
Review of maritime transport, 1968



UNITED NATIONS

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UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Geneva

Review of maritime transport, 1968

(Review of current
and long-term aspects of maritime transport)

Report by the secretariat of UNCTAD



UNITED NATIONS

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CONTENTS

	<i>Paragraph</i>	<i>Page</i>
Introduction	1-3	1
<i>Chapter</i>		
I. The volume of international seaborne trade	4-12	3
II. The development of the world merchant fleet	13-54	7
(a) Size, composition and flag distribution	13-24	7
(b) Growth of individual fleets	25-34	10
(c) Additions to and deductions, from the world fleet	35-40	12
(d) Tonnage on order	41-46	12
(e) The trend towards bigger ships	47-53	14
(f) Liberty ship replacements	54-58	16
(g) Shipbuilding	59	16
III. Productivity of shipping space	60-63	18
IV. Freight rate developments	64-75	21
Liners rates	67-69	21
Dry cargo tramp market rates	70-75	21
(a) Time charter rates	70-71	21
(b) Voyage charter rates	72-74	22
Tanker voyage charter rates	75	22
V. Other general trends	76-100	23
(a) Containerization	76-88	23
(b) Nuclear powered ships	89-90	24
(c) Air transport	91-100	25
VI. International transoceanic transport and economic development	101-145	27
(a) Transport and economic development	101-109	27
(b) International transport structure	110-120	28
(c) Organization of trade and transport facilities	121-124	29
(d) Transport and the balance of payments	125-127	30
(e) The role of inter-change facilities	128-135	31
(f) Land-locked countries	136-137	32
(g) Technological progress	138-143	32
(h) Conclusions	144-145	33
VII. Bibliography	146	34

ANNEXES

I. Classification of countries and territories		36
II. Tables		38

LIST OF GRAPHS

<i>Graph</i>		
1. Comparative cost of transporting crude oil from Mena-al-Ahmadi to Rotterdam by various sizes of tanker		15
2. Ton/miles of cargo carried by one dwt, tankers and bulk carriers, 1960-1967		19

LIST OF TABLES

<i>Table</i>	<i>In the text</i>	<i>Page</i>
1.	Development of world international seaborne trade, 1955-1967 (goods loaded)	3
2.	International seaborne trade, 1959, and 1965-1967 shares of groups of countries	
	A. Goods loaded.	4
	B. Goods unloaded.	4
3.	Growth of international seaborne trade, 1959-1966, classified by types of cargo and groups of countries	5
4.	Growth of international seaborne trade, 1959-1967 and 1965-1967, classified by groups of countries	6
5.	World shipping tonnage, 1955-1968 (mid-year figures)	7
6.	Distribution of world tonnage by flag of registration, 1955, 1964 and 1968, as at 1 July	8
7.	Shares of world tonnage by class of ship, as at 1 July 1968	9
8.	Age distribution of world merchant fleet, as at 1 July 1968	10
9.	Seven largest merchant fleets in dwt, 1964 and 1968	11
10.	World tonnage on order as at 31 October 1968	13
11.	Average size of oil tankers (vessels of 10 000 dwt and over)	14
12.	Average size of bulk carriers (vessels of 10 000 dwt and over)	16
13.	Shipbuilding: completions by country of build, 1960 and 1964-1967	17
14.	Oil tankers: ton/miles of oil carried per dwt, 1960-1967	18
15.	Annual rates of increase of ton/miles of oil cargo carried and of active oil tanker tonnage.	18
16.	Bulk carriers: ton/miles of bulk commodities carried per dwt, 1960-1967	20
17.	Freight rate indices, 1955-1968	22
18.	Trends in air freight rates and in air freight volume	25
<i>In annex II</i>		
I.	World seaborne trade according to geographical areas, 1959	38
II.	World seaborne trade according to geographical areas, 1965	39
III.	World seaborne trade according to geographical areas, 1966	40
IV.	Distribution of world tonnage by flag of registration and type of ship, in order of size of fleets, as at 1 July 1968	41
V.	Distribution of world fleet by geographical areas, 1 July 1968	44
VI.	Selected maximum and minimum tramp rates, 1967 and 1968	45
VII.	Additions to, and deductions from, merchant fleets, January-June 1968	46

EXPLANATORY NOTES

References to "tons" indicate metric tons, unless otherwise specified.

A dash (—) indicates that the amount is nil, or less than half the unit used.

Two dots (..) indicate that data are not available, or are not separately reported.

A full stop (.) is used to indicate decimals.

Use of a hyphen between years, e.g., 1965-1966, indicates the full period involved, including the beginning and end years.

Details and percentages in tables do not necessarily add up to totals, because of rounding.

*
* *

The description and classification of countries and territories in this document and the arrangement of material, should not be considered as implying any judgement by the Secretariat of the United Nations regarding the legal status of any country or territory or in respect of the delineation of its boundaries, or regarding its economic system or degree of development. Inclusion of a particular country or territory in any economic or geographical grouping (or its exclusion) has been dictated by economic and statistical considerations.

ABBREVIATIONS

Names of organizations

IATA	International Air Transport Association
IBRD	International Bank for Reconstruction and Development
ICAO	International Civil Aviation Organization
ITA	Institute of Air Transport
M.I.T.	Massachusetts Institute of Technology
OECD	Organisation for Economic Co-operation and Development
UNCTAD	United Nations Conference on Trade and Development

Other abbreviations

c. and f.	Cost and freight
c.i.f.	Cost, insurance, freight
dwt.	Dead weight tons
f.o.b.	Free on board
grt.	Gross registered tons
n.e.s.	Not elsewhere specified
SITC	Standard International Trade Classification (Revised)

INTRODUCTION

1. This review has been prepared by the secretariat in accordance with item V of the programme of work of the Committee on Shipping.¹

2. The purpose of this review is to present statistical evidence of developments in international maritime transport and to comment on these developments, with special reference to factors affecting the trade and shipping of developing countries.

3. In preparing this review the secretariat has been guided in general by the outline contained in the note by the UNCTAD secretariat, which was approved by the Committee at its second session,² although it has not proved possible at this stage to follow this outline in all respects.

¹ See *Official Records of the Trade and Development Board, Fifth Session, Supplement No. 2*, annex II.

² *Ibid.*, chap. IV and annex I (b).

Chapter I

THE VOLUME OF INTERNATIONAL SEABORNE TRADE

4. The volume of international seaborne trade increased by 6 per cent in 1967 as compared with 1966. This was the lowest annual increase since 1961, and compares with rates of growth of 12, 9 and 7 per cent in 1964, 1965 and 1966 respectively. These figures are derived from table 1, which gives particulars for the period 1955-1967. While there was a fall in the rates of growth of all the main categories of cargo shown in the table, it appears that, except for the six main bulk commodities, loading of dry cargo did not rise at all in 1967. However, in the period 1960-1967 the difference between the growth rate of the main bulk commodities and of other dry cargo has been small. The average annual rate of growth was 6.6 per cent for the former, and 6.1 per cent for the latter. Loadings of oil (tanker cargo) increased by 9 per cent in 1967, thus continuing the trend towards a greater share for oil in total loadings. The share of oil, which was 50 per cent in 1960, rose to 56 per cent in 1967. The average annual rate of growth of oil loadings over this period was 13.4 per cent.

5. The shares of various groups of countries³ in international seaborne loadings and unloadings are shown in table 2.⁴ The share of developing countries in seaborne loadings (table 2, A) rose from 61.4 per cent in 1959 to 63.1 per cent in 1967; however, the share of these countries in crude petroleum shipments fell slightly from 97.0 in 1959 to 95.0 per cent in 1966; their share in loadings of petroleum products also fell from 71.1 to 66.0 per cent in this period.

6. These over-all figures conceal the significant changes which have occurred in the relative importance of the different regions in international oil exports. Thus, developing countries in Africa increased their share of crude petroleum shipments from 1.0 per cent in 1959 to

³ For the composition of the groups of countries, see annex I.

⁴ Data presented in table 2 are for the years 1959, 1965, 1966 and 1967. Data available for 1967 are not broken down by type of cargo. Thus, comment in the text on trends in loadings and unloadings of different types of cargo are limited to the period 1959-1966.

TABLE I
Development of world international seaborne trade,^a 1955-1967
(Goods loaded)

Year	Tanker Cargo		Dry Cargo				Total (all goods)	
	Million metric tons	Percentage increase/decrease over previous year	Total		Of which: main bulk commodities ^b		Million metric tons	Percentage increase/decrease over previous year
			Million metric tons	Percentage increase/decrease over previous year	Million metric tons	Percentage increase/decrease over previous year		
1955	350	9	450	15	..	..	800	13
1956	390	11	490	9	..	..	880	10
1957	420	8	510	4	..	..	930	6
1958	440	5	480	-6	..	..	920	-1
1959	480	9	490	2	..	..	970	5
1960	540	13	540	10	233	..	1 080	11
1961	580	7	570	6	244	5	1 150	6
1962	650	12	600	5	251	3	1 250	9
1963	710	9	640	7	274	9	1 350	8
1964	790	11	720	13	315	15	1 510	12
1965	870	10	770	7	336	7	1 640	9
1966	960	10	800	4	348	4	1 760	7
1967 ^c	1 050	9	810	1	359	3	1 860	6

^a Sources: For tanker cargo, total dry cargo and all goods: *United Nations, Monthly Bulletin of Statistics, January issues*; for main bulk commodities: Fearnley and Egera Chartering Co. Ltd. (Oslo, 1968), *Trades of World Bulk Carriers in 1967* (1965-1967, corrected figures).

^b Excluding international cargoes loaded at ports of the Great Lakes and St. Lawrence system for unloading at ports of the same system. Including petroleum imports into Netherlands Antilles and Trinidad for refining and re-export.

^c Data on iron-ore, grain, coal, manganese-ore, bauxite and alumina, and phosphates; figures before 1960 not available.

^d Provisional.

TABLE 2

International seaborne trade,^a 1959, and 1965-1967^bShares of groups of countries^{c, d}

(Percentages of world total)

Groups of countries	1959				1965				1966				1967
	Crude petroleum	Petroleum products	Dry cargo	Total all goods	Crude petroleum	Petroleum products	Dry cargo	Total all goods	Crude petroleum	Petroleum products	Dry cargo	Total all goods	Total all goods
A: GOODS LOADED													
<i>Million tons</i>													
World total	315.9	164.7	488.8	969.5	622.0	242.3	768.6	1 632.9	696.8	257.5	810.4	1 764.7	1 854.0
<i>Percentages</i>													
World total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Developed market economy countries (excluding Southern Europe).	31.8	22.3	55.5	31.8	0.1	23.0	53.5	28.6	0.3	24.1	53.9	28.4	28.2
Southern Europe	—	0.2	3.3	1.7	—	0.3	2.4	1.2	—	0.7	2.3	1.2	1.1
Socialist countries of Eastern Europe and Asia	2.7	6.6	6.2	5.1	4.6	8.9	8.1	6.9	4.7	9.2	8.9	7.3	7.5
Developing countries, total	97.0	71.1	35.0	61.4	95.3	67.8	35.9	63.3	95.0	66.0	34.9	63.1	63.1
<i>of which:</i>													
in Africa	1.0	0.4	9.4	5.1	16.0	1.7	10.6	11.3	18.1	1.8	10.0	12.0	11.9
in Asia	60.8	25.3	9.3	28.8	58.4	23.3	9.2	30.0	58.6	24.4	9.1	30.9	31.4
in Latin America and Caribbean	35.1	45.5	15.5	26.9	21.0	42.8	15.3	21.6	18.2	39.8	15.1	19.9	19.6
in Oceania	—	—	0.9	0.4	—	—	0.7	0.4	—	—	0.7	0.3	0.2
B: GOODS UNLOADED													
<i>Million tons</i>													
World total	316.9	151.5	498.4	966.8	622.0	221.7	793.5	1 637.2	695.5	228.9	828.1	1 752.4	1 850.0
<i>Percentages</i>													
World total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Developed market economy countries (excluding Southern Europe).	72.5	64.1	74.6	72.3	76.4	77.0	72.3	74.5	76.9	76.3	72.3	74.6	75.3
Southern Europe	2.4	2.0	3.0	2.6	2.5	2.0	4.2	3.3	2.9	1.7	4.1	3.3	3.2
Socialist countries of Eastern Europe and Asia	—	1.0	3.9	2.2	0.4	1.0	5.9	3.2	0.4	1.0	5.6	3.0	2.8
Developing countries, total	25.1	32.9	18.5	22.9	20.7	20.0	17.6	19.1	19.7	20.9	18.0	19.1	18.7
<i>of which:</i>													
in Africa	1.5	9.5	4.8	4.4	2.5	5.1	4.1	3.7	2.5	4.8	3.7	3.4	3.4
in Asia	4.7	12.2	8.8	8.0	5.5	8.5	9.0	7.6	5.6	9.7	9.6	8.0	8.0
in Latin America and Caribbean	18.9	11.0	4.7	10.4	12.7	6.0	4.3	7.7	11.6	5.7	4.5	7.5	7.0
in Oceania	0.2	0.3	0.2	0.2	—	0.4	0.2	0.2	—	0.7	0.2	0.2	0.3

Source: United Nations estimated data; the world totals do not correspond exactly to the rounded totals in table 1.

^a See note ^a to table 1. Great Lakes and St. Lawrence trade (in dry cargo) amounted to 26 million tons in 1959, 37 million tons in 1965, 37 million tons in 1966, and 34 million tons in 1967.

^b Break-down by type of cargo for 1967 not yet available.

^c Derived from tables I, II and III in annex II. 1967 figures estimated from data in United Nations *Monthly Bulletin of Statistics*, November 1968 and January 1969 issues.

^d See annex I for the composition of these groups.

TABLE 3
Growth of international seaborne trade,^a 1959-1966
Classified by types of cargo and groups of countries^{b, c}
(Percentages)

Groups of countries	A: Goods loaded 1966 (1959 = 100)				B: Goods unloaded 1966 (1959 = 100)			
	Crude petroleum	Petroleum products	Dry cargo	All goods	Crude petroleum	Petroleum products	Dry cargo	All goods
World total	121	156	166	182	219	151	166	181
Developed market economy countries (excluding Southern Europe).	198	172	161	162	233	180	167	187
Southern Europe	—	491	116	124	270	130	228	229
Socialist countries of Eastern Europe and Asia	387	217	240	260	^d	152	243	249
Developing countries, total	216	145	165	187	173	96	161	151
of which:								
in Africa	^e	698	177	426	366	77	130	138
in Asia	213	151	162	195	263	121	181	183
in Latin America and Caribbean	114	137	162	134	135	78	157	131
in Oceania	—	—	132	132	—	361	142	202

Source: See table 2, A (Goods loaded).

^a See note *a* to table 1. Great Lakes and St. Lawrence trade (in dry cargo) amounted to 26 million tons in 1959, 37 million tons in 1965, 37 million tons in 1966, and 34 million tons in 1967.

^b Derived from tables I, II and III in annex II. 1967 figures estimated from data in United Nations, *Monthly Bulletin of Statistics*, November 1968 and January 1969 issues.

^c See annex I for the composition of these groups.

^d Unloadings of crude petroleum in the socialist countries of Eastern Europe and Asia amounted to 0.1 million tons in 1959 and to 2.9 million tons in 1966.

^e Loadings of crude petroleum in developing countries in Africa amounted to 3.2 million tons in 1959 and to 126.7 million tons in 1966.

16.0 per cent in 1965 and 18.1 per cent in 1966, the bulk of this increase coming from North African countries. In the same period, the share in crude petroleum shipments of the developing countries in Asia fell slightly from 60.8 per cent to 58.6 per cent and that of the Latin American and Caribbean countries fell from 35.1 per cent to 18.2 per cent (thus matching the rise in the share of African developing countries). Both groups also experienced a fall in their share of shipments of petroleum products.

7. Between 1959 and 1966, the shares in dry cargo loadings of the developing countries in Asia and in Latin America and the Caribbean fell slightly. The share of the African countries in shipments of this type of cargo rose over the period as a whole, but fell in 1966, this fall occurring in shipments from North African countries.

8. The socialist countries of Eastern Europe and Asia increased their share of total international shipments from 5.1 to 7.5 per cent between 1959 and 1967. This increase was spread over the three types of cargo listed. The share of the developed market economy countries in loadings of petroleum products rose between 1959 and 1966 and their share of dry cargo loadings fell, the net result being a slight fall in their share of total world trade.

9. The figures for goods unloaded (table 2, B) show a different pattern. The share of developing countries in the world total fell from 22.9 per cent in 1959 to 19.1 in 1966 and 18.7 per cent in 1967. The reason for this declining share may be found in the rise of international oil trade, the major part of which was destined for developed market economy countries. Thus, whereas the share of developing countries in unloadings of dry cargo decreased only slightly from 18.5 per cent in 1959 to 18.0 in 1966, their share of crude petroleum unloadings in the period fell from 25.1 per cent to 19.7 per cent in the same period, and of petroleum products from 32.9 per cent to 20.9 per cent.

10. As in the case of goods loaded, there were different regional trends. Developing countries in Africa and Asia increased their share of crude petroleum unloadings, while those of Latin America and the Caribbean experienced a fall from 18.9 to 11.6 per cent of the world total. In dry cargo trade, Asian developing countries increased their share of unloadings against the general trend. All groups of developing countries experienced decreases in their shares of unloadings of petroleum products.

11. The share of the developed market economy countries in total seaborne unloadings rose as a result of the

TABLE 4

Growth of international seaborne trade,^a 1959-1967 and 1965-1967,
classified by groups of countries^{b, c}
(Percentages)

Groups of countries	B: Goods unloaded (All goods)		A: Goods loaded (All goods)	
	1959-1967 (1959 = 100)	1965-1967 (1965 = 100)	1959-1967 (1959 = 100)	1965-1967 (1965 = 100)
World total	191	114	191	113
Developed market economy countries (excluding Southern Europe)	170	112	188	114
Southern Europe	126	107	233	112
Socialist countries of Eastern Europe and Asia	280	123	246	99
Developing countries, total	197	113	156	110
of which:				
in Africa	444	120	145	104
in Asia	208	119	193	120
in Latin America and the Caribbean	139	103	130	103
in Oceania	103	78	297	185

Source: See table 2, A (Goods loaded).

^a See note a to table 1. Great Lakes and St. Lawrence trade in dry cargo amounted to 26 million tons in 1959, 37 million tons in 1965, 37 million tons in 1966 and 34 million tons in 1967.

^b Derived from tables I, II and III in annex II. 1967 figures estimated from data in United Nations, *Monthly Bulletin of Statistics*, November 1968 and January 1969 issues.

^c See annex I for the composition of these groups.

rapid increase in their oil imports, partly offset by a fall in their share of dry cargo unloadings. The socialist countries of Eastern Europe and Asia have increased their share of unloadings of dry cargo but their share of total seaborne unloadings has fallen since 1965.

12. The percentage figures in table 2 do not reflect the actual changes in the absolute figures for loadings and unloadings in the different regions. While there have been several decreases in shares of trade, decreases in absolute volume of trade have been rare. This may be

seen from tables I, II and III in annex II⁶ which give the absolute figures from which table 2 was derived. The infrequency of absolute decreases is brought out in tables 3 and 4 which show the percentage increases and decreases over different periods in the loadings and unloadings of the various groups of countries.

⁶ Tables I, II and III in annex II also provide a more detailed classification of groups of countries than is presented in the tables in the main text.

Chapter II

THE DEVELOPMENT OF THE WORLD MERCHANT FLEET

(a) Size, composition, and flag distribution

13. Table 5 shows the development of the world active seagoing merchant fleet over the period 1955 to 1968. Total tonnage increased by about 120 per cent over this period, tanker tonnage by 160 per cent, and dry cargo tonnage by 104 per cent (all expressed in grt).⁶

14. In table 6, the total tonnage figures from table 5 for the years 1955, 1964 and 1968 are divided, according to flag of registration, between different groups of countries.⁷ The group of countries in Southern Europe has been separately identified because of its special characteristics, namely that, while the level of economic develop-

ment in the area is not fully comparable with that of the rest of Europe, the area includes countries which are owners of substantial amounts of shipping tonnage.

15. It will be noted that, in table 6 and other tables showing the distribution of tonnage by flag of registration, and in comments on these tables, the Liberian and Panamanian flags are treated as a separate group. This is because there are large amounts of tonnage under these flags which, it is believed, are effectively controlled by non-resident interests. These are not the only flags about which this could be said; in fact, in many countries, developed and developing, the flag of registration is an imperfect guide to the actual ownership of tonnage.⁸

16. Precise information about effective ownership of tonnage is not generally available. However, the assumption of a high degree of foreign control of tonnage under

⁶ Bulk carrier tonnage in grt grew by 127 per cent from 1964 to 1968. *Lloyd's Register of Shipping, Statistical Tables* did not publish separate statistics on bulk carriers before 1964. Figures from another source for the world bulk carrier fleet in dwt are shown in table 12.

⁷ It should be noted that owing to a different classification of countries into groups, and owing to the exclusion of the United States Reserve Fleet, table 6 is not comparable to similar tables previously published by the secretariat. The composition of the groups of countries used in this table is explained in annex I.

⁸ For example, out of the United Kingdom merchant fleet of 21.7 million grt in 1967, about 3.7 million grt was registered in the United Kingdom but not owned there. (This figure is derived from data in *Chamber of Shipping, United Kingdom, Annual Report, 1967-1968* (London, 1968).)

