captain Heenan's proposed method of determining the value of this unit, I am not however in detailed agreement therewith.

In my opinion, it will not be sufficient to take a handful of ships of varying characteristics and put them through the motions proposed to determine 'Port Units' (which might be better called 'Port Unit Rates'). I believe that much more detailed statistical analysis will be required than that indicated, based upon figures relating to all actual ships using pilotage services in any given district during one or more years, determining the 'Ship Unit' for each of these vessels and then finding, by the method suggested by Captain Heenan, the 'Port Unit' which would give the same total annual revenue. If this task appears to be too great, then at least a survey should be conducted in sufficient depth to determine the weighted average of ship types and sizes using every port or district and put these weighted averages through Captain Heenan's proposed analysis.

The objection I have to the method used by Captain Heenan (although he was only using it for demonstration purposes) is that it does not take into account the number and size of different ships handled in different pilotage districts. For example, some ports may handle a preponderance of tankers, some of passenger vessels, some of lakers. The appropriate 'Port Unit' will be quite sensitive to such situations and to the relative 'mix' of ship types handled in any port or district.

After the proposed 'Ship Unit' and 'Port Units' have been determined, individual rates under the proposed system should be checked against those presently applying to see that they produce no undue individual hardship or advantage.

All of this will be time consuming but if not done with care the end results may not be satisfactory.

Whether Ship Unit, Gross Tonnage, or any other unit indicative of ship size is used as a basis for pilotage charges, I suggest that in some special instances it will only be right and proper to introduce another variable based upon estimated relative time to conduct particular pilotage operations within districts where different operations require great variations in time.

I do not think that small variations need any attention, but where pilotage districts cover considerable areas and where the time consumed to place a vessel at or near one berth is obviously only a fraction of that applicable to some more distant or less convenient berth, consideration might be given as to whether or not the pilotage charges should take cognizance of this.

I agree that actual time needed can vary greatly from time to time, but the basic relative times can be estimated and taken into account in computing appropriate Pilotage Charges.

I know that there is another point of view regarding such pilotage operations. In many cases ships and operators accept the fact that they are visiting a port. They do also accept the fact that Pilotage is compulsory and must be paid for.

They contend, however, that their destination or the berth to which they are to proceed within the port, is not always a matter of their free choice. Even when a ship carries a special commodity only handled at say one particular berth, the ship operator was probably not involved in the original choice of site.

Such an approach leads to the contention that within a port or pilotage district, fees should not be related to the particular berths to or from which ships are destined, but should be based upon a simple concept of 'pilotage within a district'.

Conclusion

My particular task was to consider and comment upon a proposed simple formula to be used in the application of Pilotage Dues across Canada as an alternative to the different systems presently in force, most of which use Tonnage as a basis.

I have considered the proposed formula and for reasons set out in the report have rejected it in the form proposed, I have, however, confirmed my agreement with the original objective and with the basic concept of the formula and have proposed a similar new formula for the determination of 'ship units' which I believe should be satisfactory and which overcomes my objections to the original proposal.

The 'ship unit' which I propose (and which I suggest should be called 'Pilotage Numeral') would be determined by multiplying together the following dimensions in feet and dividing by say 10,000.

1. Registered Length
2. Registered Breadth
3. Depth to Uppermost Continuous Deck (ignoring class of closing appliances in such deck).

The first two dimensions would in most cases be supplied from ships' papers and the last by each shipowner, captain or representative in reply to a questionnaire.

Such information would be collected for some appropriate period during which pilotage dues would continue to be charged on the present basis.

During this period information supplied by ships would be checked, the individual 'ship units' calculated and totalled, and by comparison with pilotage dues actually charged in each district, appropriate 'port units' would be calculated.

The present time and situation is unique, and I believe the Commission would miss a great opportunity if it did not strongly advise a uniform approach to the application of Pilotage charges across Canada; such uniform approach, in my view, could well include abolishing the use of tonnage as a basis for such charges.

I have pointed out that no system can be perfect or apply with equal fairness to every vessel and in every circumstance; I believe I have shown that this is, in fact, an unnecessary and unobtainable objective.

To put the matter in proper perspective I have commented on both Gross and Net Tonnages as parameters and have also considered several others which might be considered or proposed.

I have attempted to cover the subject in logical sequence to improve understanding. The Commission may feel that I have said too much about some aspects of the problem and not enough about others.

I believe that the subject matter may indicate pitfalls where they were not suspected and I hope that the report will be helpful to the Commission and so justify its preparation.

Respectfully submitted,

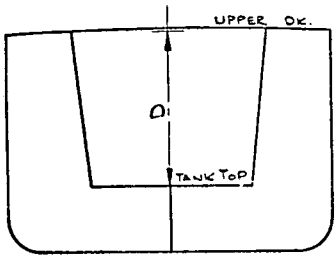
R. LOWERY

APPENDIX A (SHEET 1.)

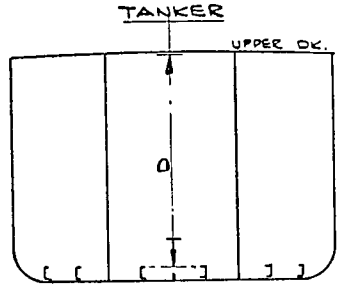
METHODS OF MEASURING REGISTERED DEPTHS OF VARIOUS TYPES OF SHIP

D = REGISTERED DEPTH = DEPTH MEASURED ON THE CENTRELINE OF THE SHIP, FROM A POINT AT ONE-THIRD OF THE DECK CAMBER BELOW THE UNDERSIDE OF THE TONNAGE DECK, DOWN TO THE TOP OF THE FLOORS, OR THE TANK TOP.

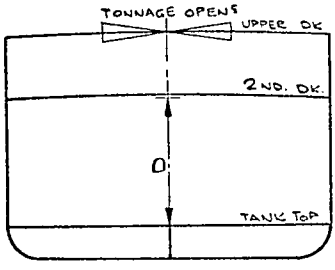
ORE CARRIER



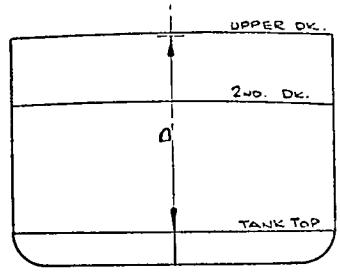
TANKER



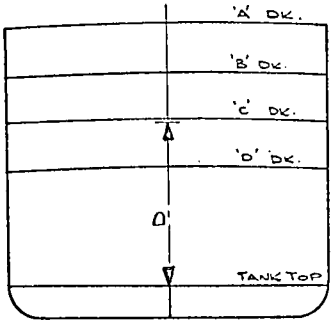
OPEN SHELTER DECK



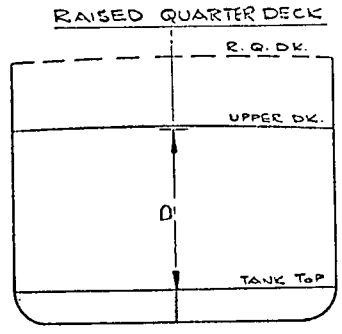
FLUSH DECK CARGO



PASSENGER

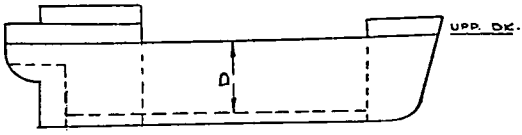


RAISED QUARTER DECK

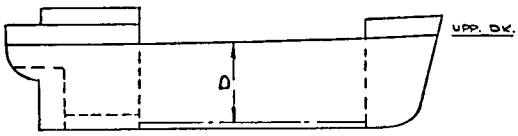


APPENDIX A (SHEET 2)

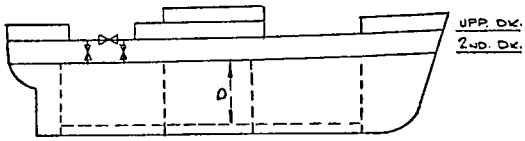
METHODS OF MEASURING REGISTERED DEPTHS OF VARIOUS TYPES OF SHIP



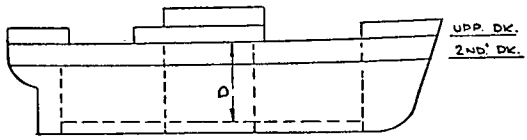
ORE CARRIER



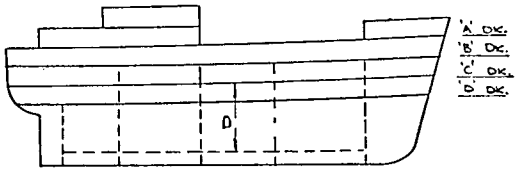
TANKER



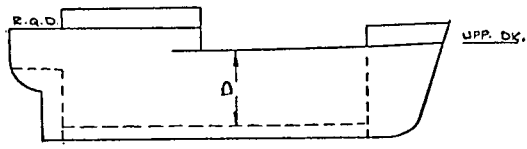
OPEN SHELTER DECK



FLUSH DECK CARGO



PASSENGER

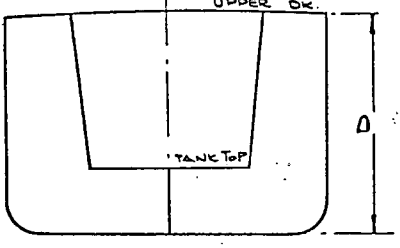


RAISED QUARTER DECK

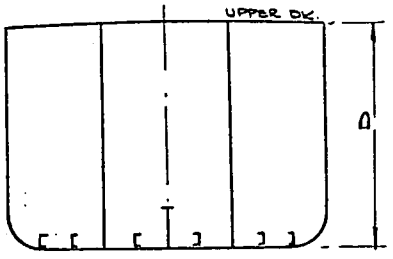
APPENDIX B (SHEET 1)

METHODS OF MEASURING FREEBOARD DEPTHS OF VARIOUS TYPES OF SHIP

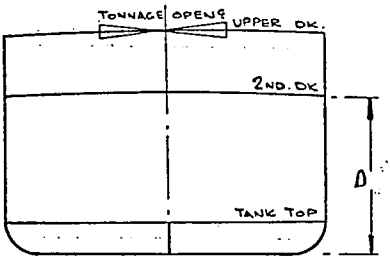
ORE CARRIER



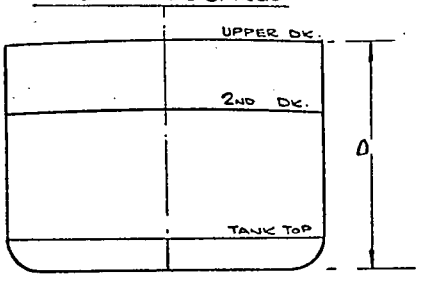
TANKER



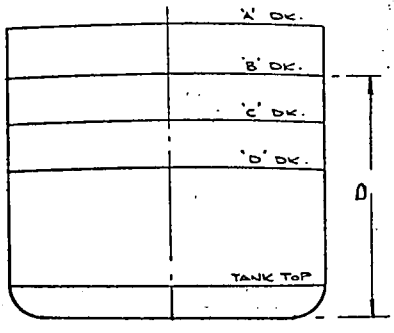
OPEN SHELTER DECK



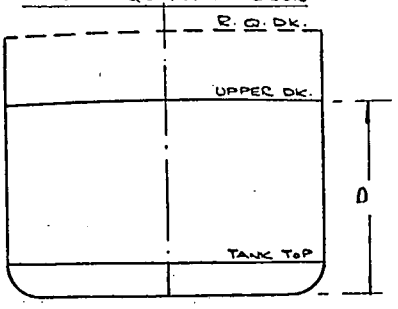
FLUSH DECK CARGO



PASSENGER

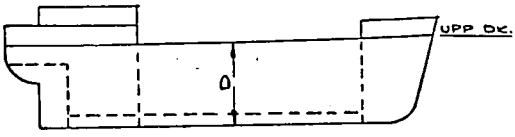


RAISED QUARTER DECK

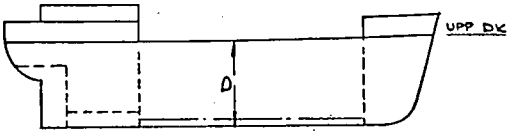


APPENDIX B (SHEET 2)

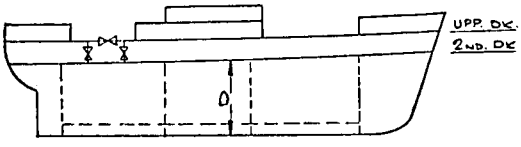
METHODS OF MEASURING FREEBOARD DEPTHS OF VARIOUS TYPES OF SHIP



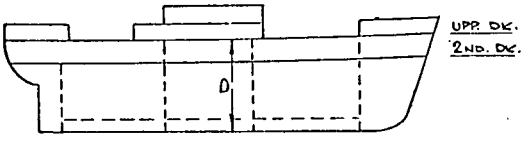
ORE CARRIER



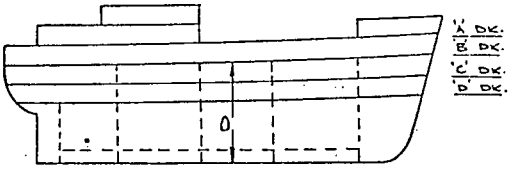
TANKER



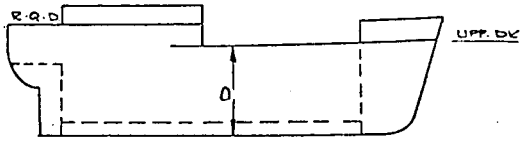
OPEN SHELTER DECK



FLUSH DECK CARGO



PASSENGER

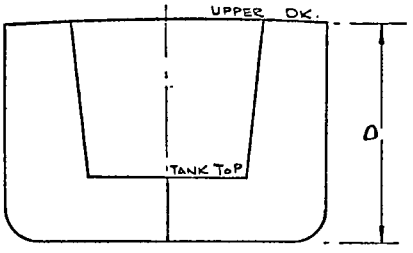


RAISED QUARTER DECK

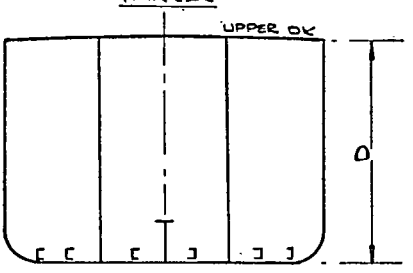
APPENDIX C (SHEET 1)

SUGGESTED DEPTHS FOR VARIOUS TYPES OF SHIP TO BE USED IN FORMULA FOR DETERMINING "SHIP UNIT" FOR ASSESSMENT OF PILOTAGE CHARGES.

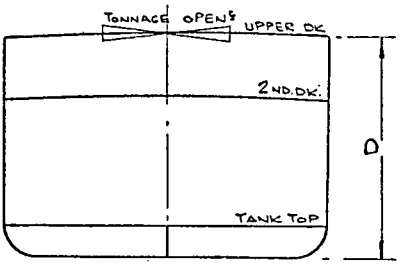
ORE CARRIER



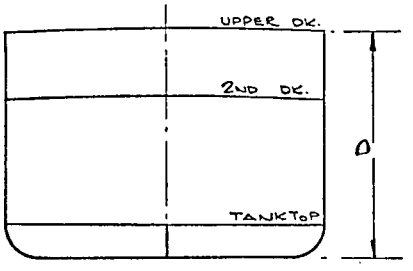
TANKER



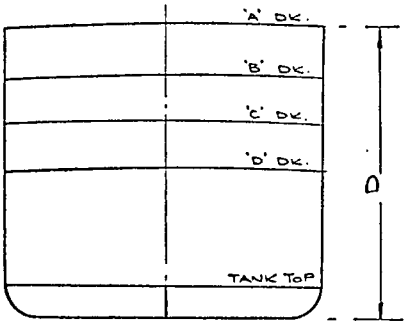
OPEN SHELTER DECK



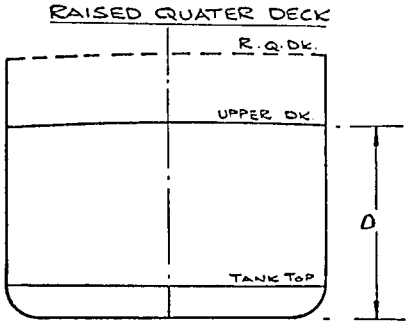
FLUSH DECK CARGO



PASSENGER

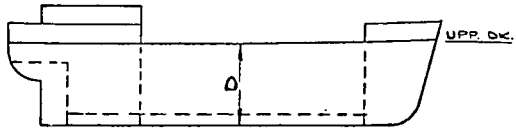


RAISED QUATER DECK

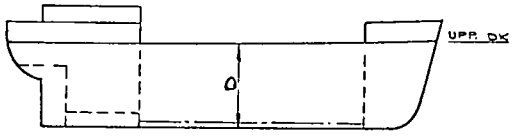


APPENDIX C (SHEET 2)

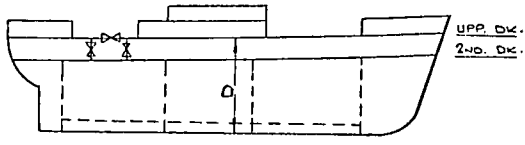
SUGGESTED DEPTHS FOR VARIOUS TYPES OF SHIP TO BE USED IN FORMULA FOR DETERMINING 'SHIP UNIT' FOR ASSESSMENT OF PILOTAGE CHARGES.



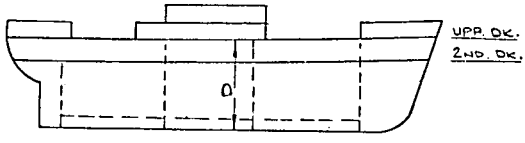
ORE CARRIER



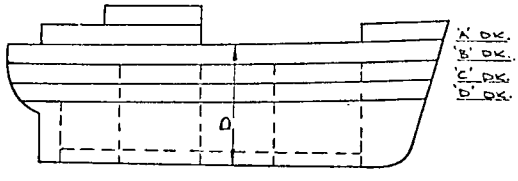
TANKER



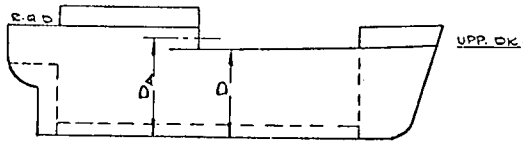
OPEN SHELTER DECK



FLUSH DECK CARGO



PASSENGER



RAISED QUARTER DECK

D_A = POSSIBLE AVERAGE DEPTH

APPENDIX D

SPECIMEN OF FORM ONLY

PART II—Information on Vessel

The furnishing of inaccurate information is an offence under the Regulations.

NOTE—It is of the utmost importance to furnish the precise overall length of all vessels in order that traffic controllers may arrange lockages accordingly.

1. *Managing Owner or Operator of the Vessel:*
   (a) Name of Company_____
   (b) Address_____

2. *Type of Vessel:*
   (a) Cargo ☐
   (b) Tanker ☐
   (c) Passenger only ☐
   (d) Cargo/Passenger (more than 12 passengers) ☐
   (e) Cargo/Passenger (under 12 passengers) ☐
   (f) Under Tow ☐
   (g) Dredge ☐
   (h) Scow ☐ Barge ☐ Tank Barge ☐
   (i) Tug ☐
   (j) Naval (MIL.) ☐
   (k) Government ☐
   (l) Other (specify) _____

3. *Type of Service:*
   (a) for which constructed: (i) Inland ☐ (ii) Ocean ☐
   (b) in which engaged: (i) Overseas ☐ (ii) Coastal ☐ (iii) Inland ☐

4. *Specifications:*
   (a) Gross Tons_____
   (b) Net Tons_____
   (c) Length (overall)_____
   (d) Extreme Breadth (including fenders)_____

5. *Machinery:*
   Steam_____
   Diesel_____
   Turbine_____
   Is vessel fitted with adjustable pitch propeller? Yes ☐ No ☐
   Is vessel fitted with stern anchor? Yes ☐ No ☐
   Bridge control? Yes ☐ No ☐
   Is vessel fitted with wrong way propeller direction alarm? Yes ☐ No ☐

6. *Radio-Telephone Equipment:*
   V.H.F. Yes ☐ No ☐ Frequency 156.8 ☐ 156.7 ☐ 156.6 ☐
   M.F. Yes ☐ No ☐ Frequency 2182 ☐ 2003 ☐

SPECIMEN OF FORM ONLY

REPORT ON PENSION ARRANGEMENTS FOR PILOTS AND THEIR DEPENDENTS

Prepared by

THE WYATT COMPANY

Actuaries and Employee-Benefit Consultants

May 18, 1965.

Terms of Reference

This report is developed in four major sections. The first section deals with those parts of the Shipping Act which pertain to provision for payment of benefits to retired pilots or to widows or children of pilots and the resulting by-laws adopted in the various districts in order to establish these pension arrangements.

The second section summarizes the highlights of recent investigations into matters concerning pensions for pilots and their dependents and also reports on any pertinent information gleaned from the hearings held by the present Commission or related exhibits filed during those hearings.

The third section deals exclusively with the actuarial appraisal of the various funds that have been established to provide pensions for pilots and their dependents. It includes comments on the most recent valuation of each fund as conducted by the Department of Insurance on behalf of the Department of Transport. In addition, the third section reports on the independent actuarial valuations of these funds at December 31, 1963 carried out as part of the present investigations.

The fourth section of the report summarizes in a general way the findings and impressions gathered in respect of pension arrangements for pilots and their dependents.

Section 1—Authority for Pilots' Pensions

The provisions of Part VI of the Canada Shipping Act are designed to form a basis for pilotage law in Canada. The only pilotage area not governed by the provisions of Part VI is the Great Lakes. In the Great Lakes, following completion of the St. Lawrence Seaway, it became necessary to establish a joint pilotage arrangement with the United States and for this purpose Part VIA was added to the Shipping Act in 1960.

It is of interest to examine more closely those sections of Part VI of the Canada Shipping Act that pertain to pensions for pilots and their dependents.

Section 326 gives specific powers to the Governor in Council to make pilotage dues compulsory or not compulsory within a specific district. Since the cost of pensions for pilots and their dependents is met from pilotage dues, compulsory dues provide additional revenue with which to meet those costs.

Section 329 establishes the right of the pilotage authority to make by-laws to govern, with the consent of the Governor in Council, specific operations within the district. It should be noted that subsection (*l*) of Section 329 has not been proclaimed and hence the former provision, subsection (*l*) of Section 319 of the 1934 statute, is still in force. However, the two sections are almost identical and hence no significant change will result in the provision for pensions to pilots and their dependents if subsection (*l*) of Section 329 were to be proclaimed although as mentioned below in the

district of Quebec the responsibility for administering the Quebec Pilots' Pension Fund would be transferred from the Quebec Pilots' Corporation to the pilotage authority. Insofar as provision for pensions to pilots and their dependents is concerned certain subsections of Section 329 are of interest since they bestow on the pilotage authority the following responsibilities:

(h) to fix the rates of pilotage dues and to fix the mode of remuneration of pilots;

(i) to provide for compulsory retirement of pilots at or after age 65;

(j) to provide for compulsory retirement of pilots on disability;

(*l*) to establish funds for the relief of retired pilots, widows and children of pilots and to provide for the making of contributions of not less than 5% (or as agreed between the pilots and the authority) for this purpose;

(m) to establish terms and provisions for the payment of the above benefits.

It may be noted at this point that subsection (*l*) of Section 329 is not identical with subsection (*l*) of Section 319 of the 1934 statute since the latter subsection, which is still in effect inasmuch as the new subsection (*l*) of section 329 has not been proclaimed, excludes the pilotage district of Quebec from the application of that subsection. If subsection (*l*) of section 329 is proclaimed therefore, the pilotage authority in Quebec would be given control over the administration of the pension funds which it does not presently enjoy. Since the pilotage authority in each district has the powers summarized above (with the exception of Quebec as noted) the arrangements (if any) for pensions to pilots and their dependents in each district are made in the form of a by-law for that district.

Section 345 augments section 326 through enforcement of payment of compulsory dues where such are in effect unless specifically exempted. At the present time, compulsory dues are in effect in all districts with the single exception of Prince Edward Island where pilotage remains on a voluntary basis.

Section 351 deals with the distribution of compulsory pilotage dues collected where no pilot has been used. Such pilotage dues are to be used first, to pay any expenses involved in the collection of the dues and second, to make payment to the pilot, if any, who offered his services in the amount provided by the by-laws of the district. Any residue after these payments have been made is to be paid into the "pilot fund". (The term "pilot fund" does not appear to be defined in the present Act although "pilots' fund" is defined in Section 2(68) as any fund established by the pilotage authority for the relief of retired pilots or widows or children of pilots. Prior to 1934 however the term "pilot fund" was defined in the same manner as the term "pilots' fund" has been defined in the 1934 Act and subsequently. Furthermore, although the 1934 Act changed to the term "pilots' fund" in the definition, the term "pilot fund" continues to be used elsewhere in the Act. It would appear therefore that the two terms can be used interchangeably for purposes of interpreting the Act. Notwithstanding the allocation of pilotage dues as directed by section 351, in practice all of the pilotage dues collected in a district are credited to the pilotage fund of that district for distribution to the pilots in one form or another as set down in the by-laws of the district. The one exception to this practice is in the district of Quebec where each pilot is paid the actual pilotage dues earned by him (after deducting the contribution required to the Quebec Pilots' Pension Fund) and pilotage dues collected on the compulsory basis where no pilot service was performed are paid in full and directly to the Quebec Pilots' Pension Fund.

