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EXPLANATORY NOTES

References to "tons" indicate long 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.

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

An oblique stroke (/) between years, e.g., 1965/66, indicates a season, crop year or financial year.

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

Reference to dollars (\$) indicates US dollars, unless otherwise stated.

* * *

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

IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICHCA	International Cargo Handling Co-ordination Association
IMCO	Inter-Governmental Maritime Consultative Organization
ISO	International Organization for Standardization
OECD	Organisation for Economic Co-operation and Development

Other abbreviations

c.i.f.	Cost, insurance, freight
dwt	Dead weight tons
f.o.b.	Free on board
grt	Gross registered tons
LASH	Lighter aboard ship
n.e.s.	Not elsewhere specified

INTRODUCTION

1. This review has been prepared by the secretariat of UNCTAD in accordance with item VI 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.

¹ See *Official Records of the Trade and Development Board, Ninth Session, Supplement No. 3*, (TD/B/240), annex II.

Chapter I

THE VOLUME OF INTERNATIONAL SEABORNE TRADE

3. The volume of international seaborne trade amounted to 2,240 million metric tons (total goods loaded) in 1969 and thus increased by 9 per cent in comparison with 1968. This increase may be compared with the increases registered during the five previous years, which amounted respectively to 12, 9, 8, 6 and 10 per cent. It shows a slight decline in comparison with the increase of 10 per cent in 1968, which was the highest observed since 1965. Nevertheless, world international seaborne trade still more than doubled between 1960 and 1969. These figures are extracted from table 1, which gives particulars of the development of world international seaborne trade in terms of absolute quantities and annual percentage increases for the period 1955-1969.

4. In 1969, tanker cargo (loadings) amounted to 1,220 million metric tons, while dry cargo (loadings) was 1,020 million metric tons; these levels represent increases respectively of 8 and 10 per cent over 1968.

5. A number of observations may be made from a comparison of the developments in aggregate tanker cargo and dry cargo shown in table 1. First, in 1955, the volume of dry cargo was considerably higher than that of tanker

cargo, but this situation was reversed in 1961, and since that year tanker cargo has continued to be in excess of dry cargo and has also increased at a faster rate. Second, the increase in tanker cargo has followed a much steadier upward trend than is the case for dry cargo, particularly with respect to the period starting in 1961. Indeed, between 1961 and 1967, the yearly increases of tanker cargo were between 60 and 80 million metric tons, although since 1967 two yearly increases have been registered respectively of 110 and 90 million metric tons. With respect to dry cargo, on the other hand, heavier fluctuations are observed in the annual increases, ranging between 20 and 80 million metric tons between 1961 and 1967 and amounting to 90 million metric tons both in 1968 and 1969. The increase in dry cargo during 1968, for instance, was 4½ times as high as that during the previous year (90 and 20 million metric tons respectively). Third, the average yearly increments have, for both types of cargo, also been increasing during the last fifteen-year period. For tanker cargo, the average yearly increase amounted to approximately 38 million metric tons in the late 1950s, but rose to about 73 million metric tons between 1961 and 1967 and to about 100 million metric tons after 1967; a similar development may be noted for dry cargo.

TABLE 1
Development of world international seaborne trade,^a 1955-1969 (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	228	..	1 080	11
1961.....	580	7	570	6	239	5	1 150	6
1962.....	650	12	600	5	246	3	1 250	9
1963.....	710	9	640	7	269	9	1 350	8
1964.....	790	11	720	13	308	14	1 510	12
1965.....	870	10	770	7	327	6	1 640	9
1966.....	950	9	820	6	340	4	1 770	8
1967.....	1 020	7	850	4	352	4	1 870	6
1968.....	1 130	11	930	9	384	9	2 060	10
1969 ^c	1 220	8	1 020	10	419	9	2 240	9

^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 Egers Chartering Co. Ltd., *Trades of World Bulk Carriers in 1969* (Oslo, 1970).

^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.

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

^c Provisional.

TABLE 2
International seaborne trade,^a 1959, 1967, 1968 and 1969:^b shares of groups of countries^c ^d
(Percentages of world total)

Groups of countries	1959				1967				1968				1969
	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 metric tons</i>													
World total	315.9	164.7	488.8	969.5	756.2	263.5	851.2	1,870.8	855.8	278.5	930.0	2,064.3	2,248.3
Percentage share of each category of goods in the total	(32.6)	(16.9)	(50.4)	(100.0)	(40.4)	(14.1)	(45.5)	(100.0)	(41.5)	(13.5)	(45.0)	(100.0)	
<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)	0.3	22.0	55.5	31.8	0.7	24.9	54.5	28.6	0.5	23.6	55.7	28.5	27.3
Southern Europe	—	0.2	3.3	1.7	—	1.2	2.3	1.2	—	2.3	2.2	1.3	1.3
Socialist countries of Eastern Europe and Asia	2.7	6.6	6.2	5.1	4.4	9.2	9.8	7.5	4.0	10.1	8.9	7.0	6.7
Developing countries, total	97.0	71.1	35.0	61.4	94.9	64.7	33.4	62.7	95.5	64.0	33.2	63.2	64.7
of which:													
in Africa	1.0	0.4	9.4	5.1	18.4	1.2	9.6	12.0	21.1	1.4	10.0	13.5	15.0
in Asia	60.8	25.3	9.3	28.8	58.4	24.0	8.6	30.9	58.5	25.4	8.8	31.6	31.9
in Latin America and Caribbean	35.1	45.5	15.5	26.9	18.0	39.5	14.5	19.4	15.9	37.2	13.5	17.7	17.4
in Oceania	—	—	0.9	0.4	—	—	0.7	0.3	—	—	0.9	0.4	0.4
B. GOODS UNLOADED													
<i>Million metric tons</i>													
World total	316.9	151.5	498.4	966.8	756.0	234.4	862.5	1,852.5	859.6	246.3	932.7	2,038.6	2,224.6
Percentage share of each category of goods in the total	(32.8)	(15.7)	(51.5)	(100.0)	(40.8)	(12.6)	(46.5)	(100.0)	(42.2)	(12.1)	(45.8)	(100.0)	
<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	77.4	75.5	73.4	75.3	77.9	75.8	74.3	76.0	75.9
Southern Europe	2.4	2.0	3.0	2.6	3.4	1.8	3.6	3.3	3.8	1.9	3.3	3.4	3.3
Socialist countries of Eastern Europe and Asia	—	1.0	3.9	2.2	0.6	1.3	5.1	2.8	0.5	1.3	5.0	2.6	2.7
Developing countries, total	25.1	32.9	18.5	22.9	18.6	21.4	17.9	18.6	17.8	21.0	17.4	18.0	18.1
of which:													
in Africa	1.5	9.5	4.8	4.4	2.2	4.7	3.8	3.3	2.1	4.7	3.5	3.1	3.1
in Asia	4.7	12.2	8.8	8.0	5.8	9.6	9.7	8.1	6.1	9.5	9.3	7.9	7.9
in Latin America and Caribbean	18.9	11.0	4.7	10.4	10.5	6.3	4.2	7.0	9.6	6.1	4.4	6.8	6.8
in Oceania	—	0.3	0.2	0.2	—	0.8	0.2	0.2	—	0.7	0.2	0.2	0.2

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 metric tons in 1959, 34 million metric tons in 1967 and 37 million metric tons in both 1968 and 1969.

^b Break-down by type of cargo for 1969 not yet available.

^c Derived from table I in annex II; 1969 figures estimated from data in United Nations, *Monthly Bulletin of Statistics*, November 1970 and January 1971 issues.

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

6. The share of oil in total cargo loadings rose from 44 per cent in 1955 to 50 per cent in 1960 and to 54 per cent in 1969.

7. The rate of growth of the main bulk commodities amounted to 9 per cent, which is somewhat lower than that for aggregate dry cargo loadings.

8. The developments discussed above have important repercussions on, and are parallel with, developments in the size and composition of the world merchant fleet. The great expansion of the world tanker fleet and of the tonnage on order at the present time should be noted in this connexion; this is further discussed in chapter II below.

9. The percentage shares of the various groups of countries² in international seaborne trade (loadings and unloadings)³ are shown in table 2 in the present chapter; world totals are also indicated in absolute quantities. The absolute figures from which this table was derived are presented in table I in annex II to the present *Review*; the latter table also shows a more detailed breakdown of regions than table 2 in accordance with the classification of countries and territories shown in annex I. Although comments in the text relate exclusively to table 2, it is useful to bear in mind that considerable changes in percentage shares may relate to only small volumes of trade in absolute terms.

10. The aggregate share of developing countries in seaborne loadings (table 2, A) rose from 61.4 per cent in 1959 to 63.2 per cent in 1968 and 64.7 per cent in 1969.

11. With respect to the various categories of goods loaded in 1968 as compared to 1967, the share of developing countries in crude petroleum shipments increased from 94.9 per cent to 95.5 per cent. A different trend is to be noticed for petroleum products; the share of developing countries in the shipments of such products decreased from 64.7 per cent in 1961 to 64.0 per cent in 1968. The share of developing countries in dry cargo loadings amounted to 33.2 per cent in 1968, which may be compared with 33.4 per cent in 1967.

12. In comparison with 1959, on the other hand, the relative shares of developing countries decreased in 1968 with respect to each category of goods loaded.⁴

13. Some shifts may also be observed between 1959 and 1968 in the relative importance of the various developing regions with respect to the various categories of goods loaded. Thus, the developing countries in Africa increased their share in crude petroleum shipments from 1.0 per cent in 1959 to 21.1 in 1968; very few African countries,

² See annex I for the composition of the groups of countries referred to.

³ Data are presented in table 2 for the years 1959, 1967, 1968 and 1969; however, the available data for 1969 are not broken down by type of cargo. Hence, comments in the text regarding different types of cargo are limited to the period 1959-1968.

⁴ The increase in the percentage share with respect to all goods loaded—as observed in para. 10—is explained by the shift in the relative significance of each category of goods in the total which occurred between 1959 and 1968; the percentage shares of each category of goods in the annual world totals are shown between brackets in table 2.

however, export crude petroleum in considerable volumes, and loadings in only four developing countries (Algeria, Libya, Tunisia and Nigeria) accounted in 1968 for over 95 per cent of total loadings of crude petroleum from developing countries in Africa. A decline is noted in the share in crude petroleum loadings of developing countries in Asia which in 1968 amounted to 58.5 per cent as compared to the 1959 level of 60.8 per cent. Although in absolute terms, loadings of crude petroleum increased from 111.0 million tons to 136.1 million tons, the share of developing countries in Latin America and the Caribbean also declined from 35.1 per cent in 1959 to 15.9 per cent in 1968.

14. The relative share of the developing countries in the loadings of petroleum products fell from 71.1 per cent in 1959 to 64.0 per cent in 1968. This reflects the further expansion of refining capacity in and the exports of petroleum products by developed market economy countries, by countries in Southern Europe and by socialist countries in Eastern Europe and Asia, which increased their respective shares in the loadings of petroleum products. The share of the developing countries in Africa in dry cargo loadings increased from 9.4 per cent in 1959 to 10.0 per cent in 1968 but the shares of developing countries in other regions declined or remained unchanged.

15. With respect to goods unloaded, table 2 B, illustrates a rather different development. The share of developing countries in the world total increased slightly from 18.0 per cent in 1968 to 18.1 per cent in 1969; this is, however, still less than their share of 22.9 per cent in 1959. This decrease in their relative share since 1959 is largely caused by the large fall in their share of unloadings of crude petroleum which fell from 25.1 per cent in 1959 to 17.8 per cent in 1968, and of unloadings of petroleum products which fell from 32.9 per cent in 1959 to 21.0 per cent in 1968. The percentage share in unloadings of dry cargo, on the other hand, decreased much less from 18.5 per cent in 1959 to 17.4 per cent in 1968.

16. With respect to crude petroleum, the decrease in the relative shares of developing countries as a whole results from the decline in the relative share of developing countries in Latin America and the Caribbean from 18.9 per cent in 1959 to 9.6 per cent in 1968; developing countries in other regions (except in Oceania) increased their percentage share.

17. The fall in the relative share of developing countries in unloadings of petroleum products between 1959 and 1968 is reflected in a decrease in the relative shares of all regions except Oceania; developing countries in the latter region increased their share from 0.3 per cent in 1959 to 0.7 per cent in 1968.

18. The developed market-economy countries increased their share in total seaborne unloadings from 72.3 per cent in 1959 to 75.9 per cent in 1969. The share of countries in Southern Europe increased from 2.6 per cent in 1959 to 3.3 per cent in 1969 while the share of socialist countries of Eastern Europe and Asia also increased from 2.2 per cent in 1959 to 2.7 per cent in 1969.

19. Table 3 shows the percentage changes in loadings and unloadings of various groups of countries in the form of indices both with 1959 and 1965 as base years. The table illustrates that world seaborne loadings and unloadings have more than doubled since 1959. Goods loaded during 1969 in developing countries in Africa increased to almost

seven times their 1959 volume, largely as a result of the considerable increase in exports of crude petroleum and petroleum products. Exports of petroleum products from Southern Europe also increased tremendously and were in 1968 almost eight times as large as in 1965.

TABLE 3
Growth of international seaborne trade,^a 1959-1969 classified by types of cargo (1959-1968) and groups of countries^b °
(Indices: 1959 = 100/1965 = 100)^d

Groups of countries	A. — Goods loaded 1968				B. — Goods unloaded 1968				Goods loaded 1969 All goods	Goods unloaded 1969 All goods
	Crude petroleum	Petroleum products	Dry cargo	All goods	Crude petroleum	Petroleum products	Dry cargo	All goods		
World total	271	169	190	213	271	163	234	211	232	230
	138	115	121	126	138	111	118	124	138	136
Developed market-economy countries (excluding Southern Europe)	410	181	191	191	291	192	186	222	199	242
	*	118	126	126	141	109	121	127	131	139
Southern Europe	—	f	130	165	439	157	208	270	170	292
		787	112	140	208	107	94	129	144	140
Socialist countries of Eastern Europe and Asia	402	259	272	292	450	220	241	260	303	280
	121	131	132	129	173	150	99	105	133	113
Developing countries, total	267	152	180	219	192	104	176	165	245	181
	138	109	112	126	119	116	116	117	141	129
<i>of which:</i>										
in Africa	*	667	203	559	381	80	138	145	677	161
	182	95	115	151	113	100	100	103	182	115
in Asia	260	169	180	234	350	126	198	210	257	229
	138	125	115	133	153	124	121	130	146	142
in Latin America and Caribbean ...	123	138	167	140	138	91	173	139	150	152
	104	100	106	104	105	114	120	110	111	121
in Oceania	—	—	186	186	—	400	158	219	198	244
			143	143		178	112	140	152	156

Source: See table 2.

^a See note a to table 1. Great Lakes and St. Lawrence trade (in dry cargo) amounted to 26 million metric tons in 1959, 37 million metric tons in 1965, 1968 and 1969.

^b Derived from table 1 in annex II. 1969 figures estimated from data in United Nations, *Monthly Bulletin of Statistics*, November 1970 and January 1971 issues.

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

^d Indices shown on the first line refer to base year 1959 = 100; those on the second line to base year 1965 = 100.

^e Crude petroleum loadings in developed market-economy countries (excluding Southern Europe) amounted to 0.4 million metric tons in 1965 and to 4.1 million metric tons in 1968.

^f Loadings of petroleum products in countries in Southern Europe amounted to 0.4 million metric tons in 1959 and to 6.3 million metric tons in 1968.

^g Crude petroleum loadings in developing countries in Africa amounted to 3.2 million metric tons in 1959 and to 180.8 million metric tons in 1968.

Chapter II

THE DEVELOPMENT OF THE WORLD MERCHANT FLEET

(a) Composition, flag and age distribution

20. Table 4 shows the development of the world active seagoing merchant fleet between 1955 and 1970, a period during which an expansion to more than 2½ times the 1955 tonnage (grt) took place. An even larger increase occurred in tanker tonnage which more than tripled in size during the period. The percentage increase between 1960⁵ and 1970 were as follows:⁶

	grt	dwt
Tankers	110	131
Other ships	84	83
All ships	94	102

The greater increase in dwt in comparison with grt of the tanker fleet reflects the increased dwt/grt ratio resulting from the introduction of very large tankers; this ratio has a direct impact on the productivity of shipping space.⁷

TABLE 4
World shipping tonnage^{ab} 1955-1970
(Mid-year figures)

Year	Tankers		Other ships ^c		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	146.8	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
1969.....	77.1	127.0	125.0	161.3	202.0	288.3
1970.....	85.8	148.0	132.1	178.1	217.9	326.1

^a Sources: *Lloyd's Register of Shipping Statistical Tables 1955-1970* and supplementary data regarding the United States Reserve fleet and the Great Lakes fleets of the United States and Canada published by the United States Department of Commerce, Maritime Administration. Figures in dwt up to and including 1969 are based on data from Institute of Shipping Economics *Statistik der Schifffahrt* (Bremen).

^b Excluding the United States Reserve fleet and the Great Lakes fleets of the United States and Canada (see table 5, footnote a for various estimates of these fleets).

^c Up to and including 1969, figures in grt and not strictly comparable with those in dwt as the grt series (based on *Lloyd's Register*) refers to all commercial vessels (including e.g. fishing and research ships) of 100 grt and above while the dwt series (based on *Statistik der Schifffahrt*) includes only sea-going cargo and/or passenger carrying vessels and tonnage for commercial purposes of 300 grt and over. For strict comparability with the figures for previous years, tanker tonnage in 1970 would amount to 145.0 million dwt, other ships to 173.4 million dwt while the total would be 318.4 million dwt.

^d Ore and bulk carriers (including combined ore/bulk/oil carriers) comprised in this group amounted to the following tonnages (in million grt): 1964: 14.2; 1965: 16.3; 1966: 20.7; 1967: 26.4; 1968: 32.2; 1969: 39.0 and 1970: 43.9. Figures for previous years are not available.

21. Table 5 indicates the absolute and relative shares of various groups of countries according to flags of registration during 1955, 1965, 1969 and 1970 as well as the

increase in tonnage and the share of each group of countries in world total increase between 1965 and 1970 and between 1969 and 1970.

⁵ First year for which dwt figures are available.

⁶ Percentage increases in dwt are based on the figures shown in table 4, footnote b.

⁷ The productivity of shipping space will be further discussed in chapter IV.

TABLE 5
Distribution of world tonnage (grt) by flag of registration,^a 1955, 1965, 1969 and 1970
(Mid-year figures)

Flags of registration in groups of countries ^b	Tonnage (million grt)				Share of world tonnage (percentage)				Increase in tonnage				
	1955	1965	1969	1970 ^c	1955	1965	1969	1970 ^d	1965-1970			1969-1970	
									In million grt	Share in world total increase (percentage)	Index 1970 (1965=100)	In million grt	Share in world total increase (percentage)
World total	82.7	146.8	202.0	217.9	100.0	100.0	100.0	100.0	71.1	100.0	148	15.9	100.0
Developed market- economy countries (excluding Southern Europe)	61.4	90.6	118.5	124.2	74.2	61.8	58.6	57.0	33.5	47.1	137	5.7	36.1
Liberia, Panama ^e	8.3	22.0	34.6	38.9	10.1	15.0	17.9	17.9	16.9	23.8	177	4.3	27.2
Southern Europe	4.1	11.7	15.6	18.7	4.9	8.0	7.7	8.6	7.0	9.8	159	3.1	19.6
Socialist countries of Eastern Europe and Asia	3.5	10.9	18.1	19.5	4.2	7.4	9.0	8.9	8.6	12.1	179	1.4	8.9
Developing coun- tries, ^f total	5.4	11.4	15.3	16.6	6.6	7.8	7.6	7.6	5.1	7.2	145	1.3	8.2
of which:													
in Africa	0.2	0.6	1.1	1.2	0.3	0.4	0.6	0.6	0.6	0.9	211	0.1	0.6
in Asia	1.8	6.3	8.9	9.6	2.2	4.3	4.4	4.4	3.3	4.7	153	0.7	4.4
in Latin America and the Caribbean	3.4	4.6	5.2	5.7	4.1	3.1	2.6	2.6	1.1	1.6	124	0.5	3.2

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

^a Excluding, respectively in 1955, 1965, 1969 and 1970:

- (i) United States Reserve fleet of about 14.4, 10.4, 6.6 and 6.3 million grt.
(ii) United States Great Lakes fleet of 2.5, 2.0, 1.8 and 1.7 million grt.
(iii) Canadian Great Lakes fleet of 0.9, 1.2, 1.6 and 1.5 million grt.

^b Tonnage by individual countries and by type of ships as at 1 July 1970 is shown in annex II, table II.

^c In million dwt this column reads, from top to bottom: 326.1, 186.4, 67.5, 27.3, 21.7, 23.2, 1.6, 14.0 and 7.5.

^d Based on dwt, this column reads, from top to bottom: 100.0, 57.1, 20.7, 8.4, 6.7, 7.1, 0.5, 4.3 and 2.3.

^e 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. 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. Honduran flag tonnage in the 1960s has been of a much smaller order.

^f Excluding Liberia and Panama.

22. Between 1955 and 1970, the percentage distribution of world tonnage (grt) has changed considerably. The share of the developed market-economy countries decreased from 74.2 per cent in 1955 to 57.0 per cent in 1970, i.e., by 17.2 per cent. This appears to be partly the result of a shifting of tonnage from developed market-economy countries to the flags of Liberia and Panama. The relative share of these two countries together increased, indeed, during the same period from 10.1 to 17.9 per cent and it is known that a large part of the fleets registered in these two countries is owned by residents of developed market-economy countries. On the other hand, during the same period, the relative share of countries in Southern Europe increased from 4.9 to 8.6 per cent, the relative share of the socialist countries of Eastern Europe and Asia increased from 4.2 to 8.9 per cent while the relative share of the developing countries increased from 6.6 to 7.6 per cent. Within the last mentioned group, however, it is to be noted that the relative share of developing countries in Latin America and the Caribbean decreased from 4.1 to 2.6 per cent.

23. Between 1969 and 1970 (mid-year figures), world tonnage increased by 15.9 million grt, but this increase was shared very unevenly among various group of countries. As shown in table 5 (last column), 36.1 per cent of this increase was registered by developed market-economy countries, 27.2 per cent by Liberia and Panama combined, 19.6 per cent by Southern European countries, 8.9 per cent by socialist countries of Eastern Europe and Asia

and 8.2 per cent by developing countries as a whole. Of the latter group, countries in Asia recorded the largest share, with 4.4 per cent, countries in Latin America and the Caribbean 3.2 per cent, and countries in Africa 0.6 per cent of the total world increase.

24. When the percentage shares in the world total increase in tonnage for last year are compared with those relating to the last five-year period, it is noticed that the combined share of the developed market-economy countries together with Liberia and Panama has decreased from 70.9 per cent for the period 1965-1970 to 63.3 per cent for 1969-1970. Countries in Southern Europe, on the other hand, exactly doubled their share in the total world increase of last year as compared with the increase for the last five-year period.

25. Contrary to the long-term trend noted in paragraph 22, socialist countries of Eastern Europe and Asia registered a decline in their relative share of total world increase in tonnage during last year as compared to the last five-year period (8.9 as against 12.1 per cent).

26. Developing countries as a whole showed an increase of 1.0 per cent in their relative share of total world increase in tonnage during last year as compared to the period 1965-1970 (8.2 as against 7.2 per cent) which was the net result of such countries in Latin America and the Caribbean registering an increase of 1.6 per cent, while those in Africa and Asia each showed a decrease of 0.3 per cent.