TABLE 5
World shipping tonnage,^a 1955-1968
(Mid-year figures)

Year	Tankers		Dry Cargo Ships		Total	
	Million grt	Million dwt	Million grt	Million dwt	Million grt	Million dwt
1955	26.4	..	56.3	..	82.7	..
1956	27.8	..	59.3	..	87.1	..
1957	29.9	..	64.1	..	94.0	..
1958	33.1	..	67.1	..	100.3	..
1959	37.3	..	69.7	..	107.0	..
1960	40.8	62.9	71.6	94.8	112.4	157.7
1961	43.1	65.4	76.3	98.7	119.3	164.1
1962	44.7	69.0	79.6	102.9	124.2	171.9
1963	46.5	72.1	83.7	109.3	130.1	181.4
1964	49.9	77.2	87.9	113.7	137.8	190.9
1965	54.4	86.1	92.1	118.4	146.5	204.5
1966	59.8	94.4	99.2	126.7	159.0	221.1
1967	63.9	102.5	107.2	138.4	171.1	240.9
1968	68.9	112.6	115.0	149.5	184.0	262.1

Sources: *Lloyd's Register of Shipping, Statistical Tables, 1955-1968*, for figures expressed in grt (vessels of 100 grt and over). Figures in dwt (vessels of 100 grt and over) have been obtained from Institute of Shipping Economics, Bremen, *Statistik der Schifffahrt*. Statistics applying to the United States Reserve Fleet are published by the United States Department of Commerce, Maritime Administration.

^a Excluding the United States Reserve Fleet and the Great Lakes Bco's of the United States and Canada.

TABLE 6

Distribution of world tonnage by flag of registration, ^{a, b} 1955, 1964 and 1968
(Vessels of 100 grt and over, as at 1 July)

Flags of registration, in groups of countries	Tonnage (million grt)			Shares of world tonnage (percentage)			Increase in tonnage 1964-1968		
	1955	1964	1968	1955	1964	1968	In million grt	Index 1968 (1964 = 100)	Share in world total increase (percentage)
World total	82.7	137.8	184.0	100.0	100.0	100.0	46.1	133	100
Developed market economy countries (excluding Southern Europe)	61.4	87.2	109.8	74.2	63.3	59.7	22.6	126	49
Liberia, Panama ^c	8.3	18.8	30.8	10.1	13.6	16.8	12.0	164	26
Southern Europe	4.1	11.3	13.7	4.9	8.2	7.4	2.4	121	5
Socialist countries of Eastern Europe and Asia	3.5	9.4	16.0	4.2	6.8	8.7	6.6	170	14
Developing countries, ^d total	5.4	11.1	13.6	6.5	8.1	7.4	2.5	123	5
of which:									
in Africa	0.2	0.6	0.8	0.3	0.4	0.4	0.2	133	..
in Asia	1.8	6.0	7.9	2.2	4.4	4.3	1.9	132	4
in Latin America and the Caribbean	3.4	4.5	4.9	4.1	3.3	2.7	0.4	110	1

^a Source: Compiled from *Lloyds Register of Shipping Statistical Tables* and supplementary data.

^b Excluding United States Reserve Fleet of about 14.4 million grt at 1 July 1955, 11.7 million grt at 1 July 1964, and 6.9 million grt at 1 July 1968.

^c Also excluding United States and Canadian Great Lakes tonnage.

^d Tonnage under these two flags is shown separately since it is believed that most of it is effectively controlled by interests foreign to these countries (see paras

15-16). The Honduran flag used to be in this category and its tonnage of 0.4 million grt is included with that under Liberian and Panamanian flags in this table for 1955 only. Honduran flag tonnage in the 1960s has been of a much smaller order.

^e In this table and in a number of passages in this document, the expression "developing countries" does not include Liberia and Panama.

the Liberian and Panamanian flags is widely held. It is felt that if this tonnage—which is now more than double that of all other developing countries combined—were to be included with that of the developing countries, the resulting picture of the distribution of the world fleet would be badly distorted.

17. The main trends shown in table 6 are well known. The fastest growing group of fleets is that registered in the socialist countries of Eastern Europe and Asia, whose share of world tonnage more than doubled between 1955 and 1968. This rate of growth shows no sign of flagging. A similarly high and consistent growth rate is shown by the Liberian and Panamanian flags, which account for nearly twice as much tonnage as the former group of countries.

18. The other group showing a very high rate of growth are the developing countries in Asia. However, the rise in these countries' share of the world fleet took place in the earlier part of the period covered by table 6. The rate of growth in their tonnage since 1964 has been approximately equal to the growth rate of total world tonnage.

19. The small tonnage registered in African developing countries (other than Liberia) has grown in step with the

world fleet but the tonnage registered in Latin America and the Caribbean (excluding Panama) has lagged behind the average rate of growth and the share in the world fleet of countries in this area has fallen.

20. In the period 1955 to 1964, the fast rate of growth of fleets in the Asian developing countries more than compensated for the falling share of the Latin American and Caribbean countries, so that the share in the world fleet of the developing countries as a whole (excluding Liberia and Panama) rose to 8.1 per cent in 1964 from 6.5 per cent in 1955. Since 1964, the slackening of growth rates in the fleets of Asian developing countries, combined with a continuation of the previous trends in the other regions, has resulted in a fall in the over-all share of developing countries to 7.4 per cent in 1968.

21. Over one half of the world's merchant fleet is registered in the developed market economy countries, though the share of this group in world tonnage fell between 1955 and 1968. It should however be observed that shipowners in developed market economy countries are believed to control a substantial part of the growing share of world tonnage registered in Liberia and Panama. As for the group of countries in Southern Europe (including Yugoslavia) its share in the world fleet has followed

TABLE 7

Shares of world tonnage by class of ship, as at 1 July 1968 ^a

	All ships ^b	Tankers ^b	Bulk carriers ^c	Other ships ^b
<i>Share of total tonnage in grt, 1968 (percentage)</i>				
World total: 1968	100.0	37.5	17.5	45.0
1967	100.0	37.2	15.4	47.3
<i>Tonnage increase, Index 1968 (1964 = 100)</i>				
World total	133	138	227	112
<i>Shares of groups of countries in total tonnage in each class, 1968 (percentage)</i>				
World total	100.0	100.0	100.0	100.0
Developed market economy countries (excluding Southern Europe)	59.7	60.6	64.9	56.9
Liberia, Panama	16.8	25.1	23.3	7.2
Southern Europe	7.4	5.2	4.8	10.3
Socialist countries of Eastern Europe and Asia	8.7	4.9	2.1	14.4
Developing countries, total	7.4	4.2	4.9	11.1
of which:				
in Africa	0.4	0.2	..	0.8
in Asia	4.3	1.4	4.0	6.8
in America and the Caribbean	2.7	2.6	0.9	3.5

Source: Compiled from *Lloyd's Register of Shipping Statistical Tables, 1968*.

^a Excluding Great Lakes fleets of the United States of America and of Canada (3.3 million grt combined, of which 2.6 million grt bulk carriers) and the United States Reserve Fleet, estimated at 0.3 million grt tankers, 0.02 million grt bulk carriers, and 6.6 million grt of other ships.

^b Vessels of 100 grt and more.

^c Ore and bulk carriers of 6 000 grt and more.

a similar path to that of the developing countries since 1964.⁹

22. The distribution of 1968 world tonnage is classified by type of ship in table 7. This table shows that bulk carriers are currently the fastest growing class of ship and that tankers and bulk carriers together now make up 55 per cent of the world fleet. The tonnage of non-bulk dry cargo ships (that is, liners and tramps) has been growing at a much slower rate than the other two classes but it is of these ships that the fast growing fleets of the socialist countries of Eastern Europe and Asia are largely composed. A similar predominance of these ships is seen in the fleets registered in the Southern European countries and the developing countries.

⁹ A recent estimate (in *Journal pour le transport international*, Basel, 27 December 1968) puts the total tonnage under Greek control at 32.7 million dwt (22 million grt); this would indicate that about 20 million dwt (14 million grt) of Greek-controlled tonnage is registered under other flags, mostly under the Liberian flag.

23. A detailed breakdown of 1968 tonnage by individual flag and by type of ship is given in table IV in annex II. Table V in the same annex classifies the 1968 tonnage according to geographical areas of countries of registration.

24. The different rates of growth of tonnage in the various groups of countries and in the different classes of ship, as shown in tables 6 and 7, are reflected in the age distribution of the 1968 world fleet, which is shown in table 8. This table shows that the socialist countries of Eastern Europe and Asia have the highest percentage (67 per cent) of ships of less than ten years of age, while the developing countries and the Southern European countries have the highest percentage (30 per cent) of ships twenty years of age and over. As for the different classes of ship, the proportion of total tonnage in each class under ten years old is 84 per cent for bulk carriers, 63 per cent for tankers, and 40 per cent for other ships.

TABLE 8

Age distribution of world merchant fleet, as at 1 July 1968 ^a

	Total	Age groups (years)					
		0-4	5-9	10-14	15-19	20-24	25 and over
World total	100	33	24	18	10	8	7
By group of countries:							
Developed market economy countries (excluding Southern Europe)	100	35	26	18	9	7	5
Liberia, Panama	100	30	19	23	12	8	8
Southern Europe	100	21	17	19	13	14	16
Socialist countries of Eastern Europe and Asia	100	40	27	14	5	3	11
Developing countries, total ^b	100	24	20	14	12	16	14
By class of ship:							
Tankers	100	36	27	22	10	3	2
Bulk carriers ^c	100	59	25	8	3	2	3
Other ships	100	20	20	19	12	15	14

Source: Compiled from *Lloyd's Register of Shipping Statistical Tables, 1968* and supplementary data.

^a Excludes vessels of less than 100 grt; also excludes the United States Reserve Fleet, and United States and Canadian Great Lakes tonnage (estimated age distribution).

^b Figures for developing countries arrived at by elimination; they include 260 000 grt unallocated to other groups.

^c Ore and bulk carriers of 6 000 grt and more.

(b) Growth of individual fleets ¹⁰

25. On 1 July 1968, there were seven seagoing merchant fleets with a tonnage in excess of 10 million dwt each, and these together accounted for about 65 per cent of total world tonnage. These fleets are listed in table 9 in order of size in 1968 ¹¹ together with the comparable figures for 1964 and the tonnage increases between 1964 and 1968.

26. It will be noted that, of the seven largest fleets four grew much faster than the other three between 1964

¹⁰ In this section of the review, data on the size of individual fleets at 1 July are given in dwt; the source of these data is Institute of Shipping Economics, Bremen, *Statistik der Schifffahrt*. This source gives information on vessels of 300 grt and over, and shows separate statistics for about seventy different fleets accounting for about 99 per cent of world tonnage. The remaining 1 per cent is not relevant to a discussion of the growth of the larger fleets. However, since this 1 per cent is made up of about sixty-five flags—nearly all of developing countries—it is important that a breakdown of this residual total be available for use in the classification of tonnage by flags and by groups of countries. For this reason, tables 6, 7 and 8, and tables IV and V in annex II, are compiled from *Lloyd's Register of Shipping Statistical Tables*. This latter source shows separate statistics for all flags but these are presented in grt and for vessels of 100 grt and over. Thus the figures from the two sources used are not strictly comparable.

¹¹ The order of size of these fleets in grt would be different. In 1968, the United Kingdom and Norway would change places in a grt ranking, as would the Union of Soviet Socialist Republics and the United States of America. See table IV in annex II.

and 1968. The slow-growing fleets were those of the United Kingdom, Greece and the United States of America. The figure shown for the growth of the active fleet of the United States does not reflect an over-all increase in tonnage owned in the United States; the increase is more than matched by the decline in the size of the reserve fleet. ¹²

27. The four fast-growing fleets were those under Japanese, Liberian, USSR and Norwegian flags. These fleets fall into two different types: the Liberian and Norwegian fleets are largely employed in cross-trades (trades which do not begin or end in the country of registration), while the Japanese and USSR fleets are mainly employed on routes to or from their national territories.

28. Between 1960 and 1967, loadings and unloadings in the external seaborne trade of Japan rose by 215 per cent; in the same period the Japanese fleet grew by 144 per cent. The proportion of national seaborne trade carried in foreign ships rose from 51.8 per cent in 1960 to 53.8 per cent in 1967. ¹³

¹² The United States Reserve Fleet fell by 6 586 000 dwt between 1964 and 1968.

¹³ Foreign flag vessels carried 50.9 million tons of Japanese trade in 1960 and 166.5 million tons in 1967, according to the White Paper on shipping published by the Ministry of Transport of the Government of Japan in 1968. This source puts the Japanese balance of payments deficit on shipping account at U.S. \$789 million in 1967. Total Japanese seaborne trade extracted from United Nations, *Statistical Yearbook*.

TABLE 9

Seven largest merchant fleets in dwt 1968 and 1964

	1 July 1968 (thousand dwt)	1 July 1964 (thousand dwt)	Increase in tonnage 1964-1968	
			Thousand dwt	Index: 1968 (1964 = 100)
Liberia	40 781	22 519	18 263	181.1
Norway	30 976	21 455	9 521	144.4
United Kingdom	29 563	27 244	2 320	108.5
Japan	27 998	14 368	13 630	194.9
United States of America ^a	17 173	14 230	2 942	120.7
Union of Soviet Socialist Republics	12 651	8 174	4 477	154.8
Greece	11 072	10 098	974	109.6
Total, 7 flags	170 213	118 088	52 125	144.1
World total	262 070	190 897	71 173	137.3
7 flags as percentage of world total	64.9 per cent	61.9 per cent	73.2 per cent	

Source: Institute of Shipping Economics, Bremen, *Statistik der Schifffahrt*.

^a Estimated active seagoing fleet, excluding Great Lakes tonnage and Reserve Fleet. Reserve Fleet estimated at 15 121 000 dwt in 1964 and 8 535 000 dwt in 1968. (United States Department of Commerce, Maritime Administration data.)

29. In the same period, loadings and unloadings in the external trade of the USSR rose by 142 per cent, while the Soviet fleet grew by 130 per cent. Although the growth in trade exceeded the growth in the fleet, the share of Soviet seaborne trade carried in foreign ships fell from 59.6 per cent in 1960 to 49.3 per cent in 1967.¹⁴

30. Apart from the seven largest fleets, there were thirty-three other fleets in excess of 500,000 dwt on 1 July 1968. Eleven of these, totalling about 50,530,000 dwt, were registered in developed market economy countries. The Panamanian flag fleet amounted to 8,121,000 dwt. Other fleets in excess of 500,000 dwt on 1 July 1968 were (in thousand dwt):¹⁵

In developing countries and territories

India	2 887	Israel	999
Brazil	1 919	Indonesia	768
Argentina	1 397	Pakistan	767
Hong Kong	1 232	Republic of Korea	661
Republic of China	1 126	Lebanon	630
Philippines	1 098	Mexico	547

In countries of Southern Europe

Spain	3 346	Portugal	805
Yugoslavia	1 806	Turkey	748
Cyprus	983		

In socialist countries of Eastern Europe and Asia

Poland	1 748	China (mainland)	1 030
Eastern Germany	1 034	Bulgaria	820

¹⁴ Foreign flag vessels carried 29.7 million tons of Soviet trade in 1960 and 59.7 million tons in 1967, according to the *Journal of Commerce*, London, 15 October 1968, quoting Tass (the USSR news agency). Total USSR seaborne trade extracted from United Nations, *Statistical Yearbook*.

¹⁵ It is believed that some of the tonnage in a number of these fleets is controlled by interests which are not resident in the country or territory of registration.

31. Several of these fleets have grown considerably since 1964. The following list shows those fleets, other than the seven largest, which increased by 500,000 dwt or more from 1 July 1964 to 1 July 1968. In each case, the first figure is the tonnage increase, to the nearest thousand dwt, and the figure in parentheses is the increase as a percentage of the 1964 tonnage.

Federal Republic of Germany	2 379 (32.1)	Cyprus	969 ¹⁶
Panama	1 593 (24.4)	Spain	958 (40.1)
France	1 486 (23.9)	India	901 (45.4)
Italy	1 484 (19.4)	Sweden	778 (13.0)
Denmark	1 000 (28.0)	Bulgaria	556 (211.0)
		Philippines	507 (85.8)

32. Tonnage increases in the range 200,000 dwt to 499,999 dwt between 1 July 1964 and 1 July 1968 were experienced by the following fleets (thousand dwt; percentage increase over 1964 in parentheses):

In developed market economy countries

Netherlands	477 (6.9)	Belgium	275 (27.5)
Australia	313 (46.5)		

In socialist countries of Eastern Europe and Asia

Poland	440 (33.6)	China (mainland)	237 (30.0)
Romania	354 (277.2)		

In countries of Southern Europe

Yugoslavia	397 (28.2)
----------------------	------------

In developing countries

Republic of Korea	490 (287.2)	Republic of China	289 (34.5)
Pakistan	363 (90.1)	Indonesia	260 (51.3)
Israel	355 (55.2)	Mexico	249 (51.3)

¹⁶ Since the tonnage under the Cypriot flag on 1 July 1964 was only about 14,000 dwt, the percentage increase is so high as to be virtually meaningless.

33. Of the fleets listed in the two preceding paragraphs, those of Cyprus, the Republic of Korea, Romania and Bulgaria have grown by more than 100 per cent in the four year period. The lists show that, of the eight developing country fleets showing increases of 200,000 dwt or more, seven were registered in Asian countries.

34. A few fleets actually decreased in size between 1964 and 1968. The Lebanese fleet decreased by 683,000 dwt to less than half its 1964 level. The Argentinian fleet decreased by 102,700 dwt (6.8 per cent of 1964). Turkish and Chilean tonnage fell by smaller amounts.

(c) *Additions to and deductions from the world fleet*

35. An analysis of additions to, and deductions from, merchant fleets in the first half of 1968 has been made and the results shown in table VII of annex II. The table was compiled from unpublished records made available by the United States Department of Commerce, Maritime Administration. It should be noted that data from this source are not directly comparable with those from *Lloyd's Register of Shipping Statistical Tables* as shown in annex II, table IV.

36. This is the first attempt by the UNCTAD secretariat to analyse changes in merchant fleets. Instead of undertaking the lengthy task of going through the raw data on fleet changes in the records of the ship classification societies, it was considered expeditious, in the case of this preliminary exercise, to use the partly processed data made available by the United States Maritime Administration.¹⁷ An examination of additions to, and deductions from, merchant fleets over a longer period will be undertaken as part of the secretariat's continuing studies on the establishment and expansion of merchant marines, and the secretariat would welcome any comments which members may wish to make on the present paper.

37. The period covered by the table VI in annex II is too short to permit any definite conclusions to be drawn.¹⁸ However, some interesting—though tentative—comparisons may be made of the differing importance of transfers of second-hand tonnage (called "flag changes" in the table) in various fleets.

38. Among the larger fleets registered in the developed market economy countries,¹⁹ in Southern Europe and in Liberia and Panama, one can distinguish four groups according to the pattern of fleet changes in the six-month period:

(a) Those fleets which added newly-built tonnage to their registers and were net sellers of second-hand tonnage (e.g. the fleets of Denmark, the Federal Republic of Germany, France, Netherlands, Norway, Sweden and the United Kingdom);

¹⁷ These data are derived from the records of Lloyd's Register of Shipping, American Bureau of Shipping, Germanischer Lloyd and Det Norske Veritas and the Maritime Administration's own records.

¹⁸ It appears, too, at first sight, that the records for some fleets may not be as comprehensive or up-to-date as those for others.

¹⁹ Excluding the United States of America, concerning which information was not available for the period.

(b) Those fleets which, while acquiring new tonnage, were net buyers of second-hand tonnage (e.g. Finland, Greece, Italy, Panama and Liberia: in all cases, except that of Liberia, purchases of second-hand tonnage in the period exceeded new buildings);

(c) Those fleets which acquired newly-built tonnage but did not buy or sell significant amounts of used tonnage (e.g. Japan and—at a different level of size—Spain); and

(d) The fleet of Cyprus, virtually in a group of its own, with additions of used tonnage only.

39. Additions to fleets of socialist countries of Eastern Europe seem to have consisted for the most part of new tonnage. However, Bulgaria was a net buyer of used tonnage in the first half of 1968.

40. In the case of developing countries,²⁰ the number of transactions in any fleet, and the volume of tonnage transacted, tends to be too low for a pattern to be established over a six-month period. However, one can point to the following facts:

(a) Additions in the period to the fleets of Brazil, Israel and Mexico, among others, consisted entirely of new-buildings, the first two countries being sellers of used tonnage;

(b) The fleets of India, Pakistan, the Philippines, Republic of China and the Republic of Korea were built up by a combination of new and second-hand ships (though, in the case of India, sales of second-hand tonnage more than off-set purchases); and

(c) The fleets of Indonesia, Somalia, Singapore and the United Arab Republic, among others, grew as a result of additions of used tonnage only.

(d) *Tonnage on order*²¹

41. Tonnage on order on 31 October 1968 is shown in table 10. The world order book at that date stood at 78.5 million dwt, approximately 30 per cent of the world fleet at 1 July 1968.

