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PART 2.—SHIPPING

BY E. S. GREGG

The developments in our merchant shipping industry in the last five years are related to the following:

1. The gradual restoration of an approximate equilibrium between the world supply of ships, which had been greatly enlarged for war purposes, and the volume of ocean-borne commerce, which had been diminished by the dislocation of channels of trade and the exhaustion of productive effort in many countries;
2. The attempts to liquidate our own huge surplus of war-built and Government-owned ships; and
3. The phenomenal growth of water shipments between the Atlantic and Pacific Coasts by way of the Panama Canal.

Total Available Tonnage.—The world shipping industry has had to contend with the largest surplus of tonnage in its history. The ship tonnage of the world was 36 per cent greater in 1923 than in 1914.

TABLE 1.—STEEL AND IRON STEAM AND MOTOR SHIPS (EXCLUDING LAKE TONNAGE),
100 GROSS TONS AND OVER
(Millions of gross tons as of June 30)

Country	1914	1923	1924	1925	1926	1927	1928
Great Britain and Ireland.....	18.9	19.1	18.9	19.3	19.2	19.2	19.7
British Dominion.....	1.4	2.2	2.2	2.2	2.3	2.3	2.4
United States.....	1.8	12.4	11.8	11.6	11.1	10.8	10.9
Italy.....	2.5	2.8	2.7	2.9	3.1	3.4	3.3
Germany.....	5.1	2.5	2.9	3.0	3.0	3.3	3.7
France.....	1.9	3.3	3.2	3.3	3.3	3.4	3.3
Holland.....	1.5	2.6	2.5	2.6	2.6	2.6	2.8
Scandinavia.....	3.7	4.3	4.4	4.8	5.0	5.1	5.4
Japan.....	1.6	3.4	3.7	3.7	3.8	3.9	4.0
Other.....	4.1	5.3	5.2	5.4	5.7	5.5	6.1
Total.....	42.5	57.9	57.5	58.8	59.1	59.5	61.6

No exact data on the volume of ocean-borne trade are available, but estimates in 1923 placed it at only about 80 to 85 per cent of prewar. With a third more ships and a fifth less cargo, the maladjustment of supply to demand was serious. A world-wide survey by the Department of Commerce showed 9,128,000 gross tons of ships idle in the ports of the

world on January 1, 1923, or 16 per cent of the world total. The remarkable thing is that more tonnage was not out of active employment. This surplus has gradually been absorbed into trade or has been scrapped, and the latest figures show only 4,331,000 tons idle. Of this amount, over half will perhaps never be used regularly. The real surplus may now be said to be about 3 per cent, and this surplus is made up largely of types becoming rapidly obsolete and unusable. Statistics of world trade also indicate that the volume of ocean-borne commerce is now approximately at the level of 1913.

TABLE 2.—IDLE STEAM SHIPPING OF PRINCIPAL MARITIME COUNTRIES
(Thousands of gross tons as of January 1)

Country	1923	1924	1925	1926	1927	1928
Idle in home country:						
United States Shipping Board.....	4,411	3,564	3,664	3,518	2,336	2,371
Shipping Board tankers.....	214	163	125	134	56	41
Privately owned.....	703	541	417	458	457	544
Government owned other than Shipping Board.....	.....	3	17	10	27	22
Total.....	5,328	4,271	4,225	4,120	2,876	2,978
United Kingdom.....	1,010	909	705	613	529	539
France.....	730	450	311	134	118	80
Italy.....	472	427	136	140	128	276
Netherlands.....	330	235	65	109	3	16
Norway.....	53	50	25	22	37	93
Sweden.....	22	.....	20	30	9	35
Greece.....	76	122	24	99	106	77
Japan.....	99	29	25	35	48	85
Belgium.....	170	86	26	21	14	1
Denmark.....	17	13	.....	63	20	26
Spain.....	520	128	60	44	35	31
Australia.....	106	85	166	51	71	29
Idle in foreign countries.....	195	83	103	279	100	65
Grand total.....	9,128	6,888	5,891	5,760	4,094	4,331

