25 YEARS OF WORLD SHIPPING

Hans Ludwig Beth Arnulf Hader and Robert Kappel

FAIRPLAY PUBLICATIONS

25 YEARS OF WORLD SHIPPING

by Hans Ludwig Beth, Arnulf Hader and Robert Kappel Bremen Institute of Shipping Economics

Fairplay Publications

Published and distributed by Fairplay Publications Ltd. 52/54 Southwark Street, London SE1 1UJ ISBN 0 905045 61 0

Copyright © 1984 by Finance Company Viking.

All rights reserved. No part of this publication may be reproduced in any form or by any means without permission in writing from the publisher.

Typeset by JJ Typographics, Rochford, Essex. Printed by Mayhew McCrimmon Printers Ltd, Gt. Wakering, Essex.

FOREWORD

This book was published to mark the occasion of Finance Company Viking's 25th Anniversary.

Founded in Fribourg, Switzerland, in 1958 by Norwegian shipping interests, our company has developed into a Zurich based international financial organization with prominent European banks as shareholders.

Today, we are one of the very few lending institutions in Switzerland which specialize in shipping finance and provide a valuable support for this industry on a worldwide basis.

A steady course has been maintained through a constantly changing market and our past record gives us reasons for looking towards the future with confidence.

Zurich, February 1984

FINANCE COMPANY VIKING

PREFACE

The 25th anniversary of the Finance Company VIKING is the occasion for the publication of this book. Since this Company is exclusively engaged in the financing of ships, we felt this was a good opportunity to describe the development of shipping during the past 25 years. During the 25 years of our Company's life, the shipping markets have been fluctuating between explosive growth and stagnation or even recession. Trade cycles and other powerful external events like the oil shock of 1974 have had a lasting effect on the market. In this continuously changing situation, which now presents another great challenge in the form of overcapacity, our Company has had to function efficiently. That we succeeded in doing this for the past 25 years is surely a good enough reason for issuing a jubilee book.

The Finance Company VIKING offers, in this difficult but also interesting market, services which meet the demand for capital but give the supply of capital the necessary security by carefully spreading the risk. Our Company has become a valuable link in the service to shipping.

This jubilee publication, "25 Years of World Shipping", will be presented to our friends, our partners who have been going with us along the road of profitable cooperation, to the shipowners and shippards who facilitated pleasant collaboration by their responsible actions, and to our staff, without whom the steady development of our Company would have been impossible. To all of them we want to express our heartfelt gratitude. At the same time, let us hope that the future, too, will become successful by our joint endeavours.

Zurich, June 1983

Finance Company VIKING

Dr. Robert A. Sutz
Chairman of the Board of Directors

Introduction

We are considering here a quarter of a century of world shipping, from the late 1950s to the 1980s: A period which, for the shipping industry, was a time of growth and dynamism. Regarded as a mirror of the development of the world economy, the first half of this period was a time of tempestuous growth, which gradually slipped into calmer waters. But during this quieter stage, cyclical developments have become more emphasized. The change in the situation, the cyclical up-and-down without a proper boom, with the background of stagnation brings out problems unknown in the previous periods. Although the long-term forecast is good (maritime trade and shipping follow closely the general development of world economy) the effects of structural weaknesses are added to those of the recession. Every effort is made to overcome the difficult situation of world shipping.

But world shipping is also the main constituent of maritime trade and industry. It is not only true that foreign trade and sea-borne trade make world shipping dependent on development of the economy in general, shipping is also caught up in the economy by the various sea transport markets and there is a direct connection through the shipbuilding and the port industries. These two areas of the economy are directly connected with shipping. They are also just as international as the shipping industry.

These problems are so intricate that the ten chapters of the description of the development of world shipping in this publication can only draw a rough sketch of the trends. This applies in particular to individual markets.

The description of the overseas shipping markets for commodities is a natural continuation of the description of the development of world trade and sea transport. This chapter is divided into parts, each dealing with a special sector of the shipping market. These individual sectors are already extremely differentiated as regards their extent and the dynamism of their development.