42. Tankers on order amounted to 50.7 million dwt—nearly 65 per cent of the total order book. There were four tankers of more than 300,000 dwt on order, and 150 in the range 200,000 dwt to 299,999 dwt. The Liberian flag accounted for 25 per cent of tanker tonnage on order, including all the 300,000 tonners; the United Kingdom and Norwegian flags accounted for another 26 per cent. Developing countries (other than Liberia and Panama) with orders for tanker tonnage in excess of 100,000 dwt were:

Republic of Korea:	814 000 dwt (of which 2 × 150 000 dwt; 4 × 120/130 000 dwt)
Kuwait:	634 000 dwt (of which 3 × 210 000 dwt)
Israel:	627 000 dwt (of which 2 × 250 000 dwt; 1 × 120 000 dwt)
Republic of China:	272 000 dwt
Brazil:	246 000 dwt (of which 2 × 115 000 dwt)
Peru:	195 000 dwt
India:	176 000 dwt

²⁰ Excluding Liberia and Panama.

²¹ Order figures in this section are from *World Ships on Order*, No. 17, supplement to *Fairplay* (London, Palmerston House), 28 November 1968; data as at 31 October 1968.

TABLE 10

World tonnage on order as at 31 October 1968^a

	All ships	Tankers	Bulk carriers	Other ships
(Million dwt)				
World total	78.5	50.7	18.1	9.7
	(100.0 per cent)	(64.6 per cent)	(23.0 per cent)	(12.4 per cent)
Share of world total (percentage)				
World total	100.0	100.0	100.0	100.0
Developed market economy countries (excluding Southern Europe)	54.8	57.5	55.4	40.0
Liberia, Panama	24.4	27.7	24.5	6.5
Southern Europe	5.8	4.3	7.8	9.9
Socialist countries of Eastern Europe and Asia ^{c,d}	5.8	2.5	3.2	27.5
Developing countries, total	7.7	6.4	8.0	14.1
of which:				
in Africa	0.2	0.2	—	1.0
in Asia	5.1	5.2	4.3	6.2
in Latin America and the Caribbean	2.4	1.0	3.7	6.9
Flag not yet known	1.5	1.6	1.1	2.0

Source: Compiled from *World Ships on Order*, No. 17, supplement to *Fairplay* (London, Palmerston House), 28 November 1968.

^a Vessels of 1 000 grt and over, excluding passenger vessels, ferries, fishing vessels and miscellaneous specialized craft.

^b Defined as single-deck vessels of 12 000 dwt and over.

^c Data for some countries in this group incomplete.

^d Because of national planning periods in these countries, orders are often placed far in advance of expected delivery date. This partly explains the very high percentage share of "Other ships".

43. Bulk carrier tonnage on order was 18.1 million dwt—23 per cent of the total. There were forty vessels of more than 100,000 dwt on order, the largest being a 155,000 tonner for the Liberian flag. As in the case of tankers, the Liberian flag had the biggest share of this part of the order book (23 per cent). The three next largest flags—Norway, the United Kingdom and Japan—accounted for a further 40 per cent of bulk carrier tonnage on order. Developing countries (other than Liberia and Panama) with orders for bulk carrier tonnage in excess of 100,000 dwt were:

Brazil:	573 000 dwt (of which 2×130 000 dwt;
Republic of Korea:	386 000 dwt 2×105 000 dwt
Republic of China:	140 000 dwt
India:	128 000 dwt

44. Orders for non-bulk dry cargo tonnage were the least important item in the order book—9.7 million dwt (12 per cent). Orders placed by the Union of Soviet Socialist Republics amounted to 2.0 million dwt (21 per cent of orders in this class).²² The flags with the next

²² It should be noted that the orders placed by the Union of Soviet Socialist Republics are those expected to be fulfilled over the current economic planning period of that country. The over-all time span of these orders is longer than average.

largest tonnages on order were those of the Federal Republic of Germany and the United States of America, each with just under 0.8 million dwt. The Greek, British and Liberian flags were also important. Orders for "Liberty replacements" were a significant factor and are discussed further below (paras. 54-58). Developing countries (other than Liberia and Panama) with orders for non-bulk dry cargo tonnage in excess of 100,000 dwt were:

Brazil:	338 000 dwt
Iran:	142 000 dwt
Peru:	126 000 dwt

45. Taking all types of ship together, the developing countries with the largest order books were the Republic of Korea (1,284,000 dwt) and Brazil (1,157,000 dwt).

46. The percentage figures in table 10 may be compared with those in table 7 (which uses the same classification by groups of countries and types of ship) to derive very rough forecasts of the direction of future changes in shares of the world fleet. For example, a comparison of the shares in total tonnage on order of the three classes of ship with their shares in the existing fleet indicates a sharp rise in the share of tankers over the next few years, a slower rise in the share of bulk carriers, and a fall in the share of non-bulk dry cargo ships.

TABLE 11

Average size of oil tankers
(Vessels of 10 000 dwt and over)^a

Year	Existing fleet			Ships on order		
	Number of ships	Total tonnage (thousand dwt)	Average size (dwt)	Number of ships	Total tonnage (thousand dwt)	Average size (dwt)
1961	2 671	60 616	22 694	316	14 171	44 845
1962	2 659	63 326	23 816	259	13 018	50 261
1963	2 625	66 094	25 179	310	16 778	54 123
1964	2 661	71 439	26 847	316	18 171	57 503
1965	2 748	80 206	29 187	280	19 114	68 265
1966	2 814	88 585	31 480	267	23 020	86 219
1967	2 864	96 969	33 858	254	27 827	109 553
1968	2 943	107 639	36 574	303	42 089	138 909

Source: John I. Jacobs and Co. Ltd., *World Tanker Fleet Review* (London, 30 June 1968).

^a Figures as at 30 June.

(e) *The trend towards bigger ships*

47. The increase in the average size of oil tankers and bulk carriers has been spectacular over the last few years. The development since 1961 is shown in tables 11 and 12.

48. As far as oil tankers are concerned, economies of scale have proved to be extremely important, especially since the closure of the Suez Canal and the adoption of the Cape route from the Persian Gulf to destinations in Europe. Graph 1 testifies to the rapid fall of the global cost of transport using various sizes of tankers (and different itineraries). According to this graph, the present cost of transport of crude oil from Mena-al-Ahmedi to Rotterdam falls from sixty shillings per ton carried in a 25,000 dwt tanker via the Suez Canal to slightly more than twenty shillings per ton in a 150,000 tonner travelling via the Cape laden, and with a return voyage in ballast through the Suez Canal. For a 300,000-ton vessel using the Cape route both ways the costs is under twenty shillings per ton. In addition, there has been a tendency to situate refineries near the centres of final consumption; thus there has been a rise in the demand for the transportation of crude oil, which can more easily be transported in large quantities than can refined products.

49. As a result of these developments, the average size of tankers on order rose to 86,200 dwt in 1966 (nearly double that in 1961), 109,600 dwt in 1967 and 138,900 dwt in 1968 (see table 11).

50. It is likely that this trend towards increasing size will continue, but it should be borne in mind that relatively few ports in the world are equipped to receive the really big tankers. In Europe, by 1970, only Rotterdam, Marseilles, Le Havre, Milford Haven, Finnart, Slagen-tangen and Bantry Bay will be able to receive fully loaded tankers in excess of 200,000 dwt. The fact that the cost of constructing new ports or deep water piers is very high, and that the transport cost curve (in graph 1) flattens out after the 200,000 dwt range, limits the scope at present for expanding the fleet of tankers of the largest

size. In addition, the shallowness of certain canals and straits hinder the use of large tankers. Certain parts of the North Sea and the Straits of Malacca are already inaccessible to the biggest tankers. However, Bantry Bay is already capable of receiving tankers of 500,000 dwt, and it is reported the company operating this installation intends to construct ports at Okinawa and at Point Tupper in Canada to receive 300,000 dwt tankers. Additionally, studies are being made of the possibility of constructing an artificial island off Zeebrugge, in Belgium, and a port at Bilbao, in Spain, both capable of receiving 500,000 dwt vessels. Further studies are being carried out on these lines in France and in Italy.

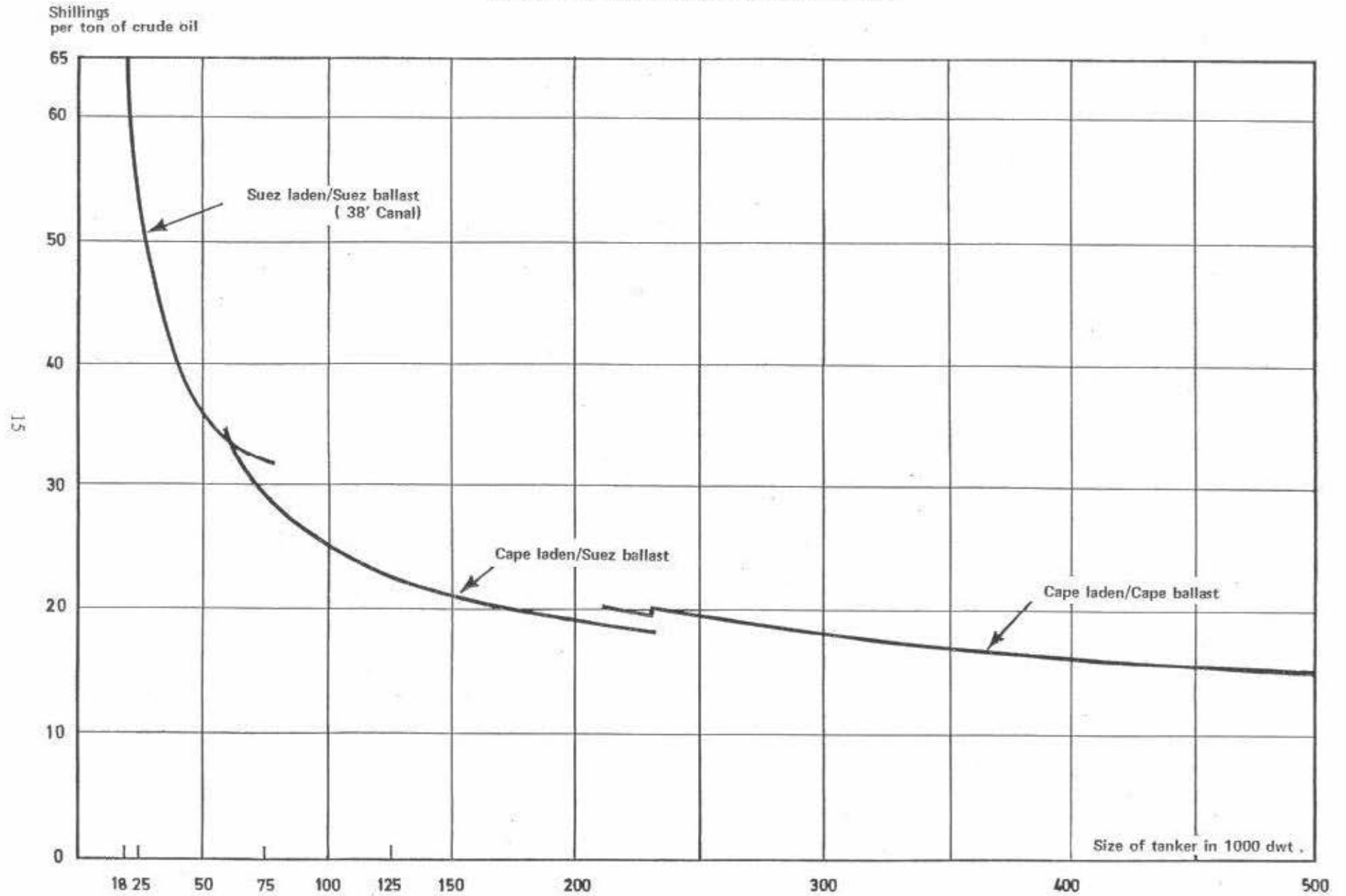
51. The spate of new constructions engendered by the closure of the Suez Canal and technical and industrial developments, in addition to the implicit economies of scale inherent in large size, may lead to a further drop in freight rates. It has been calculated²⁸ that by 1970 available tanker tonnage will exceed demand by 14 million dwt, which corresponds to an excess supply of 11.1 per cent.

52. The increase in the size of vessels was also remarkable within the bulk carrier class. The average size of vessels increased by nearly 60 per cent from 1961 to 1968, and the size of ships on order increased by nearly 100 per cent in the same period (see table 12). The two principal influences on this growth in average size are economies of scale and the growth of industry-owned tonnage, which tends to be of larger than average size since continuous employment can be guaranteed. However, there continues to be a steady demand for small to medium size bulk carriers for hire in the tramp market while owners are unwilling to build large vessels for operations in this market because of the risks involved. This has restrained the growth of average size in this class. In fact, the average size of bulk carriers on order fell during 1966 and 1967.

²⁸ Dr. Ing. Volker Bohlmann in *Wirtschafts-Correspondent*, No. 46, Hamburg, 16 November 1968.

GRAPH 1

Comparative costs of transporting crude oil from Mena-al-Ahmadi to Rotterdam by various sizes of tanker
 (All costs in shillings (sterling) on pre-devaluation basis)



Source: F. S. McFadzean, *The Economics of Large Tankers*, Strathclyde Lecture, 4 March 1968 (London, Shell International Petroleum Co. Ltd.). Source does not give date of data.

TABLE 12

Average size of bulk carriers
(Vessels of 10 000 dwt and over)^a

Year	Existing fleet			Ships on order		
	Number of ships	Total tonnage (thousand dwt)	Average size (dwt)	Number of ships	Total tonnage (thousand dwt)	Average size (dwt)
1961	471	8 711	18 495	233	4 980	21 373
1962	611	11 565	18 928	273	7 018	25 707
1963	756	15 054	19 913	194	5 694	29 351
1964	920	19 514	21 211	181	5 857	32 359
1965	1 000	22 081	22 081	283	9 410	33 251
1966	1 168	27 552	23 589	425	16 960	39 906
1967	1 380	34 786	25 207	499	19 819	39 717
1968						
1 January	1 651	46 357	28 078	426	16 467	38 655
1968						
1 July	1 791	51 971	29 018	407	16 967	41 688

Source: Fearnley and Egers Chartering Co. Ltd., *World Bulk Carriers* (Oslo, 1961-1968).

^a Figures as at 1 January.

53. As far as economies of scale are concerned, data gathered from shipping publications indicate that a four-fold increase in bulk carrier size, from 10,000 to 40,000 dwt or equally from 15,000 to 60,000 dwt, brings about a fall of approximately 40 per cent in the capital cost per dwt. In addition, operating costs per dwt also fall quickly as larger ships are utilized. As in the case of tankers, the continued increase in the size of bulk carriers is dependent upon harbour developments.

(f) *Liberty ship replacements*

54. In the period 1942-1945, nearly 2 700 Liberty ships were constructed in the shipyards of the United States. Two hundred of these vessels were sunk in war-time, 950 have been broken up, about 650 are laid up in the United States Reserve Fleet, and transfer to various United States Government agencies accounted for another fifty. Of the balance of approximately 850, an estimated 680 vessels (7 million dwt) are still in service.²⁴

55. The Liberty ships had one basic design with a deadweight of about 10 500 tons and a loaded service speed of about 10 knots. They were well suited for post-war use as general purpose tramps. However, the combined effects of rising insurance, survey and maintenance costs, low speed, and high fuel consumption gave rise to a movement to replace these ships. These first Liberty-replacement designs appeared in 1966 and there are now about twenty basic designs available, some with several variants. They are mostly designs for two-decked ships of 13,000 to 16,000 dwt, with loaded service speeds of 14 to 15 knots. There are also some small standard bulk-carriers (16,000-18,000 dwt) offered as Liberty-replacement.

²⁴ *Surveyor* (quarterly publication of the American Bureau of Shipping), New York, N.Y., August 1967.

56. According to various recent press reports, total orders for these new standard ships have reached 160 units. Of these, the most widely accepted designs seem to be the Freedom (built in Japan and Spain), the SD-14 (built in the United Kingdom and Greece), and the Liberty replacement ship constructed by various shipyards in the Federal Republic of Germany under the name of German Liberty. These ships are in the range of 13,000 to 15,000 dwt. Total orders are reported to have reached fifty-two units for the Freedom, thirty for the SD-14, and twenty-four for the German Liberty.

57. Other types of Liberty replacement ship are being constructed in Canada, Eastern Germany, the Federal Republic of Germany, France, Italy, Japan, the Netherlands, Norway, Poland, the United Kingdom, the United States of America, the Union of Soviet Socialist Republics and Yugoslavia.

58. It has been suggested²⁵ that about 300 of these standard ships would suffice to replace the 680 Liberty ships in current use, due to their higher speed (14 to 15 knots as compared with 10) and bigger size. However, it is by no means certain that total orders will reach the figure of 300, as competition from small- to medium-size bulk carriers is anticipated.

(g) *Shipbuilding*

59. Table 13 shows the predominance of Japan as a supplier of ships to the world market. Other major shipbuilding countries for which data are published include Sweden, the United Kingdom and the Federal Republic of Germany, each of which produced 1 million grt or more in 1967. The shipbuilding output of developing countries nearly doubled from 1964 to 1967 but is still only 1 per cent of the total in the table. Brazil and India produced about half of this output.

²⁵ *Ibid.*

TABLE 13
 Shipbuilding: completions by country of build, 1960 and 1964-1967
 (Thousand grt)

	1960	1964	1965	1966	1967
Japan	1 839	3 764	4 886	6 495	7 217
Other developed market economy countries (ex- cluding Southern Eu- rope).	5 925	5 211	6 006	6 138	6 473
Southern Europe . . .	354	420	468	726	658
Socialist countries of Eastern Europe and Asia (excluding USSR and China (mainland) ^e	220 ^b	441	569	621	658
Developing countries . .	45	81	77	126	151
TOTAL	8 382	9 917	12 006	14 105	15 157
USSR in thousand dwt ^c	161	363	374	384	229

Source: Compiled from *Lloyd's Register of Shipping, Statistical Tables, 1968*, and supplementary data.

^a The source does not give data for USSR and China (mainland).

^b 1960 completions in Eastern Germany not available.

^c Statistics provided by the USSR Ministry of Merchant Marine. Since they are in dwt, they have been shown separately from the rest of the table and are not included in the row of total.

Chapter III

PRODUCTIVITY OF SHIPPING SPACE

60. The number of ton/miles of cargo carried by one dwt of shipping in a given period may be used as a measure of the productivity of shipping space. This measure takes into account not only the actual volume transported, but also the distance. Unfortunately, ton/mile figures are not yet available for the whole of world trade but only for oil cargoes and goods transported in bulk carriers.

TABLE 14

Oil tankers: ton/miles of oil carried per dwt, 1960-1967

Year	Thousand million ton/miles of oil carried ^a	World tanker fleet (in million dwt)		Ton/miles of oil carried per dwt			
		Total fleet ^b	Active vessels ^c (estimated)	Total fleet		Active fleet (estimated)	
				Thousand ton/miles	Index (1960 = 100)	Thousand ton/miles	Index (1960 = 100)
1960	3 965	62.9	57.6	63.0	100	68.8	100
1961	4 490	65.4	62.2	68.7	109	72.2	105
1962	5 050	69.0	66.7	73.2	116	75.7	110
1963	5 555	72.1	70.6	77.0	122	78.7	114
1964	6 090	77.2	76.2	78.9	125	79.9	116
1965	6 620	86.1	85.5	76.9	122	77.4	112
1966	7 220	94.4	94.1	76.5	121	76.7	111
1967	9 272	102.5	102.1	90.5	144	90.8	132

^a Data from British Petroleum Co. Ltd. It has not been possible to obtain ton/mile figures for shipments of grain by oil tankers; hence, the figures presented in the table above cannot be interpreted as providing a global estimate of the productivity of tankers.

^b See table 5; mid-year figures, vessels of 300 grt and more.

^c Excluding tonnage laid up; lay-up figures have been estimated by applying a conversion factor to lay-up statistics expressed in grt.

61. Table 14 shows the changes in the number of ton/miles performed by one dwt of tanker tonnage in the period 1960-1967. Table 16 gives the same information for bulk carrier shipments. The ton/mile performance of tankers and bulk carriers is also shown in graph 2.

62. Table 14 illustrates the growth of ton/miles of oil cargo carried per dwt of ships. The two time series (respectively including and excluding ships laid-up) show considerable differences due to the absolute size of the tonnage of ships idle, and the speed with which this idle tonnage was drawn back into activity. The fall in ton/miles carried per dwt in 1965 and 1966 is attributable to the virtual elimination of laid-up tonnage and the considerable increase in the tonnage of ships coming into service, which apparently operated with lower load factors and/or spent more time travelling in ballast than had been the case in earlier years. This is shown in table 15. The increase in ton/miles transported in 1967 is attributable to the considerable lengthening of hauls caused by the increased use of the Cape route. The rise in productivity shown in that year supports the view that the capacity of active tankers had been under-utilized in preceding years.