This large surplus of ships and the failure of the volume of the ocean-borne trade of the world to exceed prewar figures caused the profits of many cargo shipping companies to disappear entirely and of others to shrink almost to the vanishing point. The explanation is simple. Charter rates for voyages, that is, when a shipper charters a vessel for one or more specific voyages for a specified kind of cargo, were forced below the levels prevailing before the war. The *Economist* (London) index numbers of whole-cargo freights have been as shown in the following statement:

Average, 1913.....	100
December, 1923.....	112
December, 1924.....	111
December, 1925.....	105
December, 1926.....	127
December, 1927.....	102
January, 1928.....	98
February, 1928.....	94
March, 1928.....	93
April, 1928.....	95

The decline in these rates has been uninterrupted, except in 1926, when the British coal strike caused an unusual demand for tramp tonnage. Ship operating expenses have fluctuated between 50 and 100 per cent above prewar. While it is difficult to get a weighted index of ship operating expenses, such an index would perhaps be nearer 100 per cent above prewar than 50 per cent. The profits of most cargo shipping companies were ground to pieces between these two millstones.

All ocean shipping has not fared so badly. Recent studies show that approximately four-fifths of the transoceanic shipping of the world is operated on regular routes, as contrasted with less than two-thirds before the war. The picturesque tramp ship, roaming the seven seas for cargo, is disappearing.

As the volume of production and trade of commodities entering into ocean-borne commerce has increased, shipper and consignee have demanded faster and more regular services. The tendency toward a more level rate of general business operations has resulted in a marked smoothing out of the seasonal movement of agricultural commodities. It was the seasonal gluts of supplies to be moved that kept the tramp ship moving from one route to another. In the North Atlantic to-day practically all of the American wheat crop is carried in liners, and liners have taken from tramp ships most of the movement of cotton out of the Gulf. A cargo liner partly laden with miscellaneous high grade cargo is nearly always willing to fill out with wheat, cotton, or some other bulk commodity. Over most trade routes there is a large enough volume of general cargo moving to justify the use of ships on regular schedules. The result is that only unusual quantities of seasonal goods and some of the so-called "dirty" cargo, such as coal, now call for the use of tramp ships.

Liner companies, through conference rate agreements, are able partly to nullify the fierce competition which is normal in tramp shipping. Conference agreements between lines serving United States ports are legalized when these agreements are accepted by and filed with the Shipping Board. Our legislation recognizes the value of the stability achieved through conference agreements. The liner companies catering to passenger traffic have usually been able to earn more on their investment than straight cargo liner companies, and the last five years have been no

exception in this respect. But in the passenger carrying trades and especially in the North Atlantic, the tendency in the last few years has been toward larger and faster ships, a costly competitive tendency which may, at least temporarily, reduce net earnings.

Shipbuilding.—The large growth in oversea bulk shipments of petroleum and its products has resulted in an increase of tanker tonnage, from 1,479,000 tons in 1914 to 5,161,000 tons in 1923 and a further increase to 6,544,000 tons in 1928. While most tanker tonnage is owned by the large oil companies, the independently owned tanker companies have fared better than shipping companies in general. It can be said, however, that ocean shipping on the average has had lean earnings since 1923.

This adverse earning situation necessarily reacted on the demand for new ships. The tonnage of steam vessels under construction in 1923 was only 2.5 million gross tons, as compared with a maximum world output of 6.8 million tons in 1919 and 3.2 million tons in 1913. By 1928 a slight improvement in demand for new tonnage had appeared. Over one-half of the shipping now on order, however, is to be equipped with Diesel engines, indicating a replacement of obsolete with more modern types; and over one-fifth of the total is tankers. The shipbuilding industry of the world is still in a depressed state.