Overseas passenger traffic is considered in a separate chapter. Within 25 years, this traffic has completely changed, from passenger lines to cruises and ferry traffic. The special tasks facing the shipping industry are discussed in another chapter. After all, shipping is not just a matter of transport. This applies in particular to the new challenges originating in the offshore markets. Quite a few shipping companies have accepted these challenges and successfully diversified. Others have been formed as new, specialized companies.

Problems of ship technology and safety are closely connected with the effects of developments in shipping on the world-wide shipbuilding industry. The shipbuilding market has been very much affected by structural changes. Newcomers in this market and cheaper areas are an important feature in this industry, as well as its excessive dependence on world-wide trade cycles.

But the relation between shipping and ports is a more direct, parallel one. It is said that ports adapt themselves to shipping but there is a gradual change towards mutual adaption, with the initiative coming from either side.

Finally, the political aspects of shipping have created a frame for the development of

industry. In the space of 25 years, many factors have become effective on an international scale. Consider, for instance, agreements on improving safety in shipping, competition between the blocks, the shipping policy of the UN, which tries to give substantial help to the enlargement of the shipping fleets of developing countries, and finally the multiplicity of national measures to help the shipping industry. Will increasing protectionism narrow the spaces available for development?

Although the long-term prospects are quite good, the next 25 years will be a time of uncertainty, and since there are no clear trends, it is becoming increasingly difficult to make forecasts. For example, what will be the effect of political factors not only in internal matters of shipping politics? Must we expect technical innovations? Will there be more state control in shipping? But the dynamism of development is its own instigation and motor. World shipping will be able to face the new challenges. History shows that constant development, with adaptability and flexibility are typical characteristics of the world shipping industry.

CONTENTS

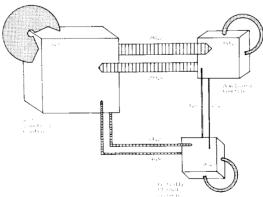
Introduction .		ix
Chapter I.	World Economy, Trade, and Sea-Borne Transport	1
	 Development of World Trade and World Economy Sea-Borne Transport 	1 7
Chapter II.	Development of Merchant Shipping	25
	1. Tank Shipping	25
	2. Tramp and Dry Bulk Shipping	47
	 General Cargo Shipping and Specialization Coastal Shipping 	61 92
Chapter III.	Passenger Shipping	99
-	1. Cruise Shipping replaces Passenger Lines	
	2. Cruising as an Independent Business	103
	3. Ferry Transport	
Chapter IV.	Special Tasks for Shipping	121
Chapter V.	Offshore Markets as a Challenge	131
Chapter VI.	Ship Technology and Safety	143
Chapter VII.	Impact on Shipbuilding	151
Chapter VIII.	Adjustment of Ports	163
Chapter IX.	Shipping Policy and Structural Changes in World Shipping	175
	 Liberalism and Protectionism in World Shipping Changes in World Shipping - The New International Maritime 	
	Order 3. Growth of Fleets and Shipping Policy in Centrally Planned	
	Economies	
	4. Shipping Policy of the OECD Countries	184
Chapter X.	Prospects for World Shipping	195

Chapter I: WORLD ECONOMY, TRADE, AND SEA-BORNE TRANSPORT

1. Development of World Trade and World Economy

Over 15% of all goods and services produced and consumed every year in the industrial and developing countries for the market pass from one country to another, so that they constitute imports and exports. This proportion has been rising steadily since the 1950s, thus illustrating the division of labour between nations and their increasing enmeshment in the world economy. World trade is substantially dominated by the western industrialized countries, most of which are members of OECD (Organization for Economic Cooperation and Development); their share of world exports was about 63% in 1980, with about 67% of world imports (see Fig. 1 and Table 1). The developing countries (including the oil producing and exporting countries, OPEC) account for only 23% while the centrally planned economies, i.e., the state economy countries (mostly members of CMEA, Council for Mutual Economic Assistance) handle only 5% of international trade.