TABLE 15

Annual rates of increase ^a of ton/miles of oil cargo carried and of active oil tanker tonnage (Percentages)

Year	Oil cargo ton/miles carried	Active oil tanker tonnage (excluding ships laid-up)
1961	13	8
1962	12	7
1963	10	6
1964	10	8
1965	9	12
1966	9	10
1967	28	9

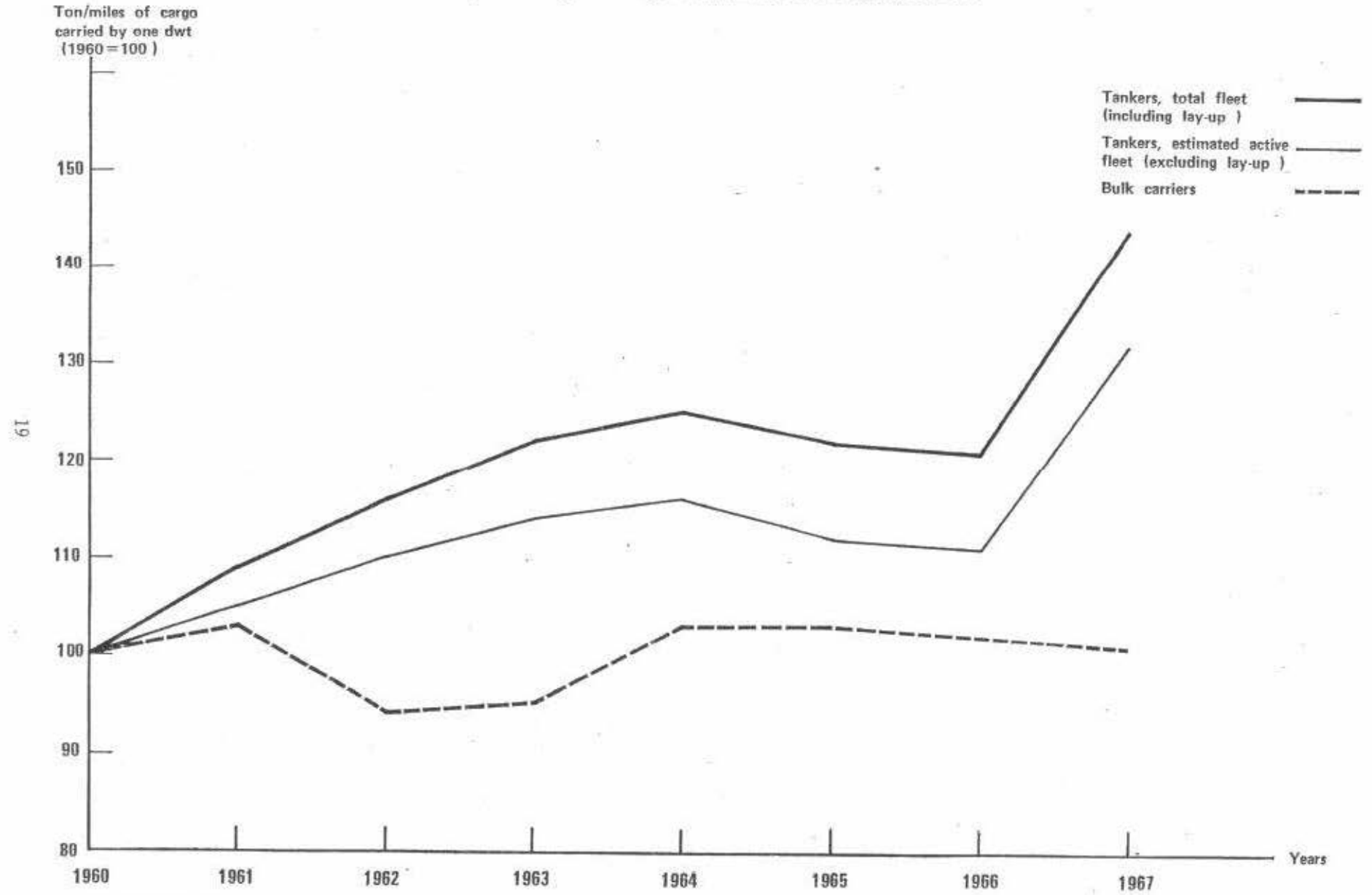
Source: Table 14.

^a Increase in each year as a percentage of the previous year's figure.

63. Table 16 shows a different pattern of development in bulk carrier performance. Productivity in terms of ton/miles carried per dwt varied within a narrow range and without a discernible trend, over the period 1960 to 1967. Unlike oil, which takes about the same time per

GRAPH 2

Ton/miles of cargo carried by one dwt, tankers and bulk carriers, 1960-1967



Source: Tables 14 and 16.

TABLE 16

Bulk carriers: ton/miles of bulk commodities carried per dwt, 1960-1967

Year	Thousand million ton/miles of bulk commodities carried in bulk carriers a b	World bulk carrier fleet in million dwt c	Ton/miles of bulk commodities carried per dwt	
			Thousand ton/miles	Index (1960 = 100)
1960	219	6.2	35.2	100
1961	304	8.4	36.2	103
1962	390	11.7	33.1	94
1963	522	15.6	33.4	95
1964	703	19.3	36.3	103
1965	833	23.1	36.3	103
1966	1 065	29.4	36.0	102
1967	1 378	38.8	35.7	101

Source: Pearnley and Egers Chartering Co. Ltd., *Trades of World Bulk Carriers in 1967* (Oslo, 1968).

a Excluding bulk shipments in vessels of less than 14 000 dwt.

b Excluding oil cargo and cars when shipped in bulk carriers of the combined types; also excluding grain carried in tankers.

c Vessels of 14 000 dwt and more; quarterly averages.

ton to handle whether in crude or refined state, bulk dry cargo is composed of a number of heterogeneous commodities, each with different handling characteristics. Fluctuations from year to year in the relative importance

of different commodities in total bulk carrier shipments have an important effect on the productivity measured in terms of ton/miles per dwt of the bulk carrier fleet through their effect on turnaround time in port.

Chapter IV

FREIGHT RATE DEVELOPMENTS

64. Variations in the levels of freight rates during any period are indicated by means of index numbers. There are many indices available and a description of the main published freight rate indices is given in the report by the UNCTAD secretariat, *Freight markets and the level and structure of freight rates*.²⁶ The point is made there that rate indices must be used with great caution when drawing conclusions regarding the movement of freight rates in the different sectors of the shipping industry. The report also makes it clear that none of the indices available are suitable for use in calculating changes in the costs of transportation of the imports and exports of developing countries. For these reasons proposals have been made for the construction of indices more suitable for this purpose.²⁷

65. A study of the variation in rates as reflected by the behaviour of the indices is not the only matter of importance in reviewing developments of freight rates. The variations recorded by the indices arise from changes in demand for tonnage reacting on a supply of available tonnage which changes more slowly. The nature of the reaction, and the way in which rates are affected, are fully discussed in the report referred to in paragraph 64 above. In addition to the factors which give rise to short term changes in rates, there are long term changes in the volume of cargo moving, the supply of tonnage and the costs of shipping operations. For example, the continued increase in the volume of world trade (see paras. 4-12 above) would, other things being equal, give a long term upward trend to freight rates. However, the parallel increase in the supply of shipping (see paras. 13-24 above) has prevented a shortage of tonnage from emerging, while at the same time the continuing increase in the size of ships has led to falling ton/mile costs in the bulk freight markets. The influence of all these factors in general is discussed in the report mentioned, above, while particular developments in shipping and trade within the period under review are noted elsewhere in the present report.

66. Generally speaking, in 1968, the liner sector of the shipping industry continued to carry out the adjustments resulting from the closure of the Suez Canal and the devaluation of sterling in 1967, while the dry cargo tramp market seemed fairly settled after the instability of the

second half of 1967. The tanker market experienced the usual short-term fluctuations of freight rates, although the over-all level of rates was sustained at higher levels than in previous years owing to the closure of the Suez Canal. The changes in some of the main freight rate indices between 1955 and 1968 are shown in table 17 and their movements in 1968 are discussed below.

Liner rates

67. The liner rate index compiled by the Ministry of Transport of the Federal Republic of Germany showed an increase during 1968. The assessment for January 1968 (in the new series, which uses 1965 as base period) was 106.6. It rose to 108.2 in April, dropped to 107.2 in June, and then rose gradually to 107.5 towards the end of the year. No link is available between the old and the new series for purposes of comparison between 1968 and earlier years.

68. In the case of most lines the surcharges for devaluation expenses imposed after November 1967 have been consolidated, either at a lower level or unchanged, in the tariff schedules. The fuel surcharge, imposed after the closure of the Suez Canal, was reduced or abolished in some cases. However, any benefits on this score were more than offset by the various rises in the basic tariffs, which are reflected in the movement of the index.

69. The tendency to quote and pay liner freights in currencies other than sterling (mainly United States dollars) continued throughout 1968. For shippers in countries that followed the United Kingdom in devaluing their currencies by the same amount, payment of freight in dollars had the effect of a full devaluation surcharge of 16.6 per cent.

Dry cargo tramp market rates

(a) *Time charter rates*

70. Throughout the first part of 1968 there was an active demand for tonnage for time chartering, especially from liner companies, arising in part from the continued closure of the Suez Canal. The United Kingdom Chamber of Shipping time charter index for 1968 (1960 = 100) was 138, compared with 130 in 1967. In fact, this was the highest assessment recorded since the revision of this index in 1961.

71. Fluctuations during the year were fairly wide. The index stood at 145 in January 1968 (corresponding figure for 1967: 118), dropped to 126 in April—presumably

²⁶ TD/B/C.4/38/Rev.1. To be issued as a United Nations publication.

²⁷ The secretariat's proposals for the construction of indices of freight rates of special interest to developing countries are contained in document TD/B/C.4/37.

TABLE 17
Freight rate indices, 1955-1968

Year	Liner freight rates a		Dry cargo tramp		Tanker trip charter d		
	(July-Dec. 1959 = 100)	(1965 = 100)	Time charter b (1960 = 100)	Voyage charter c (1960 = 100)	(MOT scale = 100) f	(London scale = 100) g	(Intascale = 100) h
1955	108		199	173	119		
1956	119		265	212	224		
1957	132		183	153		150	
1958	122		86	91		54	
1959	120		86	97		55	
1960	122		100	100		52	
1961	127		112	107		48	
1962	131		89	89			55
1963	133		105	109			73
1964	138		119	112			67
1965	142		134	127			66
1966	148		132	114			62
1967	153		130	121			114
1968		107 e	138	124			104

NOTE. — All these indices are published regularly in Institute of Shipping Economics, Bremen, *Statistik der Schifffahrt*. Figures shown are averages of monthly assessments in each year.

a Liner index compiled by the Ministry of Transport of the Federal Republic of Germany. Monthly weighted assessments of freight rates on cargoes loaded or discharged by liners of all flags at ports in the Antwerp/Hamburg range. The 1968 figure is the first of a new series with base 1965 = 100; no link with the previous series is available.

b Dry cargo time charter index compiled and published by the United Kingdom Chamber of Shipping. Based on unweighted arithmetic mean of hires for time charters of vessels over 9 000 dwt.

c Dry cargo voyage charter index compiled and published by the United Kingdom Chamber of Shipping. Monthly weighted assessment of rates for all flags on routes of importance to the United Kingdom merchant fleet. Includes quotations for carriage of coal, grain, sugar, ore, fertilizers, timber, sulphur. Figures for the years 1955-1959 converted from previous base 1952 = 100.

d Tanker trip charter index compiled and published by *Norwegian Shipping News*, Oslo. Based on unweighted arithmetic mean of tanker freights for single voyages concluded each month in all parts of the world. The three series are not linked.

e January-November, eleven months average.

f United Kingdom Ministry of Transport scale from 18.9. 1947 = 100.

g London Market Nominal Tanker Freight Scale from 1.1. 1957 = 100.

h International Tanker Nominal Freight Scale from 15.5. 1962 = 100.

as a result of the inactivity in time chartering caused by the international monetary crisis at that period—but recovered to 154 in May. In the second half of the year, the index fluctuated on the whole around lower levels than in the corresponding period in 1967.

(b) Voyage charter rates

72. Contrary to time charter hires, freight rates for voyage charters in 1968 failed to justify expectations of a continued boom in the market, made on the basis of the closure of the Suez Canal. Rates in 1968 never reached the peaks achieved after June 1967, owing to the influx of new bulk cargo tonnage. In general, tramp freights during 1968 were characterized by relative stability.

73. The average of the United Kingdom Chamber of Shipping monthly voyage charter index (1960 = 100) for the first six months of 1968 was 125, while the average for the corresponding period in 1967 was 106. In the second half of the year the situation relative to 1967 was reversed. The index continued to fluctuate within narrow margins, but on the whole, at levels noticeably lower than those in the corresponding period in 1967. The average of the monthly index numbers for the second half of 1968 was 123, while the corresponding figure for 1967 was 135. The average for the whole of 1968 was 124, as against 121 in 1967.

74. Table VI in annex II indicates the maximum and minimum voyage charter rates in 1967 and 1968 on some routes of interest to developing countries.

Tanker voyage charter rates

75. Owing to the importance in the transportation of oil by sea on the route from the Persian Gulf to Western Europe, the effects of the closure of the Suez Canal continued to influence the tanker market in 1968. Thus, during the first five months of the year the assessments of the *Norwegian Shipping News* tanker freight index (International tanker nominal freight scale: 100) indicate that rates fluctuated within narrower margins but at higher levels than in the corresponding period in previous years. In 1968, the average of the monthly assessments of this index for the period January to May was 100.5, compared with 49.9 in 1967 and 69.8 in 1966. (On the other hand, the assessments for this period in 1968 were lower than those between June and December 1967, when the *Norwegian Shipping News* index never fell below 107.) The index rose in May and June 1968 but started to decline in July. After July, it stayed at levels similar to those of the first four months of 1968 until November, when it started rising again. The average of the monthly assessments for the whole of 1968 was 103.8, as against 113.7 in 1967.

OTHER GENERAL TRENDS

(a) Containerization

76. Rapid developments have taken place in international container transport during the past decade. Containers were first used in United States coastal trades (including the trade to Hawaii) and in the trades between North and South America. A significant event in the development of container services was the introduction of a transatlantic service between the East Coast of the United States of America and Northern Europe in February 1966. This service was operated by a line of the United States of America; it was quickly followed by similar services operated by two other lines from that country. In 1967, the list of transatlantic container operators was enlarged by the entry of two British groups and a Western European consortium. In 1968, container services across the Pacific were started by shipping lines of Japan and the United States. In 1969, containers will be introduced in the United Kingdom-Australia and the Australia-Japan trades, and Japanese shipowners are planning a container service for the Japan-Europe trade.

77. In September 1968, that is less than three years after the start of the transatlantic container services, the number of specialized container ships in operation had risen to 145. In the same month, fifty-two shipping groups throughout the world had 113 container carriers on order. Additionally, contracts were pending or under negotiation for another thirty-one new constructions, while twenty-nine ships were being converted to carry containers.²⁵

78. The impact of this rapid growth in tonnage on freight rates and conference practices remains to be seen. Container ships are, given equal tonnage, more efficient than ordinary dry cargo vessels because of their quicker turnaround, though their economic efficiency varies according to the level of stevedoring rates, the length of time in port, the cost of the ship, and other factors. Various estimates (differing in their assumptions and conclusions) have been made concerning the cost-reducing effects of this new mode of transport.

79. One recent study²⁶ estimates that a container vessel is able to transport between 2.4 and 3.2 times as much cargo as a conventional ship of equal tonnage in a

given period. It predicts that it will be possible in 1970 to transport all the "containerizable" North Atlantic cargo in twenty-five very large container ships of 60 000 dwt. The cost savings to be realized (compared with the cost of conventional transport) are estimated to be about 12 per cent for a container transported from the factory to the port of destination, and about 28 per cent in the case of a complete door-to-door service.

80. Another study on containerization³⁰ forecasts savings of up to 50 per cent in the cost of transport, a reduction of 70 per cent in the number of cargo ships on the North Atlantic run, and a twentyfold rise in the productivity of port-workers handling general cargo.

81. So far, however, neither general reductions of conference tariff levels, nor rate wars, have been reported in any containerized trade. Instead, it is reported that rate reductions have been given to shippers of containerized cargo in the form of rebates, or through deliberately incorrect weighing or description of commodities.³¹

82. The initiative in establishing container services has come from developed countries, and developing countries have played a passive role so far.³² The capital-intensive and labour-saving nature of containerization, and the demands it makes on the inland transport system, detract, *prima facie*, from the attractiveness of containerization as an investment option for developing countries. Furthermore, containerization is appropriate only when there is a steady flow of "containerizable" goods; and while there may be an economic case for containerizing the imports of some developing countries, the commodity composition of their export trades tends to be unsuitable for containerization.

83. It is interesting to note, however, that the study quoted in paragraph 79 above indicates that, when a certain volume of trade and size of vessel are reached, the operation of a container ship may be economic on a one-way basis, with no return cargo. This is a pointer to the possible future introduction of one-way containerization from developed to developing countries, as container ships become more efficient or as over-capacity (or competition from air freight) brings freight rates down. The feasibility of such an operation, extending at the

²⁵ *Container Vessels and Container Vessel Operators/Owners*; published by A/S Shipping Consultants, Oslo, 1968; quoted in *The Motor Ship* (London, November 1968).

²⁶ G. Beyer, *Le container, situation actuelle et son évolution* (Société d'études et de réalisations industrielles (SERI), Renault Engineering, 1968), summarized in *Journal de la marine marchande* (Paris, October 1968).

³⁰ McKinsey and Co., Inc. (Management consultants), *Containerization: the key to low cost transport*, report produced for the British Transport Docks Board, 1967.

³¹ See the United States Federal Maritime Commission press release of 7 November 1968, giving the text of an address by the Managing Director of the Commission.

³² See paras. 87 and 88 below.

maximum from "ex-works" in the developed countries to the ports in the developing countries, would have to be studied very carefully, especially by the latter countries. If stevedoring costs in the exporting country were particularly high, a one-way operation might seem attractive to exporters even though the trade volume itself did not justify the use of containers.

84. A more immediate possibility is that containerization may be thrust upon developing countries whose trade is carried as part of a route between two industrialized areas. The decisions by the ship operators on the types of ship to be used on the route will depend on the needs of the route as a whole. This may mean that full containerization may be adopted even though none of the trades of the developing countries along the route is suitable for it. These countries must then consider whether to adapt their ports to handle the container ships on the route, or to seek to establish alternative break-bulk shipping services to handle their own trade. In the situation posited, the break-bulk services would be uneconomic, whereas if the container solution were accepted, the shipowners would be able to recoup from other parts of the trade the overhead costs incurred in serving the trades of the developing countries. Thus, it is not at all clear *a priori* which of the two possible solutions would be the best for the developing countries concerned.

85. Containers may be used in a fully integrated and developed service. Such a service involves, first, the employment of highly specialized vessels (with a cargo-carrying capacity probably two or three times as great as conventional break-bulk liners); secondly, deep water ports with berths specially equipped with wharfs, cranes and transport facilities adapted to receiving large ships and handling containers; and, thirdly, specialized rail and road trucks for carrying containers to and from inland destinations. With such services, it is likely that these would be a limited number of large capacity container ports in each of the world's main trading regions and that other ports would be served by feeder services taking containers to and from the terminal ports. At the other extreme, it can be visualized that a few containers may be carried on the decks, or in one hold, of a liner which is otherwise equipped for conventional break-bulk carriage, and that these containers may be handled by ship's gear and packed and unpacked within the port areas. Between these two extremes, there is a large number of possibilities.

86. Each of these possibilities clearly has implications for the port authorities concerned. For example, if within a geographical area there is sufficient "containerizable" traffic to permit only one optimum size port to be economically operated, then regional co-operation will be required in order to ensure that only one port is constructed. The one port will then have elaborate and sophisticated facilities, while the other ports in the area will be concerned largely with feeder traffic. On the other hand, if there is not sufficient container traffic in a geographical area to justify even one specialized port, then each port may find it necessary to provide some facilities for such containers as are carried in ships otherwise equipped for break-bulk cargo.

87. Interest in containerization is reported from several ports in Asian developing countries. In India, there are plans to equip the ports of Bombay and Calcutta to handle incoming container traffic on a limited scale, though it may not be possible to return these containers full of export cargo. For the longer term, there are proposals to develop the satellite ports of Nhava Sheva (Bombay) and Haldia (Calcutta) as fully fledged container ports.³³ Singapore is reported to be planning to build container facilities and a Singapore shipping line proposes to establish a container feeder service between five ports in Malaysia and Singapore.³⁴ Plans also exist to equip the port of Kaohsiung, on the south-west coast of Taiwan, to receive container ships.³⁵ Studies of containerization are being carried out in Ceylon³⁶ and Hong Kong, and a Hong Kong shipping company may order specialized container ships.³⁷ It is likely that the expression of interest in containerization by developing countries in this region has been stimulated by the planned introduction of containerized services between Europe and Australia, and Australia and Japan and, at a later stage, between Europe and Japan.

88. Among developing countries, interest in containers is not restricted to countries in Asia. In Latin American trades, for example, containers were introduced as early as 1964. Particularly interesting is the service between New York and Callao, on which ships, in addition to carrying bananas and having considerable passenger accommodation, are also equipped to carry containers. Other container services are also operated on the east coast of the South American continent. In the case of Africa, there does not at present appear to be any full fledged container service. Nevertheless, container ships operate into many African ports where containers are handled using ships' gear and without any special facilities. A major question, particularly in the West African area, is the lack of backhaul cargo suitable for containerization, with the result that containers are sometimes abandoned in West Africa or are returned empty.