TABLE 3.—STEAM AND MOTOR VESSELS UNDER CONSTRUCTION
(Thousands of gross tons as of June '30)

Country	1914	1923	1928
Great Britain and Ireland.....	1,718	1,337	1,203
Germany.....	546	301	408
Netherlands.....	113	99	173
Italy.....	65	141	154
France.....	226	170	126
Japan.....	91	72	111
United States.....	141	133	56
Other.....	228	286	429
Total.....	3,128	2,539	2,660

High operating expenses have furnished an urge to lower costs through improved mechanical efficiency. The rapid increase in motor-ship tonnage, from 234,000 tons in 1914 and 1,700,000 tons in 1923 to 5,153,000 tons in 1928, indicates how shipping executives have turned to the Diesel engine as an aid in reducing operating expenses. Steamers fitted for burning oil fuel have also greatly increased, from 1,300,000 tons in 1914 to 19,053,000 tons in 1928. The result has been that ships fitted for burning only coal now comprise 61 per cent of the world's total, as compared with 89 per cent in 1914. Recent tests with pulverized coal may again cause the trend to change. The demand in recent years has

been for any type of prime mover which could be operated more cheaply than the older types.

American Merchant Marine.—Against this background of depression and low earnings, it is logical that American shipping has not prospered. It will be seen from Table 1 that American shipping has declined from 12.4 million tons in 1923 to 10.9 million tons in 1928, although world tonnage has been increasing in this period. A large part of this reduction has been due to scrapping, the Henry Ford project of breaking up 199 vessels of over half a million gross tons being the most ambitious, and part to sales abroad. It should further be noted that of the vessels registered under the American flag, 2,978,000 tons were idle on January 1, 1928.

One of the most important factors affecting our merchant marine in the last five years is political and, consequently, intangible and highly controversial. Fifty-eight per cent of the steam sea-going shipping of this country in 1923 was owned by the Government. The Shipping Board inherited about 2,000 ships planned for use in the war. Most of these ships were not finished until long after hostilities had ended. The wise course, as observers pointed out repeatedly in the years after the war, would have been to sell these ships for use or for scrapping at any price obtainable. From the political point of view, however, this proposal was extremely difficult, if not impossible, to carry out. As a result, the Shipping Board has been slow in disposing of its vessels, and has tended to operate as many lines as Congress has been willing to support.

Some progress, however, has been made in reducing the amount of Government-owned tonnage. Such tonnage comprised only 42 per cent

TABLE 4.—UNITED STATES SEA-GOING MERCHANT FLEET, 1,000 GROSS TONS AND OVER

(Thousands of tons, as of January 1)

	1923 ^a	1924	1925	1926	1927	1928
Government-owned.....	6,544	6,318	6,109	5,507	4,563	4,337
Private.....	4,734	5,050	5,509	5,491	5,925	6,078
Total.....	11,278	11,368	11,168	10,998	10,488	10,415

^a April 1; figure for January 1 not available.

of our merchant fleet at the beginning of 1928, as contrasted with 58 per cent five years earlier. Of the decline in Government owned tonnage amounting to 2,200,000 tons during this period, over three-quarters of a million tons were scrapped. The rest of the Government tonnage disposed of has found its way into active employment. The Shipping Board has sold all of its lines in the Pacific to private owners, and success is attending the efforts to dispose of the more important lines in the Atlantic

trades. Even if the Board is successful in selling all of its lines, the problem of Government participation will not be entirely solved. Its large laid-up fleet will still be a potential threat to the rate market.

Belief that the Shipping Board may retire from shipping operations through sales to private owners has been strengthened by passage of the White-Jones Shipping Act early in 1928. This legislation provides for mail subventions on a fairly liberal scale and for Government loans on liberal terms to American shipping companies building vessels in American yards. The sale of Government lines operating to the West Coast of Africa, on terms that were better than the Board had been previously able to obtain, was made possible by this legislation. Mail subvention payments should also aid materially in the sale of the Shipping Board's transatlantic lines.