Fig. 1: Trade Relations between Industrial Countries, Developing Countries and Centrally Planned Economies in bill. US\$



Source: Compiled from UN Monthly Bulletin of Statistics, XXXVI (May 1982), No 5, p. XXX

Table 1: World trade by regions, 1980, in Bill. US\$ and percentages

Import region Export region	World total US\$ bill.	Industrial Total	countries Eur. Comm. Community	USA	Developing Total	countries Oil exporters	Centrally planned economies
World, tot.	1'993	67 %	34 %	12 %	23 %	6 %	8 %
Industrial countries, tot.	1'261	71 %	40 %	10 %	23 %	8 %	5 %
- Eur. Com.	657	78 %	53 %	6 %	17 %	7 %	4 %
- USA	213	59 %	24 %	- %	36 %	8 %	4 %
Developing countries							
	558	70 %	26 %	21 %	25 %	4 %	4 %
- Oil exporters	306	75 %	30 %	18 %	23 %	1 %	2 %
Centrally planned economies	175	32 %	17 %	1 %	18 %	3 %	49 %

Source: Compiled from UN Monthly Bulletin of Statistics, XXXVI (May, 1982) No. 5, P. XXX.

As the figures of Table 1 show, much of international trade takes place between the industrial countries. Of the total exports of the industrial countries (US\$ 1261 bill.) US\$ 894.0 bill. (71%) was trade between the industrial countries. A slightly lower regional effect is found for the state economy countries: Only 49% of East Bloc trade took place between CMEA members, 32% was exported to industrial countries and 18% to third world countries. Regional effects can also be seen in the European Community: 53% was between member countries of the Community. On the other hand, exports of the third world countries go mostly to the western industrial countries (70%), while only 25% of their total trade volume is accounted for by trade between developing countries¹).

As regards the commodities structure, we can say that value of processed products constituted in 1979 58% of the total value of world exports (in 1963 about 52%) while agricultural products accounted for 16% (29%), oil and oil products 20% (10%) and other mineral raw materials 4% (6%). It is interesting to note that industrial countries, once leading exporters of primary materials, have now lost this role. While their share in the exports of primary materials was still 45% in 1970, it had dropped to 35% in 1979; during the same period the Third World could expand its exports of primary materials to over 55% (incl. oil). In foods, the industrial countries dominated in 1980, as in the '60s and '70s (their share was about 58% in 1980). Some 60% of world oil exports are from the mineral oil producing and exporting countries of the Third World. However, the western industrial countries still offer most of the processed products (also textiles and clothing); 81% of all exports of processed products were from western industrial countries (textiles: 71%, clothing: 50%, electrical/mechanical industrial products: 84%, machines: 81%, motor vehicles: 93%). The share of the state economy countries in international exports is comparatively insignificant. Their share in the world market in processed products is a total of 9%, and about 6% for food, about 11% for raw materials²). These figures show clearly the trends in international division of labour and international interlinkage of trade.

More generally speaking, we can say that the rates of growth of local products

and of industrial production has been considerably higher in the developing countries than in the industrial countries since the 1970s, so that the share of the Third World in local products, in industrial value added and in world exports is beginning to rise slightly, after it had been dropping during the first two post-war decades. This is also true for the developing countries outside OPEC.

During the first two decades after the 2nd World War, we saw the greatest boom in history in the world economy. This long upward swing suffered its first reverse during the second half of the 1960s and since that time the world economy has been slowing down, or even become stagnant, and structural changes and world-wide unemployment have come hand-in-hand with political troubles³). All this is connected with lower utilization of plant, stagnation in capital investment, and reduction or stagnation in expansion investment. But the decisive factor is the structural change in international division of labour, with the following predominant characteristics:

Table 2: Economic Characteristics of some Industrial Countries 1960-1982

	1960	1970	1975	1980	1981	19821)
Industrial Production ²)						
- USA	_	-	100	125	128	115
- Japan	-	-	100	142	146	153
- Switzerland	-	-	100	114	115	124
- Germany (Fed. Rep.)	-	_	100	117	114	114
- France	-	-	100	117	118	123
Unemployment³)						
- USA	5.3	4.8	8.5	7.1	7.6	9.4
- Japan	1.7	1.1	1.9	2.0	2.2	2.3
- Switzerland	=	-	0.3	0.2	0.2	0.4
- Germany (Fed. Rep.)	1.0	0.6	4.7	3.8	5.5	8.2
- France	1.2	2.4	4.1	6.3	n.a.	10.8
Gross National Product in Real Prices of 1975						
- USA	Bill. US-\$		1'075	1'202	1'481	
- Japan	100 Bill. Yen		70.6	93.8		
- Switzerland	Bill. Sfrs		93.9	144.4		
- Germany (Fed. Rep.)	Bill. DM		679.0	751.5	897.5	
- France	Bill. FF		783	953		

NOTES: 1) January 1st.

Source: Compiled from: UN Monthly Bulletin of Statistics, XXXVI (May 1982), No. 5, and XXXVI (June 1982), No. 6; Die Weltwirtschaft (1979), No. 1.

• Production substantially shifted not from industrial countries to other industrial countries (e.g., Western Europe/USA but to an increasing extent there is also a shift of investments from industrial countries to countries of the Third World and to

²⁾ Index 1975 = 100.

³⁾ in p.c. of total available workforce.

countries with state controlled economy (especially to what has been called the "world market factories", for world-oriented production in "free production zones" such as Hong Kong, Taiwan, Korea).

- Structural crises of industry, due to the competitive ability of industrial countries being threatened by cheaper production in the Third World. As examples of industries suffering from these structural crises we can mention here those producing synthetic fibres, textiles, garments, steel, clocks and watches, and the shipbuilding and mechanical engineering industries.
- International synchronisation of trade cycles, which leads to international conferences for joint measures (world economic summits). These trade cycles correspond to high rates of inflation in almost all western industrial countries and the collapse of the Bretton Woods System (with the US Dollar as the leading currency), the worldwide redistribution of incomes resulting from the oil crisis (see Fig. 2: Development of oil prices) and more acute balance of payments problems in most industrial countries. A particularly aggravating problem is that of poverty, famine, and the high external debts of developing countries.

Since the mid-70s and early '80s there has been the additional factor of the preponderance of depressive forces in the industrial countries. There are many indications that the downward movement in trade in the 1980s will be of longer duration (in the western industrial countries) than during the mid-1970s. At that time, the expansive monetary policy brought about an increase in the quantity of money in most countries, and at the same time government expenditure was greatly increased in

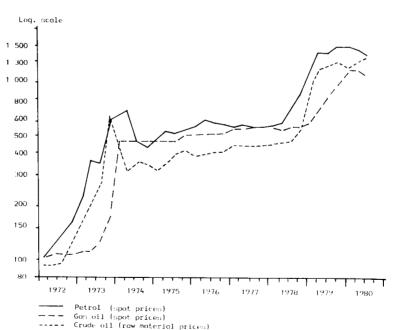


Fig. 1: Development of Oil Prices

Source: Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung: Entwicklung unter Anpassungszwang. Jahresgutachten 1980/81, Stuttgart and Mainz, 1980, P. 15.

order to stimulate demand. This anticyclical policy resulted in industrial production reaching the level of the preceding years, until 1976, but at the same time inflationary trends became more powerful. For the present downard turn, the framework of political economics presents a quite different picture⁴). Since 1981, the efforts made to brake the rise in the deficits of the public authorities and to employ a restrictive monetary and finance policy have come to predominate so that for the next few years a drop in demand and production is expected everywhere. In all OECD countries we can see an increasing discrepancy between internal and external demand, on the one hand, and the high rate of unemployment.

