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*H. Vanstegen*  
Evanston Oct. 71

# PROCEEDINGS — —

## Twelfth Annual Meeting

“Changing Times and Keeping Up”

October 18-19-20, 1971

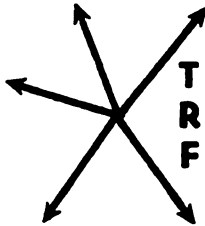
Sheraton Hotel

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**TRANSPORTATION RESEARCH FORUM**

# The Rationale of the Merchant Marine Act of 1970

by Robert J. Blackwell\*

## INTRODUCTION

**I**N OCTOBER, 1970, President Nixon signed into law the Merchant Marine Act of 1970, the most sweeping overhaul of this Nation's maritime policy in over three decades. This far-reaching program, which provides for the construction of 300 new ships in this decade and the modernization of the rules governing Federal assistance to the maritime industry, grew out of a campaign pledge made in September, 1968, to restore the United States to the rank of a first-class maritime power.

The purpose of this paper is to examine the situation that led to the President's pledge and the formulation of his maritime plan, the analysis on which the program is based, and what can reasonably be foreseen as the program's likely results in the next ten years.

## BACKGROUND

As a matter of national policy the United States has long recognized the necessity of maintaining an adequate-sized merchant fleet under its own flag. There are two distinct requirements which the merchant fleet should fulfill. First, by carrying a significant portion of U.S. foreign trade, the fleet would give this Nation essential leverage over the rates and practices governing the movement of this trade. Second, the merchant fleet should provide mobility for defense forces in emergencies and supply troops and allies overseas during non-emergency periods.

Our national experience in this century alone has clearly shown the essentiality of these missions. Prior to U.S. entry into World War I, American-flag shipping was confined almost exclusively to the domestic coastwise and intercoastal trades. Ocean transport from U.S. ports to Europe, the Near East, Africa, and most of South America was provided by British, French, German, and Italian vessels. With the outbreak of the war, these vessels were withdrawn from these services; and, despite the enactment of emergency legislation to encourage operators to bring their ships under U.S. registry, insufficient tonnage was available to move American cargoes, and freight rates rose dramatically, further endangering this trade.

The most dramatic example of the military role of merchant shipping is provided by World War II, during which the United States produced 5,777 vessels under emergency conditions to keep troops and supplies moving despite the concerted enemy efforts by sea and air to break this vital supply link. The total war-time cargo lift amount to almost 270 million tons, requir

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an average rate of delivery of 8,500 tons per hour during the war years. Over 700 U.S. merchant ships were sunk during the war, representing more than half the tonnage of the pre-war fleet. Without the emergency shipbuilding program, the most massive effort of its kind in history, the U.S. merchant marine would not have been able to meet the demands of the war. The total cost of building and operating the U.S. war-time merchant marine came to more than \$22.5 billion.

Our experience in Vietnam, also, has highlighted the necessity of having a merchant fleet ready and able to effectively serve our defense needs. Several times in the years of build-up in Southeast Asia, strategic cargoes were delayed by the refusal of foreign crews aboard foreign-flag vessels to sail into the war zone.

Although the lessons of our recent history are clear, the U.S. merchant fleet during the post-war years was allowed to decline to the point where its ability to meet these commercial and military requirements (and in cases of limited war, these roles are not mutually exclusive, but overlapping) was endangered.

At the end of the war, the U.S. merchant fleet was the largest in the world, totalling nearly 4,000 ships, of 38.9 million deadweight tons. Since then, the fleet has steadily declined to the point where the privately owned portion consisted of only 942 ships, of 15.1 million tons, on January 1, 1969, excluding 25 passenger and combination passenger-cargo vessels. Over two-thirds of these ships are over 20 years old, and nearing the end of their economically useful lives. The fleet is obviously faced with a massive block obsolescence problem, as Figure 1 clearly indicates.

Figure 2 also illustrates the decline of the fleet through a comparison of the portion of U.S. foreign trade (excluding military cargoes) carried by American vessels in 1950 and 1968. This fraction declined from 42.3 percent in 1950 to a paltry 6.0 percent in 1968.

The U.S.-flag fleet, when the present Administration took office, also suffered from an imbalance between the liner and bulk carrier segments of the fleet. This is illustrated in a breakdown of the 1968 trade carriage statistics in Figure 2, as well as directly in Figure 1. The liner segment of the fleet, including some of the most modern containerships in the world, carried 24.0 percent of the 46.1 million tons moving in this trade. Contrasted with this, U.S.-flag non-liner vessels carried only 3.0 percent of the 209.5 million non-liner tons moving, and American tankers transported only 4.6 percent of the 163.1 million tanker tons moved that year. Despite the obvious importance of imported raw materials, such as petroleum and mineral ores, and exported agricultural commodities, the U.S.-flag participation in these trades is decidedly deficient.

The success with which U.S. liner vessels are operating stems primarily from two sources. First, the Merchant Marine Act of 1936, which embodies the basic maritime policy in the United States, provided a system of operating and construction subsidies that put selected U.S. liner operators on cost parity with their foreign competitors. This program has generated the construction of some 180 new vessels since 1956. While the subsidy system had important defects, most notably its failure to include bulk carriers, as I shall

**AGE AND COMPOSITION OF U.S. MERCHANT FLEET,  
JANUARY 1, 1969 (EXCLUDING PASSENGER/COMBINATION  
SHIPS)**

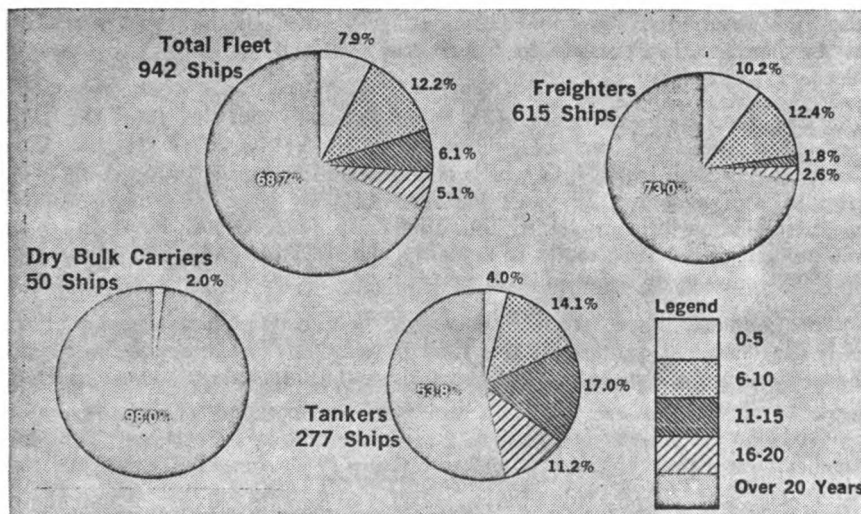


FIGURE 1

discuss in more detail shortly, it has been reasonably successful in building up the liner fleet.

The second factor contributing to the relative health of the liner fleet has been the advent of containerization and the response to it by American operators. By greatly reducing turnaround time, containerization has improved the productivity of U.S. ships. For example, in the heavily containerized North Atlantic trade, a modern conventional freighter requires on the order of 40 days to make a complete round-trip between U.S. East Coast and Western European ports. Container vessels, on the other hand, are able to make the same voyage in about 21 days, a reduction of about 50 percent.

Because of the rapidity with which U.S. operators embraced the container concept as a means of increasing revenues and overcoming their inherent cost disadvantage vis-a-vis their competitors, U.S.-flag vessels are dominant in

**U.S. FOREIGN TRADE CARRIAGE**

	1950	1968
Total U.S. Oceanborne Foreign Trade (tons)	117.5	418.6
U.S.—Flag Tonnage	49.7	25.0
U.S.—Flag Percentage	42.3	6.0

FIGURE 2

these trades. In 1969, U.S. containerships in the North Atlantic trade carried 59 percent of the 3.1 million containerized tons moving in that trade. Similarly, in the West Coast/Far East trade, American ships accounted for 62 percent of the containerized movement in 1969. It is interesting to note, also, that containerization has permitted two large containership operators in the North Atlantic trade to forego the operating subsidy they formerly received.

Our decade of experience with containerization also illustrates the salutary effect advanced technology can have on freight rates. In the East Coast/Puerto Rico trade, into which containerization was introduced in 1958, rates in the preceding 12 years had increased by over 50 percent. Based on extrapolation of this trend, the 1968 rate level would have stood at 165 percent of the 1958 mark. In actuality, the 1968 level was 88.2 percent of the 1958 one—a decrease of 11.8 percent.

In summary, then, the U.S. merchant fleet presented a mixed picture, with the container portion of the fleet in relatively good health, but with the near-term obsolescence of the remainder—the larger part—overshadowing it.

### THE NEW PROGRAM

Projecting the current status of the merchant fleet to 1982 shows that, with no new construction, the present foreign-trade fleet of 650 ships would drop to 202 vessels, with most of the decline occurring in the period 1970-1974, when the war-built ships in the fleet would reach the end of their economic lives. In order to evaluate the lift capacity of the existing and planned fleets, a planning concept called the "Modern Ship Equivalent" was developed. The general cargo MSE is a 17,000-deadweight-ton vessel, capable of making 23 knots and carrying 100,000 long tons of cargo annually over a simulated trade route. The dry bulk carrier MSE is a 65,000 ton vessel, making 17 knots and carrying 700,000 tons a year in foreign trade. The tanker MSE is 70,000 tons, capable of 17 knots, and with an annual carrying capacity of 800,000 tons.

In terms of MSE's, the 1969 foreign-trade fleet consisted of 228 vessels and the projected 1982 fleet (with no construction), 115 ships.

As an initial step in developing the new program, the Maritime Administration surveyed the requirements of the Department of Defense and the Office of Emergency Preparedness for merchant shipping capability in 1982. These estimates were combined with those developed internally concerning the capacity necessary to maintain the Nation's commercial trading capability. Figure 3 shows the projected 1982 capacity requirements in MSE's for general cargo vessels, dry bulk carriers, and tankers; the projected fleet at that time, also in MSE's; and the net deficit.

These totals include sufficient vessels to meet foreseeable military requirements, urgent civilian requirements, and insure an adequate participation by U.S.-flag vessels in our commercial foreign trade.

It was on this data that the current building program was based.

**1982 U.S.—FLAG FOREIGN TRADE FLEET  
(IN MODERN SHIP EQUIVALENTS)**

	<b>Required</b>	<b>Existing</b>	<b>Deficit</b>
General Cargo	361	108	253
Dry Bulk Carriers	55	1	54
Tankers	32	6	26
	<hr/>	<hr/>	<hr/>
Totals	448	115	333

**FIGURE 3**

Recognizing the trend toward larger ships, an average of 25 general cargo vessels, three dry bulk carriers, and two tankers, or equivalent capacity, will be built annually. These proportions may vary somewhat from year to year.

It was also decided that provisions must be made in the new program to encourage the construction of more bulk carriers to provide a more balanced fleet. In the past, these ships had not been eligible for construction and operating subsidies. The sole form of Government assistance available to them was the premium rates paid on preference cargoes, Government-impelled shipments of which 50 percent is reserved for U.S.-flag vessels. While these foreign-aid-derivative programs helped the existing bulk carrier fleet, they did not provide the necessary incentives for bulk operators to build new ships.

The only way in which new construction of bulk carriers would be encouraged at reasonable cost to the Government, it was felt, was by extending the construction and operating subsidy provisions, previously limited to liner operations, to these vessels.

Complicating the subsidization of bulk carriers was the question of size. The deadweight tonnage of bulk carriers in the world fleet has outstripped the ability of U.S. ports to handle them. Tankers of 300,000 deadweight tons and versatile ore-bulk-oil carriers of 150,000 tons are not common. Yet, U.S. Atlantic and Gulf ports are limited by draft restrictions to vessels of about 80,000 tons. The dilemma posed, therefore, is: If we were to restrict our building program to vessels capable of entering present American ports, we would severely handicap these ships in competing with larger foreign-flag vessels in world markets. On the other hand, vessels large enough to be so competitive would be greatly limited in their ability to participate directly in U.S. foreign trade.

The solution to this problem incorporated in the current program is to take advantage of the economies of scale "supersized" ships offer by building such vessels and, at the same time, to encourage the development of deep-water facilities in the United States able to receive these ships. Indicative of the economies inherent in the use of such large vessels are the data in Figure 4, which shows the freight rate required for tankers of various sizes to produce a 10 percent after-tax return on investment for the owner, assuming one cargo and one ballast leg on a round trip. We are also undertaking ap-



propriate research aimed at encouraging the development of off-shore terminals in the United States to handle these ships.

While we anticipate that many of the new ships to be constructed under the new program will be so productive and efficient as not to require operating subsidy, as illustrated by the operators in the container trades, this will not be the case with regard to their construction. It will still be necessary, if U.S. operators are to be placed on an equal capital-cost basis with their foreign counterparts, for the Government to continue the construction subsidy established by the 1936 Merchant Marine Act.

However, the former program incorporated some undesirable procurement provisions that tended to increase the cost of this subsidy. Typically, ships were ordered in small numbers, to be built to the owner's specific desires. These ships were frequently very elaborate compared with the austere foreign-built vessels with which they were competing. Under these circumstances, the subsidy rates—the difference between the foreign and domestic price of vessels—tended to be on the high side, approaching the 55 percent maximum imposed by law.

The present program, on the other hand, contains features to eliminate these problems; and, together with the modernization of U.S. shipyards, will permit steady reductions in the subsidy level. The FY 1971 goal is 45 percent, with further annual decreases of two percent until the 35-percent mark is reached in FY 1976.

One of the primary methods of achieving this goal is through the encouragement of series construction. Significant cost savings are achieved by ordering reasonably large numbers of ships of the same design, thus spreading fixed costs over more units, obtaining volume discounts on materials and equipment purchases, and incurring a "learning" effect from the increased efficiency of both labor and management. An excellent example of the savings attainable through series production was the original construction contract for 11 Lighter-Abroad-Ship, or LASH, vessels. The purchase of 11 of these ships at the same time resulted in lowering the bid unit-price by some \$7 million from the cost of building just one ship.

Additionally, the contracting provisions of the 1936 Act have been changed

### IMPACT OF SIZE ON TANKER FREIGHT RATES

Deadweight Tonnage	Speed	Required Freight Rate (\$/ton) One-Way Voyage Distance		
		2,000	8,000	12,000
40,000	16	\$3.47	\$12.13	\$18.14
80,000	16	2.36	8.02	11.90
120,000	16	1.94	6.40	9.43
200,000	16	1.58	4.92	7.18
300,000	16	1.42	4.15	5.99

FIGURE 4



to give the shipyard a more prominent place in the ship design and construction processes. We anticipate, under the program, that vessel designs will be developed by the yards themselves, rather than owners' design agents. These designs will be tailored to the equipment and techniques employed in the individual yards, thus increasing the economy with which they can be built.

Another important change in the shipbuilding program permits yards to negotiate prices directly with the prospective buyers, rather than submitting fixed-price bids. Of course, the Maritime Administration scrutinizes each such negotiated price to insure that it meets the "fair and reasonable" criterion established in the implementing legislation for the new program.

### MARITIME INDUSTRY IN THE 1980's

The maritime program is estimated to cost the Government approximately \$4 billion in construction and operating subsidies in the period 1971-1982, approximately \$100 million more a year than would have been spent under the previous program. In addition, steamship lines and shipyards will have to invest on the order of \$6 billion in that period in new construction and shipyard modernization. What can we reasonably expect in return for this large investment?

Figure 5 shows the projected age and composition of the U.S.-flag merchant fleet as of January 1, 1980. Over a third of the 583 vessels comprising the fleet will be 5 or less years old. Over half will be less than 10 years old. These ships will be among the most modern and efficient in the world. Contrast this fleet with the one depicted in Figure 1, above, showing the same characteristics for the January 1, 1969, fleet. Two-thirds of that fleet of 942 ships were over 20 years old and near obsolescence.

Figure 6 shows the portion of U.S. foreign trade we expect will be carried in U.S.-flag vessels. The reader will note that U.S.-flag participation in the liner trades will increase from 1969's 21.3 percent to nearly 40 percent in 1980; similarly, U.S.-participation in the bulk trades will approximately triple, from about 3 percent in 1969 to nearly 10 percent in 1980. Overall U.S.-flag foreign-trade participation is projected to increase from 4.8 percent in 1969 to about 15 percent in 1980.

This fleet will be well able to meet any military sealift requirements, as well as protecting American foreign trade interests. In addition, it will make a substantial contribution to the U.S. Balance of Payments, as well as lessening the Government's net outlays through increased corporate and individual income tax payments. The ships produced, according to Maritime Administration estimates, will contribute some \$1 billion a year to the Balance of Payments, earning foreign currency by carrying U.S. exports and conserving U.S. dollars by carrying U.S. imports. In addition, the added corporate profits and individual incomes generated by the program should generate about \$100 million in added Federal income tax in-flows in the early 1980's.

This discussion of the maritime program, its genesis and impact, has of necessity been brief. To fully expound on all the plan's elements and their specific effects would require far more space than allotted. But, I believe, this discussion will at least indicate the areas of concern to the Administration.

and the methods chosen to correct existing deficiencies within the framework of existing legislation and national priorities.

**AGE AND COMPOSITION OF U.S. MERCHANT FLEET  
JANUARY 1, 1980**

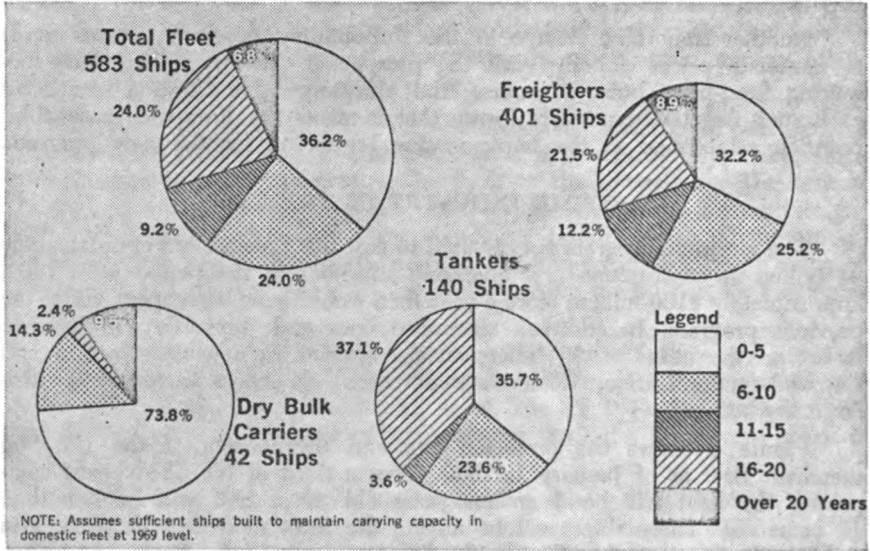


FIGURE 5

**PROJECTED U.S.-FLAG PARTICIPATION IN U.S. FOREIGN TRADE**

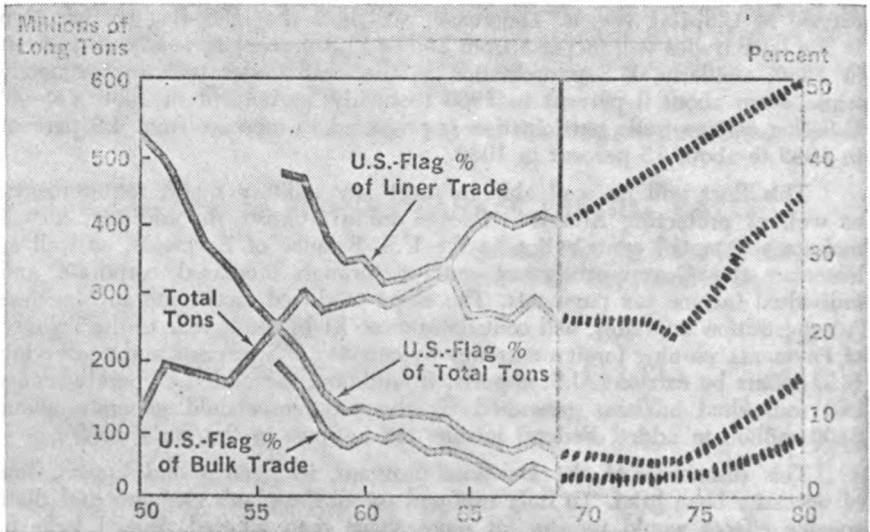


FIGURE 6

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