(b) Nuclear powered ships

89. Two significant events in the field of nuclear propulsion occurred in 1968. Until then, only two non-military nuclear vessels had been in service, namely, the United States cargo ship *Savannah* and the Soviet ice-breaker *Lenin*. In October 1968, the *Otto Hahn*, built in the Federal Republic of Germany, made its first trial run under nuclear power. Although its major function is stated to be to serve research purposes, this ship of 15,000 dwt is also to be used in the transport of iron ore. In November 1968, the keel of the first Japanese ship using nuclear propulsion was laid. It is expected to become operational in 1972, and will be used primarily for transporting elements for nuclear power stations and

³³ *Ports and Harbours* (Tokyo, Yoshio Hayashi, August 1968); *Lloyd's List and Shipping Gazette* (London, 14 December 1968).

³⁴ *Far Eastern Economic Review* (Hong Kong, 15 August 1968).

³⁵ *Journal pour le transport international* (Basel, 11 October 1968).

³⁶ *Lloyd's List and Shipping Gazette* (London, 4 January 1969).

³⁷ *Far Eastern Economic Review* (Hong Kong, 15 August 1968).

radio-active waste products. It will have a service speed of 16.5 knots and a deadweight tonnage of 2,400.³⁸

90. Research is progressing in Italy on a project for a nuclear-powered ship of 18,000 dwt, the *Enrico Fermi*, and a firm in the Federal Republic of Germany is studying the construction of a 200,000 dwt tanker propelled by a boiling water reactor producing 30,000 shaft horsepower.³⁹ It appears that the latter ship would not be commercially viable and its operation would have to be subsidized. A representative of the firm undertaking the study is reported to have stated that nuclear propulsion will only be commercially viable when installations of 40,000 shaft horsepower or more are used.⁴⁰ This power range would be suitable for very large, fast container-ships and for giant tankers of the largest sizes now contemplated.⁴¹ A British study on the application of nuclear power to container ships, carried out by Vickers Ltd. in conjunction with the United Kingdom Atomic Energy Authority,⁴² has come to the same conclusion. Both studies point to the commercial viability of nuclear propulsion being ten or more years away.

(c) Air transport

91. The success of air transport in competing with sea transport for the carriage of passengers is well known. It may be simply illustrated by the following facts: between 1957 and 1967 the number of people crossing the North Atlantic each year by scheduled sea services fell from 1.0 million to 0.5 million, while the number crossing by scheduled air services rose from 1.0 million to 5.0 million.⁴³

92. Air transport also competes with sea transport in the carriage of cargo. The current transport performance of air freight, in terms of ton/kilometres, is very small compared with that of sea freight, even if the comparison is limited to liner cargoes.⁴⁴ However, the airlines' share of freight revenues is considerably higher than their share of freight volumes. Air cargo revenues on scheduled services operated by airlines of States members of ICAO in 1967 were \$1,188 million.⁴⁵ If one accepts an estimate of \$5,600 million⁴⁶ as the gross freight revenues of liner

companies in 1967, air cargo is seen to have earned about 21 per cent of liner revenues (17.5 per cent of the combined total). The latter figures demonstrate the competitiveness of air freight at the high-value end of the transport market, the same end at which container ships are aiming.

93. These estimates are complemented by statistics on the airborne trade of the United Kingdom in 1967.⁴⁷ These statistics show, for example, that over 50 per cent (by value) of United Kingdom imports of electrical machinery and apparatus (SITC 72) and of professional and scientific instruments, photographic and optical goods, and watches and clocks (SITC 86) was carried by air in that year. More relevant to the development of seaborne containerization is the fact that over 20 per cent (by value) of trade between the United Kingdom and the United States of America was airborne in 1967, and that the share of air cargo in this trade has been rising.

94. Table 18 shows that the average air freight rate per ton/kilometre on scheduled services of airlines of States members of ICAO⁴⁸ has fallen by about 30 per cent between 1957 and 1967 and that the ton/kilometres of cargo carried on such services have increased fourfold in the same period.

TABLE 18

Trends in air freight rates and in air freight volume
(Scheduled operations of airlines of ICAO member States)^a

Year	Average scheduled service freight rate per ton/km		Freight volume	
	United States cents	Index 1957 = 100	In thousand million ton/km	Index 1957 = 100
1957	24.8	100	1.63	100
1958	24.3	98	1.67	102
1959	24.0	97	1.93	118
1960	22.9	92	2.17	133
1961	21.8	88	2.48	152
1962	20.5	83	2.92	179
1963	20.6	83	3.28	201
1964	19.7	79	3.91	240
1965	18.2	73	4.95	304
1966	18.0	73	5.83	358
1967	17.7	71	6.72	412

Source: ICAO, *A review of the economic situation of air transport 1957-1967*, Circular No. 89/AT/15 (Montreal, July 1968).

^a Domestic and international services; ICAO membership does not include the USSR, China (mainland) and some other states.

95. Most air cargo services are provided in the holds of passenger aircraft, the cargo carried contributing to overheads without incurring substantial costs. However, the future of air cargo lies in the provision of all-cargo services and the viability of these services is not yet universal. In fact, the unit freight rates shown in table 18 were only one or two cents above average operating costs per ton/kilometre in the years shown, so that the "average airline" would have had to achieve load factors of 90-95 per cent or so to break even in the carriage of cargo alone.

⁴⁷ *Board of Trade Journal* (London, 22 March 1968).

⁴⁸ The USSR, China (mainland) and certain other States are not members of ICAO.

³⁸ *Journal de la marine marchande* (Paris, 5 December 1968).

³⁹ Shaft horsepower (s.h.p.) is the power actually transmitted to the propeller shaft(s), i.e. it is net of power lost in transmission.

⁴⁰ *Journal de la marine marchande* (Paris, 19 October 1968); the firm in question is AEG-Telefunken.

⁴¹ The *Savannah's* reactor can produce 22 000 s.h.p. Large passenger liners use power well in excess of 40 000 s.h.p. The *Queen Elizabeth II*, for example, uses an average s.h.p. of 85 000 to 95 000 (110 000 s.h.p. maximum).

⁴² Reported in *Journal of Commerce* (London, 23 November 1968).

⁴³ In 1967, an additional 0.5 million passengers were carried by charter flights. These figures, derived from Atlantic Conference statistics and IATA statistics, are quoted in OECD, *Maritime Transport; 1967* (Paris, 1968).

⁴⁴ A recent estimate by Bjorn G. Braathen, quoted in *Journal de la marine marchande* (Paris, 21 November 1968), puts air freight ton kilometres at 2 per cent of liner cargo ton-kilometres.

⁴⁵ ICAO, "A review of the economic situation of air transport, 1957-1967", circular No. 89/AT/15 (Montreal, July 1968).

⁴⁶ B. G. Braathen, *loc. cit.*

96. Among the States members of ICAO, the main areas of all-cargo services are the United States domestic market and the North Atlantic route. There is evidence that these services are commercially viable in the United States market,⁴⁹ where there is a high and steady volume of traffic and large aircraft can be used. The ICAO publication⁵⁰ from which table 18 is drawn gives an interesting comparison of the performance of United States domestic and intra-European cargo services, which shows that the higher freight rates of the latter do not compensate for the lower freight volumes. The ICAO figures are reproduced below:

	<i>Intra-European services</i>	<i>United States domestic services</i>
Average cargo capacity per aircraft	9.2 tons	23.1 tons
Average cost per available ton/km	25 cents	6.7 cents
Average load factor	52 per cent	59 per cent
Average operating cost per ton/km performed	48 cents	11.4 cents
Average revenue per ton/km performed	28 cents	12.8 cents
Average deficit/surplus per ton/km performed	-20 cents	+ 1.4 cents

97. Air freight is going through a technological revolution parallel to that in sea transport. Containerization and other forms of unitization are being introduced. "Jumbo jets" and "airbuses" are just about to break into the market. These new aircraft will have lower operating costs per ton/kilometre than existing types and they may be able to operate economically at average freight rates of the order of six cents per ton/kilometre.⁵¹

98. The effect on sea transport of reductions in air transport costs will be a broadening of the area of compe-

⁴⁹ A study by a United States aircraft corporation shows that the all-cargo lines in the United States moved from loss to profit in 1966. Lockheed-Georgia Company, *Air cargo profitability study, 1957-1966* (Marietta, Georgia, February 1968).

⁵⁰ ICAO, "A review of the economic situation of air transport, 1957-1967", circular No. 89/AT/15 (Montreal, July 1968).

⁵¹ *Ibid.*

tion between air and sea freight (though it must not be forgotten that sea transport costs will also be falling because of containerization). At present, air transport has a definite advantage in the carriage of certain perishable agricultural goods, and sea transport is unchallenged in the transport of bulk liquids. The whole range of products in between these two extremes is theoretically open to competition from air freight.⁵² Initially, air freight tends to be competitive in carrying goods with a high value in relation to volume and goods which are needed in a hurry. A reduction in air transport costs will lower the minimum volume: value ratio at which air freight becomes attractive and will reduce the cost of saving time (the time factor being the key to the size, and thus the cost, of stock holdings).

99. Air freight is largely carried between and within industrial countries at present. Because of the commodity composition of the trade of developing countries, air freight is currently more important (in volume terms) in their imports than in their exports. An indication of the share of developing countries in international air cargo transport is given in a recent study of the future of air transport in West Africa;⁵³ this study gives figures for 1963 which attribute 8.9 per cent of air freight ton/miles to Latin America and 2.9 per cent to Africa. The same study shows that in West and Equatorial Africa, tonnage carried by air increased four-fold between 1958 and 1967.

100. Air freight may be expected to grow in importance for developing countries. The creation of an adequate surface transport infrastructure may be difficult in many developing countries, due to economic or geographical circumstances, or a land-locked position, and there may be great scope for the use of aircraft for freight and passenger transport in such countries.

⁵² In this connexion see D. Tresselt, *The West African Shipping Range* (United Nations publication, Sales No.: 67.II.D.24), paras. 475-476.

⁵³ Théophile Komaclo: "Aspects of air freight in new countries", paper submitted to the Third ITA International Symposium, Paris, 1968.

Chapter VI

INTERNATIONAL TRANSOCEANIC TRANSPORT AND ECONOMIC DEVELOPMENT *

(a) *Transport and economic development*

101. The objective of an international economic development policy is to increase the real income of the world, with particular attention to means of increasing the rate of growth of real income per head in the developing countries. International transport has a critical role to play in this process.

102. The endowment of natural, human and capital resources varies from country to country. In order to achieve maximum rate of growth of real income, countries must therefore carry on trade with each other in such a way that each makes optimum use of its specialized forms of production. Before this international trade can be effective in curing conditions of poverty a number of conditions have to be fulfilled. One of them is that all countries should have free access to the markets of the world, since, so long as limitations affect the access to markets, the economic development of developing countries is hampered. Another condition is that there must be adequate transport services between countries, operated efficiently and charging the lowest prices consistent with the long run maintenance of the services.

103. In the absence of international trade all countries are self-sufficient in the sense that they can consume and invest only what they have produced. International trade permits specialization in production to occur, with each country producing those goods in which it has a comparative advantage and importing those which it cannot produce or can produce only at prohibitive cost. The process of development also includes the establishment or expansion of domestic industries. Domestic industry is necessary because many economic activities which cannot form the basis of international trade are an essential part of development. Although the domestic industries supplying the domestic market are important, economic development is always associated with the expansion of international trade. It is from this trade that the need for international transport arises. The existing transport needs of developing countries are the result of the past developments in their economies which have led to particular trading patterns. Future development is likely to produce an increase in, and a changing pattern of, trade leading to both an increase in the transport requirements and a change in the pattern of routes and types of facilities used.

104. Sea transport is the major mode of transport used in international trade when the trading partners are not continuous. However, in considering the transport requirements, the needs for land transport between contiguous territories and for inter-modal transport links in the case of land-locked countries must not be forgotten. Besides, it is rare that goods travel from the point of supply to the point of demand entirely by maritime means. Sea transport must essentially be regarded as one link in a transport chain which normally involves the use of two or more modes. In addition, the role of air-freighting must be taken into account, although this is currently more important in trade between developed countries than in the trade of developing countries.

105. The aspect of air transport of greatest importance to developing countries is the way in which the fast service which can be provided makes it possible to reduce stock holdings, with consequential economies in the use of scarce capital for this purpose. Where the demand for particular types of imports fluctuates and yet buyers are not to be kept waiting for supplies, the level of stocks in relation to the annual volume of trade has to be high if sea transport is used and yet buyers are not to be kept waiting for supplies. Some of these imports, for example, spare parts for capital equipment, may be essential for development. In these cases, arrangements with overseas suppliers under which supplies from overseas are air-freighted can ensure quick delivery to customers without the need to hold stocks. Also, in comparison with sea transport, air transport can frequently lead to a reduction in the number of links used in a transport chain, since air ports, unlike sea ports, are not restricted to locations on the coast or in estuaries.

106. Although the trade of the developing countries generates their demand for transport facilities, the influence on trade of the supply of transport facilities must always be considered. Where transport facilities of a particular type are provided, only trade which can use those facilities can take place. The trade of any country, whether developed or developing, can be hindered if transport facilities of the right type are not available.

107. Investment in the expansion of transport facilities may be induced, that is, it may arise from a change in the pattern or size of demand which becomes clear to the transport operators. However, in the context of economic development the most important type of investment in transport is likely to be autonomous, that is, of the type which occurs before the need for it becomes manifest, in the expectation that it will generate the trade necessary to secure economic returns.

* This chapter was originally issued as a separate report (TD/B/C.4/46) prepared by the UNCTAD secretariat under resolution 1372 (XLV) of the United Nations Economic and Social Council.

108. In the case of induced investments it might be expected that the profit motive of transport operators in a freely competitive system would lead them to supply the transport facilities required. In certain important respects, however, international transport is not freely competitive. In the long run, it may be the case that potential needs are normally filled by the supply of appropriate transport facilities. In the short run, however, this is not necessarily the case. The "short run" may in fact be quite long; in a system where the demand for transport is held back by the inadequacy of existing facilities, several years may elapse before the transport system reacts to potential demands.

109. Historically, private enterprise has been an important source for autonomous investments in transport. In the modern world, however, such investments in developing countries depend largely on government action and on the provision of capital through international agencies.

(b) *International transport structure*

110. International transport is at present provided by a number of different means:

(a) Land transport between contiguous territories by road or rail;

(b) Rail and road transport between non-contiguous territories using "roll-on, roll-off" ships, including train ferries, for the sea part of the journey;

(c) Sea transport of bulk commodities, including the carriage of liquid cargoes, or cargoes such as grain which can be handled in the same way as liquids, in tankers, the transport of bulk cargoes in general purpose tramps and also the transport of bulk cargoes in specially designed bulk carriers;

(d) Transport of dry cargoes (principally fruit, dairy produce and meat) in specially designed refrigerator ships;

(e) Transport of liquid cargoes in deep tanks of ships carrying dry cargoes;

(f) Transport of dry cargoes in liner ships operating on a "common carrier" basis;

(g) Through transport of general cargo to inland destinations under single bills of lading, using either traditional transport means or containers;

(h) Air transport, at present largely restricted to high value manufactured commodities largely between developed countries and the transport of precious stones and metals and perishable commodities such as fruit and flowers.

111. In the transport field the UNCTAD secretariat is concerned primarily with the various forms of sea transport, although its interest must logically be extended to cover forms of transport which are, or may become, competitive with sea transport in the trade of developing countries.

112. There is another reason why interest in transport costs should extend beyond the costs of one particular link in the chain. The income of the producer depends

on how much he receives for his product, while the price of the product on the market depends on the demand conditions. There is always a differential between what the producer receives for his product and what the buyer pays, even if one disregards processing which changes the nature of the product. This differential may be made up of the following main cost items:⁶⁴

(a) Inland transport costs in the producer's country; storage charges; agents' commissions; profits of middlemen in producer's country; handling charges in producer's country (only those not included in the transport charges); interest on working capital to finance the goods during transport;

(b) Freight charges; insurance;

(c) Handling charges in the consignee's country (if not included in transport charge); profits of middlemen in the consignee's country; storage charges; inland transport costs in the consignee's country.

Ocean freight and insurance may constitute a relatively minor part of the total differential.

113. In considering the income of producers in developing countries, or the prices paid by buyers in such countries, all of these types of cost incurred in moving the product from producer to the processor or the consumer are important. Concentration on the ocean freight costs only gives a limited picture. A recent study by OECD of 235 shipments in North Atlantic trades concluded "Of total transport costs paid [i.e. excluding all non-transport charges] for the entire sample of shipments, ocean freight accounts for 62 per cent..."⁶⁵ If all other cost items had been included, the share of ocean transport costs in the differential would have been very much smaller, which demonstrates the importance of taking an over-all point of view. It should be noted that the OECD study related to transactions between developed countries; in the general cargo trades of developing countries the proportions accounted for by non-transport charges is probably higher than in the OECD sample, for the size of individual trading transactions is relatively small and hence the charges for packing and for handling by middlemen are likely to be relatively more onerous.

114. In considering balance of payments questions, only the part of the costs involved which has to be paid for in foreign currency is important. In the case of imports the costs listed in (a) have to be covered by foreign exchange payments, while in the case of exports those listed under (c) are defrayed in foreign currency. The ocean freight charges mentioned in (b) are payable usually in foreign currency if the goods are not transported in nationally owned ships, although these charges may be partly offset by expenditures incurred by the

⁶⁴ For a discussion of the incidence of these costs, see UNCTAD, *Freight markets and the level and structure of freight rates* (TD/B/C.4/38/Rev.1) (to be issued as a United Nations publication), chap. VII.

⁶⁵ See Maritime Transport Committee of OECD, *Ocean freight rates as part of total transport costs* (MT (68) 7, Paris, May 1968), para. 38. The phrase in square brackets was inserted by the UNCTAD secretariat.

foreign ships, for example, expenditure by crews, purchases of stores.⁵⁶

115. Each form of sea transport has its own market.⁵⁷ The most important of these markets are :

- (a) The liner market;
- (b) The voyage and short-term charter market;
- (c) The long-term charter market;
- (d) The long-term contract market;
- (e) Integrated ownership operating outside the transport market.

116. The liner market is operated in the main by a system of conferences under which the individual lines operating in each trade agree to avoid competition as regards freight rates and in return for the provision of regular services establish loyalty arrangements with shippers. The liners carry the bulk of the world's trade in manufactured commodities and are also important in the carriage of many commodities exported by developing countries, for example, jute, rubber, tea, cotton. Most meat and fruit carriers also operate on liner terms where they are not part of integrated organizations.

117. The voyage charter market and the short-term time charter market formerly covered the transport by tramp ships of bulk commodities other than oil, except those carried by liners. Essentially the market is a free one in that rates respond to the forces of supply and demand. However, in periods of depression devices have been adopted to set a floor to the fall of rates, although there is no comparable device to set a ceiling to rates in times of shortage of tonnage. Rates in this market are extremely volatile, and the uncertainty which this produces for trading is one of the factors which have led to a decline in the importance of voyage and short-term chartering. However, these forms of chartering remain important in many trades, for example in the carriage of coal, grain, phosphate, sugar, sulphur.⁵⁸

118. The use of long-term chartering was pioneered by the international oil companies which wished to secure regular and assured transport facilities, and at the same time to avoid the capital commitments that would have been involved if they had had to satisfy all their transport requirements by recourse to their owned tonnage. A time charter may be for a period as short as a year or as long as the life of the ship concerned. Such long-term charters are usually arranged before the ship is built, and the size and design of the ship are then determined by the needs of the charterer. The use of long-term chartering has spread from the oil trades into many of the bulk dry cargo trades. The motive for the shipper is the same as in the case of the oil company, while the shipowner has welcomed the security of long-term charters for tonnage

⁵⁶ Where goods are carried on foreign-owned liners, cargo handling charges are usually included in the freight payment made in foreign currency. However, that part of the handling charges which is incurred in national ports will be recouped by the country, thus reducing the net foreign exchange outflow.

⁵⁷ For a description of these markets, see UNCTAD, *Freight markets and the level and structure of freight rates* (TD/B/C.4/38/Rev.1) (to be issued as a United Nations publication), chaps. I-IV.

⁵⁸ *Ibid.*, paras. 32-35.

which, because of its specialization, is a risky investment if used in the voyage charter market. At present long-term chartering is more important in the carriage of iron ore than in the carriage of other bulk dry cargo, but its use is spreading to other trades. There is also a small volume of long-term chartering to liner companies which may find it more convenient to charter a vessel from an owner, particularly in another country if capital in the liner company's home country is expensive. In periods of technical change and of consequent increased uncertainty about the future, liner companies find chartering rather than building for their own account a useful way of reducing costs. This is important in the present situation in which the spreading use of containers poses many problems concerning the future of break-bulk liners.

119. The long-term contract is a comparatively new form and, although its use appears to be increasing rapidly, as yet it covers only a minor part of world trades. Under a long-term contract a shipper arranges with a shipowner that his transport needs will be met over a period of years by that shipowner, but the contract does not specify the way in which the needs are to be met. This formula opens the possibility for the supplier of the transport facilities actually to own no vessels himself but to obtain these by time charter from shipowners and hence to act as a middleman between the shipowner and the shipper. This type of arrangement has been encouraged by the increasing costs of modern bulk carriers. If a number of individual shipowners can each afford to build only one bulk carrier, they are not, individually, in a position to operate effectively in the market. Furthermore, a single ship company whose ship operates on time charter (which is almost unavoidable in the case of big bulk carriers) will incur diseconomies of management. If, however, several companies form a consortium to which each charters a single ship on a long-term basis and the consortium then enters into long-term contracts for the supply of transport services, a scale of operations can be obtained which is beyond the capital possibilities of any one of the companies concerned. This type of arrangement, which has been worked out in developed countries to overcome the problems posed by the capital intensity of modern bulk cargo shipping operations, is relevant also for developing countries, particularly for operations on a regional basis.