In the *United States*, production began to drop early in 1980; at the same time unemployment started to rise, reaching about 9.4% in 1982. When Mr. Reagan was elected as president, the economic policy was changed in the sense that taxes were reduced in order to stimulate the economy and (assisted by the Federal Reserve Board) the government used a restrictive monetary policy to slow down inflation. The national debt was also limited. Demand and production fell but the aim of reducing the trend of price rises and to clean up the problems of the economy has not yet been achieved.

Japan must be regarded as the country best prepared for the challenges presented by the world economy, in spite of the large share of oil in Japan's energy requirements. The high competitive ability of Japanese industries (indicated, for instance, by the penetration of Japanese exporters with products of good quality and high technology into the traditional markets of their European and American competitors) gave the Japanese economy an advantage in the process of adaptation to the world economy. In particular the devaluation of the Yen in 1980 contributed much to this advantage, since the Japanese were able to translate the devaluation into large export successes. The above-average advances in productivity of Japanese industry seem to indicate that the Japanese ambience is particularly suitable for structural changes oriented to follow changes on the world market. Rationalization investments have been affected very little by the fall in investments. Research and development policy in that country also favour progress in technology.

The United Kingdom has been in a great crisis for the past three years. The crisis finds its clearest expression in the increase in unemployment, over 3.0 million in 1982. In that year, the total production levels fell well below the values of 1979. There are as yet no signs of a turn for the better. The new economic/political policy of the British Government was mainly intended to break the inflationary spiral and to clean up the economic structure so as to create more favourable conditions for economic growth. The centre-piece is the restrictive monetary policy, which is helping to reduce wages and salaries in real terms. The financial policy is meant to widen the growth margin for the private sector. But all the indications are that the British economy has not yet passed through the bottom of the crisis, the rate of inflation is still fairly high, private consumption is falling because of the drop in real wages/salaries, companies continue to be wary about new investment while the number of bankruptcies is rapidly rising so that unemployment has reached a level never seen since before the war.

The French economy had been developing quite well during the second half of the 1970s. It corresponded to the aims formulated by the Government in 1976, such as balancing the public accounts, with a reduced increase in the public debt, balancing performances, improving the financing and profits of businesses and raising the competitive ability of French industry. These aims were substantially achieved, except for controlling inflation. For 1981, after the elections which put Mitterand's government into power, a clear improvement in trade was expected on account of steps taken to stimulate demand and investments. The Government also tried to strengthen

its influence on the capability of industry to invest, by nationalizing banks and large companies in key industries, while at the same time minimum wages were laid down by law and financial support was provided for poor families. Contrary to the finance policy, which had been following a line of expansion since 1981, monetary policy kept to more restrictive principles in order to prevent a devaluation of the Franc. The result of the restrictive monetary policy was mainly a drop in demand on the home market. When in 1981 and 1982 inflation was fuelled by the increase in government expenditure, which did not have the effect of increasing production and employment, the French Government decided to freeze additional expenditure on public investments so that the present combination of monetary and financial policies seems hardly likely to bring about a lasting improvement in home demand. The drop in private investment in 1982 is the clearest indication of France's economic problems today.

The Federal Republic of Germany suffers from recessive trends similar to those of other western industrial countries. With unemployment at a high level (2 million, mid-1982) and still rising, falling utilization of production capacity, reducing production in manufacturing industries, dropping private consumption and less investment for capital equipment, the prognosis for Germany can only be a pessimistic one. Although the competitive ability of German industry on the world market has improved owing to the noticeable devaluation of the DM against the Dollar, between 1979 and 1981, the forecast for German export potentials is full of high risks, in particular because of the possible effects of variations in the rate of exchange and the general recession as part of the trade cycle. Also, in view of the complexity of the problems of the labour market it will be almost impossible to change the trends in the unemployment figures. The anticyclical measures of the financial policy have not yet produced a solution of the problems of the labour market, or to an increase in willingness to invest.