The great activity of the Shipping Board in starting new cargo services just after the war, coupled with the disorganization of foreign shipping services, resulted in 71 per cent of all imports and 38 per cent of all exports being carried in American vessels in 1921. These percentages dropped to 47 and 25 per cent, respectively, in 1926, the latest year for which these figures are available. A further analysis of the figures shows that 30 per cent of imports of dry cargo from oversea destinations was carried in American vessels in 1926 as compared with 44 per cent in 1921, and of exports of dry cargo to oversea destinations 21 per cent in 1926 was carried in American vessels as compared with 33 per cent in 1921. Our ships have made a better showing in the case of oil cargo. They brought in 76 per cent of our imports of petroleum in 1926 and carried out 31 per cent of our exports. No clear dependence of our trade on ships flying our flag is evident, since the volume of dry cargoes from oversea rose from 12,357,000 tons in 1921 to 26,189,000 in 1926, and of exports from 34,855,000 tons in 1921 to 46,914,000 tons in 1926.

At the present time, in only a few instances are Shipping Board lines competing directly with privately owned lines. The Board has withdrawn from the intercoastal trade, although it persists in selling ships to owners who intend to upset co-operative efforts toward rate stability in this trade. The Shipping Board's lack of willingness to scrap useless tonnage and its willingness to break out tied-up ships when rates rise, as in the case of the British coal strike in 1926, act as a drag on shipping rates.

It might be argued with some plausibility that a reserve of ships available for use in case of a temporary shortage of shipping is a stabilizing influence. No private enterprise could afford to have millions of dollars invested in idle ships which would be used perhaps only for two or three months every two or three years. In case of emergency these ships would be put into a trade to keep rates at a level only slightly in advance of what they were before the unusual circumstances arose. The income

from the employment of these reserve ships during such an emergency would not begin to pay the fixed charges on the investment while these ships were idle. The Government has had idle ships and has used them on occasions to provide extra facilities on routes temporarily crowded with cargo. There is no sound economic argument for a continuance of this situation, if private initiative and enterprise are to be the guiding principles of our economic order.

Intercoastal Trade.—While the Panama Canal was opened to traffic in 1914, its effects on world trade did not begin to appear clearly until two or three years after the war. The influence of the canal on American shipping has been profound. The best of our privately owned merchant fleet deserted foreign trade routes and entered the protected trade between the Atlantic and Pacific coast. Foreign ships are forbidden to engage in our coastwise trade and the intercoastal trade is interpreted as being coastwise, although the trip is longer than most transoceanic ones. In spite of keen competition among intercoastal shipping lines, this business is more profitable than most foreign routes.

The heavy shipments of oil from California to the Gulf and Atlantic Coast, which, for several years, gave employment to a large part of the American tanker fleet, may not be permanent. On the other hand, it is

TABLE 5.—GROSS TONNAGE OF UNITED STATES STEAMERS IN THE INTERCOASTAL TRADE, VIA THE PANAMA CANAL, BY TYPES, AS OF APRIL 1

Year	Passenger	Cargo	Tankers	Total
1923.....	28,775	764,043	675,074	1,367,892
1924.....	58,788	766,320	749,421	1,574,529
1925.....	84,374	747,234	429,314	1,260,922
1926.....	59,655	876,020	465,280	1,400,955
1927.....	59,655	841,539	412,859	1,313,853
1928.....	68,039	930,934	293,706	1,292,679

probable that an increasing number of cargo ships will enter this service and, perhaps, even additional passenger ships.

The significance of this shift in employment of privately owned American vessels extends in several directions:

1. Our ships in this service are not handicapped by competition with low-cost foreign ships and with seamen of lower standards of living. If the business is not profitable, ship owners engaged in it have only themselves to blame.

2. One argument for Government aid to our merchant marine has been that ships under our flag are necessary in case of war. Some of our finest ships are engaged in this protected trade. The amount of tonnage in this trade, which should continue to increase, apart from tankers, might constitute a naval reserve.

3. Replacements and additions to the tonnage in the inter-coastal trade will provide a backbone of work for our shipyards, since only American-built vessels can engage in our coastwise trade.

These points all relate directly to our merchant shipping industry. The most far reaching influence, however, of this rapid growth of water shipments between the Atlantic and Pacific coast has been on channels of domestic trade and on the localization of industry in this country. While the ten million tons of freight shipped by water through the Panama Canal in a year is small in comparison with the billion and one-third tons of revenue freight originating on all our railways, and with the approximate quarter of a billion tons of transcontinental rail traffic, its influence has been out of proportion to the size of the movement. This is especially true when it is noted that 3,500,000 tons of the intercoastal trade is oil, and, of the dry cargo probably a substantial percentage was stimulated by the intercoastal services through the canal.