TABLE 6
Share of world tonnage (grt) by type of vessel as at 1 July 1970^a

	All ships ^b	Tankers ^b	Ore and bulk carriers ^c	General cargo ^{b,d}	Container ships ^b	Other ships ^b
<i>Share of total tonnage, 1969 and 1970 (percentage)</i>						
World total:						
1970.....	100.0	39.4	20.2	30.2	0.9	9.3
1969.....	100.0	38.1	19.3	—	42.5 ^e	—
<i>Tonnage increase, Index 1970 (1965 = 100)</i>						
World total	148	158	269	—	116 ^e	—
<i>Shares of groups of countries in total tonnage^f in each class, 1970 (percentage)</i>						
World total	100.0	100.0	100.0	100.0	100.0	100.0
Developed market-economy countries (excluding Southern Europe)	57.0	57.3	62.1	52.9	98.5	53.6
Liberia, Panama	17.9	26.4	24.1	7.6	1.0	3.6
Southern Europe	8.6	7.1	6.5	12.3	0.5	7.8
Socialist countries of Eastern Europe and Asia	8.9	4.7	2.1	13.1	—	29.1
Developing countries, excluding Liberia, Panama; total:	7.6	4.5	5.2	14.1	—	5.9
of which:						
in Africa	0.6	0.2	—	1.3	—	0.7
in Asia	4.4	2.0	4.1	8.5	—	2.7
in America and the Caribbean	2.6	2.3	1.1	4.2	—	2.4

Source: Compiled from *Lloyd's Register of Shipping Statistical Tables, 1970*, and supplementary information on the United States Reserve fleet and the United States and Canadian fleets.

^a Excluding Great Lakes fleets of the United States of America and of Canada (3.3 million grt combined of which 3.0 million grt bulk carriers) and the United States Reserve fleet, estimated at 0.2 million grt million grt tankers, 0.01 million grt bulk carriers, and 6.1 million grt of other ships.

^b Vessels of 100 grt and more.

^c Ore and bulk carriers of 6,000 grt and more including combined ore/oil and ore/bulk/oil carriers; combined carriers amounted in 1970 to 207 ships with a total tonnage of 8,317,290 grt.

^d This category includes both liners and tramps.

^e Figure referring to combined tonnage of the last three categories.

^f The percentage figures on dwt basis differ, in most cases, less than 0.5 per cent from the table presented below. The largest discrepancy is recorded with respect to "All ships of socialist countries of Eastern Europe and Asia whose relative share would be 6.7 instead of 8.9 per cent."

27. The shares in world tonnage, by type of vessel, of various groups of countries as at 1 July 1970, are shown in table 6 above.

28. The table illustrates the increase in world tonnage of oil tankers which rose by 58 per cent between 1965 and 1970; ore and bulk carriers (including ore/bulk/oil types)⁸ increased by 169 per cent over the same period and other type ships by 16 per cent. In absolute terms, the increase in tanker tonnage amounted to 30.6 million grt, in ore and bulk carrier tonnage to 27.6 million grt and in other type ships to 11.9 million grt. In comparison with 1969, both tanker and ore and bulk carrier tonnage increased as a proportion of aggregate world tonnage of all ships, the first category from 38.1 to 39.4 per cent and the second from 19.3 to 20.1 per cent. The tonnage registered under the flags of the developed market-economy countries, together with that registered in Liberia and Panama,

⁸ The rapid increase in combined carriers during recent years is discussed more extensively in chapter V below.

amounted at 1 July 1970 to 74.9 per cent for all vessels but to 83.7, 86.2 and 99.5 per cent respectively for tankers, bulk carriers and container vessels.⁹ For general cargo¹⁰ tonnage, this share was 60.5 per cent while for "other ships"¹¹ it was 57.2 per cent. Countries in Southern Europe and socialist countries of Eastern Europe and Asia registered respectively 8.6 and 8.9 per cent of world tonnage of all ships although for each group the share in general cargo was considerably higher (respectively 12.3 and 13.1 per cent). Developing countries (excluding Liberia and Panama) shared 7.6 per cent of world tonnage of all ships, of which the largest part (4.4 per cent of world tonnage) was registered in developing countries in Asia. The share of this group in world general cargo

⁹ Construction of the first containership to be built in the USSR started in 1970 and possible future participation of this country in the containerized trade between Europe and Australia and/or the Far East has been reported.

¹⁰ This category includes both liners and tramps.

¹¹ Including passenger liners, fishing and research ships, etc.

TABLE 7
Age distribution of the world merchant fleet as at 1 July 1970^a
(Percentage of total tonnage (grt) of each group)

	Total	Age groups (years)					
		0-4	5-9	10-14	15-19	20-24	25 and over
World total	100	37	22	19	10	5	7
<i>By group of countries:</i>							
Developed market-economy countries (excluding Southern Europe)	100	41	23	17	8	4	6
Liberia, Panama	100	33	19	25	12	5	6
Southern Europe	100	28	17	21	13	9	12
Socialist countries of Eastern Europe and Asia	100	35	32	16	7	1	8
Developing countries, total	100	29	17	18	12	8	16
<i>By type of ship:</i>							
Tankers	100	39	24	21	11	2	3
Bulk carriers ^b	100	59	24	10	3	1	3
Other ships	100	25	19	21	12	9	14

Source: Compiled from *Lloyd's Register of Shipping, Statistical Tables, 1970* 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 Ore and bulk carriers of 6,000 grt and more, including combined ore/bulk/oil carriers.

tonnage also amounted to 8.5 per cent, while for developing countries as a whole, the figure was 14.1 per cent.

29. A detailed breakdown of world tonnage (grt and dwt) as at 1 July 1970, according to individual flags and by type of ships, is presented in annex II, table II; the distribution by groups of countries is shown in annex II, table III.

30. The age distribution of the world merchant fleet as at 1 July 1970, per type of ship, is shown in table 7 above. This distribution is, of course, largely influenced by the different rates of growth of the merchant fleets of the various groups of countries, as illustrated in the previous two tables.

31. The table shows that 37 per cent of the world merchant fleet at present consists of vessels of less than five years old and 78 per cent of vessels of less than fifteen years; these percentages were respectively 33 and 75 in 1968.¹² A continuous "rejuvenation" of the world fleet is indeed noticeable, owing to the considerable volume of new buildings put into service over the last few years and also as a result of a more rapid rate of obsolescence of existing vessels which are being replaced by new types of ships.

32. The developed market-economy countries have the largest proportion of vessels under five years of age (41 per cent), while 82 per cent of merchant fleet of this group is less than fifteen years old; it is to be noted that both percentages exceed the world average.

33. For Liberia and Panama combined, 33 per cent of their merchant fleets is less than five years old, while for Southern Europe the figure is 28 per cent. Although both

these proportions are well below the world average, the fleets of both these groups of countries contain proportionately more tonnage of less than five years than in 1968, in which year these percentages were respectively 30 and 21.

34. Socialist countries of Eastern Europe and Asia as a whole have a total merchant fleet of which 35 per cent is less than five years old and 83 per cent less than fifteen years old. As these proportions were respectively 40 and 81 per cent in 1968, it appears that new buildings added to the first age group during the last two years have been less than the tonnage which moved into the older age group.

35. The proportion of ships less than five years old in the merchant fleet of developing countries as a group increased from 24 to 29 per cent between 1968 and 1970; with respect to vessels under ten years, this proportion increased from 44 to 46 per cent and for vessels of less than fifteen years, from 58 to 64 per cent. The merchant fleet of this group of countries at present thus comprises a larger proportion of vessels constructed less than two years ago. Nevertheless, it is to be noted that, for developing countries as a group, the proportion of vessels in each of the first three age groups is still below the world average; the difference is particularly marked with respect to ships of less than five years old (29 as against 37 per cent).

36. If types of ships in the bulk carrier group (including combined ore/bulk/oil carriers) are compared, 59 per cent of the tonnage consists of ships less than five years old, whereas the figures are respectively 39 and 25 per cent for tankers and other ships.

¹² See, *Review of maritime transport 1968* (United Nations publication, Sales No.: E.69.II.D.16), table 8.

TABLE 8
The nine largest merchant fleets^a in dwt, 1965, 1969 and 1970
(As at 1 July)

Flag	1965	1969 (Thousand dwt)	1970 ^b	Increase in tonnage		
				1965-1970 (Thousand dwt)	1969-1970 (Thousand dwt)	Index 1970 (1965 = 100)
Liberia	27,715	46,928	54,374	+ 26,659	+ 7,446	196
United Kingdom.....	27,610	32,499	37,400	+ 9,790	+ 4,901	135
Japan	16,066	32,593	37,210	+ 21,144	+ 4,617	232
Norway.....	23,436	31,168	31,444	+ 8,008	+ 276	134
United States of America ^c	15,002	17,335	16,746	+ 1,744	- 589	112
Greece.....	10,321	13,136	16,493	+ 6,172	+ 3,357	160
Union of Soviet Socialist Republics	9,584	13,723	15,226	+ 5,642	+ 1,503	159
Federal Republic of Germany	7,548	10,267	11,359	+ 3,811	+ 1,092	150
Italy.....	7,491	9,727	10,619	+ 3,128	+ 892	142
Total, nine flags	144,773	207,376	230,871	+ 86,098	+ 23,495	159
World total ^c	204,911	287,916	318,436	+ 113,525	+ 30,520	155
Nine flags as percentage of world total	70.7	72.0	72.5	75.8	77.0	

Source: Institute of Shipping Economics, *Statistik der Schifffahrt* (Bremen), and supplementary data regarding the United States Reserve fleet.

^a Sea-going cargo and/or passenger carrying vessels and tonnage for commercial purposes of 300 grt and over.

^b The figures shown in this column differ slightly from those in other tables which are based on *Lloyd's Register* figures; the present source has been used to make the figures comparable with those for previous years.

^c Active sea-going fleet excluding Great Lakes tonnage and United States Reserve fleet, the latter estimated at 13.4, 8.2 and 7.8 million dwt respectively in 1965, 1969 and 1970.

(b) *Growth of individual fleets*^{13 14}

37. As at 1 July 1970, merchant fleets registered in nine countries had a tonnage in excess of 10 million dwt; table 8 shows that their combined tonnage amounted to 230.9 million dwt or 72.5 per cent of the total world merchant fleet. It may be observed that these countries have increased their combined share of the total world merchant fleet by 1.8 per cent during the last five-year period and by 0.5 per cent since 1969. The largest increase as compared with 1969, was recorded by Liberia with 7.4 million dwt, although it should be kept in mind that a considerable portion of this tonnage is owned by non-residents of the country. Large increases were also registered by the United Kingdom (4.9 million dwt), Japan (4.6 million dwt) and Greece (3.4 million dwt).

38. As a group, the nine countries shown in table 8 above increased their combined tonnage by 59 per cent during the last five-year period, while the figure for the total world merchant fleet is 55 per cent. The largest increases were recorded by Japan, which more than doubled, and by

Liberia, which almost doubled in size since 1965. Greece added 60 per cent to its tonnage during the same period, the USSR 59 per cent, the Federal Republic of Germany 50 per cent, Italy 42 per cent, the United Kingdom 35 per cent, Norway 34 per cent and the United States of America 12 per cent.

39. Besides the nine fleets mentioned in table 8, thirty-six other fleets exceeded 500,000 dwt as at 1 July 1970. Ten of these were registered in developed market-economy countries,¹⁵ five in Southern Europe, five belonged to socialist countries in Eastern Europe and Asia, and fifteen (excluding Panama) were registered in developing countries. The tonnage registered in Panama amounted to 5.6 million grt (8.9 million dwt). The developing countries with a fleet exceeding 500,000 dwt as at 1 July 1970 are listed below:

	(Thousand grt)	(Thousand dwt)
India	2,402	3,781
Brazil	1,722	2,417
China (Republic of)	1,166	1,695
Argentina	1,266	1,621
Philippines	946	1,296
Korea (Republic of)	849	1,291
Israel	714	1,062
Hong Kong	671	997
Kuwait	592	998
Pakistan	566	762
Indonesia	643	745
Somalia	369	555
Singapore	424	551
Mexico	814	546
Venezuela	393	524

¹³ Annex II, table II shows the distribution of world tonnage by flag of registration and by type of ship, in order of size of fleets, as at 1 July 1970; annex II, table III shows the distribution by geographical areas, also per type of ship. Both tables are in grt, supplemented, as much as possible, by dwt figures. It is not to be noted that, although the combined total of the 185 fleets with smallest tonnage (dwt) comprises only about 1 per cent of the total world merchant fleet, these are nearly all fleets of developing countries which, although very small, may be of crucial importance for the country.

¹⁴ A more detailed analysis of the changes which occurred in the fleets of developing countries, and in particular of the number and tonnage of new and second-hand ships acquired by such countries during the last two years, is presented in chapter III.

¹⁵ See classification of countries and territories in annex I.

TABLE 9
Shipbuilding: completions by country of build or groups of countries:
1960, 1965, 1968 and 1969 and by type of vessel: 1969

	Tonnage (thousand grt) and percentages				Of which, in 1969:			
	1960	1965	1968	1969	Tankers	Bulk ^a carriers	General cargo	Other ships
Japan.....	1,839 (21.9)	4,886 (40.7)	8,349 (49.6)	9,168 (48.9)	4,747 (53.0)	2,840 (63.1)	1,287 (35.2)	294 (18.0)
Other developed market-economy countries (excluding Southern Europe).....	5,925 (70.7)	6,006 (50.0)	6,750 (40.1)	7,624 (40.7)	3,643 (40.7)	1,386 (30.8)	1,660 (45.4)	935 (57.3)
Southern Europe.....	354 (4.2)	468 (3.9)	820 (4.9)	995 (5.3)	492 (5.5)	136 (3.0)	273 (7.5)	94 (5.7)
Socialist countries of Eastern Europe (excluding USSR) ^b	220 ^c (2.6)	569 (4.7)	721 ^d (4.3)	750 ^e (4.0)	57 (0.6)	65 (1.4)	379 (10.4)	250 (15.2)
Developing countries.....	45 (0.5)	77 (0.6)	204 (1.2)	201 (1.1)	12 (0.1)	70 (1.6)	58 (1.6)	61 (3.7)
<i>of which:</i>								
in Africa.....				2 (—)	— (—)	— (—)	— (—)	2 (0.1)
in Asia.....				93 (0.5)	1 (—)	36 (0.8)	26 (0.7)	29 (1.8)
in Latin America and Caribbean.....				107 (0.6)	10 (0.1)	34 (0.8)	32 (0.9)	31 (1.9)
TOTAL	8,382 (100.0)	12,006 (100.0)	16,845 (100.0)	18,738 (100.0)	8,950 (100.0)	4,497 (100.0)	3,658 (100.0)	1,633 (100.0)
Percentage share of each type of ships in total tonnage completed in 1969.....				(100.0)	47.8	24.0	19.5	8.7
USSR, in thousand dwt ^f	160	374	263	288				

NOTE: Aggregates of sub-groups may not equal group totals due to rounding off procedures.

Source: Compiled from *Lloyd's Register, Annual Summary of Merchant Ships Launched during 1969*, (London, 1970) and supplementary data.

^a Including combined bulk/oil types.

^b The source does not give data for the USSR and socialist countries in Asia.

^c 1960 completions in the German Democratic Republic not available.

^d 1968 completions in Bulgaria not available.

^e German Democratic Republic, Hungary and Poland; figures for other countries in this group are not available.

^f 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 totals.

40. Among the countries mentioned in the various groups of the preceding paragraph, Somalia, Singapore and Venezuela attained a total tonnage in excess of 500,000 dwt during last year.¹⁶

41. Beside the fleets mentioned in table 8, the following countries added substantial tonnage to their merchant fleets during last year; the added dwt¹⁷ is shown in thousands:

More than 500,000 dwt:

France.....	1,276	Denmark.....	515
Panama.....	928		

More than 250,000 dwt (excluding countries listed above):

Kuwait.....	481	India.....	412
Brazil.....	464	Netherlands.....	364
Cyprus.....	445	Australia.....	278

¹⁶ Dwt figures as at 1 July 1969 which were considered for this comparison refer to vessels of 300 grt and over; as at 1 July 1970 vessels of 100 grt and over are taken into account. Some of the countries listed might already have exceeded 500,000 dwt as at 1 July 1969 if vessels of over 100 grt had been taken into consideration.

¹⁷ Only vessels of 300 grt and over have been taken into account.

(c) Shipbuilding

42. Table 9 above illustrates the huge growth of the world shipbuilding industry between 1960 and 1969. Annual completions increased from 8,382,000 grt in 1960 to 18,738,000 grt in 1969, an increase of 123 per cent. During 1969, total tonnage completed increased in all groups of countries shown in the table with the exception of the developing countries as a group, which show a slight decline (from 204,000 to 201,000 grt).

43. There were only very small changes in the relative percentage shares of each group of countries in total completions during 1969 as compared with 1968. In spite of a considerable increase in absolute tonnage completed, the percentage share of Japan declined slightly, but this country still produces close to 50 per cent of the aggregate output of all countries shown. The percentage share of developed market-economy countries other than Japan increased from 40.1 to 40.7 per cent, while that of countries in Southern Europe rose from 4.9 to 5.3 per cent. Although there is a decline in the percentage share, the absolute tonnage completed in socialist countries of Eastern Europe shows an increase from 721,000 to 750,000 grt but, as indicated in the table, data are not available for some countries in this group. The relative

TABLE 10
World tonnage (dwt) on order as at 31 October 1970^a

	All ships	Tankers (of 150,000 dwt and over)	Tankers (of less than 150,000 dwt)	Ore/oil and ore/bulk/oil carriers ^b	Other bulk carriers ^c	Container ships ^d	Dry cargo ships excluding container ships and bulk carriers
	(Million dwt)						
World total	132.0 (100%)	65.5 (49.6%)	11.7 (8.9%)	20.0 (15.1%)	20.9 (15.8%)	3.8 (2.9%)	10.1 (7.7%)
	Share of world total (percentage)						
World total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Developed market-economy countries (excluding Southern Europe).....	63.3	71.7	52.1	59.4	54.9	85.5	39.0
Liberia, Panama	20.7	20.8	12.7	29.9	24.4	4.5	9.4
Southern Europe	7.7	5.8	10.3	6.4	10.4	5.1	15.2
Socialist countries of Eastern Europe and Asia ^e	3.3	0.3	9.3	—	5.5	1.9	18.0
Developing countries, total	4.5	1.0	14.4	4.3	4.5	1.7	17.4
of which:							
in Africa	0.2	—	0.7	—	—	—	1.5
in Asia	2.9	1.0	10.7	1.3	4.2	1.7	7.8
in Latin America and the Caribbean...	1.4	—	3.0	3.0	0.3	—	8.1
Flag not yet known	0.5	0.4	1.2	—	0.3	1.3	1.0

^a Source: Compiled from *World Ships on Order*, No. 25, Supplement to *Fairplay International Shipping Journal* (London, 26 November 1970).

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

^c Vessels of 12,000 dwt and over.

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

^e Vessels with a carrying capacity of 300 ISO twenty-foot containers and over.

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

share of developing countries also declined by 0.1 per cent and this reflects also an absolute decline in tonnage completed. Of the 201,000 grt completed in this group of countries, 107,000 or more than half were built in developing countries in Latin America and the Caribbean, while 93,000 were built in Asian developing countries.

44. With respect to the types of ships built during 1969, of aggregate tonnage completed in all groups of countries shown, 47.8 per cent referred to tankers, 24.0 per cent to bulk carriers (including combined bulk/oil types) and 19.5 per cent to general cargo ships. The relative shares of various groups of countries in shipbuilding completions during 1969 as regards these types of vessels are also shown in table 10.

(d) Tonnage on order¹⁸

45. Tonnage on order as at 31 October 1970 is shown in table 10 above. It amounted to 132.0 million dwt, which represents an increase of 30.2 million dwt or close to 30 per cent over the 1969 level and constitutes about 40 per cent of the present world fleet. As compared with the 1969 level, the largest increases in tonnage on order are of tankers of over 150,000 dwt (increase of 15.7 million dwt), of combined carriers (increase of 6.3 million dwt) and of other bulk carriers (increase of 6.3 million dwt).

46. Developed market-economy countries, together with Liberia and Panama accounted for 84.0 per cent of all ships on order, which compares with 82.4 per cent in 1969. The share of countries in Southern Europe was 7.7 per cent and that of socialist countries of Eastern Europe and Asia 3.3 per cent; these percentages were respectively

7.0 and 4.3 in 1969. The share of developing countries amounted to 4.5 per cent which compares with 5.2 per cent in 1969.

47. Tankers of 150,000 dwt and over on order amounted to 65.5 million dwt, which is close to 50 per cent of the total tonnage on order; over 92 per cent of this tonnage will be registered in developed market-economy countries, in Liberia or in Panama. Only 1 per cent will be registered in developing countries.

48. Tankers of less than 150,000 dwt on order amounted to 11.7 million dwt, of which 14.4 per cent is to be registered in developing countries. Developing countries in Asia account for 10.7 per cent of the total tonnage, those in Africa for 0.7 per cent and those in Latin America and the Caribbean for 3.0 per cent.

49. Combined carriers on order totalled 20.0 million dwt, of which only 4.3 per cent was to be registered in developing countries (1.3 per cent in Asia and 3.0 per cent in Latin America and the Caribbean) while other bulk carriers on order amounted to 20.9 million dwt, of which 4.5 per cent were to be registered in developing countries (4.2 per cent in Asia and 0.3 per cent in Latin America and the Caribbean).

50. Container ships on order amounted to 3.8 million dwt, of which 1.7 per cent was to be registered in developing countries in Asia, but none in other developing countries.

51. There were 10.1 million dwt of dry cargo ships (excluding container ships and bulk carriers) on order of which 17.4 per cent was to be registered in developing countries (1.5 per cent in Africa, 7.8 per cent in Asia and 8.1 per cent in Latin America and the Caribbean). The tonnage on order of this type of vessel now accounts for only 7.7 per cent of the total tonnage on order.

¹⁸ The data used in this section have been obtained from *World Ships on Order*, No. 25, supplement to *Fairplay International Shipping Journal* (London, 26 November 1970); figures as at 31 October 1970.

Chapter III

ACQUISITION OF NEW AND SECOND-HAND SHIPS BY DEVELOPING COUNTRIES^{19,20}

52. Various aspects regarding the development and expansion of merchant marines in developing countries have already been analysed in a number of secretariat studies. Additions to and subtractions from the world fleets have been discussed in the UNCTAD secretariat's report entitled "Financing of the purchase of new and second-hand ships by developing countries"²¹ with respect to the year 1967 and in the *Review of Maritime Transport, 1968*²² with respect to the first half of the year

1968. The present chapter analyses the changes which occurred in the merchant fleets of developing countries during 1969. It is hoped to make this analysis a regular feature of the annual review and to widen its coverage by using complementary sources of information.

53. The composition of the world merchant fleet²³ at the end of 1968 and 1969 and the net changes in the fleet during 1969 are shown in table 11. Further details of the changes which took place during 1969 in the merchant fleets of developing countries, by type of ship, are shown in Table 12.

54. As at 31 December 1969, the world merchant fleet consisted of 18,668 vessels, totalling 189.7 million grt and 289.5 million dwt. Of this total, 2,020 ships were registered in developing countries, other than Liberia and Panama, with a total tonnage of 13.2 million grt and 19.0 million dwt; developing countries in Africa accounted for 196 ships aggregating 991,000 grt and 1,357,000 dwt, developing countries in Asia for 1,160 ships totalling 7.9 million

¹⁹ The classification of countries and territories is shown in annex I.

²⁰ This special chapter of the *Review* is provided in response to resolution 9(IV) adopted by the Committee on Shipping at its fourth session (Geneva, 20 April-4 May 1970) in which, *inter alia*: the Committee "Requests the UNCTAD secretariat to collect regularly information on the number and tonnage of new and second-hand ships sold to developing countries and make such information available through its annual *Review of Maritime Transport*". For the complete text of the resolution, see the report of the Committee on its fourth session, in *Official Records of the Trade and Development Board, Tenth session, Supplement No. 5 (TD/3/301)*, annex I.

²¹ TD/B/C.4/58 and Corr.1 and Add.1.

²² United Nations publication, Sales No.: E.69.II.D.16.

²³ 1,000 grt and over; see also note a to table 11.