To counteract the recessive trends and the deepening crisis of entire industries (e.g., steel, shipbuilding), many western industrial countries have tried to adapt themselves to the requirements of the world economy by state intervention and protectionist policies. Public subsidies for ailing industries or companies have been used to an increasing extent, in particular to fight unemployment. The OECD and the World Bank estimate that no positive signs of a new, worldwide recovery can be detected in any of the western industrial countries. But the economic recession has hit the developing countries much harder (by poverty, high external debts). Since 1974 they have been trying to change the existing system of international division of labour and bring about a new system of world economy which takes the interests of the Third World more in account⁵). As explained by Gerhard Fels, the world economic system has "proved itself to be extremely unstable".

'The industrial countries, powerful suppliers of capital goods, technical and organizational knowhow, are facing the developing countries, suppliers of petroleum, other raw materials, and agricultural products. This complementary system has proved itself to be extremely unstable, in particular because the terms of trade between industrial products and raw materials often fluctuated. Until the end of the 1960s, this instability only affected the developing countries, who received less and less for their raw material exports and had to pay more and more for their imports of industrial products. This vicious circle of falling receipts for exports and rapidly rising needs for imports formed one of the main causes of the problem of development as such"6).

Also the COMECON countries are facing increasing problems due to their greater integration in the world market, their large debts to the western world (especially Poland with US\$ 22 bill., Soviet Union with US\$ 19.5 bill., the total for COMECON is

US\$ 80.7 bill.⁷), their internal power structure and their inability to ensure the most elementary needs of their population and to raise standards of living. This is shown in particular by the riots in Poland, problems of supplies, hidden unemployment and failed agricultural crops.

The search for "new equilibrium in the world economy" is continuing everywhere but the voices of the critics are more powerful. The "room for growth and employment in the world has become smaller, for the time being" (says the Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung) and there is no lack of people, whose statements are worth listening to, who forecast, "for the 1980s, even much greater catastrophes than the slump of the 1930s" (North-South Commission). They also predict continuing stagnation of the world economy, inflation, international confusion in the rates of exchange, increasing debts, protectionism, much tension between states in the competition for energy, food, and raw materials, an increase in the world's population, with rising unemployment and worsening poverty, dangers for the environment and military crises⁸).

2. Sea-borne transport

2.1. General trends of development

Between 85 to 95% of all international transport takes place by sea. In Europe, this percentage is very much lower (only 25% for trade within the European Community) because so much transport crosses land frontiers by rail, pipelines, road, inland waterways, and air.

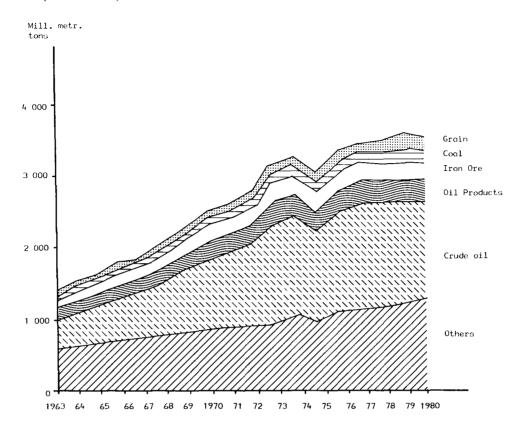
According to Fearnleys, the total volume of international sea-borne transport rose between 1955 and 1981 from 800 mill. to 3.46 bill. t. But this rise was not linear. It was actually retrograde, in absolute terms, from 1974 to 1975 and 1979 to 1981 (see Table 3). Comparison of the average rates of growth shows that the highest increases from 1960 to 1970 amounted to 7.8% p.a., but to only 4.2% from 1970 to 1975 and 2.1% from 1975 to 1981. These figures reflect the dependence of world sea traffic on the world trade situation.

Table 3: International sea-borne traffic in commodities

Year	Mill. met	r. tons Year	Mill. metr. to		
1955	800	1977	3'415		
1960	1'080	1978	3'476		
1965	1'638	1979	3'657		
1970	2'481	1980	3'648		
1975	3'043	1981	3'463		
1976	3'320	1982	3'249		

Source: Fearnleys: Review 1981, Oslo 1982, Hasenpflug, H., F.J. Jageler, W. Wetter, W. Hesse, K. Matthies, D. Winkler: Die Entwicklung des Weltseehandels und dessen Einfluß auf den Weltschiffbau, Part I, Hamburg 1978, P. 6.