TABLE 6.—VOLUME OF WATER-BORNE TRADE BETWEEN ATLANTIC, GULF, AND PACIFIC COASTS VIA THE PANAMA CANAL

Year	Eastbound	Westbound	Total
1924.....	7,883,797	2,195,756	10,079,553
1925.....	6,370,615	2,230,591	8,601,206
1926.....	7,523,944	2,572,705	10,096,649
1927.....	7,843,770	2,528,672	10,372,442

Cargo has been diverted from the transcontinental rail lines at a time when their earnings were low because of a variety of other reasons. It cannot logically be argued that intercoastal shipments were a large factor in the low earnings of these roads, but the diversion of traffic from railways to ships was unquestionably one factor.

The more significant influence of this movement has been to retard the localization of industries in certain sections of the Middle West. At the present time, a shipper on a line running north and south approximately through Cleveland, Ohio, can send goods to the Pacific Coast as cheaply by rail eastward and then by steamer westward through the Panama Canal as by rail westward. Shippers east of this imaginary line have lower transportation costs on west coast business, and new industries are likely to take this factor into account when they are about to locate a new plant.

The Middle West has thus been deprived of business which formerly fell to its lot. The recent action of the Illinois Central Railroad in publishing a joint rail and water tariff on steel articles originating around Chicago and destined for the Pacific Coast via the Gulf is an effort to

recapture some of the freight which has been diverted to eastern mills whose location enabled them to use intercoastal ship service. It is too early as yet, however, to evaluate quantitatively the effect of this new policy.

This shift in channels of traffic has brought up the question of regulation of water rates in the intercoastal trade. The railroads which have lost this traffic are rigidly regulated by the Interstate Commerce Commission. The ocean shipping companies in the intercoastal trade have no restraints other than self-imposed ones. When intercoastal conference agreements have been broken and water rates lowered in the resulting cut-throat competition, the "watershed" has moved westward from Cleveland to the neighborhood of Chicago. Obviously, such disarrangements are harmful to everyone concerned. If the shipping executives in the intercoastal trade cannot stabilize their business through co-operative action, Government regulation, in the interest of the railroads and the shippers who suffer from quarrels among the shipping companies, may result. The working out of this problem, for which no exact precedent exists, will take time and even experimentation.

Inland Waterways.—The growth of business interest in our inland waterways, as a method of transportation supplementary to the agencies already existing, is due partly to the action of the Council of National Defense during the war. This Council recommended full utilization of our inland waterway facilities, which they believed would be of material benefit in the carriage of heavy traffic. The country was faced with war-time congestion, with little likelihood of better conditions in the near future; at the same time a constantly enlarging military program pointed to heavier traffic movements. While the immediate object of the Council's Committee on Inland Waterway Transportation was an organization of waterway traffic to meet war-time emergency, consideration was given to the future commercial value of various water routes, the development of which was recommended.

The principle of joint rail and inland water rates was established at this time. Without these joint tariffs and arrangements for interchange of cargo between rail and rivers, inland waterway carriers might still be limited to cargo originating within a few miles of the waterway, which was the situation prior to the appointment of the Committee on Inland Waterway Transportation of the Council of National Defense.

Part of the renewed interest in inland waterways is due to Mr. Hoover's insistence, while Secretary of Commerce, that our inland water transportation activities should be directed toward a unified and interchangeable system of 9,000 miles in the Mississippi and tributary valleys, and to a deep channel outlet from the Great Lakes to the Atlantic.

Also responsible for maintaining the interest of business men of the Middle West in this large program is the shift in traffic arising from the

opening of the Panama Canal. Those affected by this shift are seeking cheaper transportation outlets and inlets, and therefore have been led to give support to the waterway services already in operation and to Congressional action for the appropriations necessary to unify the whole system.