120. Integrated transport facilities began in the oil trades largely because the oil companies found difficulty in obtaining an adequate supply of tonnage on charter terms from shipowners. Although this limitation probably no longer applies, there are advantages in the ownership of part of the shipping needed, in that a continuous check is provided on the efficiency of the operators who are supplying charter tonnage. Apart from the oil companies, integrated organizations carrying on trade in meat, iron ore, paper and pulp, phosphates and sugar, also supply all or part of their transport requirements from owned tonnage.

(c) Organization of trade and transport facilities

121. The differing forms of the organization of transport facilities discussed above are related to differing

forms of trade. In most cases the form of transport has been adapted to the needs of trade, this being seen most clearly in the case of the transport of oil. In other cases trade has to adapt itself to the transport facilities available. For example, whereas the pattern and style of liner transport developed according to the needs of trade, in general, once the pattern is established, trade has to be adapted to the services provided. In the long run, liner services change in response to trading needs, provided that those trading needs can be clearly expressed and make themselves felt.

122. Where trades are organized on a small scale and many small importers and exporters participate, there is no alternative to the use of liner shipping. Yet it often happens that the total volume of exports and imports is large enough, and the nature of many of the products concerned suitable, for the use of chartered tonnage to be a real possibility. What is lacking is the organization making it possible to group cargoes in bulk shipments. If this organization can be provided, several advantages follow, since it becomes possible for the trading organization to establish its own shipping section. With the increased market power which follows from buying and/or selling in bulk and the capacity to arrange shipments which follows the establishment of a shipping section, it becomes possible to buy on f.o.b. terms and sell on c.i.f. terms⁶⁰ and consequently to exercise a choice in the shipping means used. Many advantages then follow. First, liner conferences will normally grant lower freight rates to a shipper who can guarantee a certain volume and regularity of business, which such a bulk organization can provide. Second, since the parcel type service provided by liners is no longer needed, the organization can charter tonnage to meet its transport needs. Third, the organization can consider questions of foreign exchange when arranging shipment. It has greater freedom than a small shipper to use national flag shipping or shipping of countries which accept its currency or use it to buy the exports of the country concerned.

123. The relationship of trade to the costs of transport is an important and neglected topic with many ramifications. For example, commercial arrangements regarding letters of credit frequently have the effect of causing sales or purchases to be bunched into a period of a few days each month, leading to a much greater irregularity in the demand for shipping than would occur naturally from the physical availability of goods. The effect of such arrangements leads to congestion in ports and to wasting of ships' time. For example, it is claimed that in services between Western Europe and the Far East, commercial practices have the result that outward sailings from Europe are bunched and that, once in the East, the ships have to wait until a particular time each month before they can get cargo for the homeward run. The waste of time involved is disguised by the fact that the ships make scheduled calls at many ports which would be uneconomic but for the fact that they have time to fill in before return cargoes can be obtained.

⁶⁰ For a discussion of the effects of the use of different terms of shipment, see UNCTAD, *Terms of Shipment* (TD/B/36/Rev.1) (to be issued as a United Nations publication).

124. The possibilities that the costs of transport are increased by trading practices and that the organization of trades may be inimical to the employment of the most economical means of transport cannot be ignored. These are proper subjects for study by the UNCTAD secretariat, particularly within the context of aggregative freight rate studies which are intended to be broad in their scope and to cover all aspects of trade and transport having a bearing on the costs borne by importers and exporters.

(d) *Transport and the balance of payments*

125. The supplier of a transport service requires to be paid in his own currency, in a fully convertible currency or in goods as, for example, where a shipping clause is included in a bilateral trade contract. As a consequence, where transport is provided internationally, the costs involved normally enter into the balance of payments together with other costs incurred in moving goods (see paras. 112-114 above). Those countries which are suppliers of transport receive freight payments in foreign currencies and have to make payments in foreign currencies for the overseas expenditures incurred by their ships, any imported components of the operational inputs of the ships and the imported components of the capital invested in the ships themselves. Those countries which are demanders only of transport facilities have to make payments for transport in foreign currency and receive payments for expenses incurred in their ports by foreign-owned ships and for any inputs in the current operational or capital costs of those ships which they supply, while the crews of ships customarily spend part of their wages ashore. This last-mentioned item is important in the case of liners which spend long periods in port, but is unimportant for tankers and bulk carriers which spend little time in port.

126. The question of the balance of payments effects of shipping was extensively discussed in the UNCTAD report *The establishment or expansion of merchant marines in developing countries*.⁶⁰ There is no need to repeat the discussion here. What needs to be noted, however, is that in the supply of any goods or services in international trade, foreign exchange costs and receipts are involved. Transport is not in any way exceptional. If it has particular aspects from the balance-of-payments point of view, it is that entry into international transport does not require specific resource endowments such as are required for entry into international trade in commodities or manufactured goods. For this reason it may be attractive, for balance of payments reasons, for a country to seek to become a supplier of transport facilities, whether as an import substitute or as an export earning industry.

127. The consideration of the balance-of-payments aspects of the use of transport facilities reverts to the issue discussed in paragraph 122 above and is also relevant to the discussion in paragraph 114 above. To the extent that a country's trading can be organized on a scale which makes it economic for specialized shipping

⁶⁰ United Nations publication, Sales No.: E.69.II.D.1. See chap. V in particular.

offices to be established, payments in foreign currency are reduced, since the service of foreign freighting agents are not used. At the same time, even if national flag vessels are not utilised, favourable balance-of-payments effects arise from reductions made in transport charges. This question is touched on in the UNCTAD secretariat's report, *Terms of shipment*,⁶¹ but is of sufficient importance to deserve high priority when resources can be released from other research projects now proceeding.

(e) *The role of inter-change facilities*

128. Any surface transport link between non-contiguous countries must entail at least two points of inter-change between modes of transport. These points of inter-change may be points at which goods are transferred from sea transport to land transport or *vice versa*, or they may be points at which the "roll-on, roll-off" process occurs. In either case the efficiency of the inter-change facilities and their relevance both to the types of transport in use and to the most efficient forms of transport which could be used are critical.

129. It is possible that more than two points of inter-change are involved. This occurs where there is trans-shipment. In the past, trans-shipment was important in liner trades, and the great entrepôt ports like Singapore both received large shipments which were broken down into smaller lots for further shipment and collected small lots which were assembled for further shipment. Such entrepôt arrangements still occur, although they are less important than formerly. Expanding trades, the desire of countries for direct shipping links with their overseas suppliers and markets, competitive pressures within liner conferences and trading practices (see para. 123) have all played a part in reducing the relative importance of entrepôt trading. The advent of containers may give a new fillip to entrepôt trading in that the economies of scale associated with large ships cannot be realized fully if direct container routes are provided to and from every country. It is likely, therefore, that a pattern will develop in which there will be one main container port in each major trading region, with large container vessels plying only between these ports. These will then act as collection and distribution centres for containers that will be carried in smaller ships for other parts of their journeys. This question is one which will be considered in the work currently being undertaken on container trades by the UNCTAD secretariat.

130. In the case of conventional liner operations, over 40 per cent of total costs are commonly incurred at the inter-change points. These comprise the costs of handling the cargo and the costs of the ship's time while cargo is being handled, including the ship's time spent waiting for cargo to be handled in cases where facilities are inadequate and delays occur. In many trades, the proportion of the costs incurred at inter-change points is very much higher than 40 per cent and may reach as high as 80 per cent. For these reasons improving effi-

ciency in inter-change facilities is one of the most promising ways of reducing costs of transport.⁶²

131. The present revolutionary move towards containers operations has occurred precisely in order to secure reductions in the costs at the inter-change points by reducing handling costs in areas of high wages and reducing delays in slow-working or congested ports. Containers, however, offer only one approach to the problem, and this approach is not immediately applicable in all circumstances. It is, therefore, of the utmost importance that developing countries, in seeking to improve their ports, should have available technically competent and unbiased advice through, for example, the technical assistance programme of the United Nations.

132. Ports have always to be considered as having two sides: the international transport side and the domestic transport side. Both must be efficient if the inter-change is to be carried out at minimum cost. For example, a port which has adequate berthing facilities for ships, a first-class labour force and all the necessary dockside equipment for transferring the cargo between the ship and the shed, will fail to secure minimum costs if on the landward side the same degree of efficiency is not achieved, since the wharves and storage sheds may then become choked with cargo.

133. As regards landward facilities, most ports suffer from the fact that they were originally established as extensions of towns, with the consequence that the expansion of the landward facilities is limited by the presence of urban activities, while the smooth flow of land transport to and from the docks is hindered by the need to pass through established metropolitan areas. The question of investments to improve and develop existing ports must, therefore, always be weighed against the alternative of investing in a new port. The second stage of the UNCTAD secretariat's programme of port research is planned to cover this aspect.

134. Any study of ports must take into account their two-sided nature and so must endeavour to establish the optimum pattern on each side and consider the economically optimum type of transport in relation to the trade of the country concerned.

135. It is not sufficient if the inter-change facility is efficient in handling the types of ships used if these ships themselves are uneconomic and the use of more economic types of ship is restricted by the inter-change facilities. For example, one major iron ore importing country has relatively efficient iron ore ports in the sense that the ships enter and are cleared with the minimum of delay. However, some of the most important ports are completely inefficient in that their dimensions restrict the size of the vessels which can be used and impose a competitive disadvantage on the iron-ore-using industries in that country compared with those in other countries where ports can accept the largest iron-ore carriers in existence.

⁶¹ See TD/B/C.4/36/Rev.1 (to be issued as a United Nations publication), chap. II.

⁶² In this connexion, see UNCTAD, *Development of ports* (TD/B/C.4/42/Rev.1) (to be issued as a United Nations publication).

(f) *Land-locked countries*

136. International transport poses particular problems for land-locked countries. Wherever a sea journey is involved, goods have to be transferred from one mode of transport to another and this transfer has to take place in a foreign country under conditions which the land-locked country cannot control. In one sense the position of a producer or a consumer in a land-locked country is very little different from that of a producer or a consumer in the heart of a large country which has its own seaboard. In other ways, however, the position in a land-locked country differs, principally owing to its lack of control over the inter-change facilities in another country, the absence of any equalisation of transport costs between producers and consumers near to, and those distant from, the seaboard and its obligation to pay the costs of transport through the transit country in foreign exchange. Further, in a large country there are no inherent restrictions on trade and specialization, and the centre of the country is not necessarily poorer than the seaboard areas. In the land-locked countries on the other hand, transport costs are almost always higher than in the contiguous transit countries with seaboard. It would be wrong, however, to assume that a land-locked country invariably faces higher transport cost than those faced by competing producers in reaching the same markets.

137. So long as traditional forms of international transport are used, possible action appears to be limited to measures to secure the efficient and unrestricted flow of cargoes through the transit countries, such as the use of "through bills of lading" and the establishment of bonded free-port areas⁶² for goods in transit. Such measures may perform extremely useful functions and their use cannot be ignored. However, while they may tend to palliate any disadvantages a land-locked country may suffer on account of its transoceanic trade having to pass through foreign territory, they cannot eliminate these disadvantages so long as sea transport is used. The major area of relief for the transport problems of land-locked areas may thus lie in technological progress which obviates the use of sea transport.

(g) *Technological progress*

138. Technological progress in international transport (excepting landborne transport) may follow three possible lines:

(a) The development of entirely new transport means for the carriage of goods; for example, the development of large aircraft to replace ships, the development of air cushion vehicles to compete with both ships and aircraft, and the development of ways of handling materials through pipelines;

⁶² In this connexion a draft convention, prepared by a mixed Argentino-Bolivian commission, has been submitted to the two Governments; it provides for the establishment of a free zone at the port of Rosario in which Bolivia would not only be able to load and unload merchandise, but also to store it, and engage in productive activities. See report in *The Economist*, edición para América Latina, London, 19 March 1969.

(b) Changes in existing transport types; for example, the phenomenal growth in the size of tankers over the last twenty years;

(c) Continuing improvements in existing transport media; for example, the use of containers, the development of more economical propulsive units and hull forms.

139. The most fruitful forms of technological progress appear to be those directed towards the improvement of existing transport facilities, in particular the use of containers, the development of more economical aircraft and the increased use of pipelines.

140. Containers are by no means universally applicable in an economic way, although the development of transshipment ports (see para. 129) may enable countries with trade volumes too small for economical containers operations to participate in the benefits of this form of technological progress. Even where economies can be obtained from the use of containers, a more radical approach to the question may still be desirable and alternative forms of transport sought.

141. At the present time, except in the case of low-bulk high value goods, the use of air transport is not generally economical. Two factors likely to lead to decreasing air freight rates in the next decade are the introduction of "jumbo jets" in the early 1970s and the fact that the advent of supersonic aircraft is likely to make many existing passenger jet aircraft redundant and these would be available relatively cheaply for cargo operation. Reductions in air freight rates will widen considerably the range of goods which can economically be carried by air. This will be the more important to a country the more costly are its existing transport facilities. Land-locked countries and the interiors of large countries may, therefore, be the largest beneficiaries from reductions in the cost of air transport that will enable goods to be moved directly into and out of the areas in question and thus eliminate transit to the coast.

142. Within the foreseeable future, that is, to the end of the decade of the 1970s, it is unlikely that air transport costs will be reduced to the point where it is economical to carry raw materials by air. However, the advances made in developed countries in the handling of raw materials may be of relevance in other connexions. For example, in order to reduce the time spent in port by large ore carriers, methods have been devised by which pulverised ore can be pumped. The use of such methods would enable an ore producer distant from a port to export ore by using pipelines running to the seaport. For a land-locked country, this would necessitate securing concessions to run pipelines through the neighbouring territory. There are probably a number of other commodities for which similar means could be used. To some extent new technologies need to be worked out, but in many areas all that is required is that ways be found of applying to the exports and imports of inland areas technologies which are used in developed countries for other purposes.

143. Technological progress poses a serious problem for developing countries. Most technological progress occurs in developed countries and is designed to eco-

nomise on labour through the use of capital, whereas in developing countries technological progress which economises on the use of capital may be what is most desirable. In the current situation, the implication is often that developing countries face a choice between using technologically inferior facilities and accepting a technology designed for a developed economy which gives an economically sub-optimum capital/output ratio when applied in a developing country. The elaboration of a technology based on the needs of developing countries would be of great benefit both in transport and in other fields. In the field of transport, the relatively slow large capacity aircraft may be an example of a type of technological advance which is most useful to developing countries. It is interesting to observe that a newly designed large transport aircraft in the United States of America, which is not likely to be available in a civilian version before 1972, answers to this description.

(h) *Conclusions*

144. Transoceanic transport has a vital role to play in the economic development of developing countries. If it is to foster this development in the most constructive way then it must be as cheap and efficient as possible. To achieve this objective several changes are necessary:

(a) In developing countries trade must be organized in such a way that the lowest priced suitable transport facility may be used for every trading transaction;

(b) All trade and port facilities must be directed towards reducing the cost of providing transport services;

(c) Technological developments must be carefully surveyed to ensure that full advantage is taken of all possibilities to reduce transport costs by the adoption of the most modern means, but at the same time that developments unsuited to the needs of developing countries are not adopted just because they are new; and

(d) Special attention must be given to the landward handling of cargoes to ensure that no unnecessary costs are incurred and that the goods reach ports in a form such that the most economical means of transport can be used.

145. The UNCTAD secretariat is aware of its responsibilities, both independently and in association with other members of the United Nations family in these matters. Its programme of research is designed to find out the facts and to point to the directions in which solution to problems may be found, while through the substantive support for technical assistance it is able to give practical application to the results of research.

Chapter VII

BIBLIOGRAPHY

146. It is hoped that the next issue of this review will contain a systematic bibliography of books, articles, and reports on maritime transport published in 1969, with special reference to publications of interest to developing countries. It has not proved possible to compile such a bibliography for the present review. The annotated list below (which is based largely on the acquisitions of the Shipping Reference Unit of the Division for Invisibles of the UNCTAD secretariat) is limited to a few important books and reports on, relevant to, economic aspects of maritime transport which have been published in recent years.⁶⁴ Since this is the first of the various secretariat reviews of maritime transport to contain a bibliographical section, this section covers a longer period than the rest of the review and includes a historical element. While the notes against each item in the list include a brief description of contents, no attempt is made at a qualitative assessment or critical review of the publications listed.

Adler, H. A. *Sector and Project Planning in Transportation* (IBRD, World Bank Staff Occasional Papers, Number Four, (September, 1967) distributed by the Johns Hopkins Press, Baltimore, Maryland). Discusses methods and techniques for evaluating investment programmes for the transportation sector as part of a general economic development plan, and for evaluating individual transport projects.

Bes, J. *Tanker Shipping* (London, Barker and Howard Ltd., 1963). A practical guide to the development and operation of the world tanker fleet. Discusses the various types of vessel, their uses, the structure of the market for tankers, tanker finance companies, tanker chartering by major oil companies; analyses voyage costs and gives specimen time and voyage charter parties.

Bes, J. *Bulk Carriers* (London, Barker and Howard Ltd., 1965). Gives a picture of the development of the world bulk carrier fleet. Describes and discusses different types of bulk carriers; draught, speed, and propulsion of bulk carriers; employment of bulk carriers; effect of bulk carriers on open market freight rates.

Bes, J. *Despatch of Tramp Ships* (London, Barker and Howard Ltd., 1967). Gives factual information on the

despatch of ships loading and discharging commodities which are carried mainly by tramp vessels. The data include the type of commodity carried, name of loading and discharging port, dates of arrival and sailing, number of working days spent in port, rate of loading per weather working day as per charter party, and the average rate actually achieved in each port.

Brown, T. *Transport and the Economic Integration of South America* (Washington, D.C., The Brookings Institution, Transport Research Programme, 1966). Explores the relationship between transport and economic integration in South America; relates the present transport structure to geographic differences, resources, distribution of population and income; suggests priorities for transport investment in each major region to promote continental trade and ways to improve ocean traffic among South American countries; discusses Latin American shipping policies, the LAFTA Convention on Waterborne Transport and a transport policy for the economic integration of South America.

Burley, K. *British Shipping and Australia, 1920-1939* (Cambridge University Press, 1968). Studies—from the viewpoint of Australia's requirement of sea transport—the pattern of shipping services (including the technology, size and types of vessels used), Australia's overseas trade and commercial policy, the passenger and commodity traffic, port charges, shipping conferences and competition, the determination and stability of freight rates, and the economics of shipping management.

Furuta, A. and Hirai, Y. *A Short History of Japanese Merchant Shipping* (Translated and annotated ed., Tokyo, Tokyo News Service Ltd., 1967). Studies the development of the merchant shipping of Japan, including coastal and inter-island shipping, ports, legislation, and shipping between the wars.

Goss, R. O. *Studies in Maritime Economics* (Cambridge University Press, 1968). This is a collection of essays, previously published in various journals, covering the following topics: regulation of international sea transport, the United States legislation on shipping and the foreign shipowner, the relation between investment in shipping and the balance of payments, economic criteria for optimal ship designs, the economics of automation in British shipping, the turnaround of cargo liners and its effect on sea transport costs, and, finally, an economic appraisal of port investments.

Haeefe, E. T. and Steinberg, E. B. *Government Controls on Transport, An African Case* (Washington, D.C., The

⁶⁴ Some reports and other documents on maritime transport, published by United Nations bodies, specialized agencies and inter-governmental and non-governmental organizations, are mentioned *passim* in "Review of studies and activities in the field of shipping and ports carried out by other institutions within the United Nations system, by other inter-governmental organizations and by non-governmental organizations: report by the UNCTAD secretariat" (TD/B/C.4/49 and Corr.1 and Add.1-3).