TABLE 11
World ocean-going merchant fleets as at 31 December 1968 and 1969; net additions during 1969 —
seagoing steam and motor ships of 1,000 grt and over^a
(In number of ships, thousand grt and thousand dwt)

Flags of registration in groups of countries ^b	As at 31 December 1968			As at 31 December 1969			Net additions ^c during 1969		
	Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt
Developed market-economy countries, excluding Southern Europe	9,872	105,021	155,993	9,769	109,393	165,775	-103	4,372	9,782
Liberia, Panama ^d	2,236	32,149	53,150	2,317	35,730	60,776	81	3,581	7,626
Southern Europe	1,880	13,458	19,278	1,992	15,705	23,346	112	2,247	4,068
Socialist countries of Eastern Europe and Asia	2,344	13,504	17,487	2,447	14,360	18,653	103	856	1,166
Developing countries, excluding Liberia, Panama	1,963	12,078	16,995	2,020	13,247	18,987	57	1,169	1,992
of which:									
in Africa	168	899	1,246	196	991	1,357	58	92	129
in Asia	1,139	7,150	10,161	1,160	7,892	11,512	21	742	1,351
in Latin America and the Caribbean	655	4,027	5,585	662	4,358	6,091	7	331	506
in Oceania	1	2	3	2	6	9	1	4	6
Miscellaneous territories, ^b not classified (under United Kingdom administration)	134	1,298	1,969	123	1,274	1,952	-11	-24	-17
WORLD TOTAL	18,429	177,508	264,872	18,668	189,709	289,489	239	12,201	24,617

Source: United States Department of Commerce, Maritime Administration: *Merchant Fleets of the World as at December 31, 1968 and 1969*.

^a Excluding the U.S. Reserve fleet and ships operating exclusively on the Great Lakes and inland waterways and special types of vessels such as channel ships, icebreakers, etc. and merchant ships owned by any military force.

^b Countries are grouped as shown in annex I, except for United Kingdom Colonies which are shown by the source with combined tonnage under one entry; these are listed in the present table under "Miscellaneous territories".

^c Minus signs (-) indicate deductions.

^d These countries are shown separately, as a considerable portion of tonnage under these flags is owned by non-residents.

TABLE 12

Changes^a in the ocean-going merchant fleets of developing countries during 1969 — acquisition of new and second-hand ships per type of vessel and country of build or previous flag^b
(In number of ships, thousand grt and thousand dwt)

	All ships			of which:											
	No.	Grt	Dwt	Tankers			Bulk carriers			Freighters			Other ships		
	No.	Grt	Dwt	No.	Grt	Dwt	No.	Grt	Dwt	No.	Grt	Dwt	No.	Grt	Dwt
ADDITIONS	255	2,139	3,312	27	681	1,228	26	408	654	192	981	1,351	10	69	78
of which:															
New Deliveries	82	1,181	1,962	11	524	985	16	266	435	54	377	517	1	14	25
of which in:															
Asia	49	818	1,401	7	395	750	11	208	347	31	215	304	—	—	—
Africa	3	22	29	—	—	—	—	—	—	3	22	29	—	—	—
Latin America and Caribbean	29	336	525	4	128	235	5	58	88	19	135	178	1	14	25
Oceania	1	4	6	—	—	—	—	—	—	1	4	6	—	—	—
acquired from:															
Developed countries and Southern Europe	59	1,002	1,701	8	503	952	12	214	357	39	284	392	—	—	—
Socialist Countries	7	74	110	—	—	—	2	32	51	5	42	59	—	—	—
Own yards	16	105	151	3	21	33	2	19	27	10	51	66	1	14	25
Flag Changes	164	924	1,299	16	158	244	9	128	196	130	583	806	9	55	53
of which in:															
Asia	89	517	725	9	62	94	7	91	147	68	325	452	5	39	32
Africa	50	211	293	3	14	21	—	—	—	44	182	254	3	14	18
Latin America and Caribbean	25	196	281	4	82	129	2	37	50	18	75	100	1	2	3
Oceania	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
acquired from:															
Developed countries and Southern Europe	112	599	833	10	93	138	6	93	139	91	388	529	5	24	27
Other developing countries	52	325	466	6	65	105	3	35	57	39	195	277	4	31	27
Other additions ^c	9	34	51	—	—	—	1	14	23	8	20	28	—	—	—
DEDUCTIONS	-195	-1,003	-1,416	-17	-144	-215	-3	-27	-40	-161	-759	-1,104	-14	-74	-57
NET ADDITIONS ^d	60	1,136	1,896	10	538	1,014	23	381	614	31	222	248	-4	-5	21
of which in:															
Asia	22	736	1,263	10	416	782	14	270	451	-5	11	-17	3	39	47
Africa	28	91	123	-1	-26	-40	—	—	—	29	122	162	0	-4	1
Latin America and Caribbean	9	305	503	1	148	272	8	109	161	4	64	66	-4	-17	5
Oceania	1	4	6	—	—	—	—	—	—	1	4	6	—	—	—
OTHER NET ADDITIONS															
Liberia ^e	94	3,272	6,978	47	2,258	4,944	45	1,059	2,141	-2	-112	-151	4	67	44
Panama ^e	-13	209	648	11	389	740	3	33	69	-25	-109	-152	-2	-4	-9
Miscellaneous territories not classified (under United Kingdom administration)	-11	-24	-17	2	4	-2	2	35	61	-10	-33	-49	-5	-30	-23

Source: Compiled from data on tonnage additions and deductions which were made available to the secretariat by the United States Department of Commerce, Maritime Administration.

^a Minus signs indicate deductions.

^b See notes a and b to table 11.

^c Vessels acquired by the country concerned prior to 1969 but only reported as being in active oceangoing service during 1969.

^d The net additions shown in the present table exceed the corresponding entry in table 11 by 3 vessels, as a result of a discrepancy between the source material used; in the present table (and in annex II, table IV), one more vessel is shown as being registered in each of the following countries: Brazil, Colombia and Indonesia. There are also some discrepancies in the tonnage figures shown in both tables.

^e These countries are shown separately since a considerable portion of tonnage under these flags is owned by non-residents.

grt and 11.5 million dwt, while developing countries in Latin America and the Caribbean had registered 662 ships with a total tonnage of 4.4 million grt and 6.1 million dwt. Two ships were also registered in a developing country in Oceania, accounting for 6,000 grt and 9,000 dwt.

55. As at 31 December 1969, Liberia and Panama together had a total of 2,317 ships with an aggregate tonnage of 35.7 million grt and 60.8 million dwt. Another 123 ships with a total of 1.3 million grt and 1.9 million dwt were registered under the flags of Non-Self-Governing

Territories administered by the United Kingdom (including Bermuda, the Bahamas and Hong Kong).

56. As illustrated in table 12, during 1969, net additions to the merchant fleets of developing countries, other than Liberia and Panama, amounted to sixty vessels with a total of 1,136,000 grt (1,896,000 dwt). The net addition of sixty vessels to the total fleet resulted from the net additions of ten tankers (538,000 grt; 1,014,000 dwt); twenty-three bulk carriers (381,000 grt; 614,000 dwt) and thirty-one freighters (222,000 grt; 248,000 dwt) while there was a net deduction of four ships (5,000 grt; 21,000 dwt) in the category "Other ships." Of these net additions twenty-two ships (736,000 grt; 1,263,000 dwt) were registered in developing countries in Asia, twenty-eight ships (91,000 grt; 123,000 dwt) in developing countries in Africa and nine ships (305,000 grt; 503,000 dwt) in developing countries in Latin America and the Caribbean, while one ship was registered in a developing country in Oceania. The composition of these net additions, per type of ship, for each of these groups of developing countries is shown in table 12.

57. The net additions of sixty ships to the merchant fleets of the developing countries were the net result of total additions of 203 vessels (1,814,000 grt; 2,846,000 dwt) and deductions of 143 ships (678,000 grt, 950,000 dwt).²⁴

58. The total additions of 255 vessels were composed of eighty-two deliveries of new ships (1,181,000 grt; 1,962,000 dwt); 164 ships (924,000 grt; 1,299,000 dwt) were transferred from other flags, while nine vessels were added to the active seagoing fleets acquired prior to 1969.²⁵

59. Of the eighty-two deliveries of new ships, forty-nine (818,000 grt; 1,401,000 dwt) were registered in developing countries in Asia, three (22,000 grt; 29,000 dwt) in developing countries in Africa and twenty-nine (336,000 grt; 525,000 dwt) in developing countries in Latin America and the Caribbean. One ship was acquired by a developing country in Oceania. The composition, per type of vessel, of the new deliveries was as follows: eleven tankers (524,000 grt; 985,000 dwt), sixteen bulk carriers (226,000 grt; 435,000 dwt), fifty-four freighters (377,000 grt; 517,000 dwt) and one other ship.

60. Of the 164 second-hand ships acquired, eighty-nine (517,000 grt; 725,000 dwt) were registered in developing countries in Asia, fifty (211,000 grt; 293,000 dwt) in

developing countries in Africa and twenty-five (196,000 grt; 281,000 dwt) in developing countries in Latin America and the Caribbean.

61. The new and second-hand ships acquired by the developing countries were obtained from the following groups of countries²⁶ of origin: of the eighty-two new deliveries, fifty-nine (1,002,000 grt; 1,701,000 dwt) were obtained from developed market-economy countries or from countries in Southern Europe,²⁷ seven (74,000 grt; 110,000 dwt) were acquired from socialist countries of Eastern Europe and Asia and sixteen (105,000 grt; 151,000 dwt) were built within the developing countries where the vessel was later registered.²⁸ Developing countries did not acquire any new buildings originating in other developing countries. With respect to the origin of the 164 second-hand ships, 112 (559,000 grt; 833,000 dwt) were obtained from developed market economy countries or from countries in Southern Europe, while fifty-two (325,000 grt; 466,000 dwt) were acquired from other developing countries. No second-hand ships were acquired by developing countries from socialist countries of Eastern Europe and Asia.

62. Of the 195 ships which were eliminated from the active seagoing merchant fleets of developing countries, 102 (548,000 grt; 784,000 dwt) were scrapped, twenty-six (115,000 grt; 170,000 dwt) were reported as losses and casualties and sixty-seven (340,000 grt; 462,000 dwt) were transferred from the flags of developing countries to other countries.²⁹

63. Net additions to the merchant fleet of Liberia amounted to ninety-four vessels (3,272,000 grt; 6,978,000 dwt) which were practically entirely composed of oil tankers and bulk carriers. Although there was a net reduction of thirteen ships in the merchant fleet of Panama, aggregate tonnage increased during the year by 209,000 grt (648,000 dwt). There was also a reduction of eleven ships in the fleets of a number of miscellaneous territories (administered by the United Kingdom), not specified, but some of which are developing countries or territories.

64. A breakdown of the changes indicated above into various types of ships, according to groups of countries and territories, is presented in table 12; further details regarding the changes per country are shown in annex II, table IV.

²⁶ See annex I for the composition of groups of countries and territories used.

²⁷ All countries which are members of OECD and are also signatories to the "Understanding on Export Credits for Ships" signed in May 1969 come within this country grouping. (For the text of the Understanding see the report by the UNCTAD secretariat, "Financing of the purchase of new and second-hand ships by developing countries" (TD/B/C.4/58), appendix III.)

²⁸ Two in Argentina, eleven in Brazil, one in the Republic of China and two in India.

²⁹ Of which fifty-two were acquired by other developing countries.

²⁴ In table 12, total additions are shown as 255 vessels and deductions as 195 because both figures in this table include fifty-two ships which were transferred between developing countries; for tonnages and the composition of these vessels by type of ship, see table 12: "Additions" "flag changes"; acquired from "Other developing countries."

²⁵ See note c to table 12; most of these ships were acquired during 1968 but were only reported to be in active oceangoing service during 1969.

THE PRODUCTIVITY OF SHIPPING SPACE

65. The profound changes which are currently taking place in the design, size and speed of ships as well as in the handling methods and equipment used for loading and unloading cargo have a considerable effect on the efficiency of ocean transport tonnage. The productivity of shipping space may be evaluated by the number of ton/miles of cargo carried by one dwt used.

66. The number of ton/miles performed per dwt of bulk carrier³⁰ tonnage available between 1960 and 1969 is shown in table 13, while table 14 shows the annual rates of increase of ton/miles of bulk cargoes carried and of bulk carrier tonnage; tables 15 and 16 show similar information for tanker tonnage.

TABLE 13
Bulk carriers: ton/miles of bulk commodities carried by dwt, 1960-1969^a

Year	Thousand million ton/miles of bulk commodities carried in bulk carriers ^{b c}	World bulk carrier fleet in million dwt ^d	Ton/miles of bulk commodities carried by dwt	
			Thousand ton/miles	Index (1960 = 100)
1960.....	122	4.1	29.8	100
1961.....	180	5.3	34.0	114
1962.....	261	7.9	33.0	111
1963.....	370	11.1	33.3	112
1964.....	530	14.7	36.1	121
1965.....	678	18.0	37.7	127
1966.....	927	24.1	38.5	129
1967.....	1 303	33.2	39.2	132
1968.....	1 797	44.0	40.8	137
1969.....	2 196	53.3	41.2	138

Source: Fearnley and Egers Chartering Co. Ltd., *Trades of World Bulk Carriers in 1969* (Oslo, 1970).

^a Owing to changes in definitions, this table is not comparable with the corresponding table in the 1968 *Review* (see *Review of Maritime Transport 1968* (United Nations publication, Sales No.: E.69.II.D.16), table 16).

^b Excluding bulk shipments in vessels of less than 18,000 dwt.

^c Excluding oil cargo and cars when shipped in bulk carriers of the combined types 1960-1964; including oil cargoes in combined carriers from 1965. The exclusion of oil cargoes in the earlier period does not represent an important distortion of the series in view of the small volume of such shipments by combined carriers before 1966 (5 million tons of oil in 1965 compared with 171 million tons of dry bulk cargo); the increase of ton/miles per dwt would only be reduced by a few percentage points.

^d Vessels of 18,000 dwt and over, mid-year figures.

67. Table 13 shows that the ton/miles of bulk commodities carried per dwt of available tonnage increased from 29,800 in 1960 to 41,200 in 1969, an increase of 38 per cent over the ten-year period.

³⁰ Seagoing dry cargo single-deck ships (including ore, ore/oil, bulk/oil and bulk/car carriers) of 18,000 dwt and over.

68. Factors contributing to the increases in productivity may be found in the higher average speed of vessels and in a lengthening of the average voyage as well as in the shorter turnaround time of ships due to improved handling at the ports. The rapid increase in the volume of minor dry bulk commodities carried by bulk carriers, a development which gained momentum particularly from 1963/64 onwards, may also be a contributing factor. Such commodities accounted in 1960 for less than 1 per cent of total volume but increased to 19 per cent of total ton/miles in 1968.³¹

69. The increase in productivity of bulk carrier tonnage between 1960 and 1969 is also illustrated in table 14, which shows that the annual rates of increase in ton/miles per dwt of bulk cargoes carried have been greater than the annual rates of increase in bulk carrier tonnage in every year shown except 1962.

TABLE 14
Annual rates of increase^a of ton/miles of bulk cargoes^b carried and of bulk carrier^c tonnage
(Percentages)

Year	Bulk cargo (ton/miles carried)	Bulk carrier (tonnage)
1961.....	48	29
1962.....	45	49
1963.....	42	41
1964.....	43	32
1965.....	28	22
1966.....	37	34
1967.....	41	38
1968.....	38	33
1969.....	22	21

Source: table 13.

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

^b In vessels of over 18,000 dwt, excluding oil cargoes transported by combined carriers 1960-1964; including such cargoes from 1965; see footnote c to table 13.

^c Vessels of 18,000 dwt and over; mid-year figures.

70. The increase in productivity of oil tankers between 1960 and 1969 is illustrated in table 15, which shows the ton/miles of oil carried in relation to the total and in relation to the active tanker fleet, respectively, and in table 16, which shows the annual rates of increase of ton/miles of oil carried in comparison with the annual rates of increase of active oil-tanker tonnage.

³¹ Source: Fearnley and Egers Chartering Co. Ltd., *Trades of World Bulk Carriers in 1968* (Oslo, 1969).

TABLE 15
Oil tankers: ton/miles of oil carried per dwt, 1960-1969

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	Index (1960=100)	Active fleet (estimated)	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
1968	10 629	112.6	112.4	94.4	150	94.6	138
1969	11 982 ^d	127.0	126.8	94.4	150	94.5	137

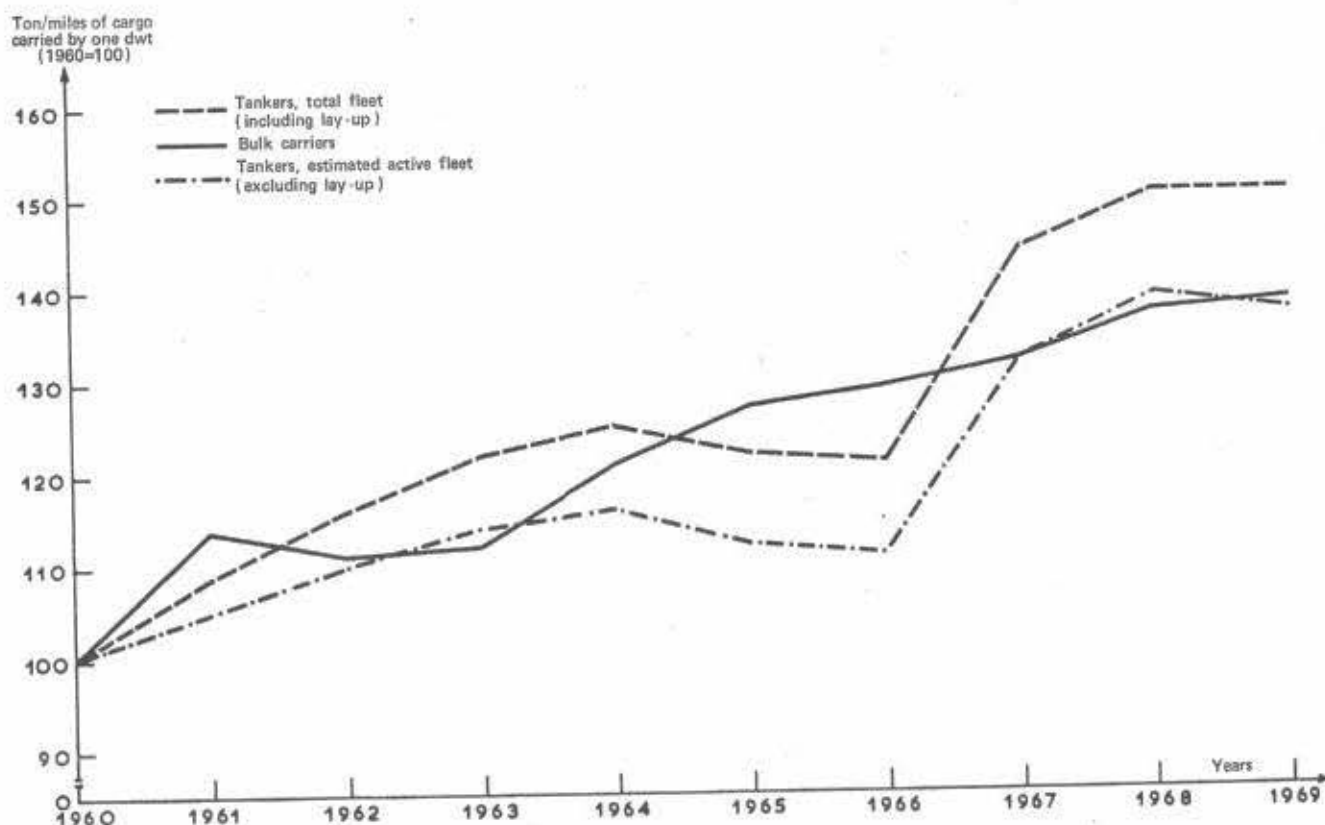
^a Data from British Petroleum Co. Ltd. It has not been possible to obtain ton/mile figures for shipments of grain by oil tankers; hence, the figures presented in the table above cannot be interpreted as providing a global estimate of the productivity of tankers.

^b See table 4; mid-year figures, vessels of 300 grt and over.
^c Excluding tonnage laid up (lay-up figures were estimated by applying a conversion factor to lay-up statistics expressed in grt).
^d Provisional estimate.

71. With respect to the active tanker fleet, ton/miles of oil carried per dwt increased from 68,800 in 1960 to 94,500 in 1969; these figures were respectively 63,000, and 94,400 for the total tanker fleet. A comparison of the data for the total fleet and for the active fleet indicates clearly

that there has been a considerable decrease in unproductive tonnage during this period. As there was practically no laid-up tanker tonnage during 1969, the figure for ton/miles of oil carried in relation to the active fleet and in relation to the total fleet have become almost identical.

GRAPH 1
Ton/miles of cargo carried by one dwt, tankers and bulk carriers, 1960-1969



Source: tables 13 and 15.

72. These developments are also reflected in graph 1, which shows more clearly the relationship between the ton/miles of cargo carried by one dwt of bulk carrier and by one dwt of tanker tonnage (active and total fleets); for this graph, the original data have been converted to an index with base year 1960 = 100.

TABLE 16
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
1968.....	15	10
1969.....	13	13

Source: table 15.

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

73. It should be observed that the figures of ton/miles per dwt of cargo carried by bulk carriers and tankers, respectively, as shown in tables 13 and 15, are not strictly comparable, as voyages in ballast are included in the tanker fleet mileages. Tanker fleet ton/mileage figures in "laden" condition would be about one half of the figures shown and would therefore also reduce to about one half

the ton/mileage figures per dwt. The indices shown in table 15 would not, however, be affected by this factor, as the proportion of ballast voyages is unlikely to have changed significantly over the period. In the next issue of the *Review*, a different approach will be used, based on a different set of data to indicate trends in the productivity of shipping space; for this reason this issue has not been revised in a manner which would indicate the productivity of tanker tonnage based on ton/miles figures minus ballast voyages.

74. As the trend towards the use of larger and faster ships is still continuing³² it may be expected that the number of ton/miles carried per deadweight ton, both in the bulk carrier and tanker fleets, will continue to rise at least for some years in the future. In particular, the addition to the bulk carrier fleet of the very large crude carriers and ore/bulk/oil ships now on order³³ should have a direct impact on productivity levels. The same may be said about the forthcoming addition of the considerable number of oil tankers in the 200,000 dwt and above category which are now on order or under construction.³⁴

75. The higher productivity of bulk carriers and tankers also reflects the ratios of dwt to grt, as a greater dwt/grt ratio indicates that a larger proportion of vessel space can be effectively utilized for the transport of cargo. With respect to tanker tonnage, for instance, the dwt/grt ratio for the world tanker fleet as a whole increased from 1.54 in 1960 to 1.72 in 1970.³⁵

³² See chapter V.

³³ See chapter II.

³⁴ *Ibid.*

³⁵ See table 4.

Chapter V

TRENDS IN SHIPBUILDING

76. Some mutually reinforcing trends have been observed during the post-war period and, more particularly, during the last decade in the growth in international trade and in developments in ocean shipping. On the one hand, the rapid increase in international oceanborne trade has boosted demand for shipping services and led to a rapid expansion of the world merchant fleet.³⁶ As a result, shipbuilding order books have become full for two years or more ahead, while the prices of ships have risen very sharply. At the same time, the growing diversity of cargoes to be carried and the new demands which confronted the carriers have led to the building of larger, faster and more specialized³⁷ ships as well as to improvements in handling techniques. The improved technology in ocean transport has diminished the cost per ton/mile of carriage, a development which has been particularly noticed with respect to oil and bulk cargo movements, whereas freight rates have remained at a high level during the last year due to buoyant demand conditions. On the other hand, the decrease in costs of and improvements in the ocean shipping services provided have considerably diminished the importance of distance in the organization of world production and have also made ocean transport services available for a larger number of products.

77. Developments in shipbuilding, although mainly responding to the needs of the trades served, may thus by themselves have an important impact on the types and quantities of goods carried as well as on the direction of the trade flows. Furthermore, the prevailing trends in the size and other characteristics of new ships being built are of special interest to all trading nations, since the development of their external trade may to a large extent depend on their ability to accommodate the newly built merchant vessels. Since most shipbuilding takes place in developed market-economy countries, it is of the utmost importance for the developing countries to be informed and to follow closely the developments in the world shipbuilding industry.

78. Some developments in the world shipbuilding industry, particularly as regards new types of services available and the general trend to increase the size of ships, are discussed below, according to principal types of vessels.

³⁶ See chapters I and II above.

³⁷ Such as container ships, liquefied gas carriers, etc. As highly specialized vessels are more vulnerable to unemployment when demand for the specialized service slackens, the opposite tendency to build more versatile carriers (e.g. ore/bulk/oil carriers, bulk/container carriers, etc.) is also manifest and is becoming stronger with the trend towards the building of larger vessels, since the costs of unused capital equipment are rising and owners are paying more attention to securing maximum employment for the vessels.

(a) Oil tankers³⁸

79. Between 1969 and 1970 (mid-year figures) the existing world tanker fleet increased by fifty-eight units of which fifty-six fall in the size group of 200,000 dwt and over. Within this size group, fifty-three ships fell in the 200,000/249,999 category while one vessel had a capacity, of over 300,000 dwt.

80. With respect to tonnage on order as at 30 June 1970, out of a total of 409 tankers, 111 fell in the 200,000/249,999 dwt category, ninety-five in the 250,000/299,999 dwt group and nine were of over 300,000 dwt. More than half (215 out of 409) of the total number of tankers on order thus fell in the over 200,000 dwt group; it is noteworthy, however, that out of the total of 63,022,000 dwt of tonnage on order, 52,607,700 dwt or 83.4 per cent were accounted for by the tankers in this group.

81. The relative changes within the over 200,000 dwt group of vessels on order clearly illustrate that the trend towards larger tankers is still continuing. In comparison with the previous year, the number of tankers ordered in the 200,000/249,999 dwt group decreased by twenty, but thirty-nine more tankers were ordered in the 250,000/299,999 dwt group and four more in the over 300,000 dwt group. A super tanker of 477,000 dwt has been ordered from a Japanese shipyard³⁹ and is to be delivered in 1973; this will be the largest tanker afloat at the time of delivery.⁴⁰

82. It has been suggested that the development of port facilities is not keeping pace with the servicing needs of the larger tankers. By the end of 1970, for instance, there were still only ten or twelve European ports capable of accommodating fully laden vessels in the 200,000 dwt class, while still fewer ports can handle the larger sizes⁴¹ of which a considerable number are now on order. In this

³⁸ This discussion is based mainly on data from John I. Jacobs and Company Ltd., *World Tanker Fleet Review, 31st December 1969* (London, Lestadon Press Ltd.), and *World Tanker Fleet Review, 31st December 1970*.

³⁹ See *Zosen* (Tokyo), November 1970.

⁴⁰ The same shipyard has also announced that it has asked Government permission to build a second super tanker, but details about the exact tonnage were not specified. (See *Journal de la marine marchande et de la navigation aérienne* (Paris, 19 November 1970), p. 2913.)

⁴¹ Bantry Bay (Ireland) can accommodate fully laden tankers of over 300,000 dwt and plans were announced for an outer port near Hambourg for ships of up to 350,000 dwt. Le Havre can accommodate vessels of 250,000 dwt and plans for an additional berth to handle 500,000 dwt vessels. (*Petroleum Press Service* (London, February 1970).)

connexion, it appears that a certain stability has been reached in respect of the size of the next generation of tankers, which will mainly be in the 200/250 thousand dwt category. The use of much larger vessels at the present time would probably lead to an increase in total costs outweighing the decrease which could be realized from the economies of scale of larger vessels, in view of the associated increases in terminal costs which would result from the lack of appropriate handling facilities.

(b) *Liquefied-gas carriers*

83. As at 1 July 1970, the world fleet included 288 liquefied-gas carriers with a combined tonnage of 1,342,605 grt,⁴² an average of 4,686 grt per vessel. Although precise figures for previous years are not available, it is known that this fleet has expanded considerably during the last five years. Among these liquefied gas carriers, there are at present only eleven highly specialized methane tankers especially built for carrying liquefied natural gas; they have a combined capacity of 392,423 cubic metres,⁴³ an average of 35,675 cubic metres per vessel.

84. Liquefied natural gas is becoming increasingly important as an additional source to meet the rapidly expanding energy requirements of the industrialized world. In 1950, natural gas accounted for about 10 per cent of world energy consumption, but since then this share has doubled and is expected to reach close to 25 per cent in 1975.⁴⁴ Furthermore, the main consumption centres (the United States of America, Western Europe and Japan) lack the reserves required to meet the rapidly expanding demand⁴⁵ and it may therefore be expected that world trade in natural gas will increase very rapidly during the next decade.⁴⁶ Although a large portion of this trade will move overland through pipelines, this mode of transport is not generally feasible as some of the major areas—such as North Africa, the Middle East and Alaska—are separated from the large consuming centres of the United States, Western Europe and Japan by oceans.⁴⁷ It is

expected, therefore, that the demand for gas tankers will increase rapidly during the next decade.

85. The large methane tankers in service in June 1970 were reported to be operating on the following routes.⁴⁸ Algeria - United Kingdom; Algeria - France, Alaska - Japan and Libya - Italy/Spain. The liquefied natural gas carriers under construction or on order in June 1970 are expected to be used on the following routes: Algeria - United States of America, Algeria - France and Brunei - Japan.⁴⁹

86. As at June 1970, there were another fifteen liquefied natural gas carriers on order or under construction with a total combined capacity of 1,157,600 cubic metres, an average of 77,173 cubic metres; at least twelve of these were scheduled to be delivered before 1975. It is furthermore expected that as many as seventy liquefied natural gas carriers will be operating by 1980.⁵⁰

87. There has also been a rapid increase in the average size of liquefied natural gas carriers. The first two of these vessels delivered in 1964 had a capacity of 27,400 cubic metres while all liquefied natural gas carriers at present on order and those to be delivered after 1972 have a capacity of 75,000 cubic metres or more; the largest of these has a capacity of 120,000 cubic metres. However, it has been reported⁵¹ that ships with 200,000 cubic metres capacity are already being studied.⁵² For purposes of comparison, it is noteworthy that a methane tanker with a capacity of 75,000 cubic metres is roughly equivalent in size to an oil tanker of 100,000 dwt.

(c) *Combined carriers*⁵³

88. There has been a remarkable increase in combined carrier tonnage during the more recent period, and this trend has continued during last year. Between 1969 and 1970 (mid-year figures) thirty-four combined carriers were added to the world fleet with a total capacity of 3,338,500 dwt. As at 30 June 1970, the world fleet comprised 204 combined carriers with a total tonnage of 13,933,000 dwt; this amounts to approximately one tenth of present world tanker tonnage. Although the largest part of the combined

⁴² See *Lloyd's Register of Shipping Statistical Tables*, 1970.
⁴³ See *Petroleum Press Service* (London, June 1970), p. 205.
⁴⁴ See *Journal de la marine marchande et de la navigation aérienne* (Paris, 5 November 1970, p. 2791).
⁴⁵ In the United States, natural gas consumption is reported to be growing at a rate, at which even assuming no increase in the 1968 level of production, proved reserves will last for only about fourteen years. (See *Petroleum Press Service* (London, June 1969, p. 205).) The possibility of discovering new reserves either on land or offshore should of course be kept in mind, as well as the possibility of a switch to other energy sources, particularly nuclear power plants.

⁴⁶ The transportation of liquid natural gas is at present a captive industry, the vessels being the link between a liquefaction plant at the production site and a deliquification plant at the distribution end, the liquefaction process making its economic transportation feasible. A rapid increase in the trade in this product may, however, lead to independent shipowners acquiring methane tanker tonnage and offering these vessels for chartering on the open market.

⁴⁷ In addition, pipelines may have to cross a number of national boundaries or may be partly located in politically unstable areas, so that the regularity of supply cannot be sufficiently ensured either by the producing or consuming countries. The vulnerability of trunk pipelines has been particularly demonstrated by the difficulties experienced with the Trans Arabian Pipeline (TAP) during recent years.

⁴⁸ The discovery of new reserves or a speed-up in production from already proved reserves may rapidly change the grid of present world trade routes. The largest proven reserves are at present reported to be in the USSR although half of the total is located in Western Siberia and extremely difficult to exploit in view of geographic and climatic conditions. New technological discoveries could, however, make these reserves much more easier accessible which could lead to a rapid increase in production and exports from this region.

⁴⁹ *Petroleum Press Service* (London, June 1970).

⁵⁰ *Ibid.*, p. 204.

⁵¹ *Petroleum Press Service* (London, June 1970).

⁵² Besides increases in size, other significant technological improvements have been realized. The first types of natural gas tankers, built in 1964, had self-supporting aluminium and nickel steel tanks; the second generation was built with membrane tanks of thin plating of high quality nickel steel encased in heavy insulation and supported by the hull of the ships, a construction which allowed for a better utilization of cubic capacity; the third generation of methane tankers now under construction in Norway have spherical tanks of a novel design, which are said to be superior to, and safer than, the membrane nickel steel tanks. (*Norwegian Shipping News*, (Oslo, 18 September 1970).)

⁵³ For the sources of data on combined transport, see footnote 38.

carrier fleet consists of ore/oil carriers, the number of ore/bulk/oil carriers in service has risen very rapidly from six vessels in January 1966 to more than ten times this figure in 1970.⁵⁴

89. There were 117 combined carriers on order as at 30 June 1970 with a combined capacity of 16,702,100 dwt; one year earlier, only eighty-eight such vessels were on order.

90. The trend towards increasing sizes of buildings is particularly noticeable in the combined carrier fleet, as the average size of vessels rose from 45,158 dwt in 1967 to 68,300 dwt in 1970; the average size of vessels at present on order is 142,752 dwt. Following the trend in the tanker market, an increasing number of combined carriers are being ordered in the over 200,000 dwt category. As at 30 June 1969, eight such vessels were on order, whereas one year later the number had risen to nineteen, the largest being 270,000 dwt. It should be observed, however, that combined carriers on order in the over 200,000 dwt category are all ore/oil carriers; the largest ore/bulk/oil carrier on order is 166,700 dwt.

91. Although the capital cost of a combined ore/bulk/oil carrier may be about 15 per cent⁵⁵ higher than that of a bulk carrier of comparable size, the increase in earnings which may be obtained as a result of the flexibility of such a vessel may raise the profitability of the ship. The flexibility of combined carriers may be seen in two ways. First, the vessel may be used for certain periods of time in transporting either bulk cargoes or oil, depending on the freight rate levels in each market. Second, the carriers may be engaged on a more or less continuous basis in the transport of both commodities, i.e. in combination trading. As the distance travelled in ballast by oil tankers has traditionally been about equal to the distance travelled in loaded condition, the carriage of bulk cargo on the return trip may considerably reduce the costs of transport per ton of cargo carried.

92. In this connexion, it has been reported that sizable iron-ore purchases have recently been made by Japan in Canada, Brazil and Sweden, which will be transported in combined carriers with Persian Gulf oil being lifted on the return leg.⁵⁶ From available information about the Brazilian ore freight agreement, it has been suggested that, with combination trading,⁵⁷ the iron-ore shipping costs per ton could be reduced from \$3.25, with return in ballast, to \$2.25, a reduction of 30.8 per cent.

(d) Ore and bulk carriers

93. Between 1965 and 1969 (mid-year figures), the number of ore and bulk carriers⁵⁸ in the world merchant

⁵⁴ *The Motor Ship* (London, August 1970).

⁵⁵ See United Kingdom Board of Trade, *Committee of Inquiry into Shipping: Report* (Rochdale Report), (Cmd. 4337, London, H.M. Stationery Office, 1970), p. 139.

⁵⁶ F. J. Roberts, "Reducing ocean shipping costs through combination trading", paper delivered at the Ninth International Symposium, Montreal, June 1970.

⁵⁷ *Ibid.*

⁵⁸ Vessels of 6,000 grt and over, including combined ore/oil and ore/bulk/oil carriers. (*Lloyds Register of Shipping Statistical Tables.*)

fleet increased from 1,403 to 2,378, i.e. by 69 per cent; the total tonnage of these vessels, however, increased from 18,757,217 grt to 41,791,549 grt, i.e. by almost 123 per cent; the average size of this type of vessel thus increased from 13,369 grt to 17,574 grt during the period considered.

94. The trend towards increasing sizes of ore and bulk carriers in service continued during the past year. As at 1 July 1970, the world fleet included 2,528 such vessels with a combined tonnage of 46,651,755 grt (76,275,941 dwt), an increase of 6.3 per cent in the number of vessels and of 11.6 per cent in tonnage (grt) over last year, the average size of vessels was 18,454 grt (30,172 dwt), an increase of 5.0 per cent over last year.

95. The record of ships on order⁵⁹ shows that the trend towards larger vessels is still continuing. In 1970, there were 482 bulk carriers on order with a combined tonnage of 18,876,674 dwt, an average of 39,163 dwt per vessel. In addition, 116 combined ore/oil and ore/bulk/oil carriers were on order with a total of 16,347,718 dwt, an average of 140,929 dwt. The over-all average size of bulk carriers and combined vessels in 58,903 dwt, which is 95 per cent higher than the average size of this type of vessels now in service; the largest bulk carrier on order at the end of September 1970 will have a capacity of 252,000 dwt.⁶⁰

(e) Container vessels

96. There has been a rapid expansion during the 1960s in the number of container vessels in service. As at 1 July 1970, the world fleet included 167 fully cellular container ships with a combined tonnage of 1,907,801 grt, an average of 11,424 grt per vessel. Included in these are a considerable number of ships engaged on short sea trade routes between highly industrialized areas, which are more effectively served by frequent sailings of smaller vessels.

97. On the high sea routes, however, the tendency towards larger ships may be observed also with respect to this type of vessels. The full container ships which inaugurated the container services across the Pacific in 1967 had a capacity of 750 containers and a speed of 21 knots; the container ships to be placed on the Japan/Europe route will have a capacity of 1,750 containers and a service speed of 26 knots.⁶¹ Furthermore, orders have been placed for full container ships which will be used on the North Atlantic route with a capacity of 1,100 large containers (35 and 40 feet) and with a speed of 33 knots.⁶²

98. As at 31 July 1970, 180 container ships were on order, with a combined capacity of 3,636,020 dwt, an average of 20,200 dwt per vessel.

(f) Nuclear-propelled merchant vessels

99. Trials are at present being conducted with the first nuclear-propelled ship of the Federal Republic of Germany; the first nuclear-propelled ship of Japan was

⁵⁹ As at 31 July 1970. (*Fairplay International Shipping Journal* London, 27 August 1970.)

⁶⁰ See Rochdale report, p. 137.

⁶¹ See *Zosen* (Tokyo, November 1970), p. 21.

⁶² See OECD, *Maritime Transport 1969: A study by the Maritime Transport Committee* (Paris, 1970), para. 142.

launched in 1969 and is scheduled for final completion in 1972. Construction of a nuclear-propelled ship was also expected to begin in 1970 in Italy. Besides the United States of America and the above-mentioned countries, no other nations have yet announced plans for the operation of nuclear-propelled merchant vessels. It would seem that, although valuable experience may be gained from the operation of these ships, the technical and practical knowledge required for the development of economically viable nuclear-propelled merchant vessels will not be obtained within the near future.^{63 64}

(g) *The relationship between vessel size and costs*

100. There is a direct relationship between the size of ships used and the costs of transportation incurred per ton of cargo moved. Indeed, although the effects of the size of vessels employed on the total cost per ton of cargo moved are influenced by the characteristics of the trade routes involved and therefore differ considerably from one trade route to another, it is clear that considerable economies of scale can be realized by increases in the size of ships. Per cargo ton capacity, both capital costs and operating costs decrease as vessel size increases.

⁶³ The advantages and problems of nuclear-propelled ships have been analysed in a recent article by Mr. Leslie Boxer, Head of the Technical Division of the OECD European Nuclear Energy Agency, published in the *OECD Observer*, No. 48 (Paris, October 1970), p. 27.

⁶⁴ A symposium covering the technical, legal and economic aspects of nuclear ships will be held in Hamburg, between 10 and 15 May 1971; it will be organized under the sponsorship of IAEA, IMCO and the Government of the Federal Republic of Germany, and with the co-operation of other interested organizations.

101. Broadly speaking, the cost per ton/mile of carrying oil in a tanker of over 200,000 dwt is less than one third that of carrying it in a 20,000 dwt vessel⁶⁵ and this is mainly due to savings on capital and crew costs. Whereas the capital cost of a vessel of 200,000 dwt is about £30 per dwt, that of a 20,000 dwt vessel is about £90 per dwt; furthermore, the larger vessel does not require a proportionately larger crew.⁶⁶ With respect to bulk carriers, it has been suggested that, in particular instances, the saving from the use of very large bulk carriers, as compared with average sized general purpose tramps, can be as high as 75 per cent.⁶⁷

102. It appears that further increases in the size of vessels, especially of oil tankers, will for the present be limited as a result of a number of factors. In particular, the lack of adequate and appropriate port facilities on the major trade routes will put a limit on the net economies which may be obtained from increasing vessel size. However, other considerations, such as safety requirements⁶⁸ and antipollution legislation, may also have a considerable influence.

103. The introduction and subsequent development of, and experience with, container ships, ore/oil carriers and barge-carrying systems are so recent that definite trends can hardly be established, particularly as regards the operational costs of these vessels.

⁶⁵ See Rochdale Report, p. 155.

⁶⁶ *Ibid.*

⁶⁷ *Ibid.*, p. 138.

⁶⁸ These have assumed particular prominence since the explosions which took place on three very large tankers in 1969.

Chapter VI

FREIGHT MARKETS

(a) General discussion

104. There has been a very marked upward movement in ocean freight rates during the past year. This movement was manifested by high levels of charter rates, which prevailed towards the end of 1969 and practically all through 1970, as well as by increases in liner freight rates which were announced by the conferences and shipping lines and which were to take effect mainly during the second half of 1970 and the first half of 1971.

105. With respect to liner freight rates, increases of generally between 10 and 15 per cent were announced by all major conferences; a rapid rise in operating and port costs was most often indicated as justification for these increases.

106. As many of the announced increases affect trade routes of developing countries, they are a matter of great concern to these countries since the transport costs of their trade may be raised considerably. Furthermore, a number of conferences have pointed out that, unless costs stabilize in the very near future, still further rate increases may have to be expected in 1971.

107. The extent of the increases in liner freight rates which were announced during 1970, and their effective dates, are set out below.^{69 70}

⁶⁹ The announced rate increases are general; in a few cases, however, exceptions for certain types of cargo are provided for. In some cases, the increase is to take place in two stages at successive dates as shown.

⁷⁰ It is believed that the list, although not exhaustive, is representative of the increases announced during 1970.

<i>Conference and/or trade route</i>	<i>Percentage increase</i>	<i>Effective date</i>
Australian Northbound Shipping Conference (from Australia to Japan, Hong Kong and other Far East centres)	7 ½	1 April 1970
Malaya - New Zealand (Straits - New Zealand Direct Conference)	7 ½	1 April 1970
United Kingdom and Continental ports - Ceylon	15	15 July 1970
United Kingdom - India/Pakistan Conferences (from United Kingdom and Continental ports)	15	15 July 1970
	15	15 March 1971
Conference of Malta and Alexandria Steamship companies (from ports in the United Kingdom to Malta, North Africa, Cyprus, Lebanon, Syria and South Turkey)	(approx.) 15	1 August 1970
United Kingdom and Portugal Liner Conference	(approx.) 10	1 August 1970
United Kingdom and Continental ports to Australia	12 ½	15 September 1970 ^a
	12 ½	1 March 1971
	12 ½	end October 1970
Australia - Africa	12 ½	
New Zealand - European Shipping Association (from Europe to New Zealand)	5	1 October 1970
	12 ½	1 February 1971
Conference of Gibraltar and Morocco Steamship companies (from the United Kingdom to Casablanca)	(approx.) 15	1 October 1970
Europe to Nassau, Freeport and Bahamas	10	2 November 1970
Ceylon/Straits/China Japan (Rate) Agreement	7 ½	1 December 1970
United Kingdom to Aqaba ^b	10	1 January 1971
United Kingdom and Continental ports to Papeete, Port Vila, Noumea and Santo (Compagnie des Messageries Maritimes)	(approx.) 10	1 January 1971
Red Sea and Gulf of Aden - U.S. Atlantic and Gulf Rate Agreement	15	1 January 1971
West Coast of India and Pakistan - United States Conference	10	1 January 1971
Inter-American Freight Conference ^c (from United States Atlantic and Gulf ports to Brazil, Uruguay, Argentina and Paraguay (Southbound))	17	1 January 1971

Conference and/or trade route	Percentage increase	Effective date
Calcutta, East Coast of India and East Pakistan - U.S. Conference	10	11 January 1971
Far Eastern Freight Conference, and associated conferences (United Kingdom and Continental ports to and from the Far East) ^d	(approx.) 10	1 February 1971
United Kingdom - Sudan Conference Lines ^e	(approx.) 15	1 February 1971
United States - South and East Africa Conference	(approx.) 10	1 February 1971

Sources: Press announcements as reported in *Lloyd's List* (London) or *Journal of Commerce* (London and Liverpool).

- ^a Increase not applicable to shipments of motor cars and spare parts.
- ^b Cape deviation surcharge continuing at the existing level of 50 per cent.
- ^c The present loading surcharge of \$3 per ton will be absorbed by the new rate.
- ^d The Suez surcharge remaining at the existing level of 7.5 per cent.
- ^e Cape deviation surcharge remaining at the existing level.

108. In the dry cargo time charter market, there was a large increase in the level of charter rates as compared to the previous year. The dry cargo freight boom which started towards the end of 1969 has been attributed largely to very extensive Japanese chartering, which, however, ended quite abruptly in October 1970 when Japanese charterers almost completely withdrew from the market.

109. Tanker charter rates were also maintained at a very high level during 1970; there was, furthermore, a strong upward trend during the year. The average of the monthly indices of tanker trip charters for the first ten months of 1970, for instance, was 93 per cent higher than the average for the previous year (Inta-scale⁷¹ = 100). Expectations towards the end of the year seemed to be that tanker rates would be maintained at a high level for a considerable time to come, although tanker tonnage was more easily available than earlier in the year. It should be kept in mind, however, that events in the world oil industry may rapidly change conditions in the tanker market. A possible re-opening of the Suez canal, actions by the petroleum exporting countries in the Middle East to ensure a greater participation in world production, and political developments in general, particularly in the Middle East area, may have profound repercussions on this market.

110. With respect to developments in the tanker market, it should be noted that there has been a very rapid increase in the number of combined carriers during the more recent period, which has greatly accentuated the interdependence of the dry cargo and tanker markets. The increase in combined carrier tonnage should normally have the effect of easing the strain both on the dry cargo and on the tanker market, as tonnage can be shifted from one market to the other according to demand conditions and charter rates existing or expected in each market. However, as there has been a strongly sustained demand over a considerable period, both for dry cargo and for tanker tonnage, the increased availability of the flexible tonnage of combined carriers has not, for the time being, prevented charter rates from rising in both markets.

(b) Freight rate indices

111. A considerable number of indices are available to indicate the fluctuations in the average level of freight

⁷¹ International Tanker Nominal Freight Scale.

rates which took place over a certain period. These are compiled by various authorities and organizations and are published regularly in the shipping press and in periodicals concerned with the shipping industry.⁷² The indices should be used with great caution; it should be borne in mind that they are intended to reflect only the average variations in freight rates for given commodities or manufactured products over given routes. Freight-rate developments during the period under consideration with respect to a given commodity or manufactured product over a given trade route may differ widely from the index. This is particularly important for developing countries, which may earn the bulk of their foreign-exchange receipts from a very small number of commodities exported to a few major destinations.⁷³

112. In this connexion, the particular situation with respect to single voyage charters should also be pointed out. This type of chartering has considerably declined in importance during recent years,⁷⁴ as many commodities are now being transported on a medium or long-term contractual basis. This market tends, therefore, to be involved in the carriage of residual quantities, and the freight rates are subject to wide fluctuations. The indices composed on the basis of these freight rates cannot, therefore, be considered as representative of market changes.⁷⁵

113. The movements of some of the more important freight indices between 1955 and 1970 are shown in table 17; monthly or quarterly movements during the last three years are shown in table 18 and are discussed below.