In recent years, inland water transportation has increased steadily, although, as Table 7 shows, it is still a small percentage of the total volume of traffic carried by all means of transportation.

TABLE 7.—VOLUME OF TRAFFIC ON INLAND WATERWAYS
(In thousands of tons)

Item	1924	1925	1926
Tonnage originating on railways.....	1,287,000	1,351,000	1,440,000
Overseas foreign commerce.....	82,118	81,808	100,274
Great Lakes trade, eliminating trade between the United States and Canada.....	83,292	99,916	103,760
Trade between United States and Canada via Great Lakes....	12,930	12,820	13,195
United States coastwise ocean-borne commerce (excluding Great Lakes and Panama Canal).....	67,678	84,416	85,504
Total of navigable rivers and canals (excluding all known duplication).....	173,190	204,569	217,000
River transportation in the United States (excluding transit tonnage of Detroit River).....	102,432	118,294	127,421
Canal transportation in the United States.....	92,290	109,410	116,210
Sault Ste. Marie.....	72,037	81,875	85,679
Panama Canal (intercoastal traffic only).....	11,327	9,460	10,922

Mississippi River inland waterway traffic has received more public attention than that of our other rivers because, in there experimenting with modern equipment, the Government is attempting to create conditions required to stimulate private operation on these waterways.

TABLE 8.—TONS OF TRAFFIC CARRIED BY MISSISSIPPI AND WARRIOR RIVER BARGE LINES, 1918-1927

Year	Mississippi service	Warrior service
1918.....	23,378	10,350
1919.....	104,769	130,502
1920.....	160,702	200,017
1921.....	443,267	228,844
1922.....	599,669	260,344
1923.....	710,431	269,341
1924.....	849,503	222,345
1925.....	910,755	231,464
1926.....	1,044,649	296,929
1927.....	1,237,452	398,694

When the deepening of the Mississippi and its tributaries is completed so that cargo can be continuously carried in large modern barges over the greater part of 9,000 miles of inland channels, the effectiveness of this

method of transport—which is not new in our economic history—may be more clearly apparent.

The Government has borne the expense of the experimental stages of development, but if the inland waterways experiment by the Government proves a success, private capital will probably enter this field of transportation. A number of private corporations are now operating their own river transport facilities.

In recent years the project of a deep channel waterway from the Great Lakes to the Atlantic has been under consideration. The St. Lawrence and the New York State routes have been surveyed from the engineering and economic points. The conclusions of the United States St. Lawrence Commission favored the construction of a shipway from the Great Lakes to the sea for the relief and development of the interior of the continent. They favored a shipway on the St. Lawrence route, provided suitable agreement can be made with Canada for its joint undertaking. They were of the opinion that the development of the power resources of the St. Lawrence should be undertaken by associated agencies, and that negotiations should be entered into with Canada in an endeavor to arrive at an agreement on all of these subjects. Further conversations between the Canadian Government and our own have taken place without a definite line of united action having been decided upon.

Summary.—In the last five years, the world's shipping industry has had to contend with the worst surplus of tonnage in its history, and the decline in charter rates has been almost uninterrupted.

Not all ocean shipping has fared badly. The demand for faster and more regular service has favored the cargo liner, and the picturesque tramp is disappearing.

The adverse earning situation has reacted on the demand for new ships. At the same time high operating expenses have furnished an urge to lower costs through improved mechanical efficiency. Steamers fitted for burning oil fuel have greatly increased, and over half the shipping now on order is to be equipped with Diesel engines, indicating a replacement of obsolete with more modern types. However, the shipbuilding industry of the world is still depressed. American shipping has not been prosperous.

The effect of the Panama Canal on American shipping has been profound. The best of our privately owned merchant fleet is in the protected trade between the Atlantic and Pacific coasts. The canal has also influenced our channels of domestic trade and the localization of industry in this country.

The shifts in traffic due to the opening of the Panama Canal have caused business men in the Middle West to back the development of the Mississippi river system including a Great Lakes connection, and the Great Lakes to the Atlantic waterway.