- Brookings Institution, Transport Research Programme, 1965). Examines the institutions, policies and agreements which determine transport patterns in South Central Africa; discusses rail pricing policy and possible new rail investments in the context of transport regionalism in Africa; gives texts of agreements and conventions.
- Hedden, W. P. *Mission: Port Development* (Washington, D.C., The American Association of Port Authorities, 1967). Discusses technical problems of port development; major aspects of port planning, port operations, port economics, public port administration, staff training for ports; financial and technical assistance to developing countries and gives case studies of Trinidad, Israel, Turkey, Tunisia, and Liberia.
- Indian Institute of Foreign Trade. *Ocean Freight Rates and India's Exports* (New Delhi, Indian Institute of Foreign Trade, 1967). Examines the incidence of liner freight rates on the prices of non-traditional items in India's exports and analyses the structure of liner tariffs and the calculation of freights on manufactured and semi-manufactured items exported by India.
- King, J. *Economic Development Projects and their Appraisal: Cases and Principles from the Experience of the World Bank* (IBRD Economic Development Institute, published by the Johns Hopkins Press, Baltimore, Maryland, 1967). Illustrates the problems encountered in appraising projects in twenty-three developing countries, the techniques of analysis that have been used, and the changes which have been made since IBRD began its work; economic, technical, managerial, organizational, commercial and financial aspects; cases in electric power, transport and industry.
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- Lawrence, S. A. *United States Merchant Shipping, Policies and Politics* (Washington, D.C., The Brookings Institution, 1966). Describes the origins, objectives and present state of the shipping policy of the U.S. Government. Discusses the economic and political importance of this policy, and makes proposals for change in the policy and the industry itself.
- Litton Systems Incorporated. "Oceanborne Shipping Demand and Technology Forecast" (A mimeographed report prepared for the U.S. Department of Transportation). (United States Department of Commerce, Springfield, Virginia, 1968.) An examination, in the context of United States trade, of the potential growth of seaborne trade in 1973, 1983, 2003 and 2043 by principal commodities and routes and by ship types. It studies the economics of super-tankers, predicts future growth, and presents an economic framework for analysing potential port and route improvements over time. It discusses the trends in containerization and their effect on fleet composition and ship types over the forecast horizons. The report ends with an assessment of the policy problems arising from the findings of this study.
- O'Loughlin, C. *The Economics of Sea Transport* (London, Pergamon Press Ltd., 1967). Discusses the application of economic analysis to the shipping industry and includes sections on the demand and supply of shipping services, the establishment of freight rates, and the economics of ports and harbours.
- Powell, G. L. *Foreign Traffic Hinterlands of the Ports of Halifax and Saint John* (Ottawa, National Harbours Board, 1968). Analyses traffic through the ports (export-import patterns; differences in volume of traffic, nature of the traffic flow; seasonality) and transportation costs.
- Sanklecha, S. N. *Tramp Shipping in India* (University of Bombay, 1965; distributed by P. C. Manaktala and Sons Pvt. Ltd., Bombay 1). Describes the growth of Indian shipping since 1945, the development of Indian tramp shipping with the growth of bulk cargoes in India's trades, and the participation of the public sector in the charter market. Discusses the theoretical questions of freight rate determination, analyses the cost structure of tramp shipping in India and surveys Indian Government policies towards the shipping industry.
- National Port Council. *United Kingdom Deepsea Trade Routes: The potential for container services based on physical cargo characteristics* (London, National Ports Council, 1967). This report, prepared by the Department of Operational Research of the University of Lancaster, examines the development of container services in the context of the seaborne trade of the United Kingdom, and gives estimates of the amount of freight which might move in containers and the equivalent number of container loads, container services and container berths required.
- Zannetos, Z. S. *The Theory of Oil Tankship Rates: an Economic Analysis of Tankship Operations* (Cambridge, Mass., The M.I.T. Press, 1966). Analyses the separate factors affecting demand for and supply of tanker services, and develops a model of the determination of short-term and long-term tanker rates.

ANNEXES

Annex I

CLASSIFICATION OF COUNTRIES AND TERRITORIES

Notes

Note 1

This classification is designed to be applied to statistics on sea-borne trade. Seaborne trade is recorded at ports of loading and unloading. The trade of the ports of a country may therefore include goods originating in or destined for another country, such as a neighbouring land-locked country. The trade of land-locked countries cannot be identified in seaborne trade statistics, and these countries are not explicitly included in the trade classification. However, when the classification is applied to registered merchant fleets, land-locked countries possessing merchant fleets (Austria, Burundi, Czechoslovakia, Hungary, Paraguay and Switzerland) are included in the appropriate geographical groups of countries.

Note 2

The groups of countries used for presenting statistics in this review are made up as follows:

Developed market economy countries, excluding Southern Europe: Codes 1, 2, 3, 4 and 10.4

Southern Europe: Code 5

Socialist countries of Eastern Europe and Asia: Codes 6, 7 and 8

Developing countries, total: Codes 9, 10 (excluding 10.4), 11 and 12,

Of which:

in Africa: Codes 10.1, 10.2 and 10.3

in Asia: Codes 9.1 and 9.2

in Latin America and the Caribbean: Codes 11.1, 11.2, 11.3, 11.4, 11.5

in Oceania: Code 12

Note 3

In tables showing statistics of shipping tonnage, however (viz. tables 5, 6, 7, 8, 10 in the text and table V in annex I), Liberia (not included in 10.2) and Panama (not included in 11.2) have been excluded from the appropriate groups and shown separately, for reasons explained in paragraphs 15 and 16 of this review.

Note 4

The description and classification of countries and territories should not be considered to imply any judgement by the Secretariat of the United Nations regarding the legal status of any country or territory, or in respect of the delineation of its boundaries, or regarding its economic system or degree of development. Inclusion of a particular country or territory in any economic or geographical grouping (or its exclusion) has been dictated by economic and statistical considerations.

Classification of countries and territories*

Code 1. — North America

Bermuda	St. Pierre et Miquelon
Canada	United States of America
Greenland	

Code 2. — Japan

Code 3. — Australia and New Zealand

Code 4. — Northern and Western Europe

(Austria)	Italy
Belgium	Monaco
Denmark	Netherlands
Faeroe Islands	Norway
Federal Republic of Germany	Sweden
Finland	(Switzerland)
France	United Kingdom of Great Britain and Northern Ireland
Iceland	
Ireland	

Code 5. — Southern Europe

Cyprus	Portugal
Gibraltar	Spain
Greece	Turkey
Malta	Yugoslavia

Code 6. — Central and Eastern Europe (excluding Union of Soviet Socialist Republics)

Albania	(Hungary)
Bulgaria	Poland
(Czechoslovakia)	Romania
Eastern Germany	

Code 7. — Union of Soviet Socialist Republics

Code 8. — China (mainland), North Korea, North Viet-Nam

Code 9. — Asia, n.e.s.

9.1 Western Asia

Bahrain	Muscat and Oman
Iran	Qatar
Iraq	Saudi Arabia
Israel	Southern Yemen
Jordan	Syria
Kuwait	Trucial Oman
Lebanon	Yemen

* Countries shown in parentheses are land-locked countries with merchant fleets. See note 1 above.

9.2 Southern and Eastern Asia

Brunei	Pakistan
Burma	Philippines
Cambodia	Portuguese Timor
Ceylon	Republic of China
Hong Kong	Republic of Korea
India	Republic of Viet-Nam
Indonesia	Ryukyu Islands
Macao	Singapore
Malaysia	Thailand
Maldives	

Code 10. — Africa

10.1 Northern Africa

Algeria	Melilla
Canary Islands	Morocco
Ceuta	Tunisia
Egypt	United Arab Republic
Libya	

10.2 Western Africa

Angola	Ivory Coast
Cameroon	Liberia
Cape Verde Islands	Mauritania
Congo (Brazzaville)	Nigeria
Congo, Democratic Republic of	Portuguese Guinea
Dahomey	St. Helena Island
Equatorial Guinea	São Tomé and Príncipe Islands
Gabon	Senegal
Gambia	Sierra Leone
Ghana	Spanish Sahara
Guinea	Togo

10.3 Eastern Africa

(Burundi)	Mozambique
Comoro Islands	Réunion Island
Ethiopia	Seychelles Islands
French Somaliland	Somalia
Kenya	Sudan
Madagascar	United Republic of Tanzania
Mauritius	

10.4 Southern Africa

South Africa

Code 11. — Latin America

11.1 Caribbean

Antigua	Haiti
Bahamas	Jamaica
Barbados	Martinique
Cayman Islands	Montserrat
Cuba	St. Kitts-Nevis-Anguilla
Dominica	St. Lucia
Dominican Republic	St. Vincent
Grenada	Turks and Caicos Islands
Guadeloupe	Virgin Islands

11.2 Central America

British Honduras	Honduras
Canal Zone	Mexico
Costa Rica	Nicaragua
El Salvador	Panama
Guatemala	

11.3 South America — Northern Seaboard

Guyana	Surinam
French Guiana	Trinidad and Tobago
Netherlands Antilles	Venezuela

11.4 South America — Western Seaboard

Chile	Ecuador
Colombia	Peru

11.5 South America — Eastern Seaboard

Argentina	(Paraguay)
Brazil	Uruguay
Falkland Islands (Islas Malvinas)	

Code 12. — Oceania, n.e.s.

Christmas Island	Polynesia under French administration
Fiji Islands	Samoa (under United States administration)
Guam	Solomon Islands
Nauru	Tonga
New Caledonia	Wake Island
New Guinea	Western Samoa
New Hebrides	
Ocean Island (Gilbert Islands)	
Papua	

Annex II

TABLES

TABLE I

World seaborne trade according to geographical areas, 1959 ^{a, b}
(Million tons)

Area	Goods loaded				Goods unloaded			
	Crude petroleum	Petroleum products	Dry cargo	Total all goods	Crude petroleum	Petroleum products	Dry cargo	Total all goods
1. North America . . .	0.3	5.3	116.0	121.6	64.3	41.0	194.3	199.5
2. Japan	—	0.3	9.8	10.1	19.1	3.3	42.6	65.0
3. Australia and New Zealand	—	1.2	11.5	12.7	10.2	2.7	8.5	21.4
4. Northern and Western Europe	0.7	29.3	129.1	159.0	134.9	47.7	222.5	405.1
5. Southern Europe . . .	—	0.4	16.0	16.4	7.5	3.0	15.0	25.5
6. Central and Eastern Europe (excluding USSR)	0.2	2.1	13.4	15.6	—	1.1	11.7	12.8
7. USSR	8.4	8.8	12.9	30.1	0.1	—	4.6	4.7
8. China (mainland), North Korea, North Viet-Nam	—	—	3.9	3.9	—	0.4	3.0	3.4
9.1 Western Asia	180.2	31.4	3.3	214.9	5.6	3.0	9.1	17.7
9.2 Southern and Eastern Asia, n.e.s.	11.9	10.3	42.2	64.3	9.3	15.5	34.6	59.3
10.1 Northern Africa . . .	1.9	0.6	23.1	25.6	4.7	6.4	11.7	22.9
10.2 Western Africa . . .	1.3	—	15.4	16.7	—	4.3	7.2	11.6
10.3 Eastern Africa	—	—	7.5	7.5	—	3.6	4.9	8.5
10.4 Southern Africa . . .	—	0.2	5.0	5.2	1.3	2.3	4.0	7.7
11.1 Caribbean	—	0.7	15.1	15.8	3.7	2.2	3.6	9.4
11.2 Central America . . .	—	1.9	4.2	6.1	—	2.6	1.9	4.5
11.3 South America, Northern Seaboard	105.2	71.3	25.2	201.7	43.6	3.6	4.3	51.5
11.4 South America, Western Seaboard	4.3	1.0	13.5	18.8	0.4	1.5	3.8	5.7
11.5 South America, Eastern Seaboard	1.5	—	17.5	19.0	12.3	6.7	10.1	29.1
12. Oceania, n.e.s.	—	—	4.3	4.3	—	0.4	1.2	1.6
WORLD TOTAL	315.9	164.7	488.8	969.5	316.9	151.5	498.4	966.8

Source: United Nations estimated data; the world totals do not correspond exactly to the rounded total in table I in the text.

^a Excluding international cargoes loaded at ports of the Great Lakes and St. Lawrence system for unloading at ports of the same system. Including petroleum

imports into Netherlands Antilles and Trinidad for refining and re-export. Great Lakes and St. Lawrence trade (in dry cargo) amounted to 26 million tons in 1959, 37 million tons in 1965, 37 million tons in 1966 and 34 million tons in 1967.

^b See annex I for the composition of these groups.

TABLE II
World seaborne trade according to geographical areas, 1965 ^{a, b}
(Million tons)

Area	Goods loaded				Goods unloaded			
	Crude petroleum	Petroleum products	Dry cargo	Total all goods	Crude petroleum	Petroleum products	Dry cargo	Total all goods
1. North America	0.1	3.4	190.7	194.2	73.7	67.9	115.2	256.8
2. Japan	—	0.8	22.0	22.8	69.7	14.0	115.0	198.7
3. Australia and New Zealand	—	1.2	25.2	26.5	18.7	2.0	13.8	34.4
4. Northern and Western Europe	0.3	50.0	165.2	215.5	308.2	85.3	323.3	716.8
5. Southern Europe	—	0.8	18.6	19.4	15.8	4.4	33.1	53.3
6. Central and Eastern Europe (excluding USSR)	0.4	3.6	22.1	26.1	2.4	1.9	22.6	26.9
7. USSR	28.3	18.0	32.8	79.1	—	—	12.7	12.8
8. China (mainland), North Korea, North Viet-Nam	—	—	7.6	7.6	0.2	0.3	11.8	12.2
9.1 Western Asia	348.7	43.3	5.5	397.5	10.9	1.9	13.0	25.9
9.2 Southern and Eastern Asia, n.c.s.	14.6	13.1	65.5	93.3	23.3	17.0	58.2	98.5
10.1 Northern Africa	84.6	3.4	29.2	117.2	10.9	3.9	16.3	31.1
10.2 Western Africa	14.7	0.3	41.1	56.1	1.5	4.6	9.9	15.9
10.3 Eastern Africa	—	0.5	11.0	11.5	3.5	3.0	6.7	13.2
10.4 Southern Africa	—	0.3	8.3	8.5	4.7	1.5	6.2	12.4
11.1 Caribbean	—	0.2	20.4	20.6	4.8	3.9	7.2	15.9
11.2 Central America	1.0	2.6	9.9	13.5	3.5	3.4	4.1	10.9
11.3 South America, Northern Seaboard	123.3	99.2	27.7	250.2	53.9	3.0	4.7	61.6
11.4 South America, Western Seaboard	6.0	0.8	25.9	32.7	1.1	1.5	5.1	7.7
11.5 South America, Eastern Seaboard	—	0.8	34.4	35.3	15.4	1.4	13.1	29.8
12. Oceania, n.c.s.	—	—	5.6	5.6	—	0.9	1.7	2.5
WORLD TOTAL	622.0	242.3	768.6	1 632.9	622.0	221.7	793.5	1 637.2

^a Source: United Nations estimated data; the world totals do not correspond exactly to the rounded totals in table I in the text.

^b Excluding international cargoes loaded at port of the Great Lakes and St. Lawrence system for unloading at ports of same system. Including petroleum

imports into Netherlands Antilles and Trinidad for refining and re-export. Great Lakes and St. Lawrence trade (in dry cargo) amounted to 26 million tons in 1959, 37 million tons in 1965, 37 million tons in 1966 and 34 million tons in 1967.

^c See annex I for the composition of these groups.

TABLE III

World seaborne trade according to geographical areas, 1966 ^{a, b}

(Million tons)

Area	Goods loaded				Goods unloaded			
	Crude petroleum	Petroleum products	Dry cargo	Total all goods	Crude petroleum	Petroleum products	Dry cargo	Total all goods
1. North America . . .	0.2	3.0	206.2	209.4	73.6	68.7	126.8	269.1
2. Japan	—	0.9	24.1	25.0	84.9	13.4	125.0	223.3
3. Australia and New Zealand	—	1.4	28.7	30.0	20.6	1.5	14.6	36.8
4. Northern and Western Europe	1.8	56.6	169.2	227.5	350.2	89.2	326.4	765.8
5. Southern Europe . . .	—	1.8	18.6	20.4	20.3	4.0	34.1	58.4
6. Central and Eastern Europe (excluding USSR)	0.3	3.8	24.6	28.6	2.9	2.0	22.2	27.1
7. USSR	32.8	20.0	37.6	90.3	—	—	12.4	12.4
8. China (mainland), North Korea, North Viet-Nam	—	—	10.0	10.0	0.2	0.2	12.2	12.5
9.1 Western Asia	395.0	46.9	4.7	446.6	11.2	1.9	14.9	28.0
9.2 Southern and Eastern Asia, n.e.s.	13.4	15.8	69.0	98.3	27.9	20.4	64.2	112.6
10.1 Northern Africa . . .	106.0	3.0	24.8	133.8	11.9	4.2	14.1	30.2
10.2 Western Africa . . .	20.7	0.5	44.2	65.5	1.8	3.3	9.9	15.0
10.3 Eastern Africa . . .	—	1.1	12.3	13.3	3.8	3.5	7.0	14.2
10.4 Southern Africa . . .	—	0.3	8.8	9.1	5.5	1.9	5.6	13.0
11.1 Caribbean	—	0.2	19.6	19.9	5.3	3.9	7.3	16.5
11.2 Central America . . .	1.5	2.4	10.2	14.0	4.2	3.9	3.9	12.0
11.3 South America, Northern Seaboard	119.7	97.6	30.2	247.5	52.8	2.7	4.8	60.3
11.4 South America, Western Seaboard	5.4	1.1	27.6	34.0	1.9	1.6	6.9	10.4
11.5 South America, Eastern Seaboard	—	1.1	34.7	35.8	16.6	1.0	14.2	31.8
12. Oceania, n.e.s.	—	—	5.7	5.7	—	1.6	1.6	3.2
WORLD TOTAL	696.8	257.5	810.4	1 764.8	695.5	228.9	828.1	1 752.4

Source: United Nations estimated data; the world totals do not correspond exactly to the rounded total in table I in the text.

^a Excluding international cargoes loaded at ports of the Great Lakes and St. Lawrence system for unloading at ports of the same system. Including petroleum

imports into Netherlands Antilles and Trinidad for refining and re-export. Great Lakes and St. Lawrence trade (in dry cargo) amounted to 26 million tons in 1959, 37 million tons in 1965, 37 million tons in 1966 and 34 million tons in 1967.

^b See annex I for the composition of these groups.

TABLE IV

Distribution of world tonnage by flag of registration,^a and type of ship, in order of size of fleets,^b as at 1 July 1968

Flag registration	Total tonnage c (in dwt)	Total tonnage d (in grt)	Of which: (in grt)		
			Tankers	Bulk carriers e	Other ships
1 Liberia	40 781 282	25 719 642	14 663 223	7 118 427	3 937 992
2 United Kingdom ^f	29 563 071	21 920 980	8 372 209	2 919 240	10 629 531
(28) Hong Kong	1 232 447	766 213	147 373	209 957	408 883
(41) Bermuda		380 053	261 596	89 044	29 413
(44) Bahamas		303 407	109 150	100 104	94 153
(65) Gibraltar		59 394	320		59 074
(82) Cayman Islands		16 749			16 749
(99) Fiji		7 633	254		7 379
(101) Falkland Islands (Islas Malvinas)		5 440			5 440
(103) St. Vincent		4 361	3 696		665
(108) Turks Islands		3 866			3 866
(109) New Hebrides		3 800	318		3 282
(115) Tonga		1 987			1 987
(118) Gilbert and Ellice Islands		1 213			1 213
(123) Seychelle Islands		799	493		306
(125) Montserrat		711			711
(128) St. Lucia		517			517
(130) Solomon Islands		421			421
(131) Grenada		412			412
(132) Virgin Island		389			389
(133) British Honduras		358			358
3 Norway	30 976 035	19 667 441	9 991 721	5 956 084	3 719 636
4 Japan	27 998 024	19 586 902	6 754 845	4 585 630	8 246 427
5 Union of Soviet So- cialist Republics	12 650 664	12 061 833	2 935 787	116 240	9 009 806
6 United States of Amer- ica: estimated active seagoing fleet ^g	17 172 873	10 919 078	4 211 137	651 323	6 056 618
7 Greece	11 071 531	7 415 984	1 885 214	1 139 715	4 391 055
8 Italy	9 144 063	6 623 643	2 414 078	1 673 672	2 535 893
9 Federal Republic of Germany	9 783 067	6 527 946	1 333 901	1 146 610	4 047 435
10 France	7 699 329	5 796 360	2 722 809	685 892	2 387 659
11 Netherlands	7 351 526	5 267 681	1 864 592	452 562	2 950 527
12 Panama	8 120 620	5 096 956	2 666 635	374 799	2 055 522
13 Sweden	6 778 528	4 865 365	1 494 097	1 467 607	1 903 661
14 Denmark	4 556 824	3 204 040	1 237 840	380 849	1 585 351
(74) Faeroe Islands		33 189			33 189
15 Spain	3 346 148	2 820 784	1 072 828	117 078	1 630 878
16 India	2 886 943	1 945 037	193 925	565 704	1 185 408
17 Poland	1 748 369	1 341 665	73 420	135 262	1 132 983
18 Brazil	1 919 097	1 294 190	415 364	89 448	789 378
19 Yugoslavia	1 806 238	1 266 592	169 060	272 964	824 568
20 Argentina	1 396 658	1 196 817	478 500	53 237	665 080
21 Finland	1 577 444	1 127 896	425 899	55 359	646 638
22 Canada, ^h seagoing fleet	877 168	953 287	153 194	198 829	601 264
23 Belgium	1 273 141	932 900	289 067	270 428	373 405
24 Philippines	1 097 715	854 256	76 599	77 487	700 170
25 Australia	987 185	818 247	177 656	250 336	390 255
(100) New Guinea		6 569	875		5 694
26 Eastern Germany	1 034 408	806 074	95 362	101 338	609 374
27 Portugal	804 606	771 643	186 874	11 054	573 715
29 China (mainland)	1 029 670	765 545	81 889		683 656
30 Republic of China	1 125 555	762 515	64 395	25 954	672 166
31 Israel	998 561	722 951	12 676	338 508	371 767
32 Indonesia	767 580	711 500	133 134		578 366
33 Cyprus	983 264	652 588	108 417		544 171
34 Turkey	748 065	648 171	164 784		483 387

TABLE IV (continued)

Distribution of world tonnage by flag of registration,^a and type of ship, in order of size of fleets,^b as at 1 July 1968

Flag registration	Total tonnage c (in dwt)	Total tonnage d (in grt)	Of which: (in grt)		
			Tankers	Bulk carriers c	Other ships
35 Bulgaria	819 502	548 102	136 192	146 354	265 556
36 Pakistan	766 689	540 551	18 060	9 600	512 891
37 Republic of Korea	660 527	473 991	134 378	31 000	308 613
38 South Africa	500 928	470 078	13 145	40 157	416 776
39 Lebanon	630 111	443 881		18 198	425 683
40 Mexico	546 829	403 573	292 993		110 580
42 Venezuela	462 401	350 591	229 029		121 562
43 Romania	481 478	324 999	71 827	136 767	116 405
45 Peru	336 372	287 843	89 920		197 923
46 Chile	375 394	268 641	63 812	35 196	169 633
47 United Arab Republic	314 323	250 075	87 956		162 119
48 Cuba	303 580	237 603	6 267		231 336
49 Colombia	276 049	208 846	44 032		164 814
50 Switzerland	304 092	201 771		59 814	141 957
51 New Zealand	185 084	191 618	2 928		188 690
52 Ireland	198 668	172 582	15 234	43 112	114 236
53 Kuwait	220 395	149 123	101 737		47 386
54 Singapore	177 119	133 855	3 630		130 225
55 Iceland	74 375	133 162	5 899		127 263
56 Uruguay	191 290	131 123	41 991		89 132
57 Ghana	100 666	120 486			120 486
58 Iran	103 952	74 448	42 349		32 099
59 Czechoslovakia	118 517	74 386		40 949	33 437
60 Nigeria	101 173	70 615	176		70 439
61 Morocco	89 238	70 066	937		69 129
62 Honduras	91 828	68 958	4 122		64 836
63 Malta	58 604	67 742	10 390	19 359	37 993
64 Thailand	69 738	63 780	11 938		51 842
66 Somalia	71 703	58 677	891		57 786
67 Saudi Arabia	52 600	49 625			49 625
68 Ecuador	50 723	43 000	4 015		38 985
69 Burma	53 277	41 760	1 478		40 282
70 Ethiopia	63 044	40 852	21 886		18 966
71 Malaysia		40 465	3 660		36 805
72 Albania	52 464	36 550			36 550
73 Iraq		36 547	560		35 987
75 Madagascar	46 931	31 288	2 258		29 030
76 Hungary		28 438			28 438
77 Paraguay		22 165	2 935		19 230
78 Tunisia		21 518			21 518
79 Trinidad and Tobago		20 096	4 713		15 383
80 Ivory Coast		18 344	166		18 178
81 United Republic of Tanzania		18 108			18 108
83 North Korea		16 484			16 484
84 Burundi		15 686			15 686
85 Algeria		15 644			15 644
86 Sudan		15 620			15 620
87 Republic of Viet-Nam		15 562			15 562
88 Nicaragua		15 492	259		15 233
89 Monaco		15 442	14 672		770
90 Kenya		13 202	2 184		11 018
91 Jamaica		13 012			13 012
92 Guinea		11 854		10 764	1 090
93 Congo (Brazzaville)		11 554			11 554
94 Dominican Republic		11 282	674		10 608
95 Guyana		10 003	958		9 045
96 Ceylon		9 439	1 158		8 281
97 Senegal		8 703			8 703
98 Costa Rica		8 073			8 073

TABLE IV (concluded)

Distribution of world tonnage by flag of registration,^a and type of ship, in order of size of fleets,^b as at 1 July 1968

Flag registration	Total tonnage c (in dwt)	Total tonnage d (in grt)	Of which: (in grt)		
			Tankers	Bulk carriers e	Other ships
102 Sierra Leone		4 438			4 438
104 Cambodia		4 230			4 230
105 Maldives		4 191			4 191
106 Mauritius		4 179			4 179
107 Mauritania		4 012			4 012
110 Guatemala		3 629			3 629
111 Haiti ^f		3 226			3 226
112 Libya		3 184			3 184
113 North Viet-Nam		2 255	314		1 941
114 Yemen		2 001			2 001
116 Trucial Oman		1 956	621		1 335
117 Bahrain		1 594			1 594
119 Cameroon		1 107			1 107
120 Southern Yemen		1 012			1 012
121 Austria		871			871
122 Gambia		817			817
124 Syria		728			728
126 Gabon		625			625
127 Qatar		504	200		404
129 Barbados		484			484
134 Congo (Democratic Republic of)		308			308
135 Togo		150			150
WORLD TOTAL^g h	262 069 873	183 956 565	68 937 950	32 222 011	82 796 604

Sources: Lloyd's Register of Shipping Statistical Tables, 1968, for all figures expressed in grt (except data on Haitian flag fleet). Figures for dwt have been taken from Bremen (Institute of Shipping Economics) Statistik der Schifffahrt, quoting Lloyd's Register and registers of other classification societies.

The figures for the United States Reserve Fleet (which is excluded from the table) are published by the United States Department of Commerce, Maritime Administration.

^a The designation employed in this table refer to flags of registration and do not imply the expression of any opinion by the Secretariat of the United Nations concerning the legal status of any country or territory, or of its authorities, or concerning the delimitation of its frontiers.

^b Grt has been chosen as the standard of size for ranking purposes, since the dwt series is incomplete. The rank order of each flag is indicated by the number to the left of each entry in the table. In the case of flags of Non-Self-Governing territories, which are shown out of rank order (see note / below), the number indicating rank order is in parentheses.

^c Vessels of 300 grt and above; no direct comparisons should be made between the grt and dwt figures applying to the fleet of any one country, owing to the difference in the lower size limit, and to other differences in compilation. Figures in dwt were not available for a great number of countries with small fleets.

^d Vessels of 100 grt and above; also see note e.

^e In Lloyd's Register of Shipping Statistical Tables this class of vessel is defined to include single deck ore and bulk carriers of 6,000 grt and over.

^f In this table, Non-Self-Governing Territories are listed directly below the countries responsible for the administration of these territories (as of 1 July 1968). However, the tonnage registered in these territories is not included in the figures for the flag of the administering country.

^g Excluding the United States Great Lakes fleet, which amounted to 1,838,345 grt on 1 July, 1968, of which 1,541,003 grt were ore and bulk carriers; and also excluding the United States Reserve Fleet of 6,901,000 grt (8,535,000 dwt), of which 276,000 grt (418,000 dwt) consisted of tankers, and 21,000 grt (31,000 dwt) of bulk carriers. The figures for the United States Reserve Fleet apply to vessels of more than 1,000 grt, and are thus not directly comparable with the figures from which they have been deducted, but the statistical discrepancy is very small, since few ships of less than 1,000 grt are included in the Reserve Fleet.

^h Excluding the Canadian Great Lakes fleet, which, on 1 July 1968, amounted to 1,449,696 grt, of which 1,090,267 were ore and bulk carriers.

ⁱ Data on Haitian flag fleet from Institute of Shipping Economics, Bremen, Statistik der Schifffahrt.

TABLE V

Distribution of world fleet by geographical areas, 1 July 1968

(Vessels of 100 grt and above)

(Thousand grt)

Area	Total tonnage	of which:		
		Tankers	Bulk carriers	Other ships
1. North America	12 252.4	4 625.9	939.2	6 687.3
2. Japan	19 586.9	6 754.8	4 585.6	8 246.4
3. Australia and New Zealand	1 009.9	180.6	250.3	578.9
4. Northern and Western Europe	76 491.3	30 182.0	15 111.2	31 198.0
5. Southern Europe	13 702.9	3 597.9	1 560.2	8 544.8
6. Central and Eastern Europe (excluding USSR)	3 160.2	376.8	560.7	2 222.7
7. USSR	12 061.8	2 935.8	116.2	9 009.8
8. China (mainland), North Korea, North Viet-Nam	784.3	82.2	—	702.1
9.1 Western Asia	1 484.5	158.1	356.7	969.6
9.2 Southern and Eastern Asia n.e.s. ^a	6 367.3	789.7	919.7	4 657.9
10.1 Northern Africa	360.5	88.9	—	271.6
10.2 Western Africa	253.0	0.3	10.8	242.0
10.3 Eastern Africa	198.4	27.7	—	170.7
10.4 Southern Africa	470.1	13.1	40.2	416.8
11.1 Caribbean ^b	596.0	119.8	100.1	376.1
11.2 Central America	500.1	297.4	—	202.7
11.3 South America, Northern Seaboard	380.7	234.7	—	146.0
11.4 South America, Western Seaboard	808.3	201.8	35.2	571.4
11.5 South America, Eastern Seaboard	2 649.7	938.8	142.7	1 568.3
12. Oceania, n.e.s.	21.6	1.6	—	20.0
Liberia (not included in 10.2), Panama (not included in 11.2) ^c	30 816.6	17 329.9	7 493.2	5 993.5
WORLD TOTAL	183 956.6	68 938.0	32 222.0	82 796.6

Source: Compiled from table IV above. See notes to that table.

^a Includes 766,200 grt registered in Hong Kong; it is believed that some of this tonnage is controlled by foreign interests.

^b Includes 303,400 grt registered in the Bahamas; the location of the effective control of this tonnage is uncertain.

^c These countries have been extracted from the relevant regional groups (see chap. II, paras. 15-16 of the report).

TABLE VI

Selected maximum and minimum tramp rates, 1967 and 1968

Commodities/routes	Currency unit	1968		1967	
		High	Low	High	Low
<i>Heavy</i>					
<i>Grain:</i> United States Gulf— W. Coast India	Shillings sterling	133/6	111/0	141/0	79/0
N. Pacific—East Coast India	Shillings sterling	97/6	90/0	110/0	67/0
River Plate—Ant- werp/Hamburg range	Shillings sterling	91/3	65/5	99/0	67/6
River Plate—Japan	Shillings sterling	145/0	100/0	128/6	107/6
<i>Coal:</i> Hampton Roads— Rio de Janeiro	U.S. dollars	3.40	2.90	5.00	3.00
<i>Sugar:</i> Cuba—Casablanca	U.S. dollars	—	—	12.50	9.50
Mauritius—United Kingdom	Shillings sterling	77/6	72/6	77/6	52/6
Philippines—USA	U.S. dollars	8.50	6.60	8.75	6.00
<i>Ore:</i> Mormugao—Japan	Shillings sterling	51/3	43/4	52/6	33/6
<i>Copra:</i> Philippines—Con- tinent (modern)	U.S. cents	233/4	17½	24½	19½
<i>Phos- phate:</i> Casablanca— S. China	Shillings sterling	105/0	97/0	110/0	61/0
Acaba—W. Coast India	Shillings sterling	59/0	49/0	56/0	41/0
<i>Rice:</i> China—Ceylon	Shillings sterling	84/0	69/10	70/0	43/0
<i>Fertil- izers:</i> Continent—S. China	Shillings sterling	141/0	90/0	142/0	79/0

Source: *Lloyd's List and Shipping Gazette*, London, 2 January 1969.

TABLE VII

Additions to, and deductions from, merchant fleets, January-June 1968
(Thousand grt, vessels of 1 000 grt and over)

Flag of registration a	Additions			Deductions				Net change overall		Net flag changes	
	New deliveries etc. b	Flag changes	Total	Scrapping	Losses, etc. c	Flag changes	Total	+	-	+	-
<i>Developed market economy countries (excluding Southern Europe) a</i>											
Australia				1.4		11.1	12.5		12.5		11.1
Belgium	30.0	2.5	32.5	7.9		18.7	26.6	5.9			16.2
Canada					2.2		2.2		2.2		
Denmark	126.4	4.8	131.2	1.5	5.0	101.3	107.8	23.4			96.5
Federal Republic of Germany	320.8	40.1	360.9	11.4		106.5	117.8	243.1			66.4
Finland	5.1	70.6	75.7	5.1		36.0	41.1	34.6		34.6	
France	327.7	26.4	354.1	16.4	11.1	176.2	203.7	150.4			149.8
Ireland		1.4	1.4			8.0	8.0		6.6		6.6
Italy	99.1	139.3	238.4	85.8	11.3	35.0	132.1	106.3		104.3	
Japan	1 234.4	2.3	1 236.7		5.6	3.8	9.4	1 227.3			1.5
Monaco		7.2	7.2					7.2		7.2	
Netherlands	205.6	26.5	232.1	5.8	7.6	78.2	91.6	140.5			51.7
New Zealand					6.9	10.3	17.2		17.2		10.3
Norway	1 015.6	8.2	1 023.8	26.8	5.3	587.3	617.4	406.4			579.1
South Africa	17.0	1.1	18.1	14.4		17.8	32.2		14.1		16.7
Sweden	150.8		150.8	1.4	1.4	106.7	109.5	41.3			106.7
United Kingdom	774.9	32.5	807.4	114.9	22.2	504.4	641.5	165.9			471.9
<i>Liberia, Panama</i>											
Liberia	1 009.5	726.8	1 736.3	189.6	106.7	204.3	504.6	1 231.7		522.5	
Panama	214.2	343.6	557.8	94.5	40.2	75.8	210.5	347.3		267.8	
<i>Southern Europe</i>											
Cyprus		150.0	150.0		6.8	14.5	21.3	128.7		135.5	
Greece	238.0	451.5	689.5	106.8	75.9	274.0	454.7	234.8		177.5	
Malta						3.7	3.7		3.7		3.7
Portugal	11.2	10.9	22.1	1.8			1.8	20.3		10.9	
Spain	93.0		93.0	20.1	1.5		21.6	71.4			
Turkey				8.5			8.5		8.5		
Yugoslavia	83.1	16.2	99.3	7.2	8.2	21.7	37.1	62.2			5.5
<i>Socialist countries of Eastern Europe and Asia</i>											
Bulgaria	9.1	15.7	24.8					24.8		15.7	
North Viet-Nam		3.9	3.9					3.9		3.9	
Eastern Germany	8.8	3.8	12.6		8.0	13.1	21.1		8.5		9.3
China (mainland)		6.9	6.9					6.9		6.9	
Poland	32.2		32.2		7.2	3.9	11.1	21.1			3.9
Romania	34.0		34.0					34.0			
USSR	203.9		203.9	17.1	180.0 ^e		197.1	6.8			
<i>Developing countries in Africa</i>											
Burundi		8.2	8.2					8.2		8.2	
Ivory Coast	7.3		7.3			4.5	4.5	2.8			4.5
Kenya		7.6	7.6					7.6		7.6	
Madagascar	10.1	1.5	11.6					11.6		1.5	
Nigeria	8.0	1.6	9.6					9.6		1.6	
Somalia		29.9	29.9	7.3			7.3	22.6		29.9	

TABLE VII (continued)

Additions to, and deductions from, merchant fleets, January-June 1968

Flag of registration ^a	Additions			Deductions				Net change overall		Net flag changes	
	New deliveries etc. ^b	Flag changes	Total	Scrapping	Losses, etc. ^c	Flag changes	Total	+	-	+	-
<i>Developing countries in Africa (continued)</i>											
United Arab Republic		20.4	20.4					20.4		20.4	
United Republic of Tanzania		5.5	5.5					5.5		5.5	
<i>Developing countries in Asia</i>											
India	42.4	11.2	53.6	7.2	21.7	12.6	41.5	12.1			1.4
Indonesia		72.8	72.8					72.8		72.8	
Israel	49.3		49.3			6.9	6.9	42.4			6.9
Kuwait	9.7		9.7					9.7			
Lebanon	1.5	16.1	17.6	44.3	7.2	15.9	67.4		49.8	0.2	
Pakistan	21.9	4.8	26.7					26.7		4.8	
Philippines	8.7	52.1	60.8		12.3		12.3	48.5		52.5	
Republic of China	30.5	42.2	72.7	62.3		6.8	69.1	3.6		35.4	
Republic of Korea	13.4	14.8	28.2		5.2		5.2	23.0		14.8	
Singapore		61.6	61.6					61.6		61.6	
<i>Developing countries in Latin America</i>											
Argentina		16.0	16.0		41.7	14.6	56.3		40.3	1.4	
Brazil	43.7		43.7		8.1	22.5	30.6	13.1			22.5
Chile		1.5	1.5					1.5		1.5	
Colombia	4.4		4.4					4.4			
Ecuador	6.6		6.6					6.6			
Mexico	58.6		58.6		24.3 ^d		24.3	34.3			
Peru		7.3	7.3		3.8		3.8	3.5		7.3	
Uruguay		10.8	10.8			7.3	7.3	3.5		3.5	
<i>Miscellaneous territories (United Kingdom colonies) not classified</i>											
	60.8	34.7	95.5	18.8	7.1	32.6	58.5	37.0		2.1	

Source: Compiled from records of tonnage additions and deductions made available by the United States Department of Commerce, Maritime Administration. Data exclude vessels operating exclusively on the Great Lakes and inland waterways, special types (e.g. ice-breakers, cable ships) and merchant ships owned by military authorities. Records available do not include information about changes in the United States fleet.

^a Flags of registration are listed in the groups used in annex 1 above and in alphabetical order in each group.

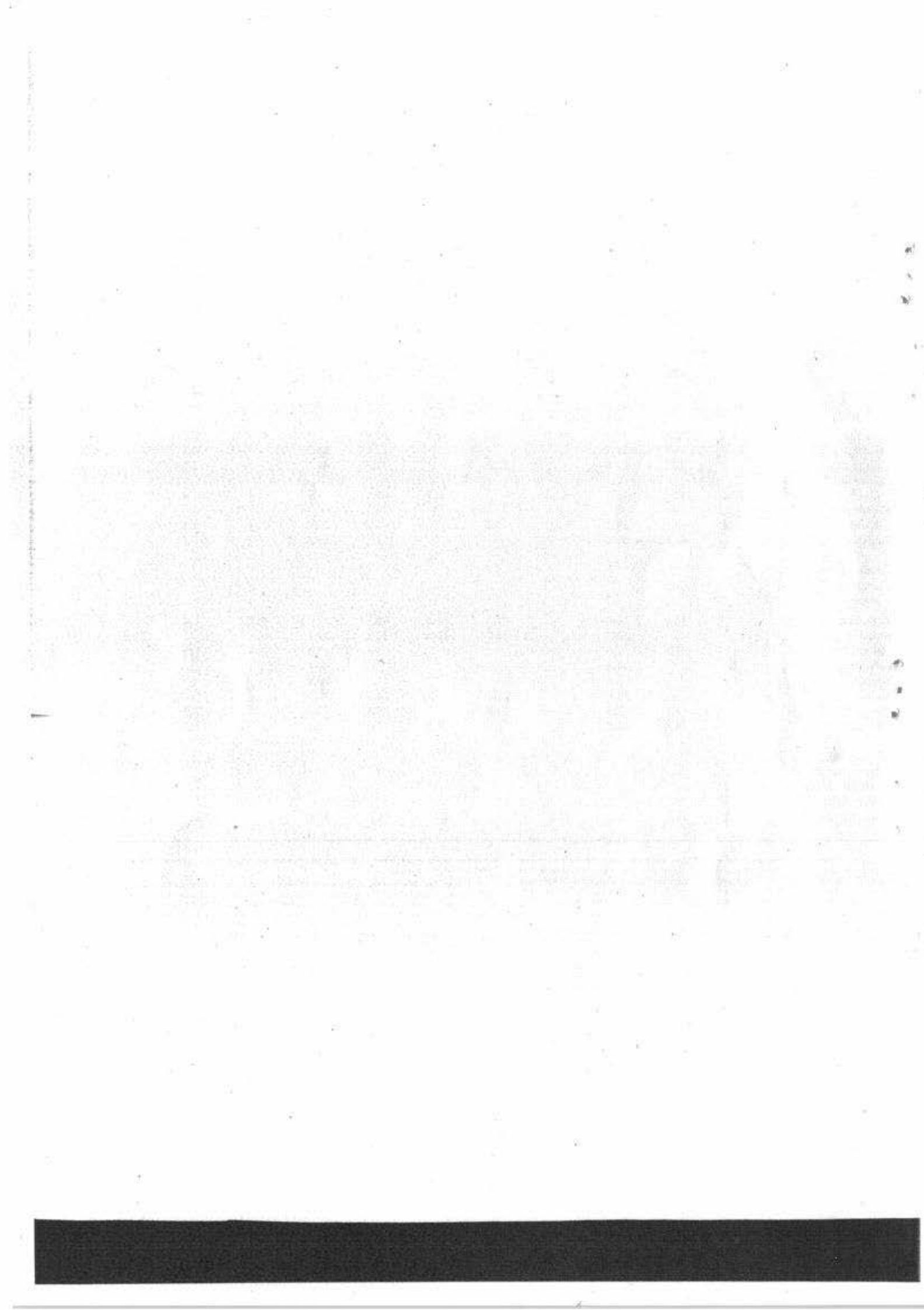
^b This column includes a total of about 110,000 grt which is not newly built tonnage. This total is composed of 25,000 grt restored to the records after having been deleted previously, and of 85,000 grt "new in work" in the first half of 1968 (i.e. either vessels built in preceding periods but first activated in the current period

or vessels which were below 1,000 grt when built but which were altered to exceed 1,000 grt in the period).

^c Losses include vessels sunk, wrecked and burnt and those declared to be "constructive total losses" for insurance purposes. The column also includes miscellaneous items, totalling 229,000 grt as follows: 12,000 grt withdrawn into inland services, 22,000 grt converted to non-maritime use (e.g. "floating warehouse"), 24,000 grt "out of commission" (in Mexico), and 171,000 grt from the USSR fleet mostly old vessels built between 1902 and 1928, classified as "out of documentation" (i.e. probably lost or scrapped).

^d Excluding the United States of America (not available).

^e Of which, 171,000 grt "out of documentation" (see note ^c above).
/ "Out of commission".



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