Section 358 establishes that retired pilots, widows or children of pilots may be entitled to such pension or assistance as the pilotage authority deems proper to pay out of the pilot fund. Again, it appears logical to assume that the term "pilot fund" may be construed as "pilots' fund" as defined in the Act.

Sections 373, 374, 375 deal specifically with the operation of funds established for the purpose of providing pensions to pilots and their dependents but it should be noted that sections 373 and 374 have not been proclaimed and hence sections 366 to 370 inclusive of the 1934 Act are still in effect. The result is that the special provisions applicable to the Quebec district have been specifically retained. The proclamation of sections 373 and 374 would shift the responsibility for administering the

Quebec Pilots' Pension Fund from the Quebec Pilots' Corporation to the pilotage authority thus promoting uniformity in Minister's districts but at the same time forcing virtual dissolution of the Quebec Pilots' Corporation. The application of sections presently in force in such funds for all Minister's districts being held and administered jointly by the Minister of Transport and the Minister of Finance except in Quebec where the complete administration of the pilots' pension fund is vested in the Quebec Pilots' Corporation. Section 375 provides that every pilot fund shall be used first, in payment of expenses of administration of the fund, second, in payment of benefits to retired pilots, widows or children of pilots and, third, in payment of an allowance to a pilot whose licence is cancelled by the Commissioners.

Consideration of the various sections of the Shipping Act as discussed above clearly establishes that the pilotage authority in each district is empowered to create and administer funds for the purpose of providing pensions to pilots who retire or are retired for reasons of age or physical disability as well as for the purpose of providing pensions or other income to widows and children of deceased pilots. Such funds may be developed by conventional means such as contracts with licensed insurance companies, trust agreements with corporate trust companies, or private agreements with individual trustees. In any of these circumstances the pilotage authority would be a party to such agreement on behalf of the pilots in the district. Alternatively, the pilotage authority may retain sole responsibility for such funds as has been done in five of the six Minister's districts. In these five districts the Ministers of Transport and Finance supervise the investments and administer the funds with the assistance of their respective Departments. In the sixth Minister's district, Quebec, the investment and administration responsibilities are vested in the Quebec Pilots' Corporation. The various sections of the Shipping Act also contemplate two or more districts grouping together for the purpose of providing pensions to pilots and their dependents but none of the pilotage districts have adopted this approach. In fact, perhaps due to the apparent complexity of suitable pension arrangements the individual pilotage authorities other than in the larger pilotage districts have not shown any willingness or desire to establish any pension arrangements for the pilots and their dependents.

A review of the by-laws of each of the 29 pilotage districts discloses the following information:

(1) In 18 of the pilotage districts the by-laws make no mention of there being any pension arrangements for pilots or their dependents. (It should be noted however that in some of these districts arrangements have been made for pensions to pilots even though not mentioned in the by-laws. Furthermore, in most districts contributions may be made to Workmen's Compensation schemes which could constitute a benefit to the pilot on disability. Again, the district by-laws make no mention of the source of contributions to such benefits.)

(2) In 2 of the pilotage districts, Goose Bay and the Great Lakes, pilots are considered as government employees and, as such are eligible for pension benefits under the Public Service Superannuation Act.

(3) In the remaining 9 of the pilotage districts some type of pension arrangement has been made for pilots. Six of these districts are Ministers' districts and in these cases relatively detailed pension provisions have been established. These will be examined later in this report. The other three districts have established certain forms of pension arrangements which will be discussed later.

We have summarized the details of the arrangements established in each of the six Ministers' districts. The summary is attached as Schedule 1 to this report and it is noted that in all instances the provisions are designed to grant—

(1) a pension to the pilot in the event of his retirement due to age or physical disability;

(2) a pension to the widow of a pilot, and

(3) a pension in respect of children of a deceased pilot.

The schedule is self-explanatory and indicates a certain uniformity of provisions within the six plans. A few sharp differences exist however, and perhaps a few observations would be helpful.

The pension fund in the district of Halifax has had a most unattractive history. For financial reasons it was necessary at the end of 1956 to discontinue further accruals of benefiits and limit membership in the plan to those pilots who entered prior to 1950. Notwithstanding these measures to curtail the liabilities of the fund it was necessary to continue contributions into the fund at the rate of 5% of earnings and these contributions are still being made. Active pilots therefore are contributing to the fund but are not entitled to any benefits in respect of those contributions.

It is interesting to note the similarity in the provisions in the districts of British Columbia, Montreal, Sydney and Saint John. All four of these districts provided originally for a fixed amount of pension per year of service and, in early years, the fixed amount was increased periodically. However, commencing in 1954 for Montreal and in 1960 for the other three districts the amount of pension credited each year was related to the available contributions made to the fund in the year. This change was designed to promote a direct relationship between contributions and benefits and thus avoid the possibility of deficits arising because of the insufficiency of contributions relative to benefits.

The pension arrangements in the Quebec district are somewhat different from the arrangements in the other five Ministers' districts. This has come about since, although the Minister is the pilotage authority, the Canada Shipping Act has retained the Quebec Pilots' Corporation as being the body responsible for the pilots' pensions in the district.

The financial condition of the pension funds in the six Ministers' districts will be discussed later.

The three other districts with pension arrangements for pilots are Miramichi, New Westminster and St. John's, Newfoundland. Each of these three is discussed below.

Miramichi—In this district the pilotage authority each year reserves a certain percentage of the gross revenues for the year for the purchase of Canadian Government Annuities for the year. The amount of pension available to each pilot depends on the contributions that have been made to his credit at the Annuities Branch. The percentage of gross revenues set aside for this purpose is determined by the authority after consultation with the pilots. (It may be interesting to note at this point that during the hearings that have taken place in connection with this Royal Commission it was indicated that the Miramichi pension plan pays $500 per annum to retired pilots as a result of 10% contributions made up to 1949. It appears that no contributions have been made since that time and that two funds are involved, one with the Annuities Branch and one as a result of certain contributions that have been held and invested within the district.) These arrangements provide a small pension to pilots who retire due to age but no direct pension is provided for pilots who retire due to physical disability. Also, there is no provision for widows' or children's benefits.

Section 9(3) of the Miramichi by-laws refers to section 27 of the by-laws. This reference apparently should be to section 28.

New Westminster—By-law 10 of this district provides that the authority shall set aside out of the pilotage fund an amount determined annually by the authority in consultation with the Pilots' Committee of not less than 7% nor more than 10% of gross revenues for pension purposes. We understand that, although not spelled out in the by-laws, a group annuity contract has been entered into (North American Life Assurance Co.) and that the contributions for eligible member pilots are divided equally each year and applied to the purchase of pension. Since the pilots in the New Westminster district are well pleased with their plan and since, in fact, the British Columbia pilots have asked permission to establish a similar plan, a closer look at the pension plan for New Westminster pilots may be appropriate.

The plan is commonly called a "money-purchase" plan providing for the accumulation of monies (contributions) during the active service period which, on retirement, are applied to the purchase of a pension. The plan was instituted on October 1, 1958 and replaced a trust fund plan that had been in operation previously. The assets of the trust were transferred to the new plan and allocated to the then members and retired members on the basis of years of service. Since that time approximately 7% of gross revenues in the district have been deposited to the plan each year and allocated equally among the member pilots. The 7% gross revenue expressed as a percentage of pilots' remuneration has averaged slightly in excess of 10%. The plan does not appear to provide specific pension benefits to the pilot on disability or to provide widows' or children's benefits other than a return of contributions.

This money-purchase type of plan is not unique and, notwithstanding the New Westminster pilots' enthusiasm for the plan, there is no reason to expect larger benefits from this type of plan than from any other. In fact, although the money-purchase type of pension plan was popular with employers during the 1940's and early 1950's most employers have turned to other types of plans, primarily unit-benefit plans, because of the lack of uniformity in the amount of pension provided under a money-purchase plan when related to service rendered. This lack of uniformity can be seen in the following table which shows the amounts of pension as a percentage of salary that can be provided by a 10% contribution. (Government Annuities Branch 5% rates were used in the calculations and a level salary was assumed.)

Age at entry into plan	Years of service on retirement at age 65	Total pension provided as a percentage of annual salary	Percentage pension per year of service
25	40	109%	2.7%
35	30	61%	2.0%
45	20	31%	1.6%
55	10	12%	1.2%

The above table indicates that for an average entry age of 35 and benefits similar to the New Westminster plan, a contribution of 10% would support a 2% career average plan—i.e., all pilots could be granted a normal retirement pension of 2% per year of service.

St. John's (Newfoundland)—The by-laws of this district provide for the establishment of a trust account for each eligible pilot. Each pilot deposits yearly to his trust account an amount of $50 plus any additional amount he elects to pay. The Commission, if sufficient surplus is available, may augment the pilots' contributions each year by an amount up to $50. Each pilot's trust account is held by the Chairman of the Commission until the pilot terminates his career as an active pilot at which time the account is turned over to him. In the event of death of the pilot the amount standing in his account is paid to his designated beneficiary (not necessarily widow or children) or, if no beneficiary has been designated the amount is paid to his estate. It can be seen therefore that the trust account operates as a type of savings fund which the pilot, or the beneficiary as the case may be, may use to provide a pension or in any other way that may be desired.

Section 2—Highlights of Recent Investigations as Pertains to Pilots' Pensions Including the Hearing Connected with the Present Royal Commission

In 1949 a special report on pilotage matters was prepared for the Minister of Transport under the Chairmanship of Mr. L. C. Audette. The Report dealt with pilotage in the districts of Halifax, Sydney, Saint John, Quebec, Montreal and the St.

Lawrence-Kingston-Ottawa complex. In addition, the report included views and considerations expressed by the shipping interests. While the report deals with most phases of pilotage we restricted our review of the report to those matters bearing on pension arrangements for pilots and their dependents. The essential points contained in the report were as follows:

(1) The instability and insecurity of the various funds established at that time for the provision of pensions to pilots and their dependents was traced to the lack of actuarial relationship between benefits and contributions.

(2) The pilots and the pilotage authority each hold the other responsible for the non-relationship between benefits and contributions. That is, the pilots felt that the authority should be directing their pension arrangements so as to establish a relationship between benefits and contributions while the pilotage authorities felt that pilots had not exercised proper discretion in demanding benefits having no relationship to contributions.

(3) The only pension fund not in a serious deficit position was the pension fund operated in the pilotage district of Sydney.

(4) The total of deficits in the pension funds of other districts would be approximately $1,500,000.

(5) Representations from the pilots were requesting a pension of $100 per annum per year of service. It was estimated that, if this request was granted, the total of the deficits in the various pilots' pension funds would be increased to approximately $3,000,000.

(6) The report recommends that the Government pay into an amalgamated fund which would be responsible for all pilots' pensions the full amount of the existing total deficit of $1,500,000.

(7) The report then recommends that after the government has established the solvency of the amalgamated fund by the special payment of $1,500,000 the pilots should be required to pay the full costs of all future benefits so that the continued solvency of the amalgamated fund can be assured.

(8) In this connection the report stated that since the pension benefits are on a fixed dollar basis the pilots' contributions must be on a fixed dollar basis rather than a level percentage of income basis even though the fixed dollar basis may result in pilots' contributions fluctuating widely when expressed as a percentage of earnings.

(9) The report recognized that establishing the continued solvency of the amalgamated fund and assuring reasonable pensions to the active employees did not correct the situation of retired pilots (or pilots close to retirement) who found themselves in receipt of unreasonably low pensions.

(10) The report did not accept or approve of the suggestion made by pilots in all districts that they should be brought under the terms of the Civil Service Superannuation Act (now the Public Service Superannuation Act). In fact, the report concludes that such a transition would not be possible.

In 1961 Mr. Arthur Pedoe prepared a report on Pilots' Pension Funds for the Royal Commission on Government Organization. Mr. Pedoe's report dealt specifically with pension arrangements in those pilotage districts in which the Minister of Transport was the pilotage authority, namely, British Columbia, Halifax, Montreal, Quebec, Saint John and Sydney. The highlights of Mr. Pedoe's report are itemized below.

(1) While the Shipping Act gives to each pilotage authority the right to fix pilotage dues and to set pilots' remuneration, in practice the local pilots determine their own remuneration and the levies on shipping. Furthermore, the report points out that in all six of the districts mentioned above, pilotage dues are compulsory and are collected by the Government and turned over to the pilots.

(2) The six major districts under discussion represent 360 pilots. In five of these six districts the pension fund is in deficit with the total of the five deficits exceeding $1,200,000.

(3) Since the pilotage authority is given the right under the Shipping Act to operate the pension funds Mr. Pedoe appears to feel that in so doing the pilotage authority is responsible for the financial soundness of those funds and the Minister, in the districts where he is the authority may be obligating the government to bear responsibility for pension arrangements for pilots and their dependents in those districts.

(4) Particularly in the Quebec district where the administration is not under the control of the Minister, Mr. Pedoe suggests that poor investment practices could give rise to substantial unfunded liabilities which may be considered as a liability on the government.

(5) Mr. Pedoe does not appear to agree with the recommendation contained in the Audette report to the effect that the government should establish the solvency of the pension funds by the payment of the total deficit of $1,500,000.

(6) Mr. Pedoe suggests that during the interval between the Audette report (1949) and his report (1961) the pilots have taken a more reasonable attitude to the relationship of benefits and contributions partly due to the efforts and corrective measures taken by the Department of Transport with the assistance and advice of the Department of Insurance.

(7) Mr. Pedoe discusses the plight of the pension fund in the district of Halifax where pensions were granted and increases in pensions were granted without consideration to the necessity of contributions and, in fact, at a time when no contributions were being made. The result was that the accrual of benefits was discontinued entirely in 1956 and only pilots who joined the fund prior to 1949 are eligible for benefits notwithstanding the fact that contributions (5%) have continued since 1956 and will continue indefinitely into the future.

(8) Mr. Pedoe states that the government should not be a party to any plan where local pilots decide their own benefits and suggests that the results of such an arrangement can never be satisfactory as the record of the pension funds up to 1961 demonstrates.

(9) Mr. Pedoe suggests that since the shipping industry must in the long run bear the expense of pensions for pilots and their dependents the pension costs should be reasonable, i.e., not greater than 10% of earnings.

(10) In the concluding sections of his report, Mr. Pedoe gives three propositions—

(i) all pension funds for pilots and their dependents should be put on an identical basis relating earnings to pension benefits with adjustments for existing deficits or surpluses,

(ii) if any district refuses the first proposition then it should be clearly provided in the Canada Shipping Act that the Minister or the government bears no responsibility for pensions to the pilots or their dependents in that district,

(iii) each pilotage district should be encouraged to accept a government offer to have its pilots join the civil service as prevailing rate employees and hence be brought under the Public Service Superannuation Act.

The present Royal Commission on Pilotage has held hearings in respect of all 29 pilotage districts and received briefs and exhibits in connection therewith. We have reviewed the transcripts of these hearings and studied the exhibits and briefs in order to obtain as clear a picture as possible of the problems or difficulties arising in the various districts pertaining directly to the pension arrangements for pilots and their dependents. In the following paragraphs we have set down the pertinent information drawn from these sources. While pensions in respect of pilots and their dependents were mentioned many, many times during the hearings we will deal only with those instances which appear to have some particular significance or relevance.

—The pilots in St. John's (Newfoundland) have been seeking ways and means to improve their pension arrangements since 1955 without success. Apparently, they feel that the savings fund arrangement described earlier in this report is not adequate.

—It is reported that in the district of Port aux Basques a group annuity with the Canadian Government Annuities Branch was issued in 1956 under which the pilots and the Commission each pay one-half the cost. (This arrangement does not appear to be recognized by by-law.)

—It is reported also that in the district of Humber Arm a group annuity with the Manufacturers Life Insurance Company exists. In this instance the Commission pays the full cost of the pension benefits which fall in the area of $120 per month at age 65. (Again, this arrangement does not appear to be recognized by by-law.)

—The district of Miramichi (mentioned earlier in this report) is reported to have a group annuity with the Canadian Government Annuities Branch. Apparently, the pension under the Government Annuities Branch contract is to be $500 per annum. Until 1949, 10% of each pilot's salary was withheld to pay the premiums under the contract but these deductions were excessive and a substantial fund built up. Apparently, since 1949 all the Annuities Branch premiums have been paid from the income on this fund.

—The Halifax Pilots' Pension Fund received a good deal of attention during the hearings and, although the arrangements for pilots in the Halifax district have been discussed earlier and the terms of the plan set out in Schedule 1, it may be interesting to review briefly the historical development of the fund. It began as a benevolent fund for pilots in special need. Contributions were determined as a percentage of pilotage revenues. The pilots themselves administered the funds and set the benefits on an individual case basis. When the Halifax Pilotage District came under the direction of the federal government (about 1919) the by-laws for the district established the "Halifax Pilots' Pension Fund". At that time, contributions were set at 5% of gross earnings and pensions at $30 per year of service. These were later increased to 7% and $50. The loss in 1940 of the pilot vessel "Hebridean" causing the drowning of several pilots and the addition of extra pilots for wartime duty who later withdrew their contributions created a heavy drain on an already insolvent fund. Finally, as the result of much investigation and actuarial study it was found necessary in 1956 to terminate the accrual of further benefits and to restrict the payment of pensions to only those pilots who had joined the pension fund up to 1949. Notwithstanding the termination of pension accruals, contributions have continued at the rate of 5% of earnings since 1956. It is apparent that presently active pilots are very dissatisfied with this situation because, as they strongly pointed out, they are contributing and will continue contributing at the rate of 5% of earnings but no pension benefits are being accumulated. Mention was also made during the hearings of an offer made to the 18 Halifax pilots by the federal government to become prevailing rate employees of the civil service in which event special arrangements could be made to bring them under the Public Service Superannuation Fund. While the pilots apparently appreciated the opportunity to acquire benefits under the Public Service Superannuation Act they were concerned over other aspects of becoming prevailing rate employees of the federal government.

—In the district of British Columbia pension arrangements are set out in by-law form and through the Minister of Transport the funds are administered by the Departments of Transport and Finance. (This plan has been described in Schedule 1.) The hearings would indicate that the B.C. pilots feel they could improve on the arrangements if they were permitted to operate their own fund. They apparently feel that the benefits are too small in relation to the 10% contributions and that a large part of the fault lies in the investment program followed by the Department of Finance. The B.C. pilots presented during the hearings a comparison between their present plan and a proposed plan which could be established on a privately trusteed basis. This comparison was presented as Exhibit 85.

—The hearings concerning pensions in the district of Sydney provide a welcome relief in the hearings since the pilots in this district appear to be content with the pension arrangements. The fund is solvent, in fact shows a small surplus, amounts of

pension are reasonable and apparently the pilots do not object to the 16% contribution requirement probably because they have a relatively light workload, about one-third of their revenue being derived from compulsory dues where no pilot is used.

—The hearings in the Montreal district indicate that Montreal pilots, like the B.C. pilots, feel they could invest their pension fund to better advantage than has been done by the Department of Finance. They have also indicated a preference for more uniformity in pension for pilots of all districts perhaps by the establishment of a central board with authority to supervise and control but with investment and administration of funds left to a local committee. The Montreal pilots appear to be willing to consider the advantages of becoming eligible for benefits under the Public Service Superannuation Act providing they can remain as independent operators with no change of status.

—In the Quebec district the pilots appear relatively content with their pension arrangements. The Quebec district is the only Minister's District that has retained the administration and investment of its pension fund. The pilots did express the view, however, that a 10% assessment was too high and they hope to reduce that rate when the deficit in their fund has been removed.

Section 3—Actuarial Appraisal of the Six Pension Funds Operated in Minister's Districts

As has been mentioned previously the six formal pension plans operated in Minister's Districts are established in the districts of Halifax, Saint John, Sydney, Quebec, Montreal and British Columbia. With the exception of Quebec the Department of Finance through the Minister of Transport as pilotage authority acts as custodian for the pension fund assets and the Department of Transport likewise takes an integral part in the administration of the plans. During the past decade the Department of Insurance has played a vital role in establishing comparisons between the liabilities and the assets of each individual plan by means of periodic actuarial valuations. As a result of the interest and influence of all three federal departments there has been a growing awareness, particularly in the five districts administered by those departments, of the necessity of the relationship between contributions and benefits. The financial condition of each of the pension funds has been improving steadily and, although the most recent actuarial valuations conducted by the Department of Insurance indicate that four of the six plans continue to show a deficit position, the deficits have been reduced in recent years. In Schedule 2 of this report we have set out in summary form the results of the most recent actuarial valuations conducted by the Department of Insurance. We have reviewed the reports on each of these actuarial valuations and while we have used slightly different assumptions for purposes of our actuarial valuations as discussed below, we feel that the results of the valuations conducted by the Department can be looked to with confidence. The one assumption which we feel could be altered is the assumed interest rate for three of the districts. The Department has used a 3½% interest assumption for British Columbia, Saint John and Sydney. The funds of each of these districts have been earning in excess of 4% per annum in recent years and are expected to continue earning in excess of 4% for many years in the future. Under these circumstances, we feel a 4% interest assumption is warranted and we expect the Department may consider altering its assumption at the next valuation of each of the funds.

We have conducted our own actuarial valuation as at December 31, 1963 of the pension funds in each of the six districts and the results of our valuations are set out in some detail in Schedule 3. The valuation assumptions used in our calculations are set out in Schedule 4. From Schedule 3 it will be seen that the only funds still in a deficit position are Halifax and Quebec. In Halifax, contributions are continuing to be made but no further benefits are accruing and hence it may be expected that the deficit will be removed ultimately. In the district of Quebec indications are that the authorities are becoming aware of the need for a strong relationship between contributions and benefits and, under these circumstances, it may be hoped that the relatively large deficit will be gradually reduced.

Section 4—Summary

As a result of the investigations reported on in the preceding three sections the following conclusions may be drawn.

(1) The Canada Shipping Act recognizes the desirability of arrangements designed to provide pilots with a pension on retirement due to age or disability and the desirability of arrangements designed to provide benefits for the dependents of deceased pilots by granting certain powers to the pilotage authority in each district to set up by by-law in the district a pension fund to provide these benefits.

(2) Even though this permission is granted under the Canada Shipping Act eighteen of the twenty-nine districts have not enacted by-laws to establish pension arrangements.

(3) In the remaining eleven districts pensions for pilots and their dependents are provided in two districts through the Public Service Superannuation Act by reason of the pilots being considered as prevailing rate employees; in three districts pensions for pilots are provided by private arrangements but little if any provision is made for the dependents of pilots; and in the six Minister's districts pensions for pilots and their dependents are provided through funds administered or reviewed (Quebec) by governmental departments on behalf of the Minister.

(4) Recent investigations (Audette in 1949 and Pedoe in 1961) have highlighted the financial difficulties that have been experienced in those cases where some arrangements have been set up to provide pensions for pilots and their dependents.

(5) The same investigations point to the number of pilotage districts where no pension arrangements are in existence.

(6) The hearings held in connection with the present Royal Commission indicate a general dissatisfaction with pension arrangements among the pilots themselves. Where pension arrangements are in existence the pilots seem to feel that the size of pension is inadequate or that the contribution requirements are excessive or both. Of course, where no pension arrangements have been made the pilots have expressed a sincere desire for the establishment of such arrangements.

(7) The actuarial appraisal of the six pension funds operated in Minister's districts indicates a substantial improvement in the financial condition of these funds in recent years.

(8) Since pilots per se are all in a similar type of employment it seems unnecessary and inefficient to expect twenty-nine small groups to each establish and operate its own pension plan for member pilots and their dependents. A single plan with a single fund to which all pilots contribute would have the advantage of broad group averaging from the point of view of contributions and benefits as well as from the point of view of investments.

We have been pleased to conduct this investigation and we should like to express our appreciation to staffs of the Royal Commission on Pilotage, the Department of Transport and the Department of Insurance who have co-operated in providing assistance and information to make this report possible.

Respectfully submitted,

THE WYATT COMPANY

R. ALVIN FIELD,
Fellow—Society of Actuaries.

SCHEDULE 1

SUMMARY OF PROVISIONS FOR PILOTS' PENSIONS IN SIX MINISTER'S DISTRICTS

	BRITISH COLUMBIA	MONTREAL	HALIFAX	SYDNEY, N.S.	SAINT JOHN, N.B.	QUEBEC
Normal Retirement Age	65, with 5 years' service	65	65	65	65	65
Contributions Each Year	Not less than 10% of gross pilotage dues collected, as decided on by the Pilotage authority.	% of gross earnings, as decided by the Pilotage authority.	As determined by the Pilotage authority; since March 1956, 5% of earnings.	16% of gross earnings, or other amount decided by the Pilotage authority.	8% of gross earnings, or other amount decided by the Pilotage authority.	Amount required for benefits, not less than 5% of pilots' receipts plus all pilotage dues paid where no pilotage service performed.
Annual pension, re recent and future service for normal retirement and for disability retirement except as due to shipping casualty, or use of drugs or alcohol.	For service after 1960—at end of each calendar year, credit amount of pension for 1 year of service (same for all pilots with proportions for less than 1 year of service) obtainable from above contributions less certain charges.	For service since March 1954 —each year, credit amount of pension for 1 year of service (same for all pilots with proportions for less than 1 year), obtainable from above contributions less certain deductions. Minimum pension—$1,250.	For pilots entering before 1950 and in service on March 31, 1956—$40 × no. years of service before April, 1956.	Each calendar year after 1960, credit the amount of pension for 1 year service (same for all pilots, except proportions for less than 1 year) obtainable from the above contributions.	Each calendar year after 1960, credit the amount of pension for 1 year of service (same for all pilots except proportions for less than 1 year service) obtainable from above contributions less certain deductions.	For retirement after November 1959, $200 + 1.19% of the pilot's income for the year. Minimum pension—$200.
Annual pension for retirement due to shipping casualty.	If age 60 or more, ¾ of accrued normal retirement pension.	Actuarial equivalent of accrued normal retirement pension.	½ of accrued normal retirement pension.	Actuarial equivalent of accrued normal retirement pension.	Actuarial equivalent of accrued normal retirement pension.	$1,500 annually until age 65, ¾ continued to widow.
Benefit for all other terminations.	If under age 60, lump sum of 60% of pilot's contributions; if age 60 or older, pay accrued pension reduced by ½% per month younger than 65.	Lump sum representing the pilot's interest in the fund.	—	Lump sum representing the pilot's interest in the fund; if age 60 or older, pay accrued pension reduced by ½% per month of age less than 65.	Lump sum representing the pilot's interest in the fund; if age 60 or older, pay accrued pension reduced by ½% per month of age less than 65.	—
Annual widows' pensions, payable until death or remarriage	$900	½ pilot's accrued pension, not less than $625.	½ pilot's accrued pension.	½ pilot's accrued pension.	½ pilot's accrued pension.	If pilot deceased or on pension before April 1954—½ his accrued pension; otherwise ¾.
Children's annual pensions payable until age 18.	In total ½ pilot's accrued pension + $900 if mother also deceased.	Only if mother also deceased, —in total ½ pilot's accrued pension, but only ¼ if 1 child remaining.	$25 per child.	If mother alive, 1/10th pilot's accrued pension to each child, maximum of 4; if mother deceased, twice above pension, minimum of ½ pilot's pension in total.	If mother alive, 1/10th pilot's accrued pension to each child, maximum of 4; if mother deceased, twice above pension, minimum of ½ pilot's pension in total.	Maximum of $200 per child, if pilot deceased or on pension before April 1954, total of ½ pilot's accrued pension; for other pilots, total of ½ if mother alive, ¼ if she's dead.
Minimum return	60% of contributions made in respect of the pilot.	—	—	50% of contributions made in respect of the pilot.	50% of contributions made in respect of the pilot.	—
Annual normal retirement pension for earlier service.	$100 per year of service before March 1950; $110 per year of service April 1, 1950 to March 31, 1957; $120 per year of service April 1, 1957 to December 31, 1960.	Formula not available.	—	Per year of service, before April 1955—$75; April 1, 1955 to March 31, 1958—$105; April 1, 1958 to March 31, 1959—$146; April 1, 1959 to March 31, 1960—$176; April 1, 1960 to December 31, 1960—$135.	$80 per year of service before April, 1957, maximum 30 years, $615 for combined service from April 1, 1957 to December 31, 1960.	For retirements before Dec. 24, 1935—$450 (10 years' service), Dec. 24, 1935 to Apr. 1, 1954—$40 per year of service + $200, April 1, 1954 to Feb. 22, 1956 —77% of income + $200, Feb. 22, 1956 to Dec. 1959—1.05% of income + $200.

SCHEDULE 2

SUMMARY OF RESULTS OF MOST RECENT ACTUARIAL VALUATIONS
CONDUCTED BY THE DEPARTMENT OF INSURANCE

	British Columbia	Halifax	Montreal	Quebec	St. John	Sydney
(1) Date of Valuation	Dec. 31, 1960	Mar. 31, 1961	Dec. 31, 1963	Dec. 15, 1962	Dec. 31, 1963	Dec. 31, 1963
(2) Interest rate	3½%	3%	4%	4%	3½%	3½%
(3) Total Liabilities	$966,000	$231,700	$2,009,000	$1,664,000	$285,000	$390,000
(4) Total Assets	951,554	166,896	1,933,834	1,076,000	285,898	436,497
(5) Deficit or Surplus (S)	14,446	64,804	75,166	588,000	898 (S)	46,497 (S)

SCHEDULE 3

SUMMARY OF RESULTS OF ACTUARIAL VALUATIONS AS AT DECEMBER 31, 1963

	British Columbia	Montreal	Halifax	Sydney N.S.	St. John N.B.	Quebec
Present value of active life accrued pensions—						
Age pensions and widows' pensions to fall in after retirement	$ 682,560	$1,244,164	$ 90,422	$ 220,769	$ 141,318	$ 884,556
Widows' pensions to fall in before retirement	94,397	130,848	4,448	17,431	12,253	124,118
Disability pensions	32,405	65,180	1,718	7,706	5,952	47,104
Total for active life pensions	$ 809,362	$1,440,192	$ 96,588	$ 245,906	$ 159,523	$1,055,778
Plus						
Present value of pensions in payment—						
To pilots, including prospective pensions to their dependents	$ 268,838	$ 319,619	$ 66,808	$ 79,425	$ 35,330	$ 454,192
To widows	138,071*	143,750	88,897	24,200	36,765	230,329
To children	10,747	—	—	—	432	819
Present value of total accrued benefits	$1,227,018	$1,903,561	$ 252,293	$ 349,531	$ 232,050	$1,741,118
Less						
Book value of assets as at December 31, 1963 (December 15, 1963 for Quebec), not including accrued interest	$1,307,277	$1,910,728	$ 207,768	$ 431,421	$ 282,783	$1,187,970
Deficit or Surplus (S) as at December 31, 1963 before counting accrued interest	$ 80,259(S)	$ 7,167(S)	$ 44,525	$ 81,890(S)	$ 50,733(S)	$ 553,148

*Not including 1 widow with annual pension of $900, whose age is not known and who was struck off effective April 1, 1964.

SCHEDULE 4

VALUATION ASSUMPTIONS USED IN DETERMINING THE FIGURES SET OUT IN SCHEDULE 3

Interest:	4% per annum except for Halifax where 3% was used. (All funds are earning in excess of 4% except Halifax which is earning only slightly in excess of 3%.)
Mortality:	The 1965 Projected Annuity Mortality Table. This is a table prepared by the Wyatt Company based on the unadjusted mortality rates from which the G.A. 1951 table was constructed with a projection of mortality improvement to 1965 by projection scale C.
Withdrawal:	Nil.
Disablement:	Three times Hunter's rates of disablement.
Disabled Life Mortality:	Hunter's Disabled Life Table.
Percentage Married:	100%.
Average Age of Wife:	3 years younger than husband.

APPENDIX XIII

PILOTAGE IN OTHER COUNTRIES

Introduction

This Appendix contains brief summaries of the legislation, organization and operations concerning pilotage in the following countries as of 1963:

Australia	New Zealand
Belgium	Norway
Denmark	Sweden
France	United Arab Republic
Greece	United Kingdom
Italy	United States of America
Netherlands	West Germany

Sources of information are the pilotage laws and regulations of each country, the factual situation as established by official reports received through diplomatic channels in reply to queries made by this Commission, official publications and evidence given by various witnesses before this Commission. All have been filed as Exhibits.

While these résumés are far from complete an attempt was made to indicate the nature and basic organization of each pilotage service. Details are included to the extent they are of particular interest for the study of the Canadian legislation contained in Part I of the Report.

AUSTRALIA

Pilotage in The Commonwealth of Australia is regulated by the States. The Commonwealth constitution gives the Federal Parliament power to make laws relating to navigation and shipping but this power is not exclusive since the constitution also provides that State laws are valid unless they are inconsistent with federal legislation. In 1912, the Commonwealth adopted the Navigation Act, Part VIII of which dealt with pilotage and pilots, but since this part was never proclaimed, and was, in fact, repealed in 1958, pilotage is governed by the legislation of each State (Ex 893). While there are variations between States, the general rule is a government-operated service provided by pilots who are civil servants. Exceptions are the pilots on some stations in Victoria and the coastal pilots in Queensland.

1. State of Queensland

Queensland pilotage legislation is contained in the Queensland Marine Act of 1958 (which retains the basic features of the 1876 Navigation Act it replaced) and in the regulations made thereunder.

The Act deals separately with two varieties of pilotage:

(a) port pilotage which is integrated with port administration and operations;

(b) coastal pilotage which exists principally for navigation through Torres Strait and in the 1250 mile passage inside the Great Barrier Reef.

The Act, which contains general principles only, lays down the basic administrative structure and leaves the remaining legislation to be determined by regulations as an exclusive prerogative of the Governor in Council.

The Central Authority is a Crown agency, the Marine Board of Queensland, a corporate body, composed of five government appointees holding office during pleasure, answerable to a Minister, the Treasurer. Its main functions are the administration of the Marine Act and general control of all matters within the powers of the State relating to shipping and seamen, including organization and direction of pilotage.

The Act decrees the absolute immunity of any pilot, the Crown, the Minister or the Board, in respect of damage or loss occasioned by any act or omission of a pilot while acting as such.

Port pilotage

The legislation indicates that port pilotage, with the exception of the port of Brisbane, is on a relatively small scale.

Generally, each port has one pilot who also acts as Harbour Master. In larger ports, there is a second pilot who also holds the government post of Assistant Harbour Master. Relief pilots are provided by the central authority to relieve Harbour Masters during their holidays and other absences. An appointee usually progresses through the outports and eventually becomes a Brisbane pilot.

All Queensland ports do not come under pilotage legislation: only the port of Brisbane and other ports declared by Order in Council as ports to which the legislation applies. Such an order in Council fixes the limits of a port for pilotage purposes but these limits do not necessarily coincide with the limits of the port proper.

There are two types of port pilot: a civil servant appointed by the Governor in Council and a Marine Board licensee who, apparently, is self-employed. It is reported, however, that all port pilots are now government appointees drawing fixed salaries and enjoying the various privileges of civil servants.

Whether appointed or licensed, the port pilot must meet the requirements defined in the regulations, and is subject to the control and reappraisal powers of the Marine Board. Among the prerequisites are a certificate of competency as Master foreign-going and navigational experience in Queensland ports. Local knowledge is preferable but not essential. In addition, applicants for outports must have the necessary knowledge and ability to perform the Harbour Master's functions. The appointing order designates the pilotage port or ports where the appointee has jurisdiction as pilot and fixes his salary.

Pilotage dues are a tax like other harbour dues. Hence, they do not reflect the real value of the pilotage service performed in each case. They are invariably based on gross tonnage for inward and outward voyages. The distance factor is taken into consideration for movages only. There is one tariff for the port of Brisbane and another at a much lower rate for all other ports. Pilotage dues are collected by the Harbour Master along with other harbour dues to form part of the State's Consolidated Revenue Fund.

Pilotage is compulsory. The obligation stated in the Act is to "receive on board" a "qualified pilot", with the additional proviso that on inward voyages the Master must give "the ship in pilotage charge of the pilot" if the latter "demands to conduct the ship into the port". Doubtless this provision is for the protection of harbour installations.

Exemptions are granted to all ships that normally do not pay harbour dues, i.e., government ships, warships of all nations and vessels which are not obliged to employ a pilot, i.e., ships under 50 tons, ships defined in the regulations, provided they are not engaged in a commercial venture, and ships navigated by a Master holding a pilotage exemption certificate.

In ports defined as pilotage ports, a non-qualified person (not holding an appointment or licence as pilot) may act as pilot on board an exempt ship at any time and also on board any ship which for reasons of safety must enter port without delay.

The Marine Board is the licensing authority for personal exemptions. If a certificate is valid for a class of ship, the holder can use it only when he is in command; but a certificate limited to a named ship may be granted to the Master or any of his mates. The statutoty prerequisites are a Master's certificate of competency, to be a British subject, and previous experience in the port or ports for which the certificate is issued, i.e., three voyages in command, or one voyage in command and five as a mate. This certificate is also restricted to ships sailing between ports in New Zealand and Australia and other ports as notified by the Governor in Council. Such certificates are subject to withdrawal when, for any reason, the holder is considered a safety risk.

Port pilots are included in a civil service trade union. The main features of the collective agreement with the Government concerning working conditions, which came into force in 1963, are: 160 hours of duty for each period of four weeks, including detention; three hours granted automatically in cases of cancellation if the pilot proceeded to the wharf; a minimum of three hours credited for a movage or a number of movages performed during the night; one hour of duty credited for three hours passive time, i.e., time travelling to and from home or between pier and ship, and standing by at home, unless otherwise instructed. The agreement also provides for time free from duty and for rest periods.

Coastal Pilotage

Coastal pilotage conditions in Queensland waters are similar to those in the British Columbia District because an extensive passage lies between the Great Barrier Reef and the mainland. Tidal currents and many other hazards are encountered. Pilotage is optional but most Masters employ a pilot to avoid delay and to facilitate safe transit. Since the route is some 1250 miles in length, pilotage assignments may last several days.

To avoid delays occasioned by detours the coastal pilots embark or disembark at pre-arranged locations, even outside Australian waters, provided they receive adequate compensation and expenses.

Coastal pilotage is performed by thirty-three pilots who are independent contractors, licensed as pilots by the Marine Board, governed by regulations passed by the Governor in Council, and controlled by government appointees named Joint Secretaries.

Among other prerequisites, the regulations require candidates to hold a Master's foreign-going certificate of competency. Before a newly licensed pilot assumes his normal duties he must complete a short term as abserver afloat in the company of a licensed pilot.

The large extent of the area served has led to the extensive use of telecommunications to arrange despatching and air transportation so that pilots may take up their assignments with minimum delay. For their part, ships must give five or six days advance notice that a pilot is required and must also confirm within a prescribed number of hours.

Licences are normally valid for the whole Queensland coast but may be limited if the Governor in Council so decides. An unlimited licence is valid for coastal pilotage and also for all ports that are not pilotage ports. A pilot who holds a coastal licence may also be issued a port licence for a named port. In 1962, each pilot had about 35 turns of duty, averaging five days each, and travelled about 90,000 miles by sea, land and air.

Pilotage dues are fixed by regulations. In 1962, the rates were on a flat rate per trip basis, ranging from $72.75 (Can.) for the shortest trip to about $500 for the longest, irrespective of the size of the ship. Ships in convoy pay half dues but vessels with one or more tows pay an additional 50 per cent, whatever the number of tows.

Although pilotage is optional, only licensed coastal pilots may be employed, with the exception of persons holding a permit from the Marine Board to act as pilot "for single voyages". The expression is not defined but it would appear that this provision authorizes shipping companies to employ their own pilots on regular routes.

2. State of South Australia

Pilotage in South Australia is organized along lines similar to Queensland, except that only port pilotage is provided for. Pilotage legislation is contained in the Harbors Act of 1936, as amended, and the regulations made thereunder.

Pilotage is administered by a State agency, the South Australian Harbors Board composed of three government appointees.

The Board is the licensing Authority when the pilots are private contractors and the Governor is the appointing Authority when they are civil servants. However, the Act provides that the pilotage service at Port Adelaide, the most important port in the State, and in any other ports so designated by the Governor, must be performed by pilots who are civil servants. They receive a salary voted by Parliament each year. It is reported that the factual situation is that all pilots are public servants who are responsible to the Harbor Master of Port Adelaide in respect of all pilotage matters.

The dues are collected by the Harbors Board and form part of the State Consolidated Revenue.

The rule is compulsory pilotage in the same manner as in Queensland, i.e., compulsory piloting inward and compulsory taking a pilot on board outward. The penal sanction is a fine not exceeding 30 pounds plus the payment of the regular dues. Ships are exempted by categories according to their tonnage, flag and trade, and personal exemptions.

Pilotage dues, like other harbor dues, represent a tax. The Act does not indicate the basis for fixing rates, except that it establishes a minimum and a maximum a ship may be charged for any single assignment.

Pilotage exemption certificates are issued to the Master of a ship provided he is a British subject, has successfully passed the required examination on local knowledge and competency and has met the requirements established in the regulations. The certificate is personal and is also limited to a named ship. The Board may withdraw or suspend the certificate at any time for cause.

The Act does not contain any provisions limiting civil liability.

3. State of New South Wales

The governing legislation is the Navigation Act 1901 as amended. The only type of pilotage covered by legislation is port pilotage. The organization follows the same lines as in the two preceding States with the Governor being the regulation-making authority. The Maritime Services Board of New South Wales, which is responsible for the application of the Act, is the sole licensing authority and also has regulation-making powers to define the qualifications required of pilots. However, these regulations must receive the approval of the Governor. Control at the local level is exercised by the Harbour Master.

The Act does not define the status of pilots but it is reported that, in fact, they are all civil servants, employees of the Board and paid a salary from the Consolidated Revenue of the State. The dues earned by their services belong to the State.

Pilotage dues, which are taxes as in other Australian States, are fixed according to tonnage, either net or gross, and the rate to be charged is stated in regulations.

As in the other states, compulsory pilotage is the rule, i.e., compulsory piloting inward and compulsory taking a pilot on board outward. There are only two statutory exemptions: vessels engaged in the whaling trade and vessels navigated by a certificate-holder. All other ships, irrespective of size, nationality or ownership, are obliged to employ a pilot and pay dues, unless they are exempted by regulations. The penal sanction is a fine, not exceeding 20 pounds, plus the dues.

The Board has full discretionary powers to deal with pilots' licences.

Pilotage is on a comparatively small scale. The personnel establishment of the seven ports where pilotage legislation applies is:

Sydney—Harbour Master, First and Second Assistant Harbour Masters and 16 pilots;

Newcastle—Harbour Master, First and Second Assistant Harbour Masters and 6 pilots;

Port Kembla—Harbour Master, Assistant Harbour Master and 3 pilots;

Botany Bay—Harbour Master, Assistant Harbour Master who performs pilotage duties and one pilot;

Clarence River—one pilot (2nd class);

Richmond River—one pilot (2nd class);

Twofold Bay—one pilot (2nd class).

4. State of Victoria

The governing pilotage legislation is contained in the Marine Act of 1928 as amended.

The Marine Board of the State of Victoria, which is the overall authority in shipping matters including pilotage, is a State entity composed of both government appointees and other persons recruited from interested parties.

With regard to pilotage, the Act is limited to basic organization and other provisions are left to the regulation-making authority of the Board.

The compulsory employment of a pilot is the rule, except for ships whose Master possesses a personal exemption certificate.

The rates are fixed by the Marine Board and are approved by the Governor.

The pilot's liability for neglect or want of skill is limited to one hundred pounds plus the amount of dues he would have been entitled to.

The regulations show that some pilots are civil servants while others are quasi-employees. Those in Portland are employees of the Port Authorities and are paid a fixed salary but those in the Port Phillip pilot service, i.e., serving the Port Phillip area, Geelong, Williamstown, Port Melbourne and Melbourne, a territory requiring about 160 miles pilotage and involving the largest pilotage operations in the State, belong to a pilots' association which operates pilot stations, pilot vessel service and despatching.

In addition to the pilots' activities, the Port Phillip Association also comes under the direct supervision of the Marine Board which collects the dues and receives monthly financial statements so that rates may be adjusted to meet operating expenses and, at the same time, provide adequate remuneration for the pilots.

In 1963, the Port Phillip District pilots numbered 34. One acts as Secretary-Treasurer, one serves in weekly rotation as Master of the pilot vessel and the others perform pilotage duties in rotation. Three weeks leave of absence is granted after a period of 33 weeks on duty.

The Board deducts 10% of the pilots' earnings, of which four tenths is paid into the Consolidated Revenue Fund of the Government and six tenths into the Port Phillip Pilot Sick and Superannuation Fund. The remaining 90% of the pilots' earnings is paid over to the Treasurer of the pilots for distribution after payment of their operating expenses.

To become a pilot, the requirements established by the regulations are: to be a British subject, to possess a foreign-going British Master's certificate, to have been in command of an Australian or New Zealand vessel for a period of twelve months and to have held a pilot's exemption certificate for Port Phillip for a period of twelve months, which is granted only if in command.

On entering the service, there is a three month training period during which the trainee must accompany a pilot for a minimum of 50 pilotage assignments throughout the various channels in the District. The examination which follows is conducted by a Senior Pilot in the presence of the President and members of the Marine Board. At first, a pilot receives a licence limited as to draught and after two years satisfactory service is granted an unlimited licence.

5. State of Tasmania

The governing legislation is contained in the Tasmanian Marine Act 1921. It provides only for port pilotage which, as in the case of the State of Queensland, is integrated with other port operations. It differs, however, in that there is no central authority and the responsibility for the pilotage service is completely decentralized. Each port comes under the jurisdiction of its own Marine Board which makes the necessary regulations, establishes and maintains pilot stations, appoints or licenses pilots, fixes their remuneration, charges for their services, provides for exemptions from compulsory pilotage, establishes the requirements for granting personal exemptions to Masters and grants these personal exemptions.

The Act provides for compulsory pilotage inward and states that the Master of any vessel " . . . proceeding to sea or to some other place within the same port shall employ a pilot for its conduct to sea or to such other place . . . ". The penal sanction is a 50 pound penalty in addition to the pilotage charge.

The Act leaves the status of pilots to the full discretion of each Marine Board. At present, all pilots are permanent employees of their various Boards and, as a rule, they also perform duties as Harbour Master or Assistant Harbour Master. They are paid a fixed salary. Pilotage dues belong to the Board, which is responsible for the operation of the service and all costs in connection therewith.

The dues are a tax and the rates are fixed according to a scale based on tonnage.

The prerequisite qualifications to become a pilot vary from place to place according to local regulations. The main requirement is a Master's foreign-going certificate of competency.

Pilotage is not an extensive service. In the Port of Launceston there are four pilots, i.e., the Harbour Master who pilots occasionally, a Deputy Harbour Master stationed at Launceston, an Assistant Deputy Harbour Master stationed at Beauty Point and a pilot stationed at Lowhead, who perform pilotage duties as well as various other duties affecting their station, e.g., surveys.

At Davenport, pilotage is the responsibility of the Harbour Master or his deputies (the number is not available). At Hobart there are four pilots, all discharging other harbour functions.

The Tasmanian Marine Act provides its pilots with civil liability immunity for damage occasioned by neglect or want of skill.

6. State of Western Australia

Pilotage is governed by the Shipping and Pilotage Ordinance of 1855 which gives full regulatory powers to the Governor in all matters relating to pilotage.

According to the information received, pilotage is on a very small scale and concerns port pilotage only. The State Harbour and Light Department is the Pilotage Authority for all ports except Fremantle where pilotage is the responsibility of the Fremantle Harbour Trust, i.e., the Port Authority. All pilots are classified civil servants, except at Fremantle where they are employees of the Harbour Authority.

Here again, port pilotage is integrated with port operations. Pilotage is compulsory in that dues must be paid. Vessels seeking shelter in distress and those whose Masters possess an exemption certificate are exempt.

The regulations for the port of Fremantle provide further exemptions for warships of any nationality, vessels owned by any of the British Commonwealth Governments, ships not exceeding 150 tons register and tankers proceeding to refinery jetties in the outer harbour.

In general, the various regulations require a British foreign-going Master's certificate as a prerequisite to be licensed or appointed as a pilot.

7. Northern Territory

This territory does not enjoy the status of a State but is administered by the Federal Government. The only port where pilotage is provided is Darwin and the only pilot is the Harbour Master who is an employee of the Federal Government.

Here again, a foreign-going Master's certificate of competency is a requirement.

As of 1963, pilotage was optional but information was received that legislation was being drafted whereby port pilotage in Darwin would be made compulsory with provision for coastal Masters to obtain an exemption certificate after passing an examination set by the Port Authority.

Pilotage fees are assessed on gross tonnage only.

BELGIUM

Pilotage in Belgium may be divided into three distinct categories:

(a) coastal port pilotage, more particularly at Zeebrugge, Ostend and Nieuport;

(b) sea, river and canal pilotage from Antwerp (Belgium) through the Scheldt River, or from Ghent (Belgium) through the Ghent Canal and the western Scheldt estuary (Holland) and thence to sea;

(c) movages and lock pilotage under municipal jurisdiction in the inland ports of Antwerp and Brussels.

Information received from the Belgian authorities through diplomatic channels in 1963 made no mention of the legislation governing pilotage in the coastal ports and at the Commission's hearings no reference was made to it except that the pilots are State employees, each receiving a fixed salary based on a 45 hour week plus one third of the pilotage dues he earns.

The major pilotage operations are carried out on the waterways between Antwerp, or Ghent, and the sea by both Dutch and Belgian State pilots. In Antwerp, pilotage is operated by pilots belonging to the Antwerp Pilots and Boatmen's Corporation called "BRABO".

Pilotage on the Scheldt River and approaches and on the Ghent Canal and approaches is governed by a treaty signed in 1839 (and by other conventions agreed to since) by Holland and Belgium (Ex. 875).

Pilots of both countries perform pilotage throughout the waterways, the choice of a pilot of either nationality being left to the Master of the ship concerned. If a pilot of the country of his choice is not available, he must take one of the other nationality.

Organization is based on pilot stations established by each country along the waterways, each Government being authorized to establish a station in the territory of the other. The Netherlands has a station at Antwerp, Belgium, while the Belgian Government has one at Flushing, Netherlands, from which Belgian pilots required at Terneuzen (entrance to the Ghent Canal), Netherlands, may be drawn. The two organizations are independent of each other and the authorities of both countries administer and bear the costs of their own organization and pilots. However, overall pilotage operations are supervised by a permanent joint commission composed of representatives of both countries with full power of investigation and free access in both countries.

The organization in both countries is similar and any change or modification made by one country is to be disclosed to the other through the intermediary of the joint commission. There is a single tariff which requires the approval of both countries to be effective. Pilotage dues belong to the Government of the pilot who performs the services.

Pilotage is compulsory to the extent that pilotage dues are owing whether or not a pilot is employed; when no pilot is employed, the dues are shared equally between the two Governments. Since Pilotage is performed by State employees, State vessels are exempt from the payment of dues, even when they employ a pilot.

There are two tariffs, one for inland pilotage, the other for sea pilotage, both from or to Flushing; the inland tariff is based on draught and mileage, the sea tariff on draught only.

The joint pilotage organization in each country comes under a general Director and each station is administered by a local Director.

Clearance is withheld by the Customs officer in case pilotage is owing but a ship is allowed to proceed without paying if proper guaranties are furnished.

Both Belgian and Dutch pilots are State employees subject to the laws and regulations governing civil servants. A Belgian pilot receives as remuneration a salary subject to statutory automatic increases and, as an incentive, he also receives extra remuneration for additional work performed both by him and by the group to which he belongs.

Belgian pilots are recruited from certified deck officers. After one year's apprenticeship, they must take theoretical and practical examinations and, if successful, they are engaged as permanent pilots. They rise to full fledged pilots through a 16-year automatic grade system based on years of service. The tonnage of ships they are allowed to pilot is increased at fixed periods.

The joint agreement stipulates that pilots may not form any association, either to navigate for profit or to share in pilotage revenues.

In Antwerp, pilotage comes under the jurisdiction of the municipal authorities but the organizational and operational body is the "Antwerp Dock Pilot's and Boatmen's Corporation"—BRABO for short—which is a co-operative society of the pilots and boatmen who provide pilotage and movage services inside the harbour.

A candidate who wishes to become a pilot must first serve as boatman for at least 12 years and accompany a pilot on a prescribed number of ship movements. After passing an examination he may be accepted as a pilot on a temporary basis and rise to a regular pilot through a two-year automatic grade system based on the size of ship he is authorized to pilot.

The BRABO tariff covers a complete operation, i.e., it comprises remuneration for the pilot and boatmen to a maximum number of six. The tariff is based on overall length but surcharges are added for certain destinations. Movages alongside piers are occasionally effected by boatmen without a pilot.

DENMARK

Pilotage is governed by an Act dated April 17, 1916, (Ex. 889) which empowers the Minister of Defence to create or abolish stations, determine the number of pilots for each station, make regulations, set pilotage rates, appoint the Director of Pilotage and the Chief Pilots at major pilot stations, and designate the areas in which pilotage is compulsory.

To advise the Minister in the exercise of his duties in the field of pilotage, the Act provides for a permanent Advisory Board composed of representatives of interested parties: the Department of Defence, the Department of Industry and Commerce, the pilots and shipowners. The Minister also has the sole power to withdraw a pilot's licence or dismiss a Chief Pilot, except during the first two years after a pilot's appointment when the Director of Pilotage can exercise this power.

The Director of Pilotage exercises his functions within the Department of Defence. He is paid, as are all his staff, from public funds, regardless of pilotage revenues. He heads the Central Pilotage Directorate, is the licensing authority and is responsible for overseeing pilot station operations. Administration is decentralized at the pilot station level: minor stations are the direct responsibility of the Director of Pilotage but major pilot stations are headed by a Chief Pilot.

Chief Pilots are appointed by the Minister to administer pilot stations. The Chief Pilot at Copenhagen is not obliged to pilot and at the other stations Chief Pilots take part in pilotage and watch duties as determined by the Minister with due regard for their administrative responsibilities.

As a basic organizational unit analogous to the Canadian Pilotage District, the pilot station is an autonomous administrative unit responsible for providing pilotage services in its area and, as a rule, it is self-supporting. The pilots of each station are joint owners of its pilotage equipment (including pilot vessels) and they share in the cost of maintenance. However, various subsidies may be granted toward the cost of pilot vessel services when, due to circumstances, these are too expensive for local resources. Accounts of each station must be submitted to the Minister for approval.

Pilots are quasi-employees in that, while they are not civil servants under a contract of hire, they do not enjoy the free exercise of their profession, but are subordinated by legislation under State control as if they were State employees. They are remunerated through shares from a pooling system; the amount they receive varies from year to year according to the amount of pilotage performed on the station and the scale of applicable rates.

Pilots of self-supporting stations (about 120 pilots in all) receive no grant from the central trust fund but make contributions fixed at 27% of the amount by which each pilot's revenue exceeds the salary of a named class of public servants, i.e., the 23rd salary class.

About 20% of the pilots belong to stations that are not financially self-supporting but which are none the less essential. These stations are financed by grants from a special central trust fund called the "Equalization Fund". Each pilot concerned receives a fixed grant each month from the fund; the working expenses of the pilots and of the stations, as well as their contributions to the Pension Fund, are also paid from the trust fund.

There are some 150 pilots licensed by the State, operating in sixty pilot stations varying in numbers between eight pilots and one, exclusive of the largest—Copenhagen—which has thirty-one. Pilots are stationed in larger harbours and ports and at the entrance to certain waters, e.g., for the passage of vessels to the Baltic Sea. Since pilotage is a public service, pilots are exempt from all personal civic duties.

Masters may employ only licensed pilots in pilotage areas. However, in non-compulsory pilotage areas they may navigate their own vessel using their local knowledge or that of any member of the crew, provided the latter has been uninterruptedly a member of the vessel's complement during the previous month.

As a rule, pilotage is not compulsory. Compulsory pilotage is an exception: it is required only when transiting certain bridges and dredged channels. The statutory criteria for the establishment of compulsory pilotage by the Minister in exceptional cases are the safety of navigation and the superior interests of the State:

(a) when in very confined waters, more than general caution and expertise are required to navigate;

(b) when the superior interests of the State necessitate such a measure (in this case, part of, or all, the pilotage dues will be paid by the State according to the Minister's decision);

(c) when a vessel is under tow in pilotage waters and the Master is unfamiliar with the area; a Master is considered not to be unfamiliar if, during the three successive years, he has employed a pilot at least four times in the same waters or can prove in other ways that he possesses sufficient local knowledge.

The penal sanction for compulsory pilotage is a fine in addition to the normal pilotage dues.

Separate tariffs are fixed by the Minister for each pilot station with the result that varying dues are occasionally charged for identical pilotage services. The tariff is adjusted twice annually according to the cost of living index. In fixing the rates, the statute provides that the Minister must take into consideration the following factors:

(a) the size of the ship in gross tons;
(b) the maximum draught during a given trip;
(c) the distance piloted;
(d) navigational difficulties;
(e) relatively higher rates for vessels whose draught approaches the navigable maximum in the waters concerned.

Vessels which employ a pilot regularly may be granted reduced rates by the Minister and the Act provides that winter rates are to be one-third higher than summer rates.

A vessel may be held in any Danish port by the Customs authorities for non-payment of dues until payment is made or the Master has:

(a) given acceptable security; and
(b) given an election of domicile for the service of legal proceedings.

Pilots are recruited from Merchant Marine officers who hold a certificate of competency not lower than mate. After a successful apprenticeship of two months, the candidate is appointed pilot and granted a licence by the Director of Pilotage. However, for the first two years he is given only easier assignments and, therefore, receives a smaller share from the pool until he becomes fully qualified in his third year. During the first two-year period, if the pilot is considered unsuitable, his license can be revoked by the Director of Pilotage but, after that period, his license lasts until he reaches the age limit of seventy unless it is cancelled earlier by the Minister.

Disciplinary powers are held by the Minister who may cancel or suspend a license or impose a pecuniary penalty, but the Minister's decision may be appealed before a Court. However, if suspension has been imposed, it remains in effect pending the Appeal Court's decision. A pilot who is absent due to illness is counted as present for six months and for any further period the Minister may decide.

There is no statutory limit to a pilot's civil liability. If damages are caused due to the ignorance, negligence or fault of a pilot, he may be required to make reparation in conformity with the provisions of the common law in this regard, without specific limitation.

Separate retirement funds are not created for each station. The Act provides for the establishment of a central fund administered by the Central Pilotage Directorate. This retirement plan is compulsory for all pilots except those on the Copenhagen station. It is not merely a superannuation fund. Pilots are paid a full pension if they are retired on reaching the age limit of 70; or on voluntary retirement at the age of 67; or after five years of service if retirement is due to infirmity or other reason not attributable to themselves; or after less than five years if discharge is due to injury sustained in connection with the performance of duty. Calculation of retirement benefits is based on those received by State officers of the same class, i.e., those of Masters of State inspection vessels. The fund is composed of annual contributions paid by all pilots amounting to 30% of their income, plus an amount paid by the State and the investment yield of the fund capital. The Commission was informed that it is expected the State contribution will be gradually reduced and eventually cancelled when the other sources of income are sufficient to keep the fund solvent.

FRANCE

The governing legislation is the Act of March 28, 1928 relating exclusively to the organization of the pilotage service both in France and its overseas Departments (Ex. 876).

The 1928 Act abrogated the *décret-loi* dated December 12, 1806, which had been the pilotage legislation of France for over one hundred years. The new Act was drafted following a prolonged study by all interested parties which began in 1921. The guiding principle followed in drafting the Act was to include only general and essential provisions and leave local legislative provisions as subjects for regulations which are divided into general regulations, local regulations and station by-laws.

The French system, which is based on port pilotage, is characterized by extensive State control exercised up to, and including, pilot stations. The pilots are not civil employees, all are either independent entrepreneurs or quasi-employees of the State, depending upon the extent of control to which they are subjected. As a rule, the pilots are joint owners of the matériel of their pilot station which they manage under State control.

The Act is silent as to the creation, suppression or merger of stations.

The hierarchy in the pilotage organization is as follows:

(a) the Minister of the Merchant Marine, who is the supreme authority;

(b) the Director of Seamen's Registration (Directeur de l'Inscription maritime);

(c) the Area Administrator of Seamen's Registration, who is in charge of the area where the pilot station is located (Administrateur de l'Inscription maritime, chef du quartier);

(d) the Chief of Pilotage Service, or Deputy Chief, in charge of each large pilot station; at smaller stations, this function is discharged by the Harbour Master.

Governmental decrees enacted on the Minister's recommendation establish the general organization applicable to all stations, i.e., the General Regulations. The Minister, by ministerial decrees, makes the local regulations applicable to each station, and determines the areas of compulsory pilotage in each port, pilot station personnel and equipment establishments and the rates and indemnities payable to pilots. He appoints the Chiefs and Deputy Chiefs of Pilotage Service, pilots and pilot apprentices; he alone can award a major suspension or dismiss a pilot.

In exercising these functions he is assisted by various boards:

(a) An Advisory Committee, called "Assemblée Commerciale", established for each pilot station, and the Board of Trade interested in the operation of the station. Both must be consulted before any regulation is made concerning the pilot station in which they are interested. The Advisory Committee is a creation of the pilotage legislation, it is composed of fifteen people representing all interested parties, inter alia, the President of the Trade Tribunal, the Chairman of the Harbour Board, one member of the Board of Trade, one member of the Municipal Council, the Administrator of the Maritime Registry, two shipowners, one officer of the Merchant Marine, two ocean-going Masters; the Chief of Pilotage Service and two pilots of the station concerned.

(b) For the appointment of pilots, or apprentice pilots where apprenticeship is provided for, the Minister is advised by a local Examination Board whose composition is provided by the Ministerial Decree dated June 11, 1954 as: one senior officer of the Navy as President, one Inspector of Navigation and Maritime Labour, one Master foreign-going and two pilots chosen from the senior pilots on the station concerned.

(c) The Minister compulsorily retires pilots who are found permanently incapacitated by a local Examination Board whose composition as defined by the Ministerial Decree of April 12, 1933, is: the Administrator of

Seamen's Registration in charge of the area, the Chief of Pilotage Service of the station, the area seamen's medical officer and one station pilot appointed annually by the Director of Seamen's Registration.

(d) The Minister may impose suspensions for more than ten days or withdraw licences, but withdrawal or suspension exceeding one month can not be effected except on the advice of a Court of Inquiry constituted according to the applicable legislation.

Administration is the responsibility of the Director of Seamen's Registration (his directorate is in the Merchant Marine Department) and his local deputies, the Area Administrators, who organize and supervise competitions for the admission of pilots or apprentice pilots and generally exercise overall control and surveillance.

Chiefs of Pilotage Service (or Harbour Masters as the case may be) are the government officials in charge of pilot stations. Appointments are made by the Minister, on the recommendation of the Director, by selection from senior pilots, naval officers or Merchant Marine Masters aged between 40 and 55.

Each Chief of Pilotage Service has direct responsibility for pilotage on a single station or a group of stations. He draws his remuneration from the pilotage earnings of the station(s). He may have under his jurisdiction one or more Deputy Chiefs. His functions are essentially the technical organization of the station and control of the pilots. He is responsible for the implementation of the regulations, the internal organization of the station, sharing assignments among pilots and the direction of personnel. He controls turns of duty, verifies pilotage invoices, grants leave of absence and supervises the composition, maintenance and use of station equipment. He exercises general supervision and must report to the Area Administrator incidents, casualties, offences and infractions affecting pilots. With or without the pilots' consent, he takes the measures of conservation he considers in the best interests of the station.

The administrative routine at each station is laid down in a station by-law made by the Area Administrator after consultation with the Chief of Pilotage Service and the pilots. The by-law becomes effective when approved by the Director of Seamen's Registration.

The relations between the Chief of Pilotage Service and the pilots are on an individual basis. However, the pilots on a station are allowed to group themselves (a) to create a sui generis partnership for the joint ownership of the pilot station's equipment, and (b) to form a local trade union.

Pilotage operations in themselves must be financially self-supporting but the expenses incurred by the general supervisory organization are met out of public funds. The dues serve exclusively to meet (a) the operating expenses incurred in the provision of services, (b) the financial requirements of incapacitation and superannuation plans, and (c) the pilots' remuneration.

The rate-fixing process is not governed by any criterion or procedure defined in legislation.

It is each pilot's responsibility to procure the equipment he needs to discharge his pilotage duties, including his transportation to and from ships. When joint ownership is preferable, the Act provides for a specific system, intended to ensure the continuity of the service, under which each pilot owns an equal share in the assets. He loses his property rights when he leaves the service but is paid the value of his share by the new pilot who eventually is appointed to replace him. The Act is silent about the procedure in case the complement of pilots increases or decreases.

When the pilot is a free entrepreneur, he is entitled to the dues he has earned less his compulsory contribution to the pension fund and his share of the joint expenses of the station. However, he becomes a quasi-employee, whenever pilotage assignments are allocated by à tour de rôle system; he is then remunerated from a pool. The pooling arrangements are a subject matter for the station by-law.

The Act provides for compulsory pilotage which, in fact, is merely the compulsory payment system because the only penal sanction is the payment of dues. Its obvious purpose is to guarantee each station sufficient revenue to provide the pilots with a reasonable income and, hence, to ensure the existence of an adequate service. General statutory exemptions are provided, i.e., all ships under 150 tons (unless the maximum is further reduced by local regulations), maintenance ships of any tonnage and ships for whom no pilot is available. The Act provides that personal exemptions (certificats de capitaine pilote) may be granted for ports of easy entry and exit where pilotage is not essential.

The Act recognizes a Master's right to choose his pilot from those available at the station, provided that, if assignments are by tour de rôle, the Master must also pay the pilot who would have been entitled to the assignment. This right was further qualified by a Decree dated December 4, 1928, which authorizes the Chief of Pilotage Service to refuse the Master's request if he does not think it justified or in the interest of the service.

Disputes between Masters and pilots concerning remuneration payable are settled by a regular court, the Trade Tribunal (tribunal de commerce).

As for civil liability, ships are responsible to third parties for damage caused by pilot error. If a pilot vessel is damaged, the ship involved remains responsible except in case of gross negligence on the part of the pilot.

The pilot's civil liability is limited by the Act of March 14, 1935, to the amount of the guarantee he is required to furnish within six months of his appointment. This limit of liability does not apply, however, when the pilot's fault constitutes an infringement of sec. 79 of the Merchant Marine Disciplinary and Penal Code, i.e., for wilful stranding, loss or destruction of a ship.

A person awarded damages by a court holding a pilot liable and a money-lender who has advanced funds to a pilot for the guarantee have preferred claims against the guarantee.

The terms and amount of the guarantee are fixed by Ministerial Decree; it may take the form of a guarantee bond. The Decree of March 3, 1936, divided the pilot stations into three categories for this purpose: the first class, comprising the most important harbours, such as Le Havre and Marseille, where the guarantee is fixed at 5,000 new francs; the second class composed of ports such as Saint-Malo, Fort de France (in Martinique), Point à Pitre (in Guadeloupe), 2,000 new francs; and the third category, i.e., all the ports not enumerated in the two first categories, 750 new francs.

The guarantee is returned to a retired pilot three months after he has ceased to be a pilot, if no valid claim has been made against it.

Admission to the pilotage service is by apprenticeship only where local regulations so required, in which case admission procedure is for appointment as apprentice. In all other cases applications are for appointment as pilot. The Act fixes the maximum number of apprentices at one fourth the pilot establishment. Fully trained apprentices are appointed pilots by seniority when there is a vacancy in the pilot establishment.

The statutory requirements for eligibility are: age between 24 and 35 and six years as a deck officer in the Navy or Merchant Marine. These requirements may be reduced by local regulations when justified by local conditions or recruiting difficulties. Where necessary, additional competency qualifications may be required by local regulations.

A Ministerial Decree dated June 11, 1954, establishes the conditions and procedure for admission and lays down the subject-matters with which candidates for any station must be familiar.

The appraisal of a candidate's qualifications is recorded through a marking system, with required minima in each subject and total marks. The vacancy is filled by the candidate who achieves the highest marks; in the event of a tie, preference is given to the candidate with the highest marks in the following subjects, and in the following order: ship-handling, pilotage, legislation.

The Act provides for compulsory medical examination:

(a) of candidates;

(b) of pilots and apprentices aged 50 and over, every five years and, after 60, every two years;

(c) whenever ordered by the Minister.

A Ministerial Decree dated April 12, 1933, details the required physical standards and the examination procedure.

Physical and mental fitness are assessed by the Examination Board. The pilot has the privilege of being assisted by his own physician. In case of an adverse decision, he is entitled to reappraisal before a Board composed of other members whose decision is then final.

In case of permanent disability, a report is made to the Minister recommending compulsory retirement; in case of temporary disability, the pilot is suspended and is subject to periodical reassessments.

A distinction is made between discipline and penal jurisdiction. Statutory offences are prosecuted before the regular penal tribunals and render the offender liable to a fine or a term of imprisonment. Notwithstanding any penal prosecution, disciplinary measures may be taken, in which case the awards are: reprimand, sanction, suspension or dismissal. The Chief of Pilotage Service is authorized to award up to a ten-day suspension; longer suspension and dismissal are the responsibility of the Minister who, except for awards of less than 30 days, must receive the recommendation of a Board of Inquiry at which the pilot is given the opportunity to be heard.

The Act authorizes the collective operation of a pilot station by a local trade union formed by the pilots on the station. A Ministerial Decree dated December 14, 1929, provides that, in such a case, the funds required to meet the operating expenses of the service and a fixed amount, not to exceed two per cent of the gross earnings, are paid to such trade unions out of the gross earnings of the station as an indemnity to cover the costs of the necessary supervision and control arising from this transfer of management.

The Act, however, does not make membership in such a trade union compulsory. It appears from an examination of the charters and by-laws of three trade unions (Ex. 876) that each trade union retains control over its membership and enrolment is not compulsory. When a trade union is entrusted with the management of pilotage equipment as well as other duties, it is, for these purposes, an agent of the State and is under its close supervision and control. Any additional funds needed to finance the various other activities of the trade union are levied through normal membership assessments or dues.

There are local regulations for each station, the local regulations for the Harbour of Le Havre are contained in a Ministerial Decree dated March 11, 1959, which provides, inter alia:

(a) the limits of compulsory pilotage for the station;

(b) the personnel establishment, i.e., 48 pilots;

(c) the conditions for admission into the service; there is no apprenticeship; a candidate must have a Master's foreign-going certificate; once appointed, a pilot must undergo specified training with an experienced pilot, following which he is gradually allowed, over a period of three years, to pilot ships up to 5,000 tons, after which his aptitude is assessed by a Board appointed by the Director and composed of the Chief of Pilotage Service and two pilots; if found competent, he will be allowed, for a further two years, to pilot vessels up to 7,000 tons and, finally, after a further aptitude appraisal, he is authorized to pilot ships of any tonnage; this permission is subject to withdrawal at any time irrespective of his seniority when, in the opinion of the Examination Board he no longer possesses the guarantees required for piloting large vessels;

(d) a choice pilot may be assigned only to ships larger than 7,000 tons for which a 20 per cent surcharge is made;

(e) the pilots are co-owners of the maritime equipment of the station and they must have at least two mechanically-propelled pilot vessels;

(f) the pilots and the Chief of Pilotage Service are remunerated through a pooling system; the latter's remuneration is a full pilot share plus 10 per cent.

In 1962, pilotage in France was the subject of a Public Investigation whose main consideration was to examine whether reorganization in depth could provide a system which would maintain the quality of the service and, at the same time, substantially reduce the cost of the service.

The report presented in December 1962 (Ex. 876) rejected changing the pilot organization into a government service with pilotage performed by civil servant pilots, on the ground this might prove more costly. It also rejected the free enterprise system as not sufficiently reliable. It proposed retaining the present system because it had proven effective. It suggested, however, some measures intended to reduce operating costs, e.g., the establishment of a central investment fund to finance the operation of stations, especially with regard to the acquisition of pilot vessels and other necessary equipment. It also proposed increased government supervision over the financial dealings of the stations.

GREECE

Pilotage in Greece is governed by an Act dated February 15th, 1955, entitled "Act regarding the Pilotage Service", and by regulations contained in the Royal Decree of January 28th, 1958 regarding administration, and the Royal Decree of January 9th, 1959 which fixes the tariffs (Ex. 888).

Pilotage is a public service provided by the State and, with the exception of the port of Piraeus, is on a comparatively small scale. Its organization is based on port pilotage, although certain services are provided between ports. All pilots are public servants with the exception of those employed by the Corinth Canal Company for transiting the Corinth Canal.

Pilotage organization is centralized in the Government at Athens and only immediate administration is carried out at the pilot station level.

General organization, regulations, rates and general policies are the final responsibility of the Government which either takes decisions or approves decisions taken by others. The principal organizational features are:

(a) The Merchant Marine Advisory Board recommends the establishment or closing of pilot stations (proclamation is by Royal Decree) and prepares the scale of pilotage dues (proclamation is by Royal Decree on the recommendation of the Minister of Merchant Marine and the Minister of Finance).

(b) The Pilotage Service Board is composed of six members, i.e., ex officio, two officers of the Government designated in the Act, and the Harbour Master of the Port of Piraeus; three others representing the shipowners and pilots appointed by the Minister of Marine for a period of two years. This Board renders decisions on matters relating to the management and administration of pilotage, but such decisions are subject to the approval of the Minister.

(c) The Pilotage Service Section of the Department of Merchant Marine is responsible for the actual administration of the whole service. Its terms of reference as set out in the Act are: (Translation) "To organize the pilotage service and supervise and control its operations; to engage pilots and emergency and auxiliary personnel; to maintain the pilots' Register; to check and control the collection of dues, carry out the accounting work and prepare estimates and statements of actual income and expenditures; to pay salary and wages to personnel and to audit expense accounts".

(d) The pilot station is the operational unit. It comes under the jurisdiction of the Harbour Master of the port where the station is situated.

(e) The Harbour Master, who is to all intents and purposes the manager of the pilotage station, makes regulations for local administration which become effective only if recommended for approval by the Pilotage Service Board and approved by the Minister. Local expenditures up to a fixed amount are approved by a local committee appointed by the Harbour Master. At the largest pilotage station (the port of Piraeus), a Chief Pilot is placed in charge of administration under the authority of the Harbour Master.

(f) The Seamen's Pension Fund is the custodial agency for pilotage monies, i.e., all revenue earned by pilots, pilotage personnel and pilot boats. For financial purposes, the pilotage service is separate from the Government and is expected to be wholly self-supporting. All pilotage monies collected are paid into the Fund and all pilotage expenditures are paid out of the Fund under the control and supervision of the Government. Estimates and balance sheets must be approved by the Pilot Service Board and submitted to the Minister.

(g) Pilotage personnel required for a pilot station comprise its full complement. The establishment for each station is proclaimed by a Royal Decree. In 1963, there were 15 pilot stations in all. The aggregate number of pilotage personnel was 99, of whom 65 were for the Piraeus station while the 14 other stations varied between 7 and 1. In 1963, the total number of pilots in all 15 stations was 47, 7 of whom were Chief Pilots and the others were the personnel needed to man and maintain the pilot boats and to operate the pilot stations, i.e., skippers, chief enginemen, storekeepers and the largest number, boatmen. When there is a vacancy in the establishment, promotion to Chief Pilot is by selection from pilots who have had at least three years of service as pilot, priority being given to candidates possessing a Master's Class A certificate and a good knowledge of one foreign language.

Pilotage is a public service maintained for the convenience of shipping. Since the dues are not a measure of the services rendered but a tax levied on its users and potential users to maintain the service, exemptions are granted accordingly, i.e., to local traders, Greek and foreign naval vessels and Greek passenger vessels navigated by Greek Masters possessing a pilotage certificate. Reduced rates are allowed when a ship calls at more than one port during the same voyage.

Pilotage dues are uniform throughout Greece except that, in certain cases, the tariff provides a surcharge in percentage for certain ports or certain transits. The dues are fixed solely on net registered tonnage for merchant ships and displacement tonnage for naval vessels. Whenever the distance factor is applicable, it is covered by an appropriate surcharge which is specified in each case. A pilotage claim is guaranteed by a lien on the vessel and her cargo.

The Harbour Master of the station concerned is responsible for collecting pilotage dues and transmitting them to the custodial agency. Dues may not be paid at any other place, or to the pilot, or to other persons. It is an offence for any agent or Master to pay a pilot any money over and above the pilotage dues for any reason whatsoever. Acceptance of gifts by a pilot constitutes a serious disciplinary offence. Greek pilots, as well as all other pilotage personnel, are public servants even though they are not paid by the national treasury but out of a central pilotage fund. The various members of the pilotage personnel receive a fixed salary which is based on the salaries paid to the Master and members of passenger vessels engaged in domestic services, i.e., a pilot's salary equals that of a Master and a Chief Pilot's salary is 20 per cent higher. The pilots' salaries are raised periodically as provided for civil servants.

Pilotage service is reserved for experienced Mariners. Candidates are accepted up to the age of 55. They must be in possession of a Greek Master's certificate (Class A or B) and have had extensive sea service including a number of years as Master. Furthermore, they must be of good health and good character. They are recruited by the civil service in accordance with competition procedure.

The subjects of the theoretical and practical examination are set out at length in the General Regulations. The examination is held by a standing Examination Committee. Successful candidates undergo a probation period up to six months during which they participate in pilotage operations under the supervision of a pilot. They are liable to be dismissed if found unsuitable during the probation period, and, if finally accepted, they must serve a minimum of three years.

Pilots enjoy the complete social security system provided for seamen, covering pension plus free medical and hospital care for both themselves and their dependents.

As for discipline, the Harbour Master has power to reprimand and to impose a fine not exceeding half a month's wages. More serious cases must be referred to a standing disciplinary board appointed every year by the Minister. This board may impose suspension up to six months or dismissal. The board's decision is final when its decision is unanimous; in other cases, an appeal lies with the Minister. Sentences imposed by criminal courts are not a bar to the jurisdiction of the disciplinary board.

All punishments, except reprimands, are entered into the pilot's record which is kept by the Harbour Master. Disciplinary offences include disobedience, absence without leave, bribery, not reporting through the proper channels, drunkenness and refusal to perform any duty assigned to employees. It is considered a serious disciplinary offence for a pilot to order more tugboats than necessary.

The Act provides for the appointment of emergency pilots when, for any reason, the number of pilots required has not been recruited by competitive examinations. Emergency pilots are appointed by the Harbour Master upon authorization from the Minister following a recommendation by the Pilot Service Board. A vacancy will not be filled by an emergency pilot if, during the preceding six-month period, the monthly average number of vessels requesting the services of pilots was less than ten.

Emergency pilots are treated as regular pilots except for their remuneration which is one-half the pilotage dues paid for their services or three-fourths of a pilot's salary. In addition, they do not participate in the welfare and health benefits provided for pilots. Their service is terminated when the vacancy is filled by a regular pilot.

ITALY

Italian legislation governing pilotage comes under the Code of Navigation, particularly secs. 86-100, and also is contained in the General Regulations, secs. 98 and ff. (Ex. 878). Its main characteristic is that service at the local level is provided by pilots who belong to autonomous, operational units called 'guilds' which must be financially self-supporting. The general organization of the service, regulation-making, licensing, control and surveillance are State responsibilities carried out at public expense.

From the point of view of policy and organization, the pilotage service is an integral part of the functions of a number of officers in the Department of Merchant Marine and is considered only one of the many problems connected with shipping and navigation. It is only at the local level that pilotage becomes a separate function.

The organizational hierarchy is as follows:

(a) the Minister of the Department of Merchant Marine;

(b) the General Director of Merchant Marine;

(c) maritime areas referred to as Maritime Districts under the charge of a Director;

(d) Harbour Masters, a post occupied by Naval Officers;

(e) pilot stations under the direction of State appointees called Chief Pilots.

Appendix XIII

For the administration of shipping and navigation, Italy is divided into some 40 Maritime Districts containing a number of ports. Pilot stations are created in harbours or at transit points where the need for pilotage has been recognized and when, as is clear from the context of the legislation, the local organization can be financially self-supporting. When either one of these conditions is no longer met, the station is abolished.

In non-organized areas, i.e., outside pilot stations, pilotage may be performed by authorized free entrepreneur pilots referred to in the Act as "authorized seamen".

The President of the State, in other words the Government, establishes pilot stations by decree and decides where pilotage is to be compulsory.

The role of the Minister of Merchant Marine is principally to exercise control: he approves the regulations and tariffs applicable to each station and gives various authorizations. However, he also has certain important original powers, e.g., he determines the classification of each pilot station, he alone has the power to suspend or demote Chief Pilots and Assistant Chief Pilots or to place a guild under caretakership during the investigation of irregularities or to dismiss a pilot on disciplinary grounds.

The Maritime District Director is an officer of the Department and, therefore, in addition to the duties imposed upon him by the Act, he is subject to the directives of higher departmental authorities. First, he is the licensing authority both of guild pilots and authorized seamen; second, he makes a number of appointments, inter alia, the members of the Board of Examiners and Chief Pilots; third, he fixes rates after consultation with the interested parties, subject to the approval of the Minister.

The Harbour Master, in addition to his other functions, exercises immediate surveillance over the operation of the pilot station and the provision of services by the pilots, thereby indicating that pilotage in Italy is essentially port pilotage. He has limited disciplinary powers.

A guild is a corporate body composed of all the pilots at any given pilot station. It is created by decree and is a State agency charged with the responsibility of providing pilotage services, administering the pooling of the pilots' earnings, and managing and maintaining the assets and equipment of the station, which are jointly owned by all its active pilots. It is also a compulsory partnership of all the active pilots for the purpose of common ownership of the equipment and assets required by regulation to provide service in its respective area. The guild is also made the trustee of the joint property. Corporate status seems to have been indicated because of the last two responsibilities and also to cover civil liability.

In the event of irregularities in the operation of a guild trusteeship the Minister may place the corporation under caretakership with the trustee being paid out of the corporation's funds.

The State retains full control over the operation of the service by delegating responsibility to senior pilots appointed as Chief Pilots and Assistant Chief Pilots by the State for that purpose. The criteria for this appointment are greater technical qualifications and experience, together with administrative ability. If necessary, any of these prerequisites may be waived by the Minister. The Chief Pilot must manage the service in accordance with orders received from the Merchant Marine authorities. He is responsible for maintaining discipline and, therefore, must report any infraction of orders or legislation to the Harbour Master.

He and two pilots elected annually by their colleagues administer, and bear joint responsibility for, the assets of the guild. The Chief Pilot must maintain his technical ability by taking occasional assignments. Especially difficult operations are his personal responsibility.

The various guilds are classified by the Minister in three categories depending upon their importance; the criteria are the amount of maritime traffic served by the station and the difficulty of navigation in the area. This classification is the basis for establishing various requirements including the basic qualifications of pilots.

When created, each guild at a pilot station is provided by appropriate regulations with an establishment of personnel and equipment. The equipment establishment indicates the type of pilot vessels and other equipment that the pilots must provide, maintain and operate. With the authorization of the Maritime District Director, pilot vessels may be hired. Since the equipment is jointly owned by the pilots, none can be disposed of without their unanimous consent and the authorization of the Maritime District Director. A newly appointed pilot must buy a share of the jointly owned assets; the value is assessed on the date of appointment based on the number of active pilots. Conversely, when a pilot is retired the remaining pilots as a group must buy his share according to its value at the time.

Pilotage can be made compulsory only within organized territory and when so enacted by Decree or authorized on a temporary basis by port authorities. The Act does not indicate criteria apart from stating that pilotage is to be compulsory where it is considered necessary. The Act specifies that in compulsory pilotage zones a pilot must render assistance whether or not the Master requires it; but where pilotage is optional, assistance is given as long as the Master so requires. Exemptions vary from one port to another, e.g., in Rome, Venice and Genoa vessels up to 15 tons, 100 tons and 500 tons respectively are exempt. It may be inferred that exemptions are governed by local factors.

Pilotage rates are fixed by the Maritime District Director after discussion with the interested parties and become effective when approved by the Minister. They are uniformly based on gross tonnage.

The tariff is established to provide the pilots adequate remuneration, cover pensions and meet all the expenses of the station, including pilot vessel operations, to ensure that the station is financially self-supporting. Fees are collected pursuant to an invoice, or "collection order", computed by the Chief Pilot and endorsed by the Harbour Master. The nature of the surcharges indicates that the rates are not merely a tax but represent the value of the services rendered: there are surcharges for services rendered during twilight hours, during holidays and when vessels carry dangerous cargoes.

Outside organized areas, authorized seamen are paid according to tariffs fixed by the Maritime Director. The "collection order" is prepared by the authorized seaman concerned and endorsed by the Harbour Master of the port concerned.

The main remuneration of a guild pilot is his share of the pool, which consists of the majority of the pilotage dues earned by the pilots in the guild. Some revenue is not included in the pool, e.g., travelling expenses for piloting outside the District and detention fees.

Retired pilots and the dependents of a deceased pilot receive benefits from a unique pension scheme: they participate in the distribution of the pool money according to the number of shares alloted to each class of pensioners. Since there is no accumulated trust fund for that purpose nor any fixed pension benefits, the benefits vary according to the aggregate amount of the pool when it is distributed; they are met out of the current revenues of the corporation. If a guild is dissolved, benefits to pensioners continue to be paid in the same fashion under the Harbour Master's control by the authorized seamen who continue to perform pilotage in the area.

The General Regulations allot shares in the pool as follows: Chief Pilot 125 shares; Assistant Chief Pilot 112½ shares; pilot 110 shares; probationary pilot 50 shares. During the illness of a pilot the number of shares varies depending upon the duration of his absence. A retired pilot is entitled to 2½ shares per year of service to a maximum of 50 shares. Hence, the maximum pension of a retired pilot is the same amount as that earned by a probationary pilot and 45 per cent of the income received by an active pilot. The regulations provide rules for calculating the number of shares widows and other dependents are entitled to. The value of a share at a given moment is found by dividing the total number of shares into the aggregate of the pool.

Licensing a guild pilot is referred to as his "admission to the guild". Candidates are chosen by competiton. A competition is called when there is a vacancy in the establishment. The main prerequisites are: age between 28 and 35 and six years'

maritime experience as a bridge officer, three of which as Master in an ocean-going ship. The required competency and sea experience vary according to the guild's classification. Candidates are first examined on general competency. They are selected according to a marking system, a number of marks being given for various qualifications and the results obtained in the examination. The candidate with the highest number of marks is accepted; if the marks are equal, seniority breaks the tie. Once accepted, the candidate is given a temporary licence as a probationary pilot for a period of six to 12 months depending upon his previous qualifications and sea service. At the end of the probationary period he is re-examined on local knowledge. He is dismissed if he fails; otherwise, he is granted a permanent licence. The age limit is 65. However a pilot is removed if within a month of his appointment he does not furnish the bond prescribed by the regulations to cover his civil liability and does not buy his share in the assets of the corporation.

In the event the competition does not provide the required number of qualified candidates, vacancies are filled without competition by the Maritime District Director with the authorization of the Minister. Temporary licences are issued to persons holding the required certificate of competency, provided they are physically fit and of good character. They are given a permanent licence after five years of satisfactory service.

Pilots bear full responsibility for damages caused by their fault or error. The civil liability of the guild as co-debtor is limited to the amount of the bond the regulations require it to furnish.

The Act recognizes the pilots' trade union by requiring that it be consulted before the regulations governing each guild and their rates are approved. In fact, the Italian pilots belong to the Federation of Italian Pilots which forms part of a general trade union. Twenty per cent of the pilotage dues are contributed to finance the Federation. After paying operational costs, the Federation maintains out of this contribution an equalization fund from which financial assistance is advanced to guilds whose monthly earnings fall below a given minimum following a decrease in traffic. The Federation also provides substantial social benefits such as an all inclusive health insurance plan and a retirement plan.

THE NETHERLANDS

The Netherlands Pilotage Act (dated July 11th, 1957, Ex. 874) is a succinct statute which contains provisions of general applications. Local details and ad hoc legislation in the various Districts are proclaimed by regulations. The Act provides that in Dutch waters pilotage is under the exclusive jurisdiction of the State, except for certain inland ports where the municipal authorities are responsible.

The Act does not prescribe how the pilotage service is to be organized but delegates to the Government the task of establishing the required system. The King is the regulation-making authority; he exercises his powers by Royal Decrees. The general organization of pilotage is the responsibility of an officer of the Department of Defence, the Director General of Pilotage, who is also responsible for aids to navigation. He is assisted by the Inspector of Pilotage.

The administrative unit is the District under a Pilotage Director. There are six such Districts in the Netherlands. The Districts are divided into stations each under a Commissioner. The more important stations also have a Receiver for pilotage fees and, at times, an Assistant Commissioner. In smaller stations the same person holds the three appointments. The Commissioner is also responsible for the collection of dues, despatching and surveillance of pilots. Each station provides the necessary services for its pilotage needs. The "pilotage personnel" of each station includes the full complement necessary to man its pilot vessels.

The Act provides for regulations covering organization, recruiting, classification and discipline of pilots, as well as pilotage administration in general, including pilots' and Masters' responsibilities, and the procedure for hearing grievances. Apart from regulations of general application, there are specific sets of regulations for each of the six Districts.

The Act provides for compulsory pilotage but the ultimate sanction is only the payment of dues. On the other hand, pilotage exemption certificates may be issued to Masters and officers who are familiar with the waters described in the certificate. Ships which have two such certificate-holders on board pay reduced dues if a pilot is not employed.

Two sets of rates are provided: one for sea pilotage based on draught only, and one for inland pilotage based on draught and distance covered. Surcharges are provided in special cases, e.g., 1½ tariff for vessels difficult to manœuvre or for navigation in ice. A ship in tow pays a surcharge of 10 per cent.

Pilots are public servants subject to the regulations governing the public service, including admission by competition. They are divided into "sea pilots" and "river pilots".

Prerequisites for admission to the service are generally as follows: four years' experience as a bridge officer; possession for at least a year of a first mate's certificate of competence, or the equivalent; a thorough local knowledge of the area in which the service is to be performed; successful completion of examinations on theoretical and practical subjects. The local knowledge required extends to the whole area of a District because pilots are interchangeable between the various stations within a District.

Pilots are paid a fixed salary as state employees and, as an additional incentive, draw a premium for supplementary work. Shipping companies may request that pilots of their choice be assigned to them but they must pay the regular dues and, if a pilot is exclusively so employed, the company must pay compensation, fixed by the Act, for each day pilotage is not performed.

Like all other public servants the pilots contribute to the public service pension and assistance fund.

The Act expressly exempts the State from any civil responsibility for damage caused by a pilot in the exercise of his duties; a pilot's civil liability is limited to damage caused with intent or through gross negligence.

NEW ZEALAND

Pilotage in New Zealand is governed by two separate Acts. Legislation for port pilotage is contained in Part V of the Harbours Act 1950, as amended, and for coastal pilotage in Part 10 of the Shipping and Seaman Act 1952 (Ex. 892).

Port Pilotage

The operational unit on which the organization of port pilotage is based is the Pilotage District, whose limits are defined, altered or varied by warrant of the Governor General. The whole organization is completely decentralized to the local level, and the District Authority is autonomous and independent.

Pilotage is integrated with the operational functions of each port and the Port Authority is also the Pilotage Authority. The Authority may take one of three forms: the Harbour Board, if one exists; otherwise, either the Governor General and the Minister of Marine, or the County Council, if entrusted by the Governor General with the powers of a Harbour Board.

The Harbour Board is a statutory corporation with all the normal powers of a corporate body. It consists of 6 to 15 elected members as indicated in the Schedule to the Act. The Harbour Board administers its port and directs all operations; pilotage is only one of its functions. It is the sole Authority in the District over the pilotage and possesses full powers to licence pilots, make regulations and fix rates and also has discretionary power to dismiss pilots.

Its by-laws regarding pilotage are not subject to the approval of higher authority but are automatically valid when the prescribed procedure has been followed, i.e., publication of the proposed by-law followed by approval at a Board meeting. In this way all interested parties have an opportunity to express their opinion before adoption. The approved by-law must also be published. However, such by-laws may

be rescinded by the Governor General up to six months thereafter. The Board's regulation-making power is limited to the extent that its by-laws must be within the subject-matters of delegated legislation as defined in the Act and must also not conflict with the provisions of the Act, nor with the General Regulations that may be made by the Governor General, which, in the field of pilotage, are limited to determining the basic requirements for pilots, i.e., age, length of service, professional standards and character.

In its by-laws, each Harbour Board establishes whether pilotage shall be compulsory or optional in "the Pilotage District attached to the harbour under its control", or in any specified part or parts of such District, and also to what extent. Failure to comply with compulsory pilotage requirements is a breach of by-law rendering a ship liable to a fine. There are only two statutory exemptions: small ships of not more than 100 tons net and ships whose Master possesses a *pilotage exemption certificate.*

The pilotage exemption certificate is restricted to Masters but any Master who meets the prescribed requirements has a statutory right to hold one. An appeal lies with the Minister of Marine if a Board refuses or neglects to allow a Master to be examined or withholds a certificate or imposes unwarranted restrictions or conditions. The certificate is of unlimited duration. If the fee for the certificate is paid by the Master himself, it is not limited to a named ship but authorizes him to navigate within the District any ship of which he is Master and which is within the tonnage for which he has qualified as specified on the certificate and within the limits therein described. If the fee is paid by the owner of the ship, the certificate is valid only as long as the Master remains with the ship. It can be used only for ships trading between New Zealand and Australia or near-by islands, or ships trading between ports in New Zealand and neighbouring islands.

If a Master is guilty of gross neglect, drunkenness or other misconduct or has shown himself incompetent to pilot a ship, a pilotage exemption certificate can be withdrawn at any time by the Harbour Board or by the Minister.

If a Master holds a pilotage exemption certificate, his ship is entitled to obtain a *pilotage rates exemption certificate* which exempts her from the payment of dues when a pilot is not employed. This certificate is issued when the ship has paid one full rate pilotage fee in and out in addition to the inward rate payable on the first entry and from that date is valid for 12 months. It is renewable from year to year on the same conditions.

Pilotage rates are fixed by the Harbour Board by by-laws and, unless the Minister's permission is obtained, they may not exceed the maximum established in the Schedule of the Act, i.e., a sum not exceeding six pence a ton both inward and outward, and for one day's detention or quarantine, even if caused by stress of weather, a sum not exceeding 40 shillings a day. The Act specifically provides that there shall be no discrimination in fixing harbour dues (the term 'harbour dues' comprises, inter alia, pilotage rates). It specifies that neither the country of registry of the ship, nor the destination of ship or cargo, nor the identity of their owner are criteria to be considered when fixing dues. Pilotage dues are payable only to the Harbour Board and, if there is no Harbour Board, to the Collector of Customs. A ship may be detained if pilotage dues are owing, unless appropriate guarantees are given.

The qualifications of pilot candidates are appraised through a licensing process (both for licensed and appointed pilots). The only statutory requirements are that a candidate must pass an examination and must have received and continue to hold a certificate of competency. Additional general requirements may be established in the General Regulations. All other conditions are covered in the by-laws made by each Harbour Board. The Governor General's General Regulations now in force require that a candidate be a British subject, not less than 23 years of age, possess a foreign-going certificate not lower than that of Master and be able to produce certificates of good health, sobriety and good conduct. Whether or not there is an apprenticeship and/or a probationary period is determined by local by-laws. Examinations are held by an Examination Board whose composition and appointment

procedure are determined by the Act. There must be at least two members holding a Master's certificate of competency and at least one member must possess local knowledge of the area on which the candidate is to be examined.

In Districts where the Harbour Board is the Pilotage Authority, there are two types of pilots, i.e., *licensed pilots* and *appointed pilots*. A licensed pilot is not an employee of the Board and his remuneration consists of all or part of the pilotage rates, as determined by the Board. An appointed pilot is a Board employee whose remuneration is either a fixed salary, or the pilotage dues, or a combination of both, or such other remuneration as the Board may fix by ordinary resolutions. The decision of a Board to appoint (rather than license) pilots automatically invalidates any licences it previously granted. The Act provides that the Board may at any time "cancel or determine" any such licence or appointment.

A 1959 amendment to the Act decreed the liability of vessels towards third parties as a result of pilot errors. At the same time, the liability of pilots for any neglect or want of skill was limited to the sum of 200 pounds which each pilot is required to deposit with the Board as a bond. The Act also stipulates that a Harbour Board is not liable for damages caused by its appointed pilots or by its Harbour Master when acting as pilot.

The Act establishes a series of statutory offences corresponding to those contained in the Canada Shipping Act prior to the 1936 amendments. In addition, it authorizes the Harbour Board to define offences by regulation. In both cases, as provided in legislation, the Board has reappraisal power over pilots found guilty of certain specified offences. The Act contains the same offences as sec. 369 C.S.A. but its provision is more complete in that it also authorizes the Pilotage Authority to suspend or cancel the licence of a convicted pilot.

If there is no Harbour Board and the powers it would normally hold have not been given to the County Council, the Pilotage Authority's powers are exercised by the Governor General in Council, and the Minister of Marine. The former fixes district limits and approves local regulations; the latter appoints pilots and specifies their duties.

The Wellington Harbour Board "By-laws and Regulations" make pilotage compulsory only in that part of the Pilotage District surrounding the harbour as described in the regulations; in the rest of the District pilotage is optional. A reduction in fees is granted any vessel calling at Wellington a second or subsequent time in the course of the same round trip on a visit to New Zealand. The licence or appointment of a pilot is not necessary for the whole District but only within the limits set forth in his certificate. The By-laws state that pilots must cruise at the seaward limits of the District to await the arrival of vessels, and provide that every pilot shall offer his services to the inward bound vessel nearest to him. The By-laws and Regulations make no mention of the method of remunerating the pilots. As stated above, this is covered by resolutions passed at the time of their appointment and as modified by subsequent Board resolutions.

Coastal Pilotage

Coastal pilotage comes under the joint authority of the Governor General for legislation by regulations, and the Minister for licensing and operations, but the licensing function may be delegated.

There are few statutory provisions regarding coastal pilotage and most of the necessary legislation is left to the regulation-making power of the Governor General which is exercised by Order in Council. The Act specifies that this regulation-making power extends over the qualifications required for licensing, the terms and conditions of the licence, and the duties and liabilities of pilots.

The appointment of delegated licensing authorities and the licensing procedure are covered in regulations. The Act already provides that, subject to the regulations, the Minister may cancel a licence at any time or order it not to be extended or renewed whenever he has reason to believe that a coastal pilot has become a safety risk, either because he failed to discharge his duties, or is deemed unfit for any reason, or endangered the safety of any ship.

There are two types of coastal licence: a general licence valid for all coastal waters and a restricted licence valid only for the waters specified in the licence.

A coastal pilot may pilot a ship in or out of any port to terminate or commence a coastal pilotage trip, except in those areas in Pilotage Districts under the jurisdiction of a Harbour Board where pilotage is compulsory, unless the coastal pilot also holds an appointment or a licence issued by the Board for that port.

No direct mention is made of coastal pilotage fees. It appears, however, that the power to fix the applicable rates is conferred on the Governor General by a general provision of the Act which authorizes him to fix by regulations, inter alia, fees that are payable to any person under the Act.

NORWAY

Pilotage in Norway is governed by the Norwegian Pilotage Act dated April 9, 1948, as amended (Ex. 891). Pilotage, now established as a separate public service, was formerly provided by the Royal Norwegian Navy.

Responsibility for the general organization of the service, general policies and regulation-making (except internal management at the local level) is centralized in the hands of the Government. Direction of pilotage throughout Norway is entrusted to the Pilotage Board, a Crown agency created by the Act. Its Chairman, the Director of Pilots, administers the service through local appointees and representatives, i.e., master pilots and pilot foremen.

Operational organization consists of:

(a) the Pilotage Board and the Director of Pilots in charge of the whole territory;

(b) master pilot districts (the King divides the whole coast into master pilot districts with a master pilot in charge);

(c) pilotage districts (subdivisions of master pilot districts); where necessary, a pilot foreman is placed in charge as deputy of the master pilot.

The King is responsible for dividing the coast into master pilot districts and subdividing them into pilot foreman pilotage districts; enacting regulations; appointing the members of the Pilotage Board and Directors of Pilots and fixing pilotage rates which, however, must receive the approval of Parliament.

The Minister of Fisheries plays an administrative rôle since he is the authority who establishes the number of pilots for each pilotage district acting on proposals by the Pilotage Board. He also acts as an Appeal Court re disciplinary measures imposed by the Director of Pilots.

The Pilotage Board is composed of six government appointees, i.e., the Director of Pilots who acts as Chairman (in his absence his deputy, the Inspector of Pilots, acts as Chairman) two representatives of shipping, one sea pilot, one rota pilot and one route pilot. This Board is responsible for the general administration of pilotage. It must meet at least four times a year but between sessions administrative decisions are taken by the Director of Pilots who, however, must report at the next session. In addition, the Board acts in an advisory capacity to the Government in establishing general policy regarding pilotage.

The Director of Pilots is responsible for the administration of pilotage in general, subject to the decisions of the Pilotage Board. He is the licensing authority. He is required, inter alia, to have "his attention turned to possible improvements in pilotage and in this connection must submit such suggestions as he deems necessary in the interest of the Government, shipping and the pilots". Regulations for internal administration at the district level are made by the Director of Pilots. He is responsible for giving the necessary instructions to master pilots and pilot foremen. He is assisted by the Inspector of Pilots who is his permanent deputy.

The master pilots and the pilot foremen are the local representatives of the Director of Pilots. They have the duty of surveillance over the pilots in addition to ensuring that services are provided. They must act in accordance with instructions received from the Director of Pilots.

Pilotage is not considered by Norwegian legislation an essential public service maintained to protect the interests of the State or the safety of navigation, but a public service that must be maintained for the convenience of shipping. Hence, as a rule, pilotage is not compulsory but, because the service must be maintained, the compulsory payment system exists in order to make shipping pay maintenance costs. Since pilotage dues (pilotage monies as they are called in the Act) are really taxes levied to maintain the service, all factors principally related to the difficulty and value of each assignment are not considered and the rates are based on gross registered tonnage and mileage. Exemptions are, in fact, exemptions from taxation awarded to local traders and non-commercial mariners. Compulsory pilotage, however, can be imposed when the superior interests of the State so require as has been done on occasion, apparently for military reasons. The Act does not stipulate the means of enforcing compulsory pilotage. The legislation does not provide for personal exemptions to Masters and ship's officers, probably because Norwegian shipping companies can employ their own pilots, i.e., route pilots.

The Act provides for two types of pilot:

(a) State (or Government) pilot, i.e., a person holding a pilot's certificate and appointed by the State;

(b) route pilot, i.e., a person holding a pilot's certificate but appointed by a shipowner for engagement in his service.

The State pilots are divided into two groups:

(a) sea pilots, who mainly pilot vessels inward from sea;

(b) rota pilots who mainly pilot vessels along the coast or out to the open sea.

In case of shortage, sea pilots may be used as rota pilots and vice versa. From reports received, about 80 per cent of the pilots are State pilots; the remainder are route pilots.

According to the Act, the status of the State pilot is that of a civil servant. He exercises his profession under the direction of government representatives to whom he is responsible, i.e., his pilot foreman, his master pilot and the Director of Pilots. The Act provides that his remuneration may consist of a fixed salary only, or of a share of pilotage monies in addition to his fixed salary. In fact, all State pilots receive remuneration consisting of a fixed salary plus a mileage fee. For pilots on less profitable routes, a special compensation called a differential payment is provided. Sea pilots receive their salary and retain 100 per cent of their mileage fees. Rota pilots receive their basic wage plus 50 per cent of their mileage fees, the other half is paid to the Government which places a percentage in the pool which covers differential payments. The reason for this arrangement is that some trips are so short that pilots assigned to them have no prospect of earning mileage fees comparable to those paid for longer trips. The amount of work done and the time taken during each trip are included in the criteria for computing payments.

Sea pilots are not on roster but keep watch either on shore or at sea for vessels coming into port or proceeding along the coast. They must offer their services to ships as they arrive. On the other hand, pilotage assignments are distributed among the rota pilots by a tour de rôle system, i.e., when they complete an assignment, their name is placed at the bottom of the list.

Since State pilots are State employees, they are governed by the legislation applicable to other civil servants with appropriate modifications to fit their particular type of occupation.

As for the length of continuous duty on board, the Act provides that a State pilot shall have at least eight hours "service time off" per diem for voyages lasting more than 24 hours. This "service time off" must not be divided into more than two periods and in winter it must be at least 12 hours and must not be divided into more than three periods. For route pilots, the "service time off" per diem must be at least 12 hours. The day is calculated from the time pilotage commences; when time off will be taken is determined by agreement with the Master.

The State pilots enjoy the same welfare and pension benefits as civil servants. In case of premature retirement due to illness or injury, a pilot is entitled to a full pension. The benefits received by route pilots, as well as the amount of their remuneration, are negotiated with their employers.

State pilots are under the disciplinary jurisdiction of the Director of Pilots whose disciplinary punishments are subject to appeal to the Minister of Fisheries. However, the conduct and behaviour of route pilots concern the company by whom they are employed. Both State and route pilots may be prosecuted for statutory offences before the regular courts.

Pilot labour unions are indirectly recognized by the Act in that it requires consultation with the unions in certain circumstances.

All pilots, whether civil servants or company employees, must be licenced. The licensing process originates at the master pilot district level with a standing Nomination Board, composed of one State representative, the master pilot, as Chairman, and two State pilot representatives, i.e., one sea pilot and one rota pilot. When dealing with route pilot apprentices, the Board is increased by two pro tempore members, one appointed by the shipping company concerned and the other elected by the company's own route pilots. The rôle of this Board is to propose the maximum number of apprentices allowed in certain waters for final decision by the Pilotage Board, and to recommend pilot apprentices to the Director of Pilots who makes the decision.

Apprentices must be over 23 years of age, possess a mate's certificate of competence, meet health and physical requirements, be orderly, of sober habits and trustworthy. In the case of a sea pilot, he must also have one year's service in a pilot boat. Apprenticeship lasts until two instructors certify that the candidate is familiar with the District water.

Candidates must pass an examination on local knowledge held before the Director of Pilots or his Deputy, the Inspector of Pilots. The examination is supervised by an Examination Commission consisting of the master pilot acting as Chairman together with two pilots and a Master familiar with the waters, all three being appointed by the Director of Pilots. The Director of Pilots issues the licence on the basis of the examination results and assurances that the other requirements have been met. The licence holder is called 'pilot' but is not entitled to perform pilotage unless he is either engaged as a government pilot, hired for temporary service by a pilotage office or at the sea pilot station, or is engaged as a route pilot.

Once appointed, a pilot must remain qualified in all respects. The Director of Pilots has the duty of surveillance and possesses the necessary reappraisal powers; in particular, he must verify each pilot's sobriety and familiarity with the waters for which he is certificated. With reference to the latter, he may order that a pilot be re-examined at any time. If the Director of Pilots finds that a pilot does not meet the established requirements, he may revoke his certificate. The Pilotage Board decides whether the withdrawal is permanent and their decision may be appealed to the Minister of Fisheries. The ultimate age limit is 65.

A pilot's civil liability in Norway is not limited in any way nor is there anything in the Act which limits the State's liability. However, reports received are to the effect that the State bears no responsibility, probably on account of provisions contained in other statutes.

SWEDEN

Except in some harbours, e.g., Stockholm, Malmö and Göteborg, and on Lake Vänern, pilotage in Sweden is governed by a Pilotage Act (Ex. 890) which assigns the necessary powers to the National Board of Shipping and Navigation, a government agency which supervises all maritime affairs. A branch of the Board—the Shipping Bureau—is responsible for the organization and direction of pilotage (excluding the pilots in the Trollhätte Canal who come under the Vattenfallsverket [National Power Authority]).

Sweden is divided into six Pilotage Districts. In each District there are a number of pilot stations, located along the coast and on coastal islands to meet the convenience of shipping. Each pilot station has a defined pilotage area. If necessary, the pilots must also undertake pilotage outside their area in the open sea. There are 69 pilot stations in all, each under a Chief Pilot. In 1963, the number of Chief Pilots and pilots totalled about 550.

Reserve pilots are also appointed at most pilot stations (total about 100). They are qualified pilots but pilot only when the regular pilots available are unable to meet the demand. When they are not employed as pilots, they stand watch at the pilot station and serve in pilot vessels. In addition about 300 boatmen who are not pilots are employed on pilot boat service, watch duty and maintenance work.

Pilot stations vary in size. The smallest stations employ only two men, whereas at the largest the number may exceed 30 (at one station there are about 60 men).

The National Board of Shipping and Navigation is the regulation-making authority. Actual administration is decentralized at the pilot station level but it must be carried out in accordance with the general regulations laid down by the Board. The Chief Pilot at each station is appointed from the station pilots; on small stations he performs regular pilotage but, on large stations, most of his time is devoted to administration and he pilots only when there is a shortage. He serves under the control and jurisdiction of the Director of Pilotage of the District to which the station belongs. The Directors themselves report to the Board. These Directors are responsible for recruiting pilots and for their admission to the pilotage service.

The Act provides for compulsory payment of pilotage dues subject to certain exemptions. Pilotage in Sweden is not considered an essential public service but a public service maintained for the convenience of shipping. Hence, the payment of dues is a form of taxation levied against its users. Exemptions are aimed at spreading the cost equitably, e.g., if no pilot is employed by ships that call at ports for non-commercial reasons they are exempt, as are all ships for trips over the same route in excess of eight during the first calendar year and of one per year in subsequent years.

In general, the rates are based on net tonnage (according to a registration certificate valid in Sweden), and mileage according to a tariff laid down in an appendix to the Act. Responsibility for collecting dues rests with the Chief Pilot who must account to the Government. There are also lighthouse and beacon fees.

Expenses for pilotage are defrayed by government appropriations.

Pilots are public servants whose remuneration takes the form of a basic salary plus a share of the pool at the pilot staton level. The fixed salary is paid according to the general salary plan for civil servants, including different salary ranges. The salary is based on the cost of living in different places. The pool fund is composed of contributions from the Government based on the number of ships piloted in the District. The shares of the pilots vary considerably between different pilot stations. The special pilotage compensation is paid from government funds according to a special rate-table, the criteria being the distance piloted and the net tonnage of the vessels piloted, i.e., on the same basis on which pilotage dues are assessed. This pilotage compensation is paid in a lump sum for all the pilots at the station and is distributed equally between them in so called pilot's shares. The Chief Pilot is entitled to his share whether or not he has piloted. Reserve pilots are entitled to pilot's shares only in proportion to the time they have been ordered to do pilotage duties. It is reported that the system is flexible enough to provide the required salary differential and, at the same time, compensate the pilots for their irregular working hours.

The pilots also receive certain remuneration direct from shipping. The most important is the fee for mooring, berthing or unberthing when these operations are conducted by a pilot at the request of a Master. It is reported that at some pilot stations these fees reach considerable amounts. In addition, pilots are entitled to travelling expenses and allowances during travel connected with pilotage.

Pilot candidates must possess as a minimum a mate's certificate of competency and a radar navigation certificate and also have served as Master or mate in a merchant ship on extensive coastal voyages or in passenger vessels for required periods. For applicants who hold a Master's certificate, the sea experience requirement is reduced. After appointment to apprentice pilot, training under the direction of a Chief Pilot lasts from nine to twelve months depending upon the station. An apprentice is paid while training to become a pilot. He must pass an examination on local knowledge and competency before the Director of Pilotage of the District, after which he is issued a restricted navigation (pilotage) certificate allowing him to pilot small shallow draught vessels. He first serves as a reserve pilot. As he gains experience his navigation certificate is extended to include larger, deeper draught vessels until he is given an unlimited navigation certificate.

Pilots are subject to the general regulations governing the public service. The Board has disciplinary authority and any criminal court handing down a decision in a suit brought against a pilot must submit a copy of its judgment to the Board. The Act further stipulates that any maritime accident involving a pilot must be investigated by the Magistrate's Court for the District where the accident took place, even though no complaint is made against the pilot.

The pensionable age for pilots is 60-63 years; they enjoy a pension according to the regulations for civil servants.

The Act stipulates that a pilot shall manoeuvre his ship under the Master's direct authority. Should the latter wish to leave the bridge, he must so advise the pilot and indicate who is to take his place.

THE UNITED ARAB REPUBLIC (SUEZ CANAL)

Since the Suez Canal is operated by a government agency—the Suez Canal Authority—the only legislation governing pilotage consists of navigational instructions and regulations for the employment of pilots (Ex. 880).

Pilotage operations are divided into three zones, i.e., Suez and Port Said, the two harbours at each end of the canal, and the canal proper. Port Said and the canal come under the jurisdiction of the Suez Canal Authority; Suez harbour has been entrusted to the Canal Authority although it is a responsibility of the Egyptian Government.

Port Said, the canal and Suez each has its own group of pilots, all employees of the Canal Authority.

Pilotage is compulsory in both harbours and in the canal. If a pilot is not taken on board, both ship and Master are liable to a fine (in addition to the payment of pilotage dues where applicable); in case of repetition, the Master is liable to a minimum of one year's imprisonment.

Exemptions differ according to localities:

(a) In the canal and Port Said, vessels under 500 Suez Canal tons gross are exempt; for vessels under 800 tons gross the Canal Authority reserves the right to put on board a tugmaster or a "Patron Conductor" replacing a pilot for the transit of the canal.

(b) In the harbour of Suez, warships, Egyptian Government vessels engaged in other than commercial purposes, ships used for canal maintenance, and ships of less than 300 Suez Canal tons gross are exempt.

There are no pilotage fees as such for transiting the canal because pilot services are included in the transit fees. In both harbours there is a 50% surcharge for night pilotage services which are not part of a transit. Transit and pilotage fees, as well as exemptions, are based on the special Suez Canal measurement system; ships without a certificate of Suez tonnage measurement are assessed according to an on-the-spot measurement made by the Suez Canal Authority subject to readjustment when a certificate is produced after a complete measurement is made by a proper authority. Transit fees are payable in advance.

Both harbour and canal pilots are employees of the Canal Authority which controls, administers and operates the pilotage service. Recruiting, training, working conditions, discipline and retirement are all regulated by the Authority.

All applicants for the pilotage service must have a Master's foreign-going certificate and ten year's experience at sea; selected candidates are given a theoretical and practical course of study after which they must pass an examination on local knowledge of Port Said. They then perform pilotage at Port Said during a probationary period, first piloting small vessels, followed by larger ships until they can handle vessels of any size. The training and probationary period lasts twenty-four months. A Port Said pilot may be transferred to Suez. To become a canal pilot, a harbour pilot must undergo approximately the same training and apprenticeship and pass an examination on local knowledge. To reach the level of "senior pilot" either for the harbours or for the canal, six grades must be passed.

The pilots receive a basic salary plus a supplement for each pilotage service performed; both salary and supplement vary with the pilot's grade.

Pilots are retired either at the age of sixty, or after fifteen years of service, or if they become incapacitated before that age. Their pension is based on the number of years of service and may amount to 75 per cent of the annual average of their gross income over their last two years of service. Full pensions are granted for early retirement due to injury or illness. The pilots also receive other benefits, such as sickness insurance and lodging.

A waiver clause of liability in favour of the Authority and the pilot for any damage that may be caused through a pilot's error is included through the Rules of Navigation in pilotage and transit contracts.

UNITED KINGDOM

The governing pilotage legislation is the 1913 Pilotage Act (Ex. 873) which separated pilotage legislation from the other shipping legislation contained in the Merchant Shipping Act and, in this respect, replaced the 1894 Merchant Shipping Act which was the last of a number of consolidations of prior statutes.

The 1913 Act was the result of a general review of pilotage legislation by a select committee in 1911. While no drastic changes were made in the operational organization of the service, the principal aim of the new Act was to bring uniformity and order into the basic structure and to impose more governmental control, mainly by increasing the powers of the Central Authority. It left service operations at local level almost undisturbed.

Pilotage in the U.K. is a wide-spread profession embracing some 2,000 pilots who, in 1961, were divided among 93 Pilotage Districts, each operating as an autonomous, financially self-supporting unit under governmental control.

The main characteristics of the organizational scheme under the Act are: delegation of the legislative power so that provisions that are not of a permanent character or have only local application can be enacted by regulations; complete decentralization of administration and operations; each District required to be financially independent; remedies against inertia or abuse of powers, and general government control through a Central Authority with effective remedial powers.

Regulation-making power is exercised at two levels; first, by the Central Authority (a function which at present is incumbent on the Minister of Transport) regarding the creation of Districts and all this implies; second, at the local level by the Pilotage Authorities over all matters concerning the provision of an adequate, efficient, reliable service with the proviso, however, that in the eventuality of a Pilotage Authority failing to discharge its legislative responsibility, its powers will be exercised by the Central Authority.

The Minister, as Central Authority, is responsible for creating Districts and defining their limits and, conversely, modifying, merging or abolishing existing ones; deciding whether or not pilotage should be compulsory and, if so, whether for the

whole of the District or only for a defined section; providing for the incorporation of any Pilotage Authority; ordering the creation of a Pilotage Committee to which a Pilotage Authority could delegate any part of its powers and duties; making provision for the direct representation of pilots and shipowners on any Pilotage Authority or Pilotage Committee.

The Minister may, at his discretion, appoint a committee to advise him on the discharge of his responsibilities as Central Authority. The committee consists of representatives of all interested parties, including Pilotage Authorities. The remuneration and expenses of the committee members are provided from public funds.

The regulations made by the Minister are called "Pilotage Orders". They become effective without the necessity of confirmation, provided no objection is filed by any interested party within six weeks after publication. If there is an objection, confirmation by Parliament is required unless the objection is withdrawn.

The Minister, as Central Authority, has a surveillance responsibility over the activities of the Pilotage Authorities. To give him effective powers, the Act provides for the temporary suspension of a Pilotage Authority which has refused, or failed without reasonable cause, to deliver any return or furnished any statement that the Minister has required in accordance with sec. 22 of the Act. A suspension of this kind is made by Order in Council. During suspension, the responsibilities of a Pilotage Authority are vested in a person appointed for that purpose by the Minister.

On the other hand, the Pilotage Authority makes regulations, called "By-laws", regarding licensing, i.e. the prerequisites for admission into the service or for granting a personal exemption, the procedure for licensing, the terms and conditions of licences, also fixing the number of pilots; making rules for the control of licensees, supplying pilot boat services, fixing rates, pooling pilotage dues if the majority of the pilots so require, making the necessary deductions from the pilots' earnings to meet the administrative expenses of the Authority and to pay the pilots' contributions to the pilot fund, furnishing bonds by pilots, thereby limiting their civil liabilty if so desired by the majority of the pilots.

To be effective, District by-laws must be confirmed by the Minister, with or without modification. The Act provides a procedure for interested parties to protest a by-law. To be heard, the protest must be made, either by the majority of licensed pilots of the port, by any number of interested persons not less than six, or by a dock or harbour authority which is not the Pilotage Authority. If the representation appears reasonable to the Minister, and after the Pilotage Authority and any other persons the Minister approves have been given an opportunity to raise objections, he may revoke, vary or add to any by-law submitted for confirmation, or require the Authority to submit a by-law which gives effect to the representation. If a Pilotage Authority fails to submit a by-law in accordance with the Minister's order, the Minister may confirm by by-law the proposal he made to the Pilotage Authority.

There is great flexibility in the appointment of Pilotage Authorities. There is no set rule except in Districts where there are not fewer than six licensed pilots. In that case, if the majority of the pilots so desire, the Pilotage Order must provide for their direct representation, either on the Pilotage Authority or on the Pilotage Committee of their District. Similarly, any dock or harbour authority having jurisdiction in the District may require to be represented on the Pilotage Authority. A committee is provided in the Pilotage Order, generally when the Pilotage Authority's function is entrusted as an auxiliary function to an existing public corporation. At present, there are four types of Pilotage Authorities: Trinity Houses, Harbour Authorities, Municipal Corporations and Pilotage Boards (also known as Trusts and Commissions). The Trinity House of London, which is the most important Pilotage Authority, has jurisdiction over 41 Districts. Except for the Trinity House of Newcastle upon Tyne, which is the Authority for 6 Districts, there is only one District per Pilotage Authority in all other cases, i.e., a grand total of 48 Pilotage Authorities for 93 Districts.

The Pilotage Authority has no statutory right to delegate any of its powers either through regulations or by administrative orders. Its power to delegate is derived from the constitution of the District, i.e., a Pilotage Order. Normally, a Pilotage Authority

itself should discharge the responsibilities it was charged with, but, depending upon the nature of the Pilotage Authority, the Central Authority may deem it advisable for the good administration of the service that a corporate body, which has been given a Pilotage Authority's jurisdiction in addition to its other functions, be assisted in its pilotage function by an ad hoc committee composed of directly interested parties to which the Authority may delegate any of its powers and duties.

For instance, in the District of Manchester the Pilotage Authority is the Manchester Ship Canal Company. The Pilotage Order provides that a Pilotage Committee, consisting of members appointed by the Authority and of representatives of shipowners and pilots, must be formed (this committee is not a recent institution since it dates back to 1889). The Pilotage Order adds that the Authority may delegate to the Committee any of its powers or duties as Pilotage Authority and that the Committee's decision on questions so delegated shall not require confirmation by the Authority but the Committee shall report its proceedings to the Authority.

Pilotage is considered strictly local to be fully administered by the Pilotage Authority without interference, provided the administrative decisions do not create an injustice. If an injustice is claimed, appeal procedure is provided as noted hereunder. The Pilotage Authority is the licensing authority with surveillance responsibility and certain reappraisal powers. The Act gives the Pilotage Authority the explicit right to operate the pilot vessel service.

Pilotage in the U.K. is generally in ports or their approaches and constitutes one of the most important port auxiliary services. Where the Port Authority is also the Pilotage Authority it operates the pilot vessel service.

The Act contains no criteria re fixing dues except the implied intention in the requirement that each District is expected to be financially self-supporting with the aim that aggregate pilotage revenues should suffice to provide the pilots with adequate remuneration after deducting District operating expenses and pension contributions. The only contributions from public funds are the expenses incurred by the Central Authority. Tariffs are determined according to the particular circumstances in each port, the nature of its traffic and the extent of its pilotage requirements, so that the necessary revenues are obtained and, at the same time, the cost is spread equitably among vessels calling at the port, especially those which normally employ pilots.

The Act does not define the status of pilots but from the context it appears they can not be employees of either the Crown or the Authority, and the only powers the Authority has over them are those based on legislation. In the Act, the pilots are self-employed private contractors whose independence is curtailed and, at times, completely denied by the control exercised by the Pilotage Authority, in which event they become, in fact, quasi-employees.

What constitutes an adequate income for a pilot has always been a subject of debate. The Act contains no solution except to imply that since an adequate and efficient system is the aim, the pilots' remuneration and working conditions should be such as to attract and retain the best qualified persons. In this respect it was realized that (a) pilots can not be compared with any group of employees or with a class of mariners, and (b) the value of pilotage services varies between Districts. Hence, a national solution is impractical. In order to devise a formula for fixing rates, the problem of establishing a target income for the pilots in most of the important Districts was studied in 1957 by the Letch Committee which represented all interested parties. The Committee established a target income for first class pilots for 32 Pilotage Districts representing 85 per cent of the pilots. It suggested that these be varied only when the National Maritime Board rates for navigating officers are increased or decreased or when there is a substantial change in the character of the trade of a port. The rates fixed to meet the target income are not to be readjusted unless the actual income they provide falls below, or rises above, the target income by a margin exceeding 10 per cent. The target income is for a given workload, i.e., for the appropriate number of pilots, with the consequence that when, for any reason, "there are too few pilots, earnings may be above the recommended figure until the pilots have been brought up to strength, or, conversely, that where the number of pilots exceeds that

which the traffic and circumstances of the District can reasonably justify, the pilots may earn less than the recommended figure until their number has fallen to the appropriate level". It is reported that between 1957 and 1963 there were four increases in the remuneration of navigating officers, which resulted in four revisions of the standards and an aggregate increase of 30 per cent. The proposed target incomes vary considerably from one port to another: the highest was 1850 pounds for first class pilots in London and the lowest was 950 pounds for the District of Londonderry.

In Districts where the Pilotage Authority provides the pilot boat service, a separate charge is generally made in the pilotage dues. This revenue is reserved in a separate account to finance pilot vessel operations; in such cases, the cost of pilot vessel services does not form part of the District expenses deducted from the pilots' revenue.

As a rule, pilotage is optional but when the Minister considers it desirable he may issue a Pilotage Order imposing compulsory pilotage on the whole, or part, of a Pilotage District. The Act provides no criteria but it is obvious from the context that two important factors are a stable income and safety of navigation. Pilotage is compulsory in that the penal sanction is a fine not exceeding double the pilotage dues payable. The financial preoccupation of the system is evidenced by the existence of a statutory scheme of exemptions and the fact that a Master can never be compelled to give a pilot charge of navigation. The obligation is merely to take a pilot on board.

The following are exempt by statute: all ships belonging to the Crown; certain categories of ships, whether or not the Master is qualified to navigate in District waters, i.e., pleasure yachts, fishing vessels, ships under 50 tons gross and ferry boats operating as such exclusively within the limits of a Harbour Authority, ships of any description calling at a port for the non-commercial purpose of embarking or disembarking a pilot who belongs to another Pilotage District; tugs and maintenance vessels belonging to, or hired by, the local public authorities. Pilotage Authorities may provide further exemptions by regulations for ships trading coastwise, home trade ships trading otherwise than coastwise and ships employed exclusively within the limits of the District, provided, in all cases, that they do not carry passengers.

A ship whose British Master or mate possesses a pilotage certificate for the District is also exempt, provided they are bona fide Master or mate of the ship concerned and have the competence and local knowledge to navigate the ship within the District. A certificate is not necessarily limited to a given ship but may be granted for a class of ships to permit the certificate-holder to be transferred from one ship to another belonging to the same owner. By by-law, the owners of ships whose Masters or mates hold pilotage certificates may be required to contribute, generally on the basis of the use made of the exemption, toward the Pilotage District expense fund. Available information for 1957 indicates, *inter alia,* the number of pilotage certificates issued in the following Districts:

Belfast	132,
Clyde	223,
Trinity House London	338,
Liverpool	353.

The qualifications required of an applicant for a pilot's licence, and whether or not an apprenticeship is required, are matters to be wholly determined locally by each Pilotage Authority through its by-laws. As a rule, pilots are recruited from the ranks of experienced mariners and apprenticeship is the exception.

The Act provides for the limitation of civil liability of pilots but leaves the matter to be decided by the pilots themselves. As noted above, if the majority of the pilots in a District so desire, their financial liability is limited to the amount of the bond as fixed by by-law, the amount not to exceed 100 pounds. It appears that most Districts have adopted this system. The Act further provides that licensing pilots does not impose any liability upon the Pilotage Authority for any loss incurred by any act

or default of one of its licencees. Since 1918, the Act has made the shipowners responsible for the wrong-doing of pilots, thus putting an end to the defence of compulsory pilotage by which they were often able to evade civil liability toward third parties.

A Pilotage Authority has wide reappraisal powers and may suspend or revoke a pilot's licence or any pilotage certificate for cause, provided its holder is given the opportunity to be heard.

Any person who believes he has been wronged by a Pilotage Authority in the exercise of, or failure to exercise, its appraisal or reappraisal powers may appeal to the Minister who renders his decision. In the case of suspension or revocation of a pilot's licence, or refusal or failure to renew a licence, or imposition of a fine exceeding two pounds, a pilot may appeal to a regular court which shall sit with an assessor of nautical and pilotage experience selected by the court. The decision of this court can be appealed to the High Court whose decision is final. The costs thereby incurred by a Pilotage Authority are payable as general expenses of the District.

The Act does not create any association or corporation of pilots, nor does it officially recognize any existing ones. A pilot, like any other citizen, is free to join any association. There are two trade unions to which most pilots belong: the United Kingdom Pilots Association and the Transport and General Workers Union.

Certain Pilotage Authorities, pursuant to a power they possess through ancient charters, issue deep-sea licences valid for the deep-sea zone contiguous to their district limits. In fact, this is coastal pilotage and the certificate so granted is merely a certificate of competency. It carries a high reputation but it gives its holder no special power, e.g., he could not supersede any person whether or not certificated. It is reported that the improved system of aids to navigation and the advent of radar has recently diminished the need for deep-sea pilots.

UNITED STATES

The United States Constitution gives Congress the legislative power to regulate pilotage, but one of the first laws enacted by Congress in 1789 authorized the continuance and expansion of the existing pilotage laws of the States "until further provision is made by Congress" (46 USC 211). Congress subsequently restricted this broad power conferred on the States, but the States have retained their legislative power to regulate pilotage for all ships engaged in foreign commerce, i.e., foreign ships and U.S. ships under register (Ex. 879).

Federal Legislation

The State pilotage system must be viewed alongside federal legislation for licensing pilots, which in turn is tied in with federal ship licensing laws.

The ship licensing laws of the United States provide for four classes of vessels: those that are *numbered* (pleasure boats, motor boats, etc.), those that are *public* (government vessels), those that are *registered* and those that are *enrolled*. The first two classes are excluded from all pilotage laws, although they may avail themselves of the services of federal or state pilots. *Registered* vessels are those engaged in trade with foreign nations; they are required by the various State laws to take State pilots. *Enrolled* vessels are those engaged in coastal or home trade; they must be under the charge of a federally licensed pilot.

The existing federal legislation on pilotage in the territorial waters of continental United States, with the exception of the Great Lakes which is reviewed briefly hereunder, may be summarized as follows:

1. "Every coastwise seagoing steam vessel subject to the navigation laws of the United States, . . . not sailing under register, shall, when under way, except on the high seas, be under the control and direction of pilots licensed by the Coast Guard" (46 USC 364).
2. All other vessels may be required by State law to take a State pilot (46 USC 215).

Federally licensed pilots pursue their calling either as independent contractors or as members of vessels' crews. However, most of the large steamship lines operating coastwise require their Masters and mates to hold a federal licence as pilot, which appears as a pilotage endorsement on their certificate of competency for all the U.S. ports at which their vessels call. Consequently, a very large number of the Masters and mates operating in the coastal waters or home trade of the United States are federally licensed pilots. As noted above, this license, or pilotage endorsement, is issued by the United States Coast Guard. It will be given after due examination by the Coast Guard of the applicant's professional qualifications. From 10 to 18 round trips over the pilotage waters involved are usually a prerequisite, an experience which is normally gained by the applicant while sailing as a ship's officer. Upon satisfactory examination, the candidate receives an endorsement on his Master's or mate's certificate specifying the route or routes for which he is qualified. This licence, or pilotage endorsement, may be revoked or suspended for due cause, but is otherwise good for 5 years and may be renewed at the end of each 5 year period without further examination other than physical, unless the licensee has not been employed as a pilot in the waters covered by his licence during the 3 years preceding application for renewal, in which case he must pass a written examination on the rule of the road.

While the examination, licensing and discipline of federal pilots are functions of the Coast Guard, the organization, management and remuneration of the federal pilots are not subject to federal regulations. The federal pilots who are not members of vessels' crews operate as free contractors; they are often organized into groups, such as the Interport Pilots Association which provides federal pilotage requirements in the Cape Cod Canal and along the coast of Massachusetts.

State Legislation

By contrast, pilotage under State laws is a closely regulated enterprise. State pilotage applies to all ships operating in foreign trade, including both U.S. flag ships under register and foreign ships. There are twenty States on the Atlantic, Gulf of Mexico and Pacific Coasts now regulating pilotage, each with its own legislation on the subject. The names of these States, with a reference in each case to the applicable law, the approximate total number of pilots and the main pilotage areas are listed hereunder:

PILOTAGE IN THE UNITED STATES

States Regulating Pilotage

State	Statute	Number of Pilots	Port or River Pilotage Areas
Maine	Special laws, c.192	5	Portland.
Massachusetts	3 Mass. Laws Ann., c.103	24	Boston.
Rhode Island	Gen. Laws 1938, c.114	8	Narragansett Bay ports.
New York	Nav. Law, Art. 6	105	N.Y.-N.J. Sandy Hook; Hell Gate (East River); Hudson River.
New Jersey	N.J. Stat. Ann, Title 12, c.8	49	N.Y.-N.J. Sandy Hook.
Pennsylvania	Penn. Stat. Ann., Title 31, c.139	45	Delaware Bay & River.
Delaware	Rev. Code 1935, Sec. 1065 ff.	45	Delaware Bay & River.
Maryland	Code Ann. 1939, Art. 74	54	Chesapeake Bay & tributaries.
Virginia	Code, Title 54, c.16	44	Norfolk & Newport News, incl. James, York & Potomac Rivers.

PILOTAGE IN THE UNITED STATES (Cont'd)
States Regulating Pilotage (Cont'd)

State	Statute	Number of Pilots	Port or River Pilotage Areas
North Carolina	139 Code, c.114	11	Morehead City; Wilmington-Cape Fear.
South Carolina	1932 Code, c.141	12	Charleston.
Georgia	Code Ann. Title 80, c.101	17	Savannah; St. Simons Island.
Florida	Fla. Stat. 1942, c.310	57	Tampa; Miami; Jacksonville; Fort Lauderdale; Fernandina Beach; Cape Kennedy; Fort Pierce, Riviera Beach; Key West; Boca Grande; Port St. Joe; Panama City; Pensacola.
Alabama	1940 Code, Title 38	15	Mobile.
Mississippi	1930 Code, Sec. 4849 ff.	3	Pascagoula.
Louisiana	Gen. Stat. Ann., Sec. 9129 ff.	147	New Orleans; Baton Rouge; Crescent River; Lake Charles.
Texas	Stat. Ann., Sec. 8248 ff.	92	Port Arthur; Galveston; Houston; Freeport; Port Aransas; Brownsville.
California	Harbors & Nav. Code Sec. 1100 ff.	40	San Francisco Bay; Humboldt Bay; San Diego.
Oregon	Or. Laws, c.776	52	Columbia River Bar (Bay); Columbia River; Coos Bay; Yaquina Bay.
Washington	1935 Laws, c.18	28	Puget Sound.

The organization and operation of pilotage as constituted under the laws of these States differ considerably from one State to the other. In practically every case, however, pilotage is considered in the nature of a quasi-public service under the control of a Board of Pilotage Commissioners established by statute as the licensing and regulation-making body, but working closely with local pilot associations in developing and maintaining an efficient pilotage service in terms of State needs.

These Pilotage Boards are established either centrally, with jurisdiction State-wise, over all ports or areas where pilotage is organized, e.g., in the State of *New York* (where the Board of Commissioners of Pilots of the State controls pilotage

(a) to or from the New York-New Jersey port district by way of Sandy Hook,

(b) on the Hudson River and

(c) on the East River (Hell Gate));

or they are established for each port or area where the service of pilotage is regulated, e.g., in the State of *California* (where there is one Board of Pilot Commissioners for the Bays of San Francisco, San Pablo and Suisum, one for Humboldt Bay and one for San Diego), or in the State of *Florida* (where pilotage is administered by 13 different port pilotage commissions). The composition of these Boards varies considerably from one State to the other. For instance, the State of *New York* has a six-man Board of Commissioners of whom three are elected by the Chamber of Commerce of the City of New York, two by the Board of Marine Underwriters of the City of New York, and the sixth, whose authority is limited to pilotage on the Hudson River, is appointed by the Governor from the members of the Albany Port District Commission. The law does not require the Commissioners to have a marine background. *New Jersey* also has a six-man Board of Commissioners, but all are appointed by the Governor with the advice and consent of the Senate. The law stipulates that no more than three of the Commissioners shall be members of the same political

party and all must have a marine background but must have no interest in pilotage as a commercial enterprise. The *New Jersey* Board works closely with the *New York* Board in regulating pilotage in the Sandy Hook area. In fact, the *New York* and *New Jersey* Sandy Hook pilots operate jointly, although each group has its own separate organization. In the State of *Washington,* the Board of Pilotage Commissioners consists of five members. The Director of Labour and Industries is Chairman *ex officio* and the other four members are appointed by the Governor, two being active licensed pilots and two representing the shipping interests.

State pilotage laws generally require all ships engaged in foreign trade, including U.S. ships under register, to employ a licensed pilot of the State when entering or leaving a port where the service of pilotage is established by law. However, it can be generally deduced from the provisions of State laws that payment of pilotage dues, rather than pilotage itself, constitutes the nature of the compulsory system. For instance, under *New York* State law, the Master is required to take a licensed pilot and, in case of refusal, the pilotage dues are payable to the first pilot offering his services. The same situation exists in *Pennsylvania,* where, by statute, the Master is "required and obliged" to employ a pilot or forfeit one half the fees to a charitable organization. Again, the *Massachusetts* statute provides for forfeiture of the whole pilotage fee if a tender of services is refused, and the *Louisiana* law inflicts a penalty of one half the fees.

While few State laws define the term "pilot", a State pilot is generally regarded as a person not belonging to a ship who takes charge or control of the navigation of a ship at a particular time and place, subject to the customary authority of the Master.

Another common characteristic of State pilotage systems is the establishment of local pilotage pools by voluntary associations of pilots on the basis of the port or area where the service of pilotage is regulated by State law. Practically all the estimated total of 850 pilots in the twenty coastal States belong to one or the other of the 48 pilot associations now existing. Pilot associations are not required by law, but are a necessity which developed over the years. Up until about 1880, intense competition among the pilots prevailed in most ports, particularly those with no restriction on the number of pilots who might be licensed. Pilots cruised far out to sea in quest of clients. Little effort was made to maintain pilot stations and frequently pilots were unavailable. The pilots gradually came to realize the disadvantages of the competitive system and took steps to form associations. These were organized like guilds and were, in effect, closed corporations. Thus, the initiative for establishing associations came from the pilots themselves, with full support from the shipping and commercial interests.

The main characteristics of the State pilot associations are:

(a) voluntary basis of association;

(b) joint determination of working conditions and remuneration;

(c) common funds;

(d) regulation by the State;

(e) common ownership of assets.

In some States, e.g., *New York* and *New Jersey,* the associations must be incorporated under the laws of the State but in others, the associations are not incorporated; the association itself conducts no business, except as the agent of its members, owns no property and has no income as an entity, and is, therefore, not required to pay income taxes as an association.

The pilot associations, which are non-profit organizations, are autonomous in their respective localities. They hold no specific franchise, but are required to provide, operate and administer the service in conformity with the law of the State and in accordance with the regulations made by their respective Boards of Pilotage Commissioners. The pilot associations are responsible for the despatching of pilots, collection of dues, payment of operating expenses and the distribution of earnings to the pilots. In each locality, the pilotage service must be self-supporting, its cost

being borne wholly by the users through pilotage fees charged against ships. Even the administrative expenses of the State regulatory authority are supplied from the pilotage dues earned and levied against the pilot association as a percentage of earnings, e.g., 1½ per cent of the gross earnings in the States of *New York* and *New Jersey*.

By the Articles of Association, the pilotage dues earned by individual pilots are paid to the association. The various deductions from these earnings to pay operating expenses generally represent about one-third of the pilots' gross income. These expenses include office accommodation, supplies and upkeep of pilot vessels, the percentage of earnings that must be paid over to the Pilotage Commission, funds set aside for depreciation, and pensions paid to retired members. Pension payments are an important cost item of the association, e.g., a retired New York Sandy Hook pilot receives 25 per cent of the gross "take-home pay" of a full branch pilot. The pilots are paid a share of the pool. The rules governing the sharing vary with each association, but usually are determined by a number of factors, including the grades or classes of licence. The pilot associations are required to report all earnings and disbursements regularly to their respective Pilotage Board, together with other pilotage particulars.

There is no uniform pattern for setting pilotage rates and charges. In several States, *New York* and *New Jersey* among them, the Legislature has retained for itself the power to determine and fix pilotage fees and, accordingly, the pilotage laws in these States specify the rates and charges to be assessed for pilotage services. Therefore, the law must be amended each time the rates are changed. In other States, e.g., *Washington*, the Legislature has delegated to the respective State Pilotage Board or Boards the authority to set rates. In one case (*California*), the Legislature has established a pilotage rate committee to advise it in that respect.

Generally, the rates are based on draught although, in some cases, the rates vary with distance run and net registered tonnage (*California*). This usually results where pilotage requires continuous service in long, circuitous river channels or extended service through larger bays and harbours. Other lesser but fixed charges are also made for added services performed for shipping companies in ports, such as movages (shifting vessels), berthing and unberthing, and adjusting and calibrating compasses.

Pilotage charges are usually determined after consultation or hearings involving the various interested parties. In *New York* for instance, negotiations over rates are arranged by the pilots every three or four years and are negotiated by them with the American Merchant Marine Institute,* a trade association grouping the owners of American-flag merchant ships of all types. When agreement is reached on a proposed change in pilotage rates, a Bill duly sponsored by a member of the Legislature will be introduced to a committee of the New York Legislature which, in case of dispute, will hold a public hearing. In the State of *California*, where a standing committee of five members is charged by statute with the responsibility to study pilotage rates, the committee makes recommendations to the Legislature every two years on the pilotage rates that should be charged. Public hearings are held for the purpose of obtaining the necessary information and data, and the evidence is taken verbatim. After review of the evidence, the committee submits its findings and recommendations. In the preparation of its recommendations, the committee must be furnished with an independent audit by a public accountant selected by the committee to cover pilotage operations for such years as may be determined by the committee. The committee must also give consideration to other relevant factors, including:

(a) the costs to the pilots, individually or jointly, of providing pilot service as required;

* The A.M.M.I. is the main American shipping association involved in pilotage on the Atlantic and Gulf of Mexico Coasts and its interest in that connection is comparable to the Shipping Federation of Canada.

(b) a net return to the pilots sufficient to attract and hold persons capable of performing this service with safety to the public and protection to the property of persons using the service; and the relationship of that income to any changes in cost of living indices;

(c) pilotage rates charged for comparable services rendered in other ports and harbours in the United States;

(d) additional factors affecting income to pilots such as the volume of shipping traffic using pilotage, change in the size or structure of vessels affecting pilotage rates, numbers of pilots available to perform services, income paid for comparable services, and other factors of related nature.

The system of recruiting pilots varies from State to State. Generally on the West Coast, new members are almost always Masters who, having been found acceptable by the local Board of Pilotage Commissioners, join the pilot association and take a share of stock, the value of which varies depending upon the port. On the East and Gulf Coasts, the practice is to recruit new members through an apprentice system. The apprenticeship usually consists of a period of service on board pilot boats and pilot launches, and as an observer with a senior pilot on board inward and outward bound vessels. After the apprentice has completed his training, consisting of from two to six or more years depending on the pilotage legislation of the State, and having successfully passed an examination before the Pilotage Board in all phases of his knowledge and training, he is licensed as a deputy pilot and granted the lowest grade of pilot's licence. As he gains experience, his grade is increased gradually until he becomes a first grade pilot, or a full branch pilot, qualified to pilot the largest ships.

One of the more elaborate systems of apprenticeship and grading of pilot licences is exemplified in the case of the *New York-New Jersey* Sandy Hook pilots. The candidate, who must not be less than 18 years of age, must undergo a period of 8 years' training and 7 years as deputy pilot before becoming a full branch pilot. During the first eight-year period, the apprentice must qualify and pass various examinations before finally obtaining from the Coast Guard his certificate of competency as pilot boat Master, duly endorsed for pilotage in New York harbour. At the conclusion of this eight-year period, the apprentice is examined by his State Board (*New York* or *New Jersey*) of Commissioners of Pilots and granted a Sixth Grade licence (draught 20 feet, gross tonnage 8,500). On conclusion of one year's service in that Grade, he is promoted to the Fifth Grade (draught 24 feet, gross tonnage 11,500). On completion of two years' service in the Fifth Grade, he is promoted to Fourth Grade (draught 28 feet, gross tonnage 18,000 tons). On completion of three years' service in that Grade, he is entitled to the Third Grade licence (draught 32 feet, tonnage 33,000). On completion of two years' service in the Third Grade, he is promoted to the Second Grade (draught unlimited, gross tonnage 35,000 tons). On completion of two years' service in the Second Grade, he is promoted to the First Grade (draught unlimited, tonnage unlimited). The Sandy Hook pilots do not normally berth and unberth ships, an operation which is commonly done by New York tug boat docking pilots who hold a federal pilot's licence only. In an inbound ship, the Sandy Hook pilot's assignment is finished when the ship is lying in the stream off the pier; then the docking pilot, usually a veteran tug-boat Master, takes over. On the other hand, the Hudson River and Hell Gate pilots normally berth and unberth ships.

Many of the other States on the East and Gulf Coasts have provisions for apprenticeship and grading of pilots similar in nature to those of *New York* and *New Jersey*, but modified to meet the specific needs of their respective ports and commercial requirements. Each apprentice, upon receiving his licence, joins the pilot association and buys a share of stock. Shares relinquished by members who die or resign are bought back by the association at their par value.

State pilots must accept their assignments under rotation unless just and adequate reasons prevent them. Outgoing pilots disembark at the pilot station, i.e., board the pilot boat cruising over pilotage grounds several miles away from harbour or river

entrances, to await their return for assignment to inbound ships, and the rotation system proceeds without interruption throughout the year. The obligation to provide, maintain and operate one or more pilot boats, as required, becomes a key requirement of the profession. A pilot office ashore is in constant touch with the pilot boat(s) and arranges for the rotation of pilots.

In a number of States, pilots are required to post a bond for the faithful performance of their duties. The amount of the bond varies, e.g., the Sandy Hook pilots of *New York* and *New Jersey* must post a $500 bond, while the San Diego pilots in *California* are required to post a $2500 bond. The State pilot is personally liable for losses resulting from his negligence and none of the State laws provides a limitation on pilots' liability. In a civil law suit, the pilot may be held responsible and required to pay damages resulting from his negligence, but, in fact, shipowners do not generally prefer any civil claims against pilots involved in accidents.

The laws and regulations usually require high standards of conduct of State pilots. Neglect of duty, refusal without satisfactory reason to accept an assignment and intoxication while on duty are a few of the infractions that may result in suspension or dismissal. The various State laws empower the local Board of Pilotage Commissioners to examine all complaints made against pilots for these and similar breaches of regulations. In a number of States (*New York, New Jersey, California, Oregon, Washington*), the law sets out the procedures to be followed by the Pilotage Board in the investigation of these complaints, including holding a public hearing whenever the nature of the complaint affords grounds for revocation or suspension of a pilot's licence. These statutes also provide for review of the Pilotage Board's decision, either by a court of common pleas or by the Governor.

All the State pilot associations are members of the American Pilot Association, which was formed in 1884 to promote their welfare and common interests. Membership in this national Association is restricted to organized groups of licensed State pilots. Pilots in all the large United States ports are thus represented, except in Los Angeles where federally licensed pilots are municipally controlled and paid. The national Association is provided with an Executive Committee of twenty members, i.e., one representative from each State regulating pilotage. This Committee selects the officials of the Association, including a President, two Vice-Presidents and a Secretary-Treasurer, who hold office for a two year period. The Association carries on various programs in the field of public relations, not only with the legislative and executive departments of the Federal Government, but also with the American shipping industry.

*Pilotage on the Great Lakes**

The State pilotage system was never developed on the Great Lakes. Prior to the opening of the St. Lawrence Seaway in 1959, the total yearly number of foreign ships that penetrated into the Lakes was so small as to make any such development unnecessary. However, with the construction of the St. Lawrence Seaway and the opening of the Great Lakes to the ships of the world, the problem of adequate pilotage presented itself and, since both Canada and the United States have common interests in the Great Lakes, a basis of regulation satisfactory to both Governments had to be found.

After a period of consultation and negotiation, the two Governments agreed to establish, each through its own legislative process, a separate but co-ordinated system of compulsory pilotage on the Lakes. The resultant legislations were passed in 1960. Congress enacted the Great Lakes Pilotage Act (46 USC 216) and Parliament passed what is now known as Part VIA of the Canada Shipping Act (S.C. 1960 c. 40).

The Great Lakes Pilotage Act is the latest United States federal legislation on pilotage. It occupies the legislative field completely, specifically prohibiting State, municipal or other authority to regulate any aspect of pilotage in the Great Lakes Basin.

*Pilotage in the Great Lakes Basin is the subject of Part V of the Commission's Report.

The Act establishes compulsory pilotage for all ocean-going vessels, including United States vessels under register, navigating the Great Lakes. U.S. and Canadian "lakers", i.e., those constructed for, and operating in, the Great Lakes trade, are specifically excluded but, in the latter case, only on a reciprocal basis with Canada. The compulsory requirement of the Act is of dual character, i.e., absolute in one case and relative in the other:

(a) In the "designated" waters of the Great Lakes (between Kingston and Cornwall; in the Welland Canal and connecting channels between Lake Erie and Lake Huron; in the connecting channels and locks between Lake Huron and Lake Superior), the navigation of vessels must be *under the direction* of a "registered" pilot, either American or Canadian. In either case, however, it involves a person not belonging to the vessel.

(b) In the undesignated open waters of the Great Lakes, unless the Master or other officer of the vessel holds a pilotage (so-called "B") certificate issued by the Department of Transport of Canada (by arrangement between the Governments of the United States and Canada) qualifying the holder, after due examination, to pilot his vessel in those waters, a "registered" pilot must be *on board* and, if so requested by the Master, take over the direction of the navigation of the vessel.

The penal sanction for this compulsory rule is a fine not exceeding $500 for each day of violation.

In the United States the regulatory and licensing authority is vested in the Secretary of Transportation (originally vested in the Secretary of Commerce, but on April 1, 1967, transferred to the Secretary of the newly-formed Department of Transportation). The regulation-making power of the Secretary extends to such matters as:

(a) registration of United States pilots, including qualifications, terms and conditions of service, discipline, suspension and revocation of registration;

(b) the establishment, in co-operation with the Minister of Transport, of joint or identical rates; and

(c) the formation, administration and operation, under government control, of pilotage pools by "a voluntary association or associations of United States registered pilots", a feature of the State pilotage system which was adopted by Congress in this legislation.

There are three such associations, one for each of the Great Lakes so-called Pilotage Districts, in which a total of 85 United States pilots were registered in 1966.

The Act authorizes the Secretary to appoint an Advisory Committee of three members experienced in maritime operations to review proposed pilotage regulations and policies and to make such recommendations as they deem appropriate.

The Secretary is also authorized to enter into arrangements with the appropriate Canadian Authorities (Department of Transport) for equitable participation by United States registered pilots with Canadian registered pilots in the operation of the pilotage service, and for effecting, generally, the necessary co-ordination between the two national pilotage organizations on the Great Lakes. In recognition of this need, a Memorandum of Arrangements was signed by the Secretary and the Minister of Transport on May 1, 1961. It provides in detail the manner in which each country will participate in the organization, administration and control of the said service. The Memorandum of Arrangements was incorporated in an Exchange of Notes between the two Governments on May 5, 1961 (Ex. 1400).

Pilotage in the Panama Canal

The Panama Canal, which was built by the United States (1904-14) on territory leased in perpetuity from the Republic of Panama to connect the Atlantic and Pacific oceans across the Isthmus of Panama, is approximately 45 miles long. It is characterized by bends of varying sizes and degrees, and a minimum navigable depth of 41 feet. It has six concrete lock chambers, each 1,000 feet long and 110 feet wide. From Limón Bay at Cristóbal on the Atlantic side, a ship is raised by a

set of three locks to an elevation 85 feet above sea level, traverses Gatún Lake, crosses the Continental Divide through Gaillard Cut, and is then lowered by three other locks to the Bay of Panama at Balboa on the Pacific. An average transit requires 8 to 10 hours.

The Panama Canal Act (48 USC 1301) establishes the Canal Zone, extending 5 miles on either side of the Canal, as the administrative area of the United States. The Act authorizes the President to appoint, for a term of four years and with the advice and consent of the Senate, a Governor to operate the Canal and to govern the Canal Zone. The President is the regulation-making authority for the operation of the Canal generally, including pilots and pilotage, canal tolls and the settlement of claims for damage to vessels in the Canal. The Presidential regulations on these matters are contained in cs. 4, 11 and 9 respectively of the "Rules and Regulations Governing Navigation of the Panama Canal and Adjacent Waters" (Ex. 496). The administration of these regulations is the responsibility of the Governor, including the appointment of pilots, helmsmen, linesmen and others, and the acquisition of all the special equipment and facilities necessary for the proper management and operation of the Canal. In 1951, the Panama Canal and the Canal Zone became, by an Act of Congress, the Panama Canal Company and the Canal Zone Government respectively.

Pilotage through the Canal is compulsory and the pilot assigned to a vessel has full "control of the navigation and movements of such vessel". The only vessels exempt are those of the United States Navy, local craft of the United States Army or Navy and of the Panama Canal Company, and any vessel that makes frequent calls to the Canal Zone waters. In each case, however, exemption is left to the discretion of the respective Port Captain at the terminal ports of Cristóbal on the Atlantic, and Balboa on the Pacific, since he must be satisfied that the officers and crew of the vessel or craft have the necessary experience and ability to effect a safe transit. Even so, "whenever any such vessel or craft makes transit without a pilot, the respective Port Captain shall dispatch it with a larger vessel carrying a pilot, and it shall lock through with that vessel".

As a necessary consequence of this compulsory pilotage, the Panama Canal Company undertakes responsibility for the transit of vessels. In the case of accidents occurring during transit, the Company undertakes to "promptly adjust and pay damages for injuries to vessels, or to the cargo, crew, or passengers of vessels".

There is no separate charge for the pilotage service furnished by the Company; there is one local tariff covering all services in the Canal. The tolls are based on net tonnage, determined in accordance with the Company's own "Rules for Measurement of Vessels", and the toll rates vary according to types of vessels.

There are some 120 pilots in the Panama Canal, all U.S. citizens and employees of the Panama Canal Company. They are assigned in about equal numbers to the two pilot stations located at the terminal ports (Christóbal and Balboa). The pilots, who generally work in only one direction, come under the direction of the Port Captain and his Assistant, the latter being the chief pilot of the station.

The pilots are paid an annual salary which is scaled up according to years of service. They have a basic work week of 40 hours which includes piloting time, travel time allowance of 2¼ hours for each transit, and stand-by time. They receive time-and-a-half pay after 40 hours in any work week, and double pay for work performed on holidays, Sundays included. They also receive combined sick and annual leave benefits up to a total of 27 days yearly with a maximum permissible accumulation of 60 days. Free home leave travel every two years to the pilot's place of actual residence in the United States is allowed for himself and his family.

The Canal pilots and the Company contribute to a pilots' pension fund administered by the Company. The contributions required from each amount to 6 per cent of the pilot's basic salary. The Canal Company guarantees the actuarial solvency of the fund. Pilots are compulsorily retired at age 62 or after 30 years of service as pilot with the Canal Company.

The minimum requirements to qualify an applicant for appointment as a Canal pilot are: high school education or equivalent; between 25 and 38 years of age; holder of an unlimited Master's certificate issued by the United States Coast Guard, with a minimum of one year's service as Chief Mate in an ocean-going vessel of over 1000 gross tons; minimum service of 3 months as Master of a Panama Canal tow boat; employment as pilot in training with the Panama Canal Company for a period of 6 months; and finally, success in an examination set by the Company.

WEST GERMANY

Pilotage in West Germany is governed by a federal statute, the "Marine Pilotage Act of October 13, 1954" (Ex. 877). For many years previously, pilotage, which was conducted mainly in ports, rivers and canals, came within the jurisdiction of the States bordering on the coast and the approximately nine hundred pilots were not under uniform legislation. Pilots on the Baltic were usually civil servants while on the most important waterways in the North Sea area (Elbe, Weser and Ems) they were never State employees but practiced their profession within independent organizations. The 1954 Act repealed all previous pilotage statutes and regulations and imposed on all West German pilots a uniform organization under stricter public control, now exercised by the Federal Government. In point of fact, few existing arrangements were altered because the management of the service remained in the hands of the pilots' local professional groups. The exception was The Trave River District where public control was retained by the Federal Government which employed its own pilots.

Under the new Act, the Federal Government is not responsible for pilotage operations as such but must ensure that efficient services are provided in all areas. The principal features of this legislation are:

(a) The Federal Government provides the necessary buildings and equipment (including pilot vessels), enacts by regulations the legislation required at local level and fixes tariffs to support an adequate target income.

(b) Federal "Supervisory Authorities" (federal officers in charge of each Maritime Region), *inter alia*, "ensure careful supervision in the selection of pilots and their activities".

(c) The collection of pilotage charges and remittance of revenue to the Brotherhoods for distribution to the pilots are federal responsibilities.

(d) The Federal Government exercices general supervision in unorganized areas to the extent necessary for public protection.

(e) In the Trave River District, pilots are civil servants following the former practice.

The status of a pilot may be:

(a) Federal employee (at present this exists only in the Trave River District);

(b) quasi-employee (a pilot belonging to a Brotherhood is a quasi-employee because he can not exercise his profession except as directed by the Brotherhood and is not entitled to what he earns but only to a share in the Brotherhood net revenue); or

(c) independent contractor (licensed but subject to no control over the provision of his services and entitled to all fees and dues earned personally).

The Act specifies that the direction of pilotage, including organization and maintenance in Pilotage Districts, is the State's responsibility, while District administration is the responsibility of the local Brotherhood.

The Minister of Transport is the regulation-making authority but he must consult with the coastal States and Pilots' Federation.

The subject-matters of regulations are:

(a) Re pilotage regulation:
  (i) creation of Districts and fixing their limits;
  (ii) legislation regarding the administration of pilotage and District regulations;
  (iii) definition of conditions of compulsory pilotage when required in a District;

(b) Re tariff regulations:
  (i) establishing conditions for compulsory payment of dues;
  (ii) fixing tariff rates both for pilotage dues and pilotage fees.

The Minister may delegate his regulation-making powers regarding items (a) (ii) and (iii) to the local Supervisory Authority.

All navigable waters are divided into regions, each under the jurisdiction of a Supervisory Authority, whether or not a Pilotage District exists. The function of Supervisory Authority is one of several responsibilities held by local federal officers of the River and Maritime Navigation Division of the Department of Transport. Supervising pilotage within its region is only one of the Supervisory Authority's functions. In an area where pilotage is not on an organized basis, its responsibility is limited to rate-fixing and the licensing of pilots, including surveillance to ensure that the pilots remain qualified and do not become safety risks. Where a Pilotage District exists, the Authority's responsibility extends further to the provision of services but only as far as necessary to ensure that the pilots remain qualified and that the Brotherhood has adequate equipment and performs its duties efficiently. In addition, it collects pilotage dues and fees and has surveillance responsibilities to ensure that the required pilotage services are provided by the Brotherhood.

The Act provides that Pilotage Districts shall be created in areas where it is essential for a controlled group of competent pilots to be available to ensure safety of navigation. The creation of a District automatically brings into existence a pilots' corporation or Brotherhood, to which all the pilots of the District automatically belong. Its main function is to direct, on behalf of the Federal Government, the provision of pilotage services in the District concerned. It is a government entity vested with administrative powers. The corporation is operated by its members, i.e., the pilots, under close federal supervision through the Supervisory Authority.

The functions of the Brotherhood are, in résumé:

(a) immediate supervision to ensure that each pilot carries out his duties conscientiously;
(b) equitable distribution of pilotage assignments through a tour de rôle system;
(c) mediation of disputes between pilots;
(d) taking the necessary measures to provide assistance, financial and otherwise, to pilots temporarily or permanently incapacitated or retired, and their dependents;
(e) pooling the pilots' earnings and, after deducting the administrative expenses specifically authorized by the Act, sharing the remainder among the pilots. Other Brotherhood expenses are met from corporation dues and assessments voted by the general assembly.

In addition, the Federal Government may, by regulation, entrust a pilot station and pilot vessel service in a District to the District Brotherhood. In these cases, the regulation provides for the capital, maintenance and operational costs thereby incurred to be a charge against the pool to the extent they are not met by the Federal Republic.

In case of failure on the part of the Brotherhood to comply with any of its duties after due notification, the Supervisory Authority may assume these responsibilities or have them carried out by a third party at the expense of the Brotherhood.

Drafting and amending a Brotherood charter (to the extent not covered in the Act) and drawing up their internal by-laws are the responsibilities of the pilots concerned as a group. When a text is agreed upon, it is not effective until it receives the approval of the Supervisory Authority, after which it must be published in a newspaper. In the event the pilots fail to reach agreement, the Supervisory Authority imposes a provisional constitution to enable the Brotherhood to function.

The Act provides that the legal authorities of the Brotherhood are the Eldermen and the general assembly of the pilots. The Elderman is the legal representative of the Brotherhood, but the scope of his powers may be restricted by constitutional agreement. He is elected for three years but may be removed by joint decision of the Supervisory Authority and the general assembly. The Act foresees the eventuality of the abolition and merger of individual Brotherhoods.

The Act also creates a Federation of Pilots whose main function is to represent all the Brotherhoods in matters of general interest, such as general legislation. It is required to act as mediator in disputes between Brotherhoods and also to endeavour to reach general agreement on questions of common interest. The Federation must be consulted before regulations are enacted, either by the Minister or the Supervisory Authority. The Federation's activities come under the surveillance jurisdiction of the Minister.

The official authorities of the Federation are its President and the general assembly. The Brotherhoods are represented as members by their Chief Pilot. Each Brotherhood of less than 100 pilots has one vote, the others two. The statutory provisions applicable to the Brotherhoods apply to the Federation, *mutatis mutandis.*

The Federation is financed by corporation dues or assessments fixed by the general assembly.

The provisions regarding Brotherhoods do not apply to Districts where the pilots are State employees nor to pilots operating in non-organized areas. The latter may, with the approval of the Supervisory Authority, form private associations for providing services in certain areas, but the area concerned does not become a District as a result. The pilots in non-organized areas are not represented by the Federation. The State pilots, however, participate in the deliberations of the Federation over matters concerning all Districts or pilotage generally. They elect their representative in the number fixed by the Minister.

Pilotage rates consist of two distinct components:

(a) pilotage dues: these belong to the Federal Government to help meet the costs incurred in the maintenance, operation and upkeep of federal pilotage installations, pilot vessels ships and stations, and the payment of the salaries of those pilots who are civil servants;

(b) pilotage fees: these form part of the remuneration for a pilot's personal services and belong to the pilot or Authority which furnished the services.

The criteria for fixing dues are, on one hand, the extent of public interest in maritime traffic in the area concerned and, on the other, recovery of the expenses incurred by the public in support of the pilotage organization. The criterion for fixing fees is target income, i.e., an annual revenue which gives each pilot an income corresponding to the educational level and responsibilities attached to his professional status and also provides security for old age, disability and death. A target income of this nature has been fixed on a national basis by a General Regulation: the gross target income is the monthly salary of a Master of a German ocean-going vessel (in 1963, reported to amount to $578.76 [Canadian] per month).

Fees are computed and fixed on the basis of:

(a) the total revenue necessary to provide the required number of pilots with the target income;

(b) the total number of ships requiring pilotage in each District.

Hence, fees vary from one District to another, although the services provided may be comparable.

There are no pilotage fees where the pilots are civil servants since their remuneration is part of the Government's expenses and is reflected in the dues.

Rates are based on gross tonnage and are scaled according to distance. Both fees and dues are billed and collected by the Supervisory Authority.

In principle, the whole pilotage organization is expected to be self-supporting and public funds may not form any part of the pilots' remuneration. The pilots must meet their own operating expenses out of their fees. Those required for providing, maintaining and operating the necessary land or sea equipment are normally borne out of the dues; when a Brotherhood bears any of these costs, it may be totally, or partially, reimbursed by the Government but these grants should come out of the dues.

The Act provides that compulsory pilotage and compulsory payment of dues may be imposed by regulations. Where pilotage is compulsory, failure to take a pilot or, if one is taken, any interferences with the exercise of his duties, are statutory offences rendering the offender liable to imprisonment or a fine.

There are no statutory exemptions from either compulsory pilotage or compulsory payment: these are all left to be determined by regulations according to the particular circumstances of navigation and the financial requirements of each District. Special exemptions may be granted when required to vessels maintaining a regular service through District waters. A Master who proves he possesses the necessary local knowledge may be granted a personal exemption.

The factual situation is that optional pilotage is the rule but certain ships are required to take a pilot in certain Districts on account of particular local conditions. However, compulsory payment of pilotage dues is more often applied.

In the District of Ems, pilotage is compulsory for ships over six metres draught, but vessels belonging to the Federal or State Governments are exempt. There is no compulsory payment.

In the Elbe and Weser/Jade Districts, there is no compulsory pilotage but pilotage dues are owed, even if a pilot is not employed, by all ships exceeding 500 GRT. River vessels are exempt. On the other hand, vessels belonging to the various levels of government are exempt from the payment of dues, even if a pilot is employed.

In the Trave River District, there is no compulsory pilotage but compulsory payment of dues applies to all ships over 200 GRT, except river vessels, Government vessels, tugs within certain harbours, and any vessel navigating in the area defined in the regulations.

In the Kiel Canal, there is compulsory pilotage for all vessels over 50 GRT during towing hours and over 15 tons at other times. However, vessels of certain tonnage and tugs may be exempted, provided the Master or his mate can establish that he possesses the required local knowledge.

The Act provides that any person desiring to exercise the profession of pilot must meet the applicable statutory and regulatory requirements which are verified by the Supervisory Authority through a licensing process. In Pilotage Districts, the pilot receives a licence; local regulations may provide for a grade system. In non-organized areas, the licence takes the form of an official authorization.

It is a statutory offence for any one except a licensed pilot, in the case of a District, and an approved pilot in a non-organized area, to act as pilot under any circumstances. The Act gives Supervisory Authorities limited reappraisal powers. A pilot may be required to pass a new medical examination at any time. A licence will be cancelled whenever an incompatible physical impairment occurs, or when the required certificate of competency has been withdrawn, or when a pilot has proved irresponsible through gross neglect in the performance of his duty.

Preventive suspension is specifically provided for. It must be imposed by the Supervisory Authority as a temporary measure whenever a pilot's actions are the object of either an official inquiry or of penal proceedings, or when, on account of his health, a pilot is considered a safety risk. Preventive suspension lasts until the tribunal has rendered its verdict or a qualified medical authority has certified that the

pilot is fit for duty. If, however, physical impairment is of a temporary nature, preventive suspension is extended to a maximum of one year until the pilot recovers. Before a licence is withdrawn, the pilot concerned must have a hearing before the Pilot's Federation. The withdrawal order, however, is the responsibility of the Supervisory Authority and the order must indicate the grounds for withdrawal.

A General Regulation sets out the health standards and provides for periodical compulsory medical examination. The age limit is 65, but it may be extended from year to year to 70, provided the pilot is certified to be physically and mentally fit.

The Act provides that the shipowner remains responsible for damages caused by his ship, even though they may be attributed to a pilot while performing his duties. The Act does not contain any limitation on a pilot's civil liability.

From information received, there were eight Pilotage Districts in 1963 with a total of 896 pilots, divided as follows:

Ems	33 pilots
Weser I	72 pilots
Weser II/Jade	94 pilots
Elbe	317 pilots
Kiel Canal I	188 pilots
Kiel Canal II and Kiel Fjord	168 pilots
Trave	21 pilots
Flensburger Fjord	3 pilots

Not counting the smaller pilot vessels required for the changeover of pilots, there were seven pilot vessels provided by the Federal Government, two in the Ems District, two in the Weser District and three in the Elbe District. In addition to the crew, these vessels have accommodation for 44 pilots, and are equipped with modern means of communication and two radar sets. The procedure is for these vessels to serve in turn at the sea station for a two-week period. Pilots embark and disembark from pilot boats carried by the pilot vessels. These pilot boats are equipped with a radar reflector and a small radio set for local communications.

APPENDIX XIV

TABLE OF CASES CITED

Case No.		*Page(s)*
1	S.S. *Argyll* v S.S. *Sunima* (1962) Ex. C.R. 293	351
2	Attorney-General v Miller (1899) N.B. Eq. R. 28	65, 80, 353
3	Belisle v Minister of Transport (1967) Ex. C. in Admiralty, Ottawa Central Registry, (No. 308) (not reported) Exhibit 1468 (vide No. 38 *infra*)	393
4	Bell Telephone Co. v Brigantine *Rapid* (1897) 12 S.C. 37	212
5	Canada Steamship Lines v Hon. Lionel Chevrier et procureur général du Canada (1948) C.S. 378	324
6	Corporation of Pilots v S.S. *Grandee* (1902) 8 Ex. C.R. 54, (in appeal) 79	215
7	Corporation of Pilots v Brigantine *J. A. Horsey* (1884) 10 Q.L.R. 257	196, 229
8	Dyke, Nathan v Pilotage Commissioners of Humber Arm (1955) S.C. Newfoundland, District of Corner Brook, (No. 63) (not reported) Exhibit 1528	82, 282
9	*Ex parte* Chrysler in Simard v Chrysler and *ex parte* Chrysler in Corporation of Pilots v Chrysler (1864) 14 L.C.R. 209	212, 230
10	Gamache v Jones *et al* (1967) Ex. C. (No. B-1334), Exhibit 1521(b) Notice of appeal (Jones) filed December 1, 1967	254, 263
11	Guay v Lafleur (1965) S.C.R. 12	408
12	Gariépy v Boulay (1936) C.S., District of Quebec (No. 32,151) (not reported) Exhibit 1466 (d) in appeal Hamel v Gariépy (vide No. 15 *infra*) in appeal Gariépy v The King (vide No. 13 *infra*)	Rec. 9
13	Gariépy v The King (1940) D.L.R. 12	240, 323, 399
14	Halifax Pilot Commissioners v Farquhar (1894) 26 N.S.R. 333	215
15	Hamel v Gariépy (1937) B.R. 459	Rec. 9
16	Himmelman *et al* v The King (1946) Ex. C.R. 1	114, 240, 318 323
17	Lafrance v Jackson (1884) 12 R.L. 21	304
18	*Lotus* (the) (1861) 11 L.C.R. 342	28, 211, 346
19	M.V. *Lubrolake* v S.S. *Sarniadoc* (1959) Ex. C.R. 131	427
20	McGillivray v Kimber (1915) 52 S.C.R. 146...57, 241, 246, 261, 266, 274, 276, 356	
21	*Nithsdale* (the) (1879) 15 C.L.J. 268 (Ont.)	214
22	Paquet v Pilots Corporation (Quebec) (1920) D.L.R. 323 (1920) A.C. 1029	66, 187
23	Paterson Timber Co. v. S.S. *British Columbia* (1915-17) 16 Ex. C.R. 305	215
24	Pigeon River Lumber Co. v Mooring (1909) 130 O.W.R. 190, affirmed 14 O.W.R. 639	215
25	Pouliot v Minister of Transport (1964) Ex. C. (No. A-2423) (not reported) Exhibit 1449(a) (vide No. 36 *infra*)	408
26	Pouliot v Minister of Transport *et al* (1964) C.S., District of Quebec (No. 135-352) (not reported) Exhibit 1449(b) (1965) C.S., District of Quebec (No. 135-352) (not reported) Exhibit 1449(c) (vide No. 37 *infra*)	408
27	S.S. *Quebec* v S.S. *Charles Chaloner* (1875) 19 L.C.J. 201	211

Case No.		*Page(s)*
28	Saint John Pilot Commissioners v Cumberland Railway and Coal Co. (1910) A.C. 208	215
29	Spaight v Tedcastle (1881) 6 A.C. 217	216
30	Spears v Saint John Pilot Commissioners (1910) 39 N.B.R. 495	323
31	Smith v Halifax Pilot Commissioners (1917) 51 N.S.R. 241	324
32	Smith v St. Lawrence Tow-Boat Co. (1873) 5 L.R. (P.C.) 308	216
33	The Queen v Randolph *et al* (1966) S.C.R. 260	338, 408
34	Toupin v Commissaires du Havre de Montréal (1893) 4 C.S. 43	290
35	Turbine Steamship Co. v Knapp Roller Boat (1908) 120 O.W.R. 723	215
36	Valin v Langlois (1879) 3 R.C.S. 1 (affirmed 1870-80, 5 A.C. 115)	374
37	Formal investigation: Collision between S.S. *Leecliffe Hall* and M.V. *Apollonia* Sept. 5, 1964, decision rendered Jan. 27, 1965, by Mr. Justice A. T. Smith, Exhibit 1457 (vide No. 25, 26 supra)	407
38	Formal investigation: Collision between M.V. *Lawrencecliffe Hall* and S.S. *Sunek* Nov. 16, 1965, decision rendered March 19, 1966, by Mr. Justice F. Chevalier, Exhibit 1461(y)	412
39	Formal investigation: Collision between M.V. *Transatlantic* and M.V. *Hermes* April 10, 1965, decision rendered March 18, 1966, by Mr. Justice C. Cannon, Exhibit 1468 (vide No. 3 *supra*)	393
40	Formal investigation: Sinking of dredge *Manseau 101* Sept. 30, 1966, decision rendered Jan. 27, 1967, by Mr. Justice C. Noël, Exhibit 1529	215