⁷² For a description of the main published freight rate indices, see *Freight markets and the level and structure of freight rates; report by the secretariat of UNCTAD (TD/B/C.4/38/Rev.1 and Corr.1)*, (United Nations publication, Sales No. E.69.II.D.13).

⁷³ The secretariat's proposals for the construction of freight rate indices of special interest to developing countries are contained in a report by the UNCTAD secretariat (TD/B/C.4/37). A progress report on freight rate index numbers has also been published in document TD/B/C.4/80.

⁷⁴ During 1968, for instance, total dry cargo movements amounted to 930 million tons while single voyage dry cargo charters totalled only 77.1 million tons or about 8 per cent of the total. See OECD, *Maritime Transport 1969, A Study by the Maritime Transport Committee* (Paris, 1970) para. 37.

⁷⁵ In line with these observations, the dry cargo voyage charter index compiled and published by the United Kingdom Chamber of Shipping has been discontinued as of 1970; see, in this connexion, note c to table 17.

TABLE 17
Freight rate indices 1955-1970

Year	Liner freight rates ^a		Dry cargo tramp			Tanker trip charter ^b	
	(July-Dec. 1954 = 100)	(1965 = 100)	Time charter ^c (1960 = 100)	(1968 = 100)	Voyage charter ^d (1960 = 100)	(Intascale ^e = 100)	(Worldscale ^f = 100)
1955...	108		199		173		
1956...	119		265		212		
1957...	132		183		153		
1958...	122		86		91		
1959...	120		86		97		
1960...	122		100		100		
1961...	127		112		107		
1962...	131		89		89	55	
1963...	133		105		109	73	
1964...	138		119		112	67	
1965...	142	100	134		127	66	
1966...	148	..	132		114	62	
1967...	153	..	130		120	114	
1968...		107	139	100-	124	104	
1969...		109	138	101	117	87	
1970...		113 ^g		182 ^h	..		184 ⁱ

NOTE: All these indices are published regularly in Institute of Shipping Economics, *Statistik der Schifffahrt* (Bremen) (rounded for the present table). Figures shown are averages of monthly assessments each year, except for the United Kingdom Chamber of Shipping time charter index of dry cargo tramp rates, which is compiled on a quarterly basis as of 1970.

^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 has been provided.

^b With respect to the period 1955/1961, the United Kingdom Ministry of Transport scale (MOT scale) from 18 September 1947 = 100, shows the following index numbers: 1955 = 119; 1956 = 224. The London Market Nominal Tanker Freight Scale from 1 January 1957 = 100 shows the following series of index numbers between 1957 and 1961 (inclusive): 150, 54, 55, 52, 48. These two series are not linked with each other nor with the series shown in the present table.

^c Dry cargo time charter index compiled and published by the United Kingdom Chamber of Shipping. Up to and including 1969, based on unweighted arithmetic mean of hires for time charters of vessels over 9,000 dwt. As from 1970, a revised index is being compiled and published on a quarterly basis with base 1968 = 100 and is the weighted arithmetic mean of charter rates for three categories of ships viz. 9/16,000 tons, 20/40,000 tons and over 40,000 tons; the weighting system is based on the number of reported fixtures in each of the three size groups in the year ended with the quarter under review.

^d 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 and sulphur. This index has been discontinued by the source as from 1970 since it was found that changes in the pattern of tramp trading during recent years had resulted in the index becoming less and less an indication of the market. In view of present conditions in the dry cargo tramp market, the index has not been replaced in this table; the monthly index of dry cargo voyage tramp rates published by *Norwegian Shipping News* (Oslo) has, however, been included in table 18 as of January 1968.

^e International Tanker Nominal Freight Scale (Intascale) from 15 May 1962 = 100. As from 15 September 1969, this scale is being discontinued as an international standard and rate indicator on the tanker market and is being replaced by the Worldscale.

^f Worldscale from 15 September 1969 = 100.

^g January-September, nine months' average.

^h Simple arithmetic average of first three quarters.

ⁱ January-October, ten months' average.

^j The equivalent (Intascale = 100) would be 168.

Selected maximum and minimum tramp rates during 1969 and 1970 are shown in annex II, table V.

(i) Liner rates

114. The index of liner freight rates compiled by the Ministry of Transport of the Federal Republic of Germany⁷⁶ shows a steady upward movement during the first nine months of 1970, starting at 112 in January and registering 115 in September (base: 1965 = 100). The average of monthly indices for the first nine months of 1970 stood at 113, about 3.7 per cent higher than the average of 109 for the same period in 1969.

⁷⁶ See note a to table 17 for trade routes taken into account.

(ii) Dry cargo tramp market rates

(a) Time charters

115. The time charter market was marked by very active chartering from the beginning of the year. The revised index⁷⁷ of the United Kingdom Chamber of Shipping (base 1968 = 100), now published on a quarterly basis, stood at 148 for the first quarter, but registered 193 for the second quarter of the year, an increase of 30 per cent. With respect to the third quarter, the index stood at 206, an increase in average time charter rates of 6.7 per cent over the previous quarter and of 39.2 per cent over the first quarter. The average of the first three quarterly indices for 1970 was 182, which was 80 per cent higher than the average index of 101 for 1969.

⁷⁷ See note c to table 17.

TABLE 18
Freight rate indices, 1968-1970, monthly or quarterly assessments

	Liner freight rates ^a			Dry cargo tramp time charter ^b			Dry cargo tramp voyage charter ^c			Tanker trip charter		
	(1965 = 100)			(1968 = 100)			(July 1965 - June 1966 = 100)			(Intascale = 100) ^d		
	1968	1969	1970	1968	1969	1970	1968	1969	1970	1968	1969	1970
January	107	108	112				93	88	99	100	83	(117) 129
February	106	108	113				92	88	112	89	73	(121) 134
March	108	110	113	101	95	148	94	88	120	95	75	(132) 145
April	108	110	113				90	81	121	98	60	(125) 137
May	108	108	113				93	80	124	121	66	(121) 133
June	107	109	113	101	97	193	93	84	122	130	72	(158) 173
July	107	109	114				93	82	120	110	81	(203) 223
August	107	109	114				94	81	127	89	81	(205) 226
September	108	110	115	98	99	206	92	84	128	92	(89) 99	(236) 259
October	107	110					90	89	129	96	(104) 115	(260) 286
November	108	110					92	88		115	(126) 139	
December	108	111		99	111		92	91		111	(137) 150	
Yearly Average	107	109		100	101		92	85		104	(87)	

NOTE: All these indices are published regularly by the Institute of Shipping Economics, Bremen, in *Statistik der Schifffahrt*.

^a Liner index compiled by the Ministry of Transport of the Federal Republic of Germany; see table 17, footnote a.

^b As of 1970, compiled and published on a quarterly basis by the United Kingdom Chamber of Shipping; quarterly index numbers for 1968 and 1969 calculated on same basis and published e.g. in *Lloyd's List*, July 11, 1970; see table 17, footnote c.

^c Compiled and published by *Norwegian Shipping News* (Oslo) on the basis of five sub-indices covering respectively grain (ten trades), coal, sugar and iron ore (each four trades) and miscellaneous, the latter covering phosphates, scrap iron, rice, fertilizers and copra; in total, the index covers twenty-eight trades. The weighting method is based entirely upon the employment of that part of the tramp fleet which operated on the trip charter market in the base period.

^d As published by *Norwegian Shipping News* (Oslo). As from September 1969, Intascale numbers are shown between parentheses while Worldscale numbers are shown normally; see table 17, footnote e.

(b) Voyage charters⁷⁸

116 According to the monthly index published by *Norwegian Shipping News*, single voyage charter rates for dry cargo increased sharply in the beginning of the year—from 99 in January to 120 in March (July 1965 - June 1966 = 100),—but remained at about the same level until July. In October the index stood at 129. The average of monthly indices for the first ten months of 1970 amounted to 120, which is over 40 per cent higher than the average index of 85 for 1969.⁷⁹

(iii) Tanker charter rates

117. Tanker charter rates have been at a very high level during the past year. As compared with the second half of 1969, the biggest increase in voyage rates (weighted average rates for single and up to three voyages) among a number of representative trades⁸⁰ was recorded on the Persian Gulf/North Europe route (black oils) for which the index (Worldscale) jumped from 93 for the second half year 1969 to 144.3 for the first half year of 1970, an increase of 55 per cent.⁸¹ The Intascale index⁸² of tanker

⁷⁸ Reference is made to the observations in paragraph 112.

⁷⁹ The highest and lowest levels of some representative single voyage charters during 1970 as compared to 1969 are shown in annex II, table V.

⁸⁰ Black oils: Persian Gulf/North Europe; Mediterranean/North Europe; Caribbean Sea/U.S. Atlantic - East Coast Canada; White Oils: Mediterranean/North Europe; Caribbean Sea/U.S. Atlantic - East Coast Canada.

⁸¹ John I. Jacobs and Company Limited, *World Tanker Fleet Review 30th June 1970* (London, Lestadon Press).

⁸² Although Worldscale is now effectively in use (See note e to table 17), the discussion is carried on in terms of Intascale equivalents to allow comparisons with the previous period.

trip charters published by *Norwegian Shipping News* rose rapidly from 117 in January to 203 in July and reached 260 in October, an increase during the ten-month period of 122 per cent. Compared to the average of 87 for 1969, the average index for the first ten months of 1970 stood at 168, an increase of 93 per cent over the previous year.

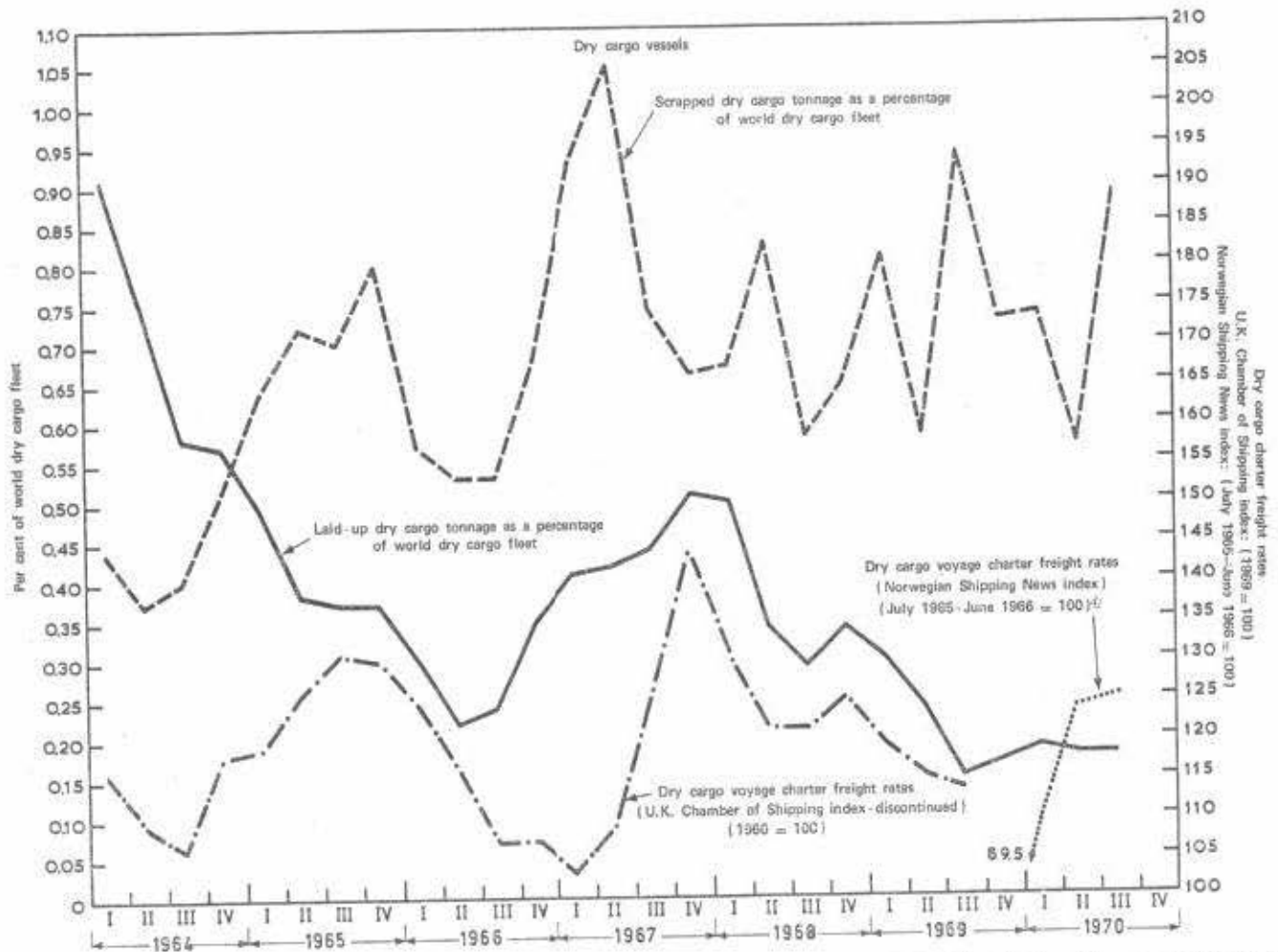
(c) The level of freight rates, laying-up and scrapping

118. The course of freight rates, on the one hand, and laying-up and scrapping statistics, as a percentage of the total world fleet, on the other hand, are shown on graph 2 (dry cargo vessels) and graph 3 (oil tankers).

119. The rapid increase in the levels of charter rates, both in the dry cargo and tanker markets, which started in the last quarter of 1969, has been accompanied by very low levels of laid-up tonnage.⁸³ As a percentage of the world dry-cargo fleet, laid-up tonnage of this type of vessel amounted to 0.19, 0.18 and 0.18 per cent respectively at the beginning of the first, second and third quarters of 1970. With respect to the tanker fleet, these percentages were respectively 0.13, 0.10 and 0.05; the strong downward trend in this series seems to indicate that this market is much more sensitive to the short-term changes in the level of earnings than the dry-cargo tramp market. The graphs show clearly the remarkable decrease since the mid-1960s in the proportion of laid-up tonnage both in the dry cargo

⁸³ At the beginning of October, 1970, laid-up dry cargo tonnage amounted to 224,548 tons and laid-up tanker tonnage to 26,346 tons; this total of 250,895 tons was the lowest figure recorded during the last twelve years. *Journal of Commerce* (London and Liverpool), 10 October 1970.

GRAPH 2
The course of freight rates,^a laying-up^b and scrapping,^c 1964-1970



Sources: Freight rates: table 18. Lay-up statistics: 1964-1969: United Kingdom Chamber of Shipping-Annual Report 1966 and 1969; 1970: United Kingdom Chamber of Shipping data communicated to the secretariat by Lloyd's Register of Shipping; scrapping statistics: Institute of Shipping Economics, Bremen, Statistik der Schifffahrt.

^a Freight rates, dry cargo vessels: up to 1969: United Kingdom Chamber of Shipping dry cargo voyage charter index (1960 = 100); 1970: Norwegian Shipping

News index (July 1965-June 1966 = 100); oil tankers: Norwegian Shipping News tanker trip charter (Intascale = 100) and (Worldscale = 100).

^b Ships laid up: tonnage laid up at the beginning of each quarter expressed as a percentage of the world fleet respectively of dry cargo vessels and oil tankers.

^c Dry cargo vessels and oil tankers scrapped during each quarter expressed as a percentage of world fleet of each category of ships.

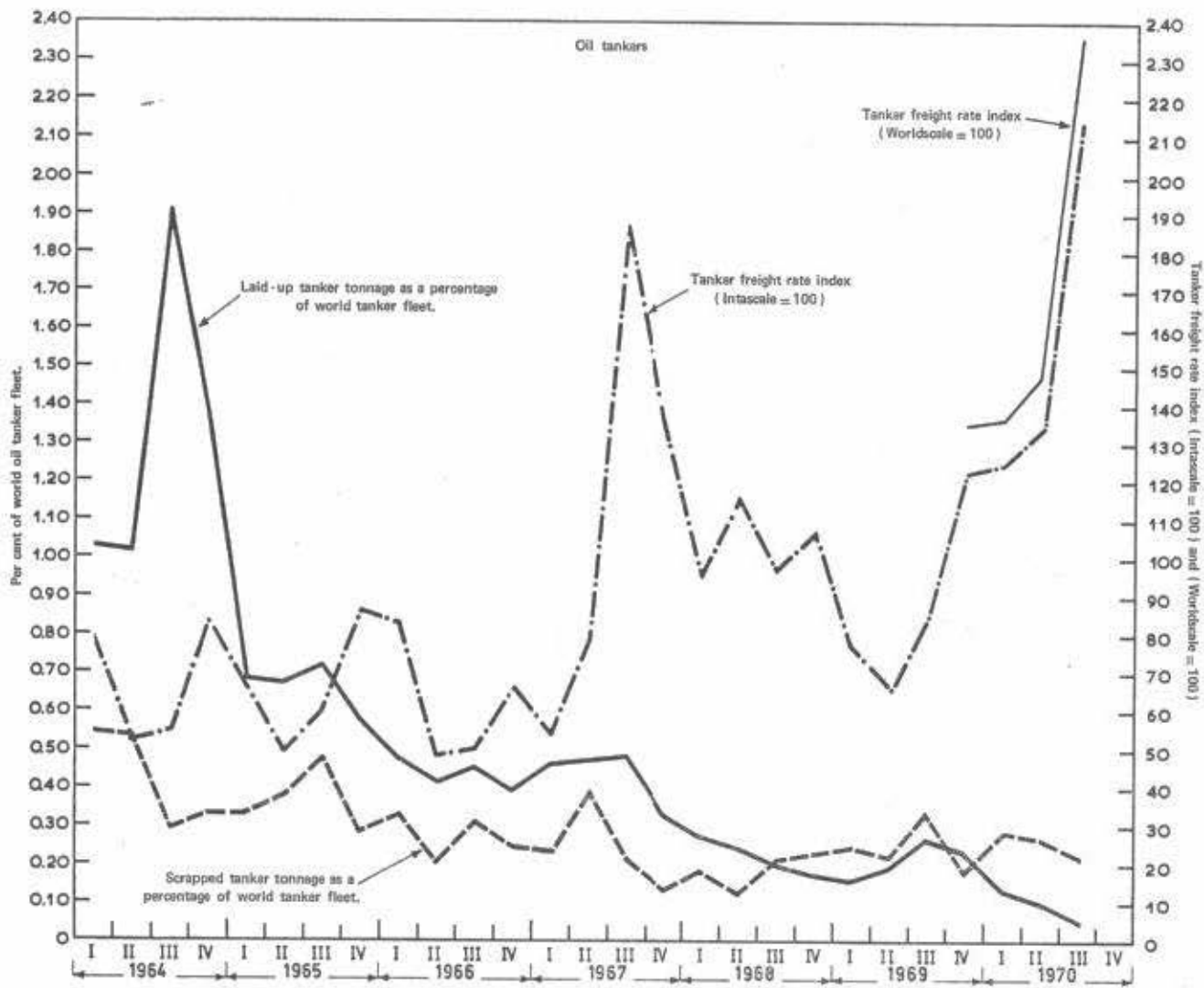
^d For the fourth quarter of 1969, the average of the monthly voyage charter indices is 89.5.

and tanker markets. It may be suggested, in this connexion, that the considerable increase in the size of vessels which has occurred during this period and the larger investments involved per vessel, particularly with respect to oil tankers, have led to an increase in the proportion of "captive tonnage" as well as to more tonnage being committed by long-term contracts, the over-all effect being one of practically assured employment for a larger portion of the tanker fleet.

120. Scrapped dry cargo tonnage, as a percentage of the world fleet, has remained at relatively low levels during 1970 and amounted to 0.74, 0.48 and 0.89 per cent

respectively during the first, second and third quarters of the year. For scrapped tanker tonnage, these percentages were considerably lower, amounting respectively to 0.29, 0.13 and 0.42 per cent. The quarterly movements of the percentage series for scrapped tonnage do not allow the establishing of a definite (inverse) correlation with the movements of tramp charter rates as the decision to break up a vessel is obviously influenced by a number of factors other than freight rates. In particular, it must be borne in mind that this is a long term decision which is often associated with replacement plans for a fleet and on which short-term fluctuations in freight rates can have only a limited impact.

GRAPH 3
The course of freight rates,^a laying-up and^b scrapping,^c 1964-1970



Sources: See graph 2.

NOTES: See graph 2.

Chapter VII

OTHER GENERAL TRENDS

(a) Unit load systems

121. The unit load concept has created a "revolution" in ocean transport which started around the mid-1960s and has led to a variety of developments since. The initial emphasis was on container ships and on the advantages of door-to-door transport which could be realized through intermodal transport by containers; however, increased attention has been given during more recent years to other forms of unitization, such as palletization, pre-sliding, roll-on/roll-off ferries and, in particular, to the LASH concept.⁸⁴

122. Palletization is already being used extensively in a number of ocean-going trades as well as in overland and air transport. Efforts are at present being made to promote the use of pallets further and also to arrive at some standardization of their sizes in order to facilitate handling and to realize possible economies of scale.⁸⁵ Pre-sliding is used in some trades, with respect e.g. to wool and jute goods; although this method seems to have the advantage of low cost outlays, it is not yet widespread.⁸⁶

123. As a result of increased port congestion experienced in a considerable number of ports—a direct result of the rapid increase in trade during recent years—there seems to be a tendency to make new vessels as independent as possible of shore facilities so that loading and unloading operations can be executed in the shortest possible time. This purpose is served by the Ro-Ro (roll-on/roll-off) ferries⁸⁷ which are already used extensively in a number of short-sea trades.⁸⁸ With respect to deep-sea trades, Ro-Ro services are operating between Australia and Japan, and a new service will commence in 1972 between Scandinavia and Australia, with respect to which present plans call for five vessels to be in service by 1973; although the vessels to be used have a capacity of up to 1,400

containers it, is expected that the demand of the trade will lead to a fairly balanced composition of containers, palletized and conventional cargo and the versatility of the ships will allow for changing the proportions of each type.

124. During 1970 there was a further expansion of container services on some important deep sea trade routes. Estimated aggregate vessel capacity on five important routes⁸⁹ amounted at the end of 1969 to 66,100 and at the end of 1970 to 104,700 standard 20-foot containers; translated into annual carrying capacity in each direction, the figures are respectively 714,000 and 1,142,000 standard 20-foot containers, an increase of 60 per cent in one year.

125. It has been estimated that, during the first half of 1969, containerized shipments accounted for more than 10 per cent of liner cargoes on the North Atlantic route and for about 40 per cent on the Pacific route.⁹⁰

126. As at 1 July 1970, the world merchant fleet included 167 fully cellular container ships with a combined tonnage of 1,907,801 grt,⁹¹ while container ships on order as at 31 July 1970 amounted to 180 vessels with an aggregate tonnage of 3,636,020 dwt.⁹²

127. Developments with respect to the containerized trade on two important routes are worth mentioning. First, as an immediate consequence of overtonnage on the North Atlantic, one important United States flag operator⁹⁴ withdrew its container vessels from this route and there were indications that other lines could follow or would merge with other existing container operators. Second, existing services between Europe and Australia were integrated and now comprise fourteen container ships operated by a consortium⁹⁵ formed in 1969 in order to rationalize resources, sailings and ports of call. These

⁸⁴ For a more detailed discussion of recent developments in the unit load concept and its implementation, see the report by the UNCTAD secretariat, *Unitization of cargoes* (United Nations publication, Sales No.: E.71.II.D.2).

⁸⁵ To promote the unit load concept, unit load councils have been established in recent years in a number of countries and cities, e.g. in New York, San Francisco and Oslo, which are backed by various groups of shipping lines. The Norwegian Unit Load Council has recently advocated the introduction of a standard-sized pallet of 40 inch by 48 inch. Source: *Lloyd's List*, 16 October 1960.

⁸⁶ See in this connexion "The maritime transportation of jute", report by the UNCTAD secretariat (TD/B/C.4/85), paras 120 and 121.

⁸⁷ Also by LASH services.

⁸⁸ See in this connexion, the reports by the UNCTAD secretariat "Economics of containerization: a pilot study covering North Sea services" (TD/B/C.4/52) and *Unitization of cargoes* (United Nations publication, Sales No.: E.71.II.D.2).

⁸⁹ From United States and Canada East and West Coasts to Western Europe; from United States and Canada West Coast, to Japan/Far East; from Western Europe to Australia and from Japan to Australia, excluding North American near-sea services, United States-Puerto Rico and United States-Hawaii services and military services. See OECD, *Maritime Transport 1969: A Study by the Maritime Transport Committee* (Paris, 1970), p. 80.

⁹⁰ *Ibid.*, para. 145.

⁹¹ *Lloyd's Register of Shipping Statistical Tables 1970*. Comparable figures for previous years have not been published.

⁹² It is noteworthy that all these vessels were registered in developed market-economy countries or in Liberia, except for four small ships (combined tonnage 9,052 grt) registered in Spain.

⁹³ Source: *Fairplay International Shipping Journal* (London, 27 August 1970).

⁹⁴ Moore-McCormack.

⁹⁵ The Australia Europe Container Service, which includes Overseas Containers Ltd. (OCL), Associated Container Transportation (ACT) and four other carriers.

developments reflect the tendency for container services to be increasingly consolidated into joint operations by large concerns and to a reduction of competition on these routes.

128. The imminent introduction of scheduled container services between the United Kingdom and Japan, using the Trans-Siberian Railway, was announced in October 1970;⁹⁶ it was indicated that operations would start as soon as sufficient traffic had been generated. Although no actual freight rates have been quoted yet, it was suggested that these would be competitive with those of the existing conference tariffs between the United Kingdom and the Far East. The realization of such a "land bridge" may have a considerable impact on the ocean trades between Western Europe and Japan and may well have repercussions on the operations and freight rate structure in other trades.

129. In view of the growing importance of containerized trade on many routes and the problems which are arising in connexion therewith, the United Nations Economic and Social Council, at its resumed forty-eighth session, decided to convene, in collaboration with IMCO and with the co-operation of other appropriate intergovernmental and non-governmental organizations, a United Nations meeting on containerization to be held as early as practicable and preferably in 1972.⁹⁷

130. With respect to the LASH services, the second LASH-ship was delivered by Japanese shipyards in July 1970 and entered into service between the United States Gulf Coast and Europe.^{98 99} The two ships now in use have a capacity of 43,541 dwt and can carry 73 lighters; each lighter can take a maximum cargo load of 370 tons, or is, alternatively, capable of carrying ten 20-foot containers.

131. Another type of barge carrier, the Seabee, is planned to come into service in 1972, and will also operate between the United States Gulf Coast and Western Europe. Each of the three Seabees scheduled for delivery (by United States shipyards) in 1972, has a capacity of 27,183 dwt and can carry thirty-eight fully loaded barges, the latter each having a maximum load capacity of 850 tons. The Seabee barge-carrier is also capable of carrying, alternatively, 1,800 standard sized containers. It is expected that each Seabee ship will make twelve voyages per year.

⁹⁶ *Journal of Commerce* (London and Liverpool), 30 October 1970.

⁹⁷ Decision taken at the 1688th meeting, on 22 May 1970 (see *Official Records of the Economic and Social Council, Resumed Forty-eighth Session, Supplement No. 1A* (E/4832/Add.1), p. 17). The topics and areas of action are outlined in annex I of the report on the administrative, technical and legal problems in the field of international container transport requiring attention at the global level (E/4796).

⁹⁸ They are used, for instance, in the cotton trade between the United States and Western Europe.

⁹⁹ It has been suggested that LASH services should be used between the United States and South America, which would alleviate the port congestion experienced in a number of South American ports and might considerably increase the efficiency of the present shipping services in a number of trades between these areas. (See *Container News* (New York), March, 1970, p. 18.)

132. The improved technology which has been used in ocean shipping during recent years has not so far led to a decrease in ocean freight rates on the trade routes in question. Indeed, there is a general expectation of increases in freight rates on many routes, including those on which a large proportion of the trade is already containerized. Experience with barge-carriers has not yet been sufficient to indicate any trend with respect to costs and freight rates, although indications are that lower freight rates should not be expected from this system.

(b) *Air transport*¹⁰⁰

133. The rapid increase during the last decade in the volume of cargo transported by air has been discussed in previous issues of this *Review*. According to table 19, the scheduled airlines of the States members of ICAO¹⁰¹ increased their combined cargo traffic¹⁰² from 2,160 million ton/km performed in 1960, to 9,950 million ton/km in 1969, an increase of 360 per cent.

134. With respect to air cargo carried on scheduled international services, traffic increased from 990 million ton/km performed in 1960 to 5,960 million ton/km in 1969, a sixfold expansion over the period. The growth in the volume of air cargo in international operations was particularly remarkable during 1969, which saw an increase of 32.4 per cent over the previous year; this was the greatest yearly increase recorded since 1950 and considerably higher than the average annual increase of 22 per cent for the ten-year period considered (1960-1969).

135. In line with this rapid increase in air cargo traffic¹⁰³ (in terms of ton/km performed) during the 1960s there have been striking changes in the commercial air transport fleet of the airlines of ICAO member States. Between 1960 and 1969, the total number of commercial transport aircraft increased from 5,014 to 7,134 while the total capacity¹⁰⁴ of the fleet increased from 23.4 to 99.4 billion ton/km offered per year.¹⁰⁵ During the same period, the subsonic jet came to replace almost completely other types of aircraft in international passenger traffic while propeller aircraft were being relegated to less important routes or used in all-cargo configuration.¹⁰⁶

136. At the same time, the average revenue yielded by cargo per ton/km performed¹⁰⁷ declined from 22.9 US

¹⁰⁰ All tons referred to in the present section are metric tons.

¹⁰¹ See note *b* to table 19.

¹⁰² Freight and excess baggage carried on scheduled domestic and international services, excluding mail.

¹⁰³ According to still incomplete totals, actual freight tons carried on international services rose from 726,000 in 1966 to 1,900,000 in 1969. (ICAO, *Digest of Statistics*, No. 151-T/29, *Traffic: 1960-1969* (Montreal 1970).)

¹⁰⁴ Passenger plus cargo space, scheduled plus non-scheduled services.

¹⁰⁵ ICAO *Bulletin*, May 1970. Note that the increase in capacity is much greater as a result both of higher payloads and of the speed of the new aircraft.

¹⁰⁶ The growth in the volume of cargo carried on all-cargo flights during recent years has been very pronounced; in 1969, the part of total traffic on the North Atlantic performed by all cargo flights was more than 60 per cent which may be compared with 42.6 per cent in 1960. (See ICAO *Bulletin*, May 1970, p. 19.)

¹⁰⁷ See note *b* to table 19.

TABLE 19
Air transport: freight and revenue data (scheduled traffic)^a 1960-1969
(Airlines of ICAO member States)^b

Year	A. — Air freight					B. — All services			
	Cargo traffic ^c			Average cargo yield ^d per ton/km performed		Operating expenses ^e ^f (all services: passengers, cargo and mail; international and domestic)		Weight load factors (Passengers + mail + cargo)	
	Total (international and domestic)	International services only		US cents	Percentage change over previous year	Per ton/km performed (US cents)	Per ton/km available (US cents)	All services (international and domestic)	International services only
	Thousand million ton/kms	Percentage change over previous year (international services)							
1960.....	2.16	.99	16.5	22.9	-4.6	41.0	22.9	55.3	57.6
1961.....	2.48	1.19	20.2	21.8	-4.8	40.7	21.4	51.7	51.5
1962.....	2.91	1.44	21.0	20.3	-6.9	38.6	20.2	50.8	51.3
1963.....	3.26	1.66	15.3	20.6	+1.5	37.4	19.3	50.6	51.4
1964.....	3.91	1.97	18.7	19.7	-4.4	34.7	18.3	51.2	53.1
1965.....	4.96	2.60	32.0	18.2	-7.6	32.8	17.5	51.7	53.6
1966.....	5.86	3.13	20.4	18.0	-1.1	31.5	17.2	52.9	53.8
1967.....	6.70	3.58	14.4	17.4	-3.3	30.8	16.2	50.7	51.7
1968.....	8.14	4.50	25.7	16.9	-2.9	30.5	15.6	48.7	51.0
1969.....	9.95	5.96	32.4	16.7*	-1.2*	30.7*	15.4*	47.5	51.6

Source: For traffic and financial data, ICAO, *Digest of Statistics*, No. 151-T/29, *Traffic: 1960-1969* (Montreal, 1970).

^a International plus domestic scheduled services, except where otherwise indicated; except for operating expenses which include non-scheduled services.

^b As at 31 December 1969, there were 117 member States of ICAO. Membership, for the purpose of the data included in the table, does not include the USSR, China (Mainland) and some other States. The USSR became a member of the organization in 1970.

^c Freight plus excess baggage but excluding mail.

^d Operating revenue with respect to cargo (excluding mail) per ton/km performed on all scheduled services (international plus domestic).

^e To arrive at total costs for freight operations, ground and indirect operating costs should be added to operating expenses, but data on the latter are not available. In intercontinental freighter operations of Europe-Mediterranean airlines, these were recently estimated at 3.5 US cents per ton/km available in 1968. (See ICAO, *Air Freight: European and Mediterranean region* (Circular 97-AT/18) (Montreal, 1970), table 7.3.)

^f Average levels of operating revenue and operating expenses are derived from a large number of operating routes of airlines and of types of aircraft. Hence, they do not adequately reflect the levels of revenue and costs which are behind the competition of the airlines for cargo on certain important trade routes. Direct operating costs for aircraft in intercontinental service, for instance, stood at a level of 8 to 10 cents per available ton/kilometre from 1960 to 1964 but then decreased following the transition to jet freighters to about 4 cents per available ton/kilometre.

* Provisional (See: ICAO Circular 97-AT/18, *op. cit.*, chap. 7).

cents in 1960, to 16.8 US cents in 1968, a decline of about 27 per cent. This decrease occurred in spite of a noticeable reduction in average load factors, which, for all scheduled services (international plus domestic), declined from an average of 55.3 per cent in 1960 to 47.5 per cent in 1969; for international services alone, the average load factor declined from 57.6 per cent in 1960 to 51.6 per cent in 1969.¹⁰⁸ Alongside the declining load factors has been a drastic reduction in operating expenses during the 1960s which followed the introduction of larger and more efficient aircraft and in particular the large-scale introduction of jets. Average operating expenses for all services, which had remained largely unchanged during the 1950s¹⁰⁹ were reduced by about 25 per cent between 1960 and 1969.^{110 111}

137. In order to see the rapid development of the air cargo industry in its proper perspective, the cargo carried by air in international services may be related to the total flows of international trade. On the basis of weight, air

¹⁰⁸ ICAO, *Digest of Statistics*, No. 151-T/29, *Traffic: 1960-1969* (Montreal, 1970).

¹⁰⁹ Fluctuating between 40.0 and 41.9 US cents per ton/km performed.

¹¹⁰ With load factors of only about 50 per cent of capacity, operating expenses per ton/km available are of course much lower; they stood at 22.9 US cents in 1960 and declined to 15.6 US cents in 1968.

¹¹¹ The above information and other supporting data are also presented in table 19.

cargo still represents only a very small portion of total trade, even when crude materials are excluded from the comparison. On the North Atlantic route, for instance, the airlines carried more than 300,000 tons of cargo in 1968, while seaborne trade of dry cargo commodities other than bulk cargo amounted to 15 million tons on the same route, giving a ratio of air to surface transport of 1:50;¹¹² on the other trade routes, this ratio tends to be even much smaller. In terms of value, however, the penetration of air transport in the international carriage of goods is much more significant. Individual member States of ICAO have reported airborne shares of their external trade between 2 and 14 per cent¹¹³ while on the important North Atlantic route, it is already about 20 per cent.¹¹⁴ The average value per unit of weight of international air cargo is therefore high and tends to exceed \$10 per kg; the competition of air cargo with ocean shipping is thus largely concentrated on high-value manufactured products and is consequently felt mainly by liner operators in respect of the goods which are the most profitable to carry.

138. As regards the future, the expected development of the air freight traffic of the world has been the subject of a number of studies. A comparison of recent forecasts made

¹¹² See ICAO, *Air Freight: European-Mediterranean region* (Circular 97-AT/18). (Montreal, 1970), p. 26.

¹¹³ *Ibid.*, p. 5.

¹¹⁴ *Ibid.*, p. 145.

by three leading American manufacturers of commercial aircraft (Boeing, Lockheed and McDonnell Douglas) seems to indicate that a growth rate of more than 20 per cent per year, as experienced during the last decade, may continue throughout the 1970s, although other estimates suggest a somewhat lower rate, particularly during the latter part of the next decade.¹¹⁵

139. In order to meet the expected future demand, the airlines of the world¹¹⁶ had outstanding orders¹¹⁷ for 757 turbo-jets (including fifty-two in all-cargo or convertible configuration) and sixty-two turbo-props (including eight all-cargo or convertible) as at 31 December 1969.¹¹⁸ Included in these outstanding orders are, in passenger version,¹¹⁹ 176 Boeing 747, 181 Lockheed L-1011 and 104 McDonnell Douglas DC-10, and, in all-cargo version (or convertible) six Boeing 747-C/F; this means a total of 467 of new, very large-capacity aircraft. To illustrate the vast increase in the capacity of these new aircraft it may be mentioned that, while the maximum payload capacity of a DC-7F is less than 20 tons and that of a DC 8-63F is about 50 tons, the Boeing 747F will be able to lift about 124 tons; the projected Douglas C6 freighter, not yet operational, will have a maximum payload of 180 tons.¹²⁰

140. The introduction of this new generation of "wide-bodied" aircraft, with more than double the payload capacity of the jets now in use, will no doubt result in substantial reductions in the level of direct operating costs, although the large payload capacities of these aircraft are likely to limit the number of routes on which they can be economically used. The projected increase in traffic, discussed above, should further allow for considerable economies of scale to be realized in the next five-to-ten year period. In line with these observations, it is considered that total operating costs of the order of 4.8 cents per available ton/km should be possible on North Atlantic freighter services of European airlines by 1975; this compares with the present level of about 7.5 cents. At the same time, it is suggested that the North Atlantic freight rate yield, at current values, may fall to about 8.3 cents per revenue ton/km by 1975 from the present level of about 11.0 cents.¹²¹

141. The possibility of such drastic reductions in the costs of airline operations suggests that competition of the air cargo industry with ocean carriers during the next decade will no longer be concentrated on high value manufactured products but will be extended to a much wider range of traditional liner cargoes. At a time when extensive technological developments are already upsetting the

operations of liner conferences on some important trade routes and are having an effect on the existing rate structures, the additional impact of air cargo becoming available to a wider range of liner commodities may be expected to have an increasing effect on liner operations and on the level and structure of liner freight rates.¹²²

142. At present, there are plans for the commercial operation of three types of supersonic aircraft: the Anglo-French Concorde, the TU-144 of the USSR and the American Boeing 2707. Development flight testing for the Concorde and TU-144 has already progressed to the point where flights are being made at supersonic speeds. Some thirteen international operators have indicated their intention to operate the Concorde while another twenty-five have opted for the Boeing SST,¹²³ although it is generally considered that the Concorde will not be introduced into commercial services before 1973 and the Boeing 2707 not before 1977. It is not known when the TU-144 will be introduced into international service as very little information has been released about this aircraft.

143. The maximum payload of the Concorde is about 13.6 tons, while for the Boeing 2707 it will be 29.7 tons; the TU-144 seems to have about the same capacity as the Concorde, although precise figures are not available. The characteristics of these aircraft appear likely to limit their commercial use to a few important long-haul routes and in any case they will have rather restricted capacity for freight. Therefore their impact on future air/sea cargo competition will probably not be of great significance. However, details concerning the performance, and particularly the expected cost levels of these aircraft, are not yet available.

144. The possible introduction of cargo airships has recently been suggested although the feasibility of a cargo distribution system on such a basis has yet to be established.¹²⁴ It was indicated that the use of airships could substantially reduce total cargo distribution costs as well as transportation time.¹²⁵ The airships proposed would be constantly airborne by means of gas chambers filled with non-inflammable helium gas and helicopters would be used to ferry containerized cargo from the surface to the ship. As airships could operate directly from the vicinity of industrial centres, this approach to cargo distribution could alleviate road congestion in highly industrialized countries. It could also be beneficial to developing countries with inadequate rail and road facilities to transport their trade to and from the ports. The suggested version of the new type of airship would have a payload of 500 tons carried in 40 containers and could develop a speed of about 100 miles per hour. It is expected, however, that the system, known as the Merchant Ship Air Cargo Satellite System, if shown to be feasible, would still take more than a decade to be fully developed.

¹¹² For a more extensive discussion on this subject, see the forthcoming report by the UNCTAD secretariat, "The impact on world seaborne trade of changes in shipping costs" (TD/B/C.4/76).

¹¹³ *ICAO Bulletin*, May 1970, p. 47.

¹¹⁴ See *Journal of Commerce*, (London and Liverpool), 5 November 1970, p. 1; see also *Fairplay International Shipping Journal*, London, 5 November 1970, p. 9.

¹¹⁵ It was suggested that cargoes could be transported from the United Kingdom to Australia in four days.

¹¹⁵ *Ibid.*, pp. 154-159.

¹¹⁶ Commercial operators of ICAO member States are taken into account.

¹¹⁷ Aircraft built in non-ICAO States (e.g. USSR prior to 14 November 1970) are not included but only a very limited number of such aircraft have been delivered to, or ordered by, airlines of ICAO member States.

¹¹⁸ Source: *ICAO Bulletin*, May 1970 (table 14).

¹¹⁹ These aircraft still have considerable cargo capacity in the hold; the Boeing 747 passenger version, for instance, can still lift up to 24 tons of cargo. (See *Norwegian Shipping News*, No. 100, Oslo, 1970, p. 300.)

¹²⁰ ICAO circular 97-AT/18, *op. cit.*, table 8:1.

¹²¹ *Ibid.*, p. 153.

BIBLIOGRAPHY

The annotated list below (which is based on the publications obtained during 1970 by the Shipping Reference Unit of the Division for Invisibles of the UNCTAD secretariat) is limited to a few important books and reports on the economic aspects of maritime transport and related subjects.*

While the notes against each item in the list include a brief description, no attempt is made at a qualitative assessment or critical review of the publications listed.

Bittencourt R., Julio, *The Profitability of a Liner Company and Cargo Handling Rate* (The University of Michigan, College of Engineering, Department of Naval Architecture and Marine Engineering, October 1969).

This paper analyses the factors which determine the economic balance of the operations of a regular shipping line when varying the cargo handling rate in the ports served by the line. There is also an analysis of the strategy which the established line ought to follow with regard to an increase or decrease of the cargo handling rate according to availability of traffic in limited or unlimited cargo. The paper ends with the development of a mathematical equation permitting the determination of the optimal number of annual round trips for any given line in order to obtain the maximum operational earnings from the available traffic. (The paper is a translation from Spanish as presented in 1968 to the first Chilean Seminar on Maritime Transport.)

United Kingdom, Board of Trade, *Committee of Inquiry into Shipping: Report* (Cmnd 4337, London, Her Majesty's Stationery Office, May 1970).

A comprehensive official review of the British shipping industry. Considers the organization and structure of the United Kingdom shipping industry and its methods of operation in the light of current commercial and technological developments. Also makes recommendations regarding the action which should be taken by shipowners, seafarers and Government to bring about changes which would improve the position of the British shipping industry.

Containerization International, *Containerization International Year Book 1970* (London, National Magazine Co. Ltd.).

A detailed report on container activities in various parts of the world, including a survey of container and container handling equipment, container ports in various areas and container ships now being built as

* Some reports and other documents on maritime transport, published by United Nations bodies, specialized agencies and inter-governmental and non-governmental organizations up to September 1970, are mentioned *passim* in the report by the UNCTAD secretariat "Review of activities of international bodies other than UNCTAD in the field of shipping and ports" (TD/B/C.4/81 and Add.1-2)

well as sections on documentation, insurance, customs clearance and on air cargo containers. Also includes a list of container manufacturers and of over-the-road regulations in various countries.

Goss, R. O., "The size of ships" (Colloquium on the Future of European Ports, College of Europe, Bruges, 16-18 April 1970).

A paper discussing why and to whom forecasts of ship sizes are important as well as the principal factors influencing the optimal ship size. Also presents a basic method for measuring ship costs as related to and varying with the size of ships.

Institute for Shipping Research, Bergen, *The economics of bulking cargoes* (Bergen, Institute for Shipping Research, Norwegian School of Economics and Business Administration).

A short discussion of the economies and diseconomies involved in the bulking of cargoes with particular reference to the implications for the existing structure of liner services in the light of the present general tendency to use larger ships.

Kydland, Finn, *Simulation of Liner Operations* (Bergen, Institute for Shipping Research).

Theoretical discussion of a simulation model for liner operations including a flow-chart for the main parts of the model.

Lambert, Brothers (Shipping), Limited, *Container Ships: Displacement of conventional cargo liner tonnage on major world routes* (London, Lambert Brothers (Shipping) Limited, Research and Development Department, 1970).

This report summarizes the findings of an intensive study carried out to determine to what extent conventional cargo-liner tonnage will be displaced by the already planned or expected expansion of container services on major trade routes in the near future.

Maru, A. H., *Indian Shipping since Independence* (Bombay, Tata Press Ltd., 1969).

Analyses Indian shipping and particularly its development since the country became independent in 1947. Includes sections on shipping legislation, the development of Indian ports and the problems involved as well as on shipbuilding in India.

Miller, Dave, S. "The Economics of the Container Ship Subsystem" (Paper prepared for the Philadelphia Section of The Society of Naval Architects and Marine Engineers, Philadelphia, Pennsylvania, October, 1968).

This paper examines the effects of a container operation on the operations of a traditional steamship company. The need for planning is emphasized and the "optimum" container ship is defined according to two basic approaches to optimization of a system.

Øvrebø, Stein, H., *Short Sea and Coastal Tramp Shipping in Europe* (Bergen, Institute for Shipping Research, 1969).

Short treatment of tramp shipping including some suggestions regarding its future development.

Roberts, Frank, J., "Reducing ocean shipping costs through combination trading" (Paper delivered at Ninth International Symposium, Montreal, June 1970).

This paper discusses the possibilities for and advantages of combination trading arrangements for bulk shipping in order to increase vessel utilization.

Stonham, P. E., "Guide-Lines for Port Development", in *Inter-Economics*, (Hamburg, Verlag Weltarchiv GmbH, January 1970, p. 26).

Starting from the most common approach to the development of ports, the so-called "Operations research approach", this short article examines some of the factors involved, in particular the social costs and benefits and externalities related to port development and operations.

Tabak, Herman, D., *Cargo Containers—Their Stowage, Handling and Movement* (Cambridge, Maryland, Cornell Maritime Press, Inc., 1970).

An extensive treatment of the many aspects of containerization with descriptions of the types of containers in use and particulars regarding their construction, and chapters on documentation, stowage and handling. A description of overland carrying equipment and regulations applicable to overland transport of containers on various parts of the world is also included. The last chapter is concerned with regulatory and/or advisory decisions or recommendations regarding the movement of containers which have been adopted or issued by international organizations and by the relevant agencies in the United States of America.

Taborga, Pedro, N., *Determination of an Optimal Policy for Seaport Growth and Development* (Cambridge, Mass.,

School of Engineering, Department of Civil Engineering, Massachusetts Institute of Technology, U.S.A. 1969).

A study which is addressed to the problem of the development and subsequent growth of a port facility in an under-developed setting. On the basis of certain assumptions, a model is developed which, it is suggested, could serve as a basis for a dynamic growth policy for a seaport in an under-developed region. From the model developed and the tests performed, several groups of conclusions and recommendations are drawn.

Tien Phuc, Nguyen, *Les Transports* vol. I, *Analyse économique* and vol. II, *Programmation*, Paris, Editions Eyrolles and Editions d'Organisation, 1969).

A study in two volumes, the first one dealing with economic analysis and the second with programming. The technological evolution of the different modes of transport is analysed as well as the structure of the transport sector and the institutional framework of the transport economy. Programming is considered with respect to traffic, investments and organization and includes a discussion on economic optimum solutions.

United Kingdom, National Ports Council, "A Comparison of the Costs of Continental and United Kingdom Ports" —A report to the National Ports Council by Touche Ross and Co., National Ports Council, London, 1970).

A consultant study which examines whether major port authorities in four near Continental countries have special cost advantages which might enable the level of comparable port charges to be lower in the Continental ports than in the United Kingdom ports.

Waters II, W. G., "Transport Costs, Tariffs, and the Pattern of Industrial Protection" (Abstract), (Paper issued at the University of British Columbia, Vancouver).

An empirical investigation of the protection effect of international transport costs vis-à-vis tariffs, based on fifty-seven industry classifications in the 1958 input-output table of the United States of America. Calculations are made both on nominal and effective rate basis.

ANNEXES

Annex I

CLASSIFICATION OF COUNTRIES AND TERRITORIES

Notes

Note 1

This classification is designed to be applied to statistics on seaborne 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 and 10 in the text and table III in annex II), 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 paragraph 22 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)	Ireland
Belgium	Italy
Denmark	Monaco
Faeroe Islands	Netherlands
Federal Republic of Germany	Norway
Finland	Sweden
France	(Switzerland)
Iceland	United Kingdom of Great Britain and Northern 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
German Democratic Republic	

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
Burma
Ceylon
Hong Kong
India
Indonesia
Khmer Republic
Macao
Malaysia
Maldives, Republic of

Pakistan
Philippines
Portuguese Timor
Republic of China
Republic of Korea
Republic of Viet-Nam
Ryukyu Islands
Singapore
Thailand

Code 10. — Africa

10.1 Northern Africa

Algeria
Canary Islands
Ceuta
Ifni
Libya

Melilla
Morocco
Tunisia
United Arab Republic

10.2 Western Africa

Angola
Cameroon
Cape Verde Islands
Congo, Democratic
Republic of
Dahomey
Equatorial Guinea
Gabon
Gambia
Ghana
Guinea
Ivory Coast

Liberia
Mauritania
Nigeria
People's Republic of the Congo
Portuguese Guinea
St. Helena Island
São Tomé and Príncipe
Islands
Senegal
Sierra Leone
Spanish Sahara
Togo

10.3 Eastern Africa

(Burundi)
Comoro Islands
Ethiopia
French Somaliland
Kenya
Madagascar
Mauritius
Mozambique

Réunion Island
Seychelles Islands
Somalia
Sudan
(Uganda)
United Republic of Tanzania
(Zambia)

10.4 Southern Africa

South Africa

Code 11. — Latin America

11.1 Caribbean

Antigua
Bahamas
Barbados
Cayman Islands
Cuba
Dominica
Dominican Republic
Grenada
Guadeloupe

Haiti
Jamaica
Martinique
Montserrat
St. Kitts-Nevis-Anguilla
St. Lucia
St. Vincent
Turks and Caicos Islands
Virgin Islands

11.2 Central America

British Honduras
Canal Zone
Costa Rica
El Salvador
Guatemala

Honduras
Mexico
Nicaragua
Panama

11.3 South America — Northern seaboard

Guyana
French Guiana
Netherlands Antilles

Surinam
Trinidad and Tobago
Venezuela

11.4 South America — Western seaboard

Chile
Colombia

Ecuador
Peru

11.5 South America — Eastern seaboard

Argentina
Brazil
Falkland Islands
(Isias Malvinas)

(Paraguay)
Uruguay

Code 12. — Oceania, n.e.s.

Christmas Island
Fiji Islands
Guam
Nauru
New Caledonia
New Guinea
New Hebrides
Ocean Island (Gilbert Islands)
Papua

Polynesia under French
administration
Samoa (under United States
administration)
Solomon Islands
Tonga
Wake Island
Western Samoa

Annex II

TABLES

TABLE I

World seaborne trade according to geographical areas, 1959, 1967 and 1968
(Million metric 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	1959	0.3	5.3	116.0	121.6	64.3	41.0	94.3	199.5
	1967	3.8	5.6	201.7	211.1	72.2	71.8	118.5	262.5
	1968	.3	4.7	215.5	220.5	85.7	79.6	129.6	294.9
2. Japan	1959	—	0.3	9.8	10.1	19.1	3.3	42.6	65.0
	1967	—	1.0	26.1	27.1	102.8	16.1	164.7	283.7
	1968	—	.5	29.9	30.4	120.3	20.8	179.4	320.5
3. Australia and New Zealand ...	1959	—	1.2	11.5	12.7	10.2	2.7	8.5	21.4
	1967	—	1.3	42.6	43.9	22.1	1.2	15.0	38.2
	1968	—	1.1	51.4	52.5	22.6	1.3	15.8	39.7
4. Northern and Western Europe.	1959	0.7	29.3	129.1	159.0	134.9	47.7	222.5	405.1
	1967	1.7	57.6	180.9	240.1	381.1	85.9	330.1	797.2
	1968	3.9	59.3	207.0	270.2	433.2	82.3	363.8	879.3
5. Southern Europe	1959	—	0.4	16.0	16.4	7.5	3.0	15.0	25.5
	1967	—	3.0	19.7	22.8	26.0	4.2	30.8	60.9
	1968	—	6.3	20.8	27.1	32.9	4.7	31.2	68.8
6. Central and Eastern Europe (excluding USSR)	1959	0.2	2.1	13.4	15.6	—	1.1	11.7	12.8
	1967	0.2	3.7	28.3	32.2	4.2	2.6	20.9	27.6
	1968	0.3	5.0	30.2	35.5	4.4	2.8	23.2	30.4
7. USSR	1959	8.4	8.8	12.9	30.1	0.1	—	4.6	4.7
	1967	33.2	20.6	44.8	98.5	0.1	0.2	10.1	10.3
	1968	34.2	23.2	43.4	100.8	0.1	—	10.9	11.0
8. China (mainland), North Korea, North Viet-Nam	1959	—	—	3.9	3.9	—	0.4	3.0	3.4
	1967	—	—	10.5	10.5	0.2	0.3	12.7	13.2
	1968	—	—	8.6	8.6	—	0.5	12.6	13.1
9.1 Western Asia	1959	180.2	31.4	3.3	214.9	5.6	3.0	9.1	17.7
	1967	420.2	46.4	4.6	471.1	10.7	1.2	14.3	26.3
	1968	477.0	50.7	5.4	533.1	7.6	1.6	16.6	25.8
9.2 Southern and Eastern Asia, n.e.s.	1959	11.9	10.3	42.2	64.3	9.3	15.5	34.6	59.3
	1967	21.6	16.9	68.5	106.9	33.4	21.2	69.4	124.1
	1968	23.2	19.9	76.4	119.5	44.6	21.8	69.8	136.2
10.1 Northern Africa	1959	1.9	0.6	23.1	25.6	4.7	6.4	11.7	22.9
	1967	121.1	1.6	23.9	146.6	10.4	4.0	16.0	30.4
	1968	169.8	1.8	27.9	199.5	10.2	4.4	15.0	29.6
10.2 Western Africa	1959	1.3	—	15.4	16.7	—	4.3	7.2	11.6
	1967	18.2	0.6	43.6	62.4	1.9	4.5	9.2	15.6
	1968	11.0	1.2	50.7	62.9	2.7	4.6	10.6	17.9
10.3 Eastern Africa	1959	—	—	7.5	7.5	—	3.6	4.9	8.5
	1967	—	0.9	14.3	15.3	4.6	2.7	7.4	14.6
	1968	—	1.0	14.9	15.9	4.9	2.5	7.2	14.6
10.4 Southern Africa	1959	—	0.2	5.0	5.2	1.3	2.3	4.0	7.7
	1967	—	0.3	12.3	12.6	7.2	1.9	5.3	14.3
	1968	—	0.1	14.2	14.3	7.5	2.6	4.0	14.1
11.1 Caribbean	1959	—	0.7	15.1	15.8	3.7	2.2	3.6	9.4
	1967	—	0.2	22.7	22.9	5.2	4.1	7.8	17.1
	1968	—	0.2	20.8	21.0	5.8	4.0	7.9	17.7
11.2 Central America	1959	—	1.9	4.2	6.1	—	2.6	1.9	4.5
	1967	1.4	2.4	10.4	14.1	4.4	4.6	3.9	12.9
	1968	—	2.0	12.5	14.5	4.9	4.6	4.5	14.0

TABLE I (continued)

Area		Goods loaded				Goods unloaded			
		Crude petroleum	Petroleum products	Dry cargo	Total all goods	Crude petroleum	Petroleum products	Dry cargo	Total all goods
11.3 South America, northern seaboard	1959	105.2	71.3	25.2	201.7	43.6	3.6	4.3	51.5
	1967	129.0	99.4	29.6	258.0	52.8	3.6	5.1	61.5
	1968	131.5	99.0	28.3	258.8	53.3	3.6	5.9	62.8
11.4 South America, western seaboard	1959	4.3	1.0	13.5	18.8	0.4	1.5	3.8	5.7
	1967	5.8	1.3	27.5	34.6	2.6	1.8	5.8	10.2
	1968	4.4	1.5	29.5	35.4	3.1	1.0	7.2	11.3
11.5 South America, eastern seaboard	1959	1.5	—	17.5	19.0	12.3	6.7	10.1	29.1
	1967	—	0.7	32.9	33.7	14.3	0.7	13.8	28.8
	1968	0.2	0.9	34.6	35.7	15.8	2.0	15.6	33.4
12. Oceania, n.e.s.	1959	—	—	4.3	4.3	—	0.4	1.2	1.6
	1967	—	—	6.3	6.3	—	1.8	1.8	3.6
	1968	—	—	7.9	7.9	—	1.6	1.9	3.5
WORLD TOTAL	1959	315.9	164.7	488.8	969.5	316.9	151.5	398.4	966.8
	1967	756.2	263.5	851.2	1 870.8	756.0	234.4	862.5	1 852.9
	1968	855.8	278.4	929.9	2 064.4	859.6	246.3	932.7	2 038.6

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

* 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 metric tons in 1959, 37 million metric tons in 1965, 37 million metric tons in 1968 and 37 million metric tons in 1969.

^b See annex I for the composition of the groups of countries referred to.

TABLE II
Distribution of world tonnage by flag of registration,^a and type of ship, in order of size of fleets, as at 1 July 1970
(In grt and dwt)^b

Flag of registration	Total tonnage	of which:				
		Tankers	Bulk carriers	General cargo	Container ships	Other ships
1 Liberia	33,296,644 (58,629,595)	19,331,853 (35,082,406)	10,177,816 (18,158,346)	3,350,264	18,842	417,869
2 Japan	27,003,704 (40,284,347)	9,288,144 (15,687,839)	7,885,867 (12,589,880)	7,377,786	232,582	2,219,325
3 United Kingdom	25,824,820 (38,699,382)	12,032,394 (21,293,930)	3,849,888 (6,032,476)	7,523,558	376,569	2,042,411
(30) Bermuda	683,529 (1,131,626)	463,376 (817,225)	145,162 (205,006)	50,479	—	24,512
(33) Hong Kong	670,980 (996,600)	88,558 (138,486)	244,231 (392,135)	321,592	—	16,599
(49) Bahamas	276,097 (392,506)	105,147 (165,334)	74,935 (117,606)	80,747	—	15,268
(62) Gibraltar	54,075 (80,250)	13,298 (20,380)	19,169 (30,038)	20,743	—	865
(84) Cayman Islands	22,371 (25,568)	—	—	21,706	—	665
(107) New Hebrides	4,017 (4,920)	—	—	4,017	—	—
(112) Falkland Islands	5,199 (2,292)	—	—	2,100	—	3,099
(115) Gilbert and Ellice Islands	2,193 (..)	—	—	1,333	—	860
(116) St. Vincent	1,142 (1,542)	—	—	1,142	—	—
(121) Montserrat	711 (1,000)	—	—	711	—	—

TABLE II (continued)

Flag of registration	Total tonnage	of which:				
		Tankers	Bulk carriers	General cargo	Container ships	Other ships
(123) St. Lucia	517 (650)	—	—	517	—	—
(126) Solomon Islands	629 (383)	—	—	629	—	—
(128) British Honduras	620 (300)	—	—	620	—	—
(133) Turks Islands	1,771 (160)	—	—	1,522	—	249
(135) Virgin Islands	538 (..)	—	—	389	—	149
(136) Grenada	534 (140)	—	—	534	—	—
(137) Seychelles Islands	306 (..)	—	—	306	—	—
4 Norway	19,346,911 (31,389,714)	8,856,868 (15,724,300)	6,958,146 (11,264,254)	2,525,247	69,133	937,517
5 Greece	10,951,993 (16,991,958)	3,872,364 (6,597,054)	2,183,615 (3,614,216)	4,450,936	—	445,078
6 United States of America: estimated active seagoing fleet (see also note *)	10,374,585 (16,110,624)	4,425,773 (7,520,133)	568,030 (993,621)	3,559,477	861,677	959,628
7 Union of Soviet Socialist Republics	14,831,775 (15,255,420)	3,460,387 (4,936,831)	206,875 (137,343)	5,941,891	—	5,222,622
8 Federal Republic of Germany	7,881,000 (12,276,868)	1,642,809 (2,850,785)	1,494,835 (2,424,807)	4,099,195	162,045	482,116
9 Italy	7,447,610 (10,331,566)	2,720,828 (4,448,310)	2,088,583 (3,364,026)	1,470,962	—	1,167,237
10 France	6,457,900 (9,454,683)	3,477,494 (5,979,027)	731,469 (1,105,077)	1,396,786	27,000	825,151
11 Panama	5,645,877 (8,872,766)	3,289,334 (5,646,956)	419,148 (679,800)	1,630,691	—	306,704
12 Netherlands	5,206,663 (7,415,219)	1,984,656 (3,326,032)	481,960 (739,476)	2,357,634	9,234	373,179
13 Sweden	4,920,704 (7,251,362)	1,609,449 (2,826,384)	1,549,654 (2,476,073)	1,346,510	66,869	348,222
14 Denmark	3,314,320 (5,069,733)	1,339,510 (2,386,300)	445,661 (743,942)	1,186,691	15,810	326,648
(97) Faeroe Islands	38,990 (12,301)	—	—	4,134	—	34,856
15 Spain	3,440,952 (4,504,292)	1,423,392 (2,348,994)	269,821 (449,528)	1,054,014	9,052	684,673
16 India	2,401,656 (3,780,524)	287,939 (497,422)	790,207 (1,336,586)	1,224,139	—	99,371
17 Brazil	1,721,608 (2,416,909)	572,710 (871,385)	235,339 (368,334)	840,603	—	72,956
18 Yugoslavia	1,515,563 (2,216,096)	254,960 (421,770)	294,597 (479,507)	929,759	—	36,247
19 Poland	1,580,298 (2,180,703)	65,237 (109,174)	249,805 (378,477)	978,833	—	286,423
20 Finland	1,397,232 (2,065,594)	670,649 (1,095,488)	99,337 (144,300)	500,438	—	126,808
21 China, Republic of	1,166,230 (1,695,364)	235,469 (414,824)	142,157 (299,501)	755,587	—	33,017
22 Cyprus	1,138,229 (1,673,983)	121,062 (187,264)	35,934 (52,455)	940,182	—	41,051
23 Argentina	1,265,510 (1,621,214)	502,450 (733,551)	97,115 (150,092)	580,839	—	85,106

TABLE II (continued)

Flag of registration	Total tonnage	which: of				
		Tankers	Bulk carriers	General cargo	Container ships	Other ships
24 Belgium.....	1,062,152 (1,527,025)	304,889 (490,948)	318,265 (530,544)	350,926	—	88,072
25 Australia.....	1,074,112 (1,384,889)	189,481 (291,109)	416,112 (637,265)	269,123	57,744	141,652
(86) New Guinea	24,295 (24,123)	254	—	21,889	—	2,152
26 German Democratic Republic	988,640 (1,371,522)	178,102 (289,459)	149,068 (209,762)	471,882	—	189,588
27 Philippines	946,400 (1,295,831)	139,505 (239,290)	90,534 (147,660)	684,729	—	31,632
28 Republic of Korea	849,457 (1,291,128)	285,977 (497,553)	143,970 (236,024)	354,518	—	64,992
29 China (mainland)	867,994 (1,192,799)	116,535 (177,337)	—	717,929	—	33,530
31 Israel	713,867 (1,062,091)	368 (642)	342,244 (555,586)	330,775	—	40,480
32 Kuwait	591,660 (997,986)	423,740 (787,574)	—	145,679	—	22,241
34 Portugal	870,008 (961,967)	248,108 (398,779)	11,054 (16,584)	373,047	—	237,799
35 Bulgaria	686,104 (941,659)	162,951 (253,415)	152,240 (185,062)	300,444	—	70,469
36 Turkey	696,824 (840,828)	169,634 (264,705)	21,176 (28,865)	367,639	—	138,375
37 Pakistan	566,022 (762,165)	11,296 (11,321)	—	501,038	—	53,688
38 Indonesia	642,530 (744,846)	87,736 (126,773)	—	480,640	—	74,154
39 Canada (excluding Great Lakes) (see also note *)	912,140 (622,689)	160,923 (214,908)	87,295 (117,405)	150,542 (155,160)	—	513,380 (135,216)
40 South Africa	510,504 (577,242)	646 (1,000)	24,114 (36,421)	301,517	—	184,227
41 Somalia	369,118 (554,966)	102,737 (161,931)	—	266,381	—	—
42 Singapore	424,417 (550,772)	71,247 (105,930)	29,066 (42,043)	318,266	—	5,838
43 Mexico	381,096 (545,571)	241,010 (377,224)	32,105 (50,760)	57,395	—	50,586
44 Venezuela	392,576 (524,344)	249,049 (370,047)	—	88,708	—	54,819
45 Romania.....	341,161 (510,655)	69,314 (109,174)	151,972 (228,680)	89,608	—	30,267
46 Peru.....	377,812 (447,204)	78,039 (118,315)	18,047 (25,924)	196,248	—	85,478
47 Cuba	332,906 (438,199)	6,266 (8,325)	—	254,615	—	72,025
48 Chile	307,560 (415,806)	52,331 (82,889)	22,212 (34,624)	211,037	—	21,980
50 Colombia	234,526 (296,431)	44,072 (71,222)	—	184,393	—	6,061
51 Switzerland.....	195,880 (289,963)	—	59,814 (84,977)	135,003	—	1,063
52 Lebanon	181,790 (268,902)	—	—	181,238	—	552
53 United Arab Republic	238,282 (267,461)	79,475 (123,021)	—	123,728	—	35,079

TABLE II. (continued)

Flag of registration	Total tonnage	of which:				
		Tankers	Bulk carriers	General cargo	Container ships	Other ships
54 Ireland	174,977 (234,351)	3,207 (4,493)	81,677 (126,967)	65,868	1,244	22,981
55 Uruguay	140,657 (209,936)	71,130 (111,359)	—	65,124	—	4,403
56 New Zealand	185,836 (194,217)	2,928 (3,416)	—	134,659	—	48,249
57 Ghana	166,465 (176,828)	—	—	115,263	—	51,202
58 Iran	129,025 (166,441)	42,365 (66,366)	—	75,534	—	11,126
59 Nigeria	98,634 (135,321)	676	—	88,535	—	9,423
60 Czechoslovakia	88,868 (135,191)	—	41,086 (66,853)	47,782	—	—
61 Thailand	82,271 (101,134)	18,385 (26,002)	—	50,865	—	13,021
63 Albania	56,472 (78,532)	—	—	56,472	—	—
64 Morocco	54,725 (68,661)	11,527 (16,545)	—	36,726	—	6,472
65 Ethiopia	49,266 (68,012)	23,937 (37,055)	—	24,105	—	1,224
66 Burma	51,221 (66,245)	1,478 (909)	—	42,513	—	7,230
67 Iceland	119,305 (64,830)	8,361 (10,972)	—	45,028	—	65,916
68 Honduras	60,216 (56,981)	4,122 (6,033)	—	52,682	—	3,412
69 Saudi Arabia	48,543 (50,800)	—	—	36,707	—	11,836
70 Ecuador	45,451 (50,593)	5,546 (7,057)	—	39,235	—	670
71 Malta	35,393 (50,040)	—	19,359 (30,525)	13,777	—	2,257
72 Madagascar	29,451 (48,407)	2,366 (2,521)	—	24,944	—	2,141
73 Malaysia	48,148 (44,240)	7,484 (10,670)	—	29,348	—	11,316
74 North Korea	45,556 (37,948)	—	—	9,266	—	36,290
75 Republic of Viet-Nam	27,984 (37,170)	1,029	—	25,949	—	1,006
76 Hungary	31,325 (37,090)	—	—	31,325	—	—
77 Algeria	28,929 (35,697)	—	—	16,598	—	12,331
78 Congo, Democratic Republic of	28,817 (34,149)	—	—	28,355	—	462
79 Sudan	22,153 (28,785)	—	—	21,033	—	1,120
80 Tunisia	22,089 (28,447)	—	—	14,834	—	7,255
81 Ivory Coast	26,064 (26,985)	166	—	21,501	—	4,397
82 Monaco	18,070 (26,927)	13,233 (21,150)	—	4,837	—	—

TABLE II (continued)

Flag of registration	Total tonnage	of which:				
		Tankers	Bulk carriers	General cargo	Container ships	Other ships
83 Kenya	19,013 (25,789)	3,196 (5,054)	—	11,293	—	4,524
85 Nicaragua	15,933 (24,668)	259 (360)	—	15,674	—	—
87 Iraq	36,576 (23,286)	560	—	9,270	—	26,746
88 Maldives	17,042 (23,229)	—	—	17,042	—	—
89 United Republic of Tanzania	17,722 (22,966)	239 (261)	—	16,621	—	862
90 Mauritius	14,763 (20,245)	—	—	10,865	—	3,898
91 Paraguay	21,884 (18,898)	2,935 (1,014)	—	17,868	—	1,081
92 Nauru	14,420 (17,855)	—	—	14,420	—	—
93 Trinidad	20,734 (16,767)	4,715 (6,390)	—	7,972	—	8,049
94 Guinea	12,212 (16,375)	—	10,764 (15,290)	1,062	—	386
95 Austria	9,820 (13,067)	—	—	9,820	—	—
96 Trucial States	8,888 (12,488)	1,455 (1,934)	—	6,904	—	529
98 Guyana	14,214 (11,296)	958 (902)	—	6,685	—	6,571
99 Jamaica	12,899 (10,846)	—	—	12,253	—	646
100 Uganda	5,510 (9,115)	—	—	5,510	—	—
101 Zambia	5,513 (9,110)	—	—	5,513	—	—
102 Dominican Republic	8,493 (8,281)	674 (1,609)	—	7,582	—	237
103 Senegal	9,058 (8,179)	2,070 (2,710)	—	3,844	—	3,144
104 Fiji	6,277 (5,455)	254	—	5,525	—	498
105 Guatemala	3,629 (5,272)	—	—	3,629	—	—
106 Khmer Republic	4,230 (5,061)	—	—	1,880	—	2,350
108 North Viet-Nam	5,002 (3,952)	314 (700)	—	3,981	—	707
109 Ceylon	10,039 (3,907)	1,158 (1,649)	—	242	—	8,639
110 Libya	4,189 (3,052)	—	—	2,951	—	1,238
111 Tonga	1,987 (2,475)	—	—	1,658	—	329
113 Bahrain	2,969 (2,065)	954 (1,275)	—	847	—	1,168
114 Costa Rica	3,107 (2,050)	—	—	2,948	—	159
117 Yemen	2,195 (1,443)	—	—	2,195	—	—

TABLE II (concluded)

Flag of registration	Total tonnage	Of which:				
		Tankers	Bulk carriers	General cargo	Container ships	Other ships
118 Cameroon.....	1,688 (..)	—	—	—	—	1,688
119 El Salvador.....	1,650 (..)	—	—	—	—	1,650
120 Yemen (South).....	1,417 (1,162)	—	—	713	—	704
122 Barbados.....	1,183 (964)	100	—	499	—	584
124 Gabon.....	1,182 (558)	347	—	300	—	535
125 Syria.....	1,020 (403)	—	—	672	—	348
127 Gambia.....	1,135 (315)	—	—	—	—	1,135
129 Muscat and Oman.....	900 (285)	—	—	—	—	900
130 Sierra Leone.....	855 (..)	—	—	—	—	855
131 People's Republic of the Congo.....	824 (..)	—	—	—	—	824
132 Qatar.....	803 (175)	200	—	—	—	603
134 Mauritania.....	711 (..)	—	—	—	—	711
WORLD TOTAL	217,913,433 (326,121,230)	85,848,121 (148,047,881)	43,961,530 (72,134,723)	65,891,283	1,907,801	20,304,698

Source: Lloyd's Register of Shipping Statistical Tables 1970 and supplementary data regarding the Great Lakes fleets of the United States and Canada and regarding the United States Reserve fleet.

^a The designations 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 figures are shown on the first line; where available, dwt figures are shown on the second line between parentheses.

^c Countries have been ordered according to dwt tonnage except where dwt figures are not available. In the case of flags of Non-Self-Governing Territories, which are listed out of rank order, the number indicating rank order is shown between parentheses.

^d Ships of 100 grt and over; excluding the Great Lakes fleets of the United States and Canada and the United States Reserve fleet (see also note g).

^e Ore and bulk carriers of 6,000 grt and over, including ore/bulk/oil carriers.

^f Including passenger/cargo.

^g Excluding:

(i) United States Great Lakes fleet estimated at 1,741,622 grt (2,751,810 dwt) of which: tankers: 50,165 grt (66,866 dwt); ore and bulk carriers: 1,497,919 grt (2,386,769 dwt).

(ii) Canadian Great Lakes fleet estimated at 1,487,809 grt (2,181,194 dwt) of which: tankers: 100,534 grt (148,207 dwt); ore and bulk carriers: 1,178,306 grt (1,736,069 dwt); general cargo: 60,294 grt (78,840 dwt); other ships: 148,675 grt (218,078 dwt).

(iii) United States Reserve fleet estimated at 6,347,000 grt (7,774,000 dwt) of which: tankers: 212,000 grt (320,000 dwt); ore and bulk carriers: 14,000 grt (22,000 dwt). 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.

TABLE III
Distribution of world fleet by geographical areas, as at 1 July 1970
(Vessels of 100 grt and above)
(in grt and dwt)

Area	Total tonnage	of which:			
		Tankers	Bulk Carriers	General Cargo	Other ships
1. North America	11,970,254 (17,903,384)	5,050,072 (8,552,266)	800,487 (1,316,032)	3,760,498	2,359,197
2. Japan	27,003,704 (40,284,347)	9,288,144 (15,687,839)	7,885,867 (12,589,880)	7,377,786	2,451,907
3. Australia and New Zealand	1,259,948 (1,579,106)	192,409 (294,525)	416,112 (637,265)	403,782	247,645
4. Northern and Western Europe	83,416,354 (126,120,585)	34,664,347 (60,458,119)	18,159,289 (29,036,919)	23,022,637	7,570,081
5. Southern Europe	18,703,037 (27,319,414)	6,102,818 (10,238,946)	2,854,725 (4,701,718)	8,150,097	1,595,397
6. Central and Eastern Europe (excluding USSR).....	3,772,868 (5,255,352)	475,604 (748,528)	744,171 (1,068,834)	1,976,346	576,747
7. USSR.....	14,831,775 (15,255,420)	3,460,387 (4,936,831)	206,875 (137,343)	5,941,891	5,222,622
8. China (mainland), North Korea and North Viet-Nam	918,552 (1,234,699)	116,849 (178,037)	—	731,176	70,527
9.1 Western Asia	1,719,653 (2,587,527)	469,642 (857,791)	342,244 (555,586)	790,534	117,233
9.2 Southern and Eastern Asia	7,908,627 (11,398,216)	1,237,261 (2,070,829)	1,440,165 (2,453,949)	4,808,348	422,853
10.1 Northern Africa	348,214 (403,318)	91,002 (139,566)	—	194,837	62,375
10.2 Western Africa	347,645 (398,710)	3,259 (2,710)	10,764 (15,290)	258,860	74,762
10.3 Eastern Africa	532,815 (787,395)	132,475 (206,822)	—	386,571	13,769
10.4 Southern Africa	510,504 (577,242)	646 (1,000)	24,114 (36,421)	301,517	184,227
11.1 Caribbean	659,162 (879,856)	112,187 (175,268)	74,935 (117,606)	382,217	89,823
11.2 Central America	466,251 (634,842)	245,391 (383,617)	32,105 (50,760)	132,948	55,807
11.3 South America, Northern Seaboard.....	427,524 (552,407)	254,720 (377,339)	—	103,365	69,439
11.4 South America, Western Seaboard	965,349 (1,210,034)	179,988 (279,483)	40,259 (60,548)	630,913	114,189
11.5 South America, Eastern Seaboard	3,154,858 (4,269,249)	1,149,225 (1,717,309)	332,454 (518,426)	1,506,534	166,645
12. Oceania	53,818 (55,211)	508 (..)	—	49,471	3,839
Liberia (not included in 10.2)					
Panama (not included in 11.2).....	38,942,521	22,621,187	10,596,964	4,980,955	743,415
WORLD TOTAL	217,913,433 (326,121,230)	85,848,121 (148,047,881)	43,961,530 (72,134,723)	65,891,283	22,212,499

Source: Compiled from table II. See notes to that table.

* Dwt figures, where available, are shown on the second line between parentheses.

^b Including container ships, amounting to (in grt):

North America: 861,677; Japan: 232,582; Australia and New Zealand: 57,744;

Northern and Western Europe: 727,904; Southern Europe: 9,052; Liberia plus Panama: 18,842; World total: 1,907,801.

^c Including 670,980 grt (996,600 dwt) registered in Hong Kong part of which is believed to be controlled by foreign interests.

^d Including 276,097 grt (392,506 dwt) registered in the Bahamas; the location of the effective control of this tonnage is uncertain.

TABLE IV
 Additions to and net changes in the merchant fleets of developing countries during 1969 ^{a b}
 (Thousand grt and dot, vessels of 1,000 grt and over)

Flag of registration	All ships ^c			of which:								
				Tankers			Bulk carriers			Freighters		
	Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt
9.1 Western Asia												
<i>Iran</i>												
Additions	1	9	12	—	—	—	—	—	—	1	9	12
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	—	6	8	—	—	—	—	—	—	—	6	8
<i>Israel</i>												
Additions	3	5	4	—	—	—	—	—	—	2	3	ε
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-7	-31	-34	—	—	—	—	—	—	-7	-23	-32
<i>Kuwait</i>												
Additions	6	237	449	2	215	417	—	—	—	4	22	32
of which: new deliveries	4	234	446	2	215	417	—	—	—	2	19	29
Net additions	5	235	448	2	215	417	—	—	—	3	21	31
<i>Lebanon</i>												
Additions	5	20	30	—	—	—	—	—	—	5	20	30
of which: new deliveries	1	2	3	—	—	—	—	—	—	1	2	3
Net additions	-35	-189	-279	—	—	—	-2	-18	-28	-33	-171	-251
<i>Saudi Arabia</i>												
Additions	2	5	6	—	—	—	—	—	—	2	5	6
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	1	-3	—	—	—	—	—	—	1	1	-3
<i>Trucial States</i>												
Additions	1	4	8	—	—	—	—	—	—	1	4	8
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	4	8	—	—	—	—	—	—	1	4	8
Sub-total Western Asia												
Additions	18	280	509	2	215	417	—	—	—	15	63	91
of which: new deliveries	5	236	449	2	215	417	—	—	—	3	21	32
Net additions	-35	26	148	2	215	417	-2	-18	-28	-35	-162	-239
9.2 Southern and Eastern Asia												
<i>Burma</i>												
Additions	2	8	11	—	—	—	—	—	—	2	8	11
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	2	8	11	—	—	—	—	—	—	2	8	11
<i>China, Republic of</i>												
Additions	34	295	431	2	29	47	4	87	148	27	162	223
of which: new deliveries	15	145	227	1	17	28	1	52	91	13	76	108
Net additions	9	155	232	2	29	47	3	78	135	3	30	37
<i>India</i>												
Additions	18	256	411	1	48	88	5	104	175	12	104	148
of which: new deliveries	9	154	257	1	48	88	2	49	88	6	56	81
Net additions	10	216	353	1	48	88	5	104	175	7	73	101
<i>Indonesia</i>												
Additions	5	35	53	2	18	28	—	—	—	3	17	25
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-6	-20	-30	-4	-23	-34	—	—	—	-1	7	8
<i>Korea, Republic of</i>												
Additions	20	215	350	4	78	141	7	96	150	9	41	59
of which: new deliveries	11	183	300	1	64	120	7	96	150	3	23	30
Net additions	14	182	300	4	78	141	7	96	150	3	9	10

TABLE IV (continued)

Flag of registration	All ships			of which:								
	Number	Grt	Dwt	Tankers			Bulk carriers			Freighters		
				Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt
9.2 Southern and Eastern Asia (contd)												
<i>Maldives</i>												
Additions	5	10	13	—	—	—	1	2	2	4	8	11
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	5	10	13	—	—	—	1	2	2	4	8	11
<i>Pakistan</i>												
Additions	—	—	—	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-2	-14	-20	—	—	—	—	—	—	-2	-14	-20
<i>Philippines</i>												
Additions	14	100	168	2	51	97	1	11	18	11	38	52
of which: new deliveries	5	68	127	1	47	93	1	11	18	3	9	15
Net additions	3	47	89	2	51	97	1	11	18	—	-15	-27
<i>Singapore</i>												
Additions	24	138	182	2	15	22	—	—	—	19	103	140
of which: new deliveries	3	29	37	—	—	—	—	—	—	3	29	37
Net additions	20	115	149	2	15	22	—	—	—	15	81	107
<i>Thailand</i>												
Additions	2	7	8	1	3	4	—	—	—	1	3	5
of which: new deliveries	1	3	4	1	3	4	—	—	—	—	—	—
Net additions	—	3	3	1	3	4	—	—	—	-1	-1	-1
<i>Republic of Viet-Nam</i>												
Additions	2	8	13	—	—	—	—	—	—	2	8	13
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	2	8	13	—	—	—	—	—	—	2	8	13
Sub-total Southern and Eastern Asia												
Additions	126	1,072	1,640	14	242	427	18	300	493	90	492	687
of which: new deliveries	44	582	952	5	179	333	11	208	347	28	193	271
Net additions	57	710	1,113	8	201	365	17	291	480	32	194	250
TOTAL ASIA												
Additions	144	1,353	2,150	16	457	844	18	300	493	105	558	780
of which: new deliveries	49	818	1,401	7	395	750	11	208	347	31	215	304
Net additions	22	736	1,263	10	416	782	15	272	453	-3	32	130
10.1 Northern Africa												
<i>Algeria</i>												
Additions	1	4	4	—	—	—	—	—	—	1	4	4
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	4	4	—	—	—	—	—	—	1	4	4
<i>Morocco</i>												
Additions	1	1	2	—	—	—	—	—	—	1	1	2
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-5	-9	-12	—	—	—	—	—	—	-5	-9	-12
<i>United Arab Republic</i>												
Additions	—	—	—	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-3	-23	-26	-1	-13	-19	—	—	—	—	—	—
Sub-total Northern Africa												
Additions	2	5	6	—	—	—	—	—	—	2	5	6
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-7	-28	-34	-1	-13	-19	—	—	—	-4	-5	-8

TABLE IV (continued)

Flag of registration	All ships			of which:								
				Tankers			Bulk carriers			Freighters		
	Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt
10.2 Western Africa												
<i>Ghana</i>												
Additions	2	14	19	—	—	—	—	—	—	2	14	19
of which: new deliveries	2	14	19	—	—	—	—	—	—	2	14	19
Net additions	2	14	19	—	—	—	—	—	—	2	14	19
<i>Ivory Coast</i>												
Additions	1	7	4	—	—	—	—	—	—	1	7	4
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-1	-4	-12	—	—	—	—	—	—	-1	-4	-12
<i>Mauritania</i>												
Additions	—	—	—	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-1	-1	-2	—	—	—	—	—	—	-1	-1	-2
<i>Nigeria</i>												
Additions	1	8	10	—	—	—	—	—	—	1	8	10
of which: new deliveries	1	8	10	—	—	—	—	—	—	1	8	10
Net additions	1	8	10	—	—	—	—	—	—	1	8	10
<i>Senegal</i>												
Additions	1	2	3	—	—	—	—	—	—	1	2	3
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	2	3	—	—	—	—	—	—	1	2	3
Sub-total Western Africa												
Additions	5	31	36	—	—	—	—	—	—	5	31	36
of which: new deliveries	3	22	29	—	—	—	—	—	—	3	22	29
Net additions	2	19	18	—	—	—	—	—	—	2	19	18
10.3 Eastern Africa												
<i>Burundi</i>												
Additions	—	—	—	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-3	-23	-32	—	—	—	—	—	—	-2	-15	-21
<i>Ethiopia</i>												
Additions	3	9	15	2	4	6	—	—	—	1	5	9
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	2	7	12	1	2	3	—	—	—	1	5	9
<i>Kenya</i>												
Additions	1	1	2	—	—	—	—	—	—	1	1	2
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	1	2	—	—	—	—	—	—	1	1	2
<i>Madagascar</i>												
Additions	2	11	15	—	—	—	—	—	—	2	11	15
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	2	11	15	—	—	—	—	—	—	2	11	15
<i>Somalia</i>												
Additions	37	161	228	1	10	15	—	—	—	34	140	198
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	28	95	127	-1	-15	-23	—	—	—	27	99	136
<i>Sudan</i>												
Additions	2	4	5	—	—	—	—	—	—	1	2	2
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	2	4	5	—	—	—	—	—	—	1	2	2
<i>United Republic of Tanzania</i>												
Additions	—	—	—	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-1	-5	-9	—	—	—	—	—	—	-1	-5	-9

TABLE IV (continued)

Flag of registration	All ships			of which:								
	Number	Grt	Dwt	Tankers			Bulk carriers			Freighters		
				Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt
10.3 Eastern Africa (contd)												
<i>Uganda</i>												
Additions	1	5	9	—	—	—	—	—	—	1	5	9
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	5	9	—	—	—	—	—	—	1	5	9
<i>Zambia</i>												
Additions	1	5	9	—	—	—	—	—	—	1	5	9
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	5	9	—	—	—	—	—	—	1	5	9
Sub-total Eastern Africa												
Additions	47	196	283	3	14	21	—	—	—	41	169	244
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	33	100	138	—	-13	-20	—	—	—	31	108	152
TOTAL AFRICA												
Additions	54	234	325	3	14	21	—	—	—	48	206	286
of which: new deliveries	3	22	29	—	—	—	—	—	—	3	22	29
Net additions	28	91	123	-1	-26	-40	—	—	—	29	122	162
11.1 Caribbean												
<i>Cuba</i>												
Additions	6	47	59	—	—	—	—	—	—	6	47	59
of which: new deliveries	5	46	57	—	—	—	—	—	—	5	46	57
Net additions	6	47	59	—	—	—	—	—	—	6	47	59
<i>Haiti</i>												
Additions	—	—	—	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-1	-7	-9	—	—	—	—	—	—	-1	-7	-9
<i>Jamaica</i>												
Additions	1	2	3	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	—	—	—	—	—	—	—	—	—	—	—	—
Sub-total Caribbean												
Additions	7	49	62	—	—	—	—	—	—	6	47	59
of which: new deliveries	5	46	57	—	—	—	—	—	—	5	46	57
Net additions	5	40	50	—	—	—	—	—	—	5	40	50
11.2 Central America												
<i>Honduras</i>												
Additions	—	—	—	—	—	—	—	—	—	—	—	—
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	-1	-6	-5	—	—	—	—	—	—	-1	-6	-5
<i>Mexico</i>												
Additions	3	39	61	—	—	—	3	39	61	—	—	—
of which: new deliveries	3	39	61	—	—	—	3	39	61	—	—	—
Net additions	-6	-31	-44	-6	-58	-87	3	39	61	-3	-12	-18
<i>Nicaragua</i>												
Additions	1	5	9	—	—	—	—	—	—	1	5	9
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	5	9	—	—	—	—	—	—	1	5	9
Sub-total Central America												
Additions	4	44	70	—	—	—	3	39	61	1	5	9
of which: new deliveries	3	39	61	—	—	—	3	39	61	—	—	—
Net additions	-6	-32	-40	-6	-58	-87	3	39	61	-3	-7	-9

TABLE IV (continued)

Flag of registration	All ships			of which:									
	Number	Grt	Dwt	Tankers			Bulk carriers			Freighters			
				Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt	
11.3 South America northern seaboard													
<i>Venezuela</i>													
Additions	3	9	15	—	—	—	—	—	—	—	3	9	15
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	2	8	13	—	—	—	—	—	—	—	2	8	13
Sub-total South America northern seaboard													
Additions	3	9	15	—	—	—	—	—	—	—	3	9	15
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	2	8	13	—	—	—	—	—	—	—	2	8	13
11.4 South America western seaboard													
<i>Chile</i>													
Additions	5	30	41	—	—	—	—	—	—	—	5	30	41
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—	—
New additions	2	21	29	—	—	—	—	—	—	—	3	24	32
<i>Colombia</i>													
Additions	1	2	2	—	—	—	—	—	—	—	1	2	2
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—	—
Net additions	1	2	2	—	—	—	—	—	—	—	1	2	2
<i>Peru</i>													
Additions	10	90	120	1	6	9	1	18	22	8	66	88	
of which: new deliveries	6	56	80	—	—	—	—	—	—	6	56	80	
Net additions	1	45	57	—	3	4	1	18	22	—	24	30	
Sub-total South America western seaboard													
Additions	16	122	163	1	6	9	1	18	22	14	98	131	
of which: new deliveries	6	56	80	—	—	—	—	—	—	6	56	80	
Net additions	4	68	88	—	3	4	1	18	22	4	50	64	
11.5 South America eastern seaboard													
<i>Argentina</i>													
Additions	9	91	128	2	47	70	2	25	36	5	20	22	
of which: new deliveries	2	9	11	—	—	—	1	6	9	1	3	2	
New additions	2	58	87	2	47	70	2	25	36	—	-1	-9	
<i>Brazil</i>													
Additions	15	201	341	4	128	235	2	27	41	8	32	41	
of which: new deliveries	13	185	315	4	128	235	1	13	18	7	30	38	
Net additions	2	147	274	4	128	235	2	27	41	-3	-8	-19	
<i>Uruguay</i>													
Additions	2	31	53	1	29	50	—	—	—	1	2	3	
of which: new deliveries	—	—	—	—	—	—	—	—	—	—	—	—	
Net additions	—	16	31	1	29	50	—	—	—	-1	-13	-18	
Sub-total South America eastern seaboard													
Additions	26	323	522	7	204	355	4	52	77	14	54	66	
of which: new deliveries	15	194	326	4	128	235	2	19	27	8	33	40	
Net additions	4	221	392	7	204	355	4	52	77	-4	-22	-46	
TOTAL LATIN AMERICA													
Additions	56	548	832	8	210	363	8	109	161	38	213	280	
of which: new deliveries	29	336	525	4	128	235	5	58	88	19	135	177	
Net additions	9	305	503	1	149	272	8	109	161	4	64	66	

TABLE IV (concluded)

Flag of Registration	All ships			of which:									
	Number	Grt	Dwt	Tankers			Bulk carriers			Freighters			
				Number	Grt	Dwt	Number	Grt	Dwt	Number	Grt	Dwt	
12. Oceania													
<i>Nauru</i>													
Additions	1	4	6	—	—	—	—	—	—	—	1	4	6
of which: new deliveries	1	4	6	—	—	—	—	—	—	—	1	4	6
Net additions	1	4	6	—	—	—	—	—	—	—	1	4	6
TOTAL OCEANIA													
Additions	1	4	6	—	—	—	—	—	—	—	1	4	6
of which: new deliveries	1	4	6	—	—	—	—	—	—	—	1	4	6
Net additions	1	4	6	—	—	—	—	—	—	—	1	4	6
Total Developing Countries above													
Additions	255	2,139	3,312	27	681	1,228	26	408	654	192	981	1,352	
of which: new deliveries	82	1,181	1,962	11	524	985	16	266	435	54	377	517	
Net additions	60	1,136	1,896	10	538	1,014	23	381	614	31	222	247	

Sources: Compiled from data regarding additions and deductions to merchant fleets which were made available to the UNCTAD secretariat by the United States Department of Commerce, Maritime Administration.

* Figures regarding the acquisition of second-hand ships, per country, may be obtained by deducting "New deliveries" from "Additions". With respect to the countries mentioned hereafter, however, the following "Other additions" (see table 12, note *) should also be taken into account; the figures shown refer respectively to the number of vessels, thousand grt and thousand dwt:

Bulk carriers: Brazil: 1,139,230.
Freighters: Israel: 1, 13, 8; Republic of China: 1, 44, 59; Republic of Korea: 2, 49, 75; Philippines: 1, 44, 65; Republic of Viet-Nam: 1, 17, 25; Morocco: 1, 15, 20; Brazil: 1, 20, 30.

* Total deductions, per country, may be obtained as the difference between "Additions" and "Net additions".

^b In this table, minus signs indicate deductions.

TABLE V
Selected maximum and minimum tramp rates, 1969 and 1970

Commodities/routes	Currency unit	1969		1970	
		High	Low	High	Low
<i>Heavy grain:</i> United States Gulf - W. Coast India	Shillings sterling	98/6	88/6	174/0	153/6
N. Pacific - East Coast India	Shillings sterling	85/0	(..)	152/6	104/0
River Plate - Antwerp/Hamburg range	US dollars	8.15	6.60	15.75	8.15
River Plate - Japan	US dollars	13.30	10.50	22.00	13.25
<i>Coal:</i> Hampton Roads - Rio de Janeiro	US dollars	7.15	6.40	12.25	5.00
<i>Sugar:</i> Mauritius - United Kingdom	Shillings sterling	82/6	67/6	125/0	83/0
Philippines - United States of America	US dollars	7.85	6.30	13.50	7.85
<i>Ore:</i> Mormugao - Japan	US dollars	6.30	5.10	10.30	9.90
<i>Copra:</i> Philippines - Continent	US cents	25½	21	44	37
<i>Phosphate:</i> Casablanca - China	Shillings sterling	91/6	68/0	148/0	89/6
Aqaba - W. Coast India	Shillings sterling	55/0	49/0	53/6	51/0
<i>Rice:</i> China - Ceylon	Shillings sterling	80/0	65/0	118/0	85/0
<i>Fertilizers:</i> Continent - S. China	Shillings sterling	113/6	86/0	187/0	122/6

Source: Lloyd's List (London, 6 January 1971).

^a Approximate.

^b No deductions have been made for routes which normally used to be operated via the Suez Canal.

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