Fig. 3: World Sea-borne Trade Development by Commodities – mill. metr. tons (cumulative) –



Behind this global data on sea-borne transport hide a number of different trends in development in the various groups of commodities (see Fig. 3). The increase in international goods transport by sea from 1965 to 1975 (85%) is largely due to the doubling of transport of petroleum and petroleum products while the total volume of dry goods grew only by 75%, in particular the "other" goods (general cargo, timber,

Table 4: International sea-borne traffic in commodities 1965 to 1980, average rates of growth in percent

Group of commodities	1965-1970	1970-1975	1975-1980	
Dry bulk goods Total	7.8	4.2	3.6	
- Iron ore	10.2	3.4	1.2	
- Coal	11.3	4.1	7.3	
- Grain	1.1	8.4	7.8	
"Other goods"	5.2	6.0	5.6	
Crude oil and oil products	9.2	3.7	0.7	

Source: Calculations by The Institute of Shipping Economics.

nonferrous ores, scrap, cement, fertilizer) increased by less than this rate. Compared with the years 1965-70, the quantities of dry bulk cargo dropped in 1970-80 although some (coal, grain) increased in quantity on account of substitution processes and agricultural crises. Generally speaking, the transport of crude oil and petroleum products, which accounted together for about 52% (in 1970) and for about 41% (in 1980) of the entire international goods traffic by sea, and the transport of iron ore were the main factors affecting the volume of sea transport. The reduction in oil transports by about 23% during 1979 to 1981 had a considerable effect on the contraction of the volume of international sea traffic (8% during this period) and had also direct and indirect effects on the shipping market (tonnage laid up, fall in freight rates); see Tables 4 and 5.

Because of the recessive trends in the world economy and world trade, sea-borne international goods traffic will have to expect much lower growth rates in the 1980s⁹).

Table 5: International sea-borne trade in commodities, 1965-1981, million t and percentages

	1965		1970		1975	_	1979		1980	~	1981	04
	Mill. t.	%	Mill. t.	%	Mill, t.	%	Mill. t.	%	Mill. t.	%	Mill. t.	%
Total	1'638	100	2'481	100	3'043	100	3'755	100	3'648	100	3'463	100
Crude oil and oil												
products	759	46	1'290	52	1'608	50	1'817	48	1'638	45	1'405	41
Iron ore	152	9	247	10	292	10	327	9	314	9	303	9
Coal	59	4	101	4	123	4	159	4	188	5	196	6
Grain	80	5	84	3	126	4	182	5	198	5	204	6
Dry goods, total	879	54	1'191	48	1'535	50	1'938	52	2'010	55	2'058	59
"Other" goods*	522	32	672	27	897	30	1'270	34	1'310	36	_	_

^{*} This includes general cargo, timber, non-ferrous ore, scrap, cement, fertilizer, oil seeds, sulphur, LPG, chemicals.

Source: Kappel, R., D. Rother: Wandlungsprozesse in der Schiffahrt und im Schiffbau Westeuropas. Moglichkeitu einer Beeinflussung. Forschungsprojekt für die Stiftung Volkswagenwerk, Bremen, July 1982 (Institute of Shipping Economics), P. 29.

2.2. Development of international sea-borne traffic of individual groups of commodities

A. Petroleum and petroleum products

If we, in 1982, look back at the development of world-wide oil transport, we can see the Sixties and early Seventies as oases of steady growth.

Oil transports increased comparatively rapidly from 1950 to 1974, there was never any negative growth. The same applies to transport performance and the growth of the tanker fleet¹⁰). But even during this period from 1950 to the mid-70s considerable changes took place in the origins of the oil and the directions of sea-borne transports. There were quite important changes in petroleum imports and exports especially from 1960 to 1966, viz.: