CONTAINER SHIPPING

The scramble into container shipping over the past five years is spawning broad changes in sea transportation with effects that reach beyond the docks to the railroad and trucking industries. Containerization is the shipping industry's version of mass production. In sharp contrast to conventional shipping techniques under which cargo has to be repacked for each different carrier along its route, a packed container can be shuttled back and forth between carriers with no handling of its interior cargo. Moreover, containers can be maneuvered quickly and efficiently by machines, avoiding the labor intensive methods of moving break-bulk cargo.

Halting Beginnings Container shipping in the United States is approximately 14 years old. The Pan-Atlantic Steamship Company began carrying semi-trailers to Atlantic Coast ports between New York and Puerto Rico in 1956 on modified T-2 tankers. At that time trailers were also being shipped along the Pacific Coast from California to Alaska and from California to Hawaii. The United States Army used containers to ship equipment to Korea in the 1950's and currently uses them in shipping supplies to Viet Nam. Container shipping thrived in U. S. coastal trade for a decade before entering international trade. The transatlantic shipping lines knew the merits of containerization but hesitated to sink large amounts of capital in new ships and containers until goaded by the press of competition.

The fillip came in 1965 when Sea-Land Services, formerly the Pan-Atlantic Steamship Company, announced that it would initiate container shipping in the lucrative North Atlantic trade which includes a high proportion of containerizable cargo. Unwilling to lose part of their market, the major Atlantic shipping lines rapidly began to plan for containerized operations.[1]

Container Characteristics The container itself is a large rectangular box made of steel, aluminum, or plywood. It must be strong enough to withstand heavy weather at sea and rough handling on land while bearing heavy loads. Containers are usually eight feet high, eight feet wide, and come in lengths of multiples of ten feet. Those most commonly used are either 20 or 40 feet in length. The 40-foot container is particularly popular with truckers because it enables them to take maximum advantage of their carrying capacity.

Aluminum is popular in container construction because it is approximately 20 per cent lighter than other container materials. For truckers who must observe over-the-road weight limits, this reduction in non-productive weight is an important source of profits.

Many ingenious methods have been devised to get cargoes into containers and stabilize them for heaving sea voyages. Some containers open at the end, some at the side, and others from the top. They are designed for a variety of cargoes: refrigerated perishables, bulk liquid, dry bulk, pressure tanks, and dry general cargo.

The container shipment is a better security risk than break-bulk cargo from the insurance underwriter's viewpoint. Once it is packed and locked at the point of departure, the container is not opened until it reaches its final destination, making it attractive for shipping high value cargo. However, in the event one exporter is unable to fill a container, a freight forwarder can consolidate his shipment with some other cargo to take full advantage of the space.

Port Facilities The challenge of containerization was no less urgent for Europeans and American ports that depended on the Atlantic commerce. They had to build modern terminals in preparation for the container traffic and to avoid losing business to competitors. The special crane which hoists containers to and from the ship costs $1 million. The specialized, berth, including installation of equipment, pile driving, and paving costs approximately $6 million. In addition, a large backup area adjacent to the berth is needed for the temporary storage and sorting of containers in transit.

The Port of New York was well ahead of other East Coast ports when the race began in 1965. In that year one container terminal on Newark Bay had been completed and others came into service soon thereafter.

For the small port with light traffic, the question of developing for container freight poses a serious dilemma. Should it forego the development and risk losing part of its business to competitors; or should it invest and risk not being able to provide enough cargo to lure the containerships? Many small ports are hedging the bet by only adding to their break-bulk capacity one container berth, or a larger crane. With this strategy they can continue to handle

[1] This article is indebted to the *Journal of Commerce* for information contained in its excellent series on containerization.

break-bulk shipments and also be prepared for occasional container traffic.

Terminal facilities for handling containers in the Fifth Federal Reserve District are located in Baltimore, Hampton Roads, Morehead City, Wilmington, and Charleston. The Dundalk Marine Terminal in Baltimore Harbor has two container berths in operation with five more to be in service by 1976. Hampton Roads has four container berths serviced by an equal number of rail-based cranes and is the first port where trains can come directly to the terminal to transfer containers. Large gantry cranes are used to move containers on the open docks at Morehead City and Wilmington; Charleston will have a new container terminal in operation by February 1971.

Impact on Ship Design The shipping company that undertakes container operations can remodel a conventional cargo ship or buy a newly designed containership. Either approach is costly. The U. S. Lines's *American Legion,* for example, cost $18 million. It is 700 feet long, can carry over 1,000 containers, and has a service speed of 24 knots. Such ships are constructed with large hatches through which containers, guided by rails, can be lowered into the hold. The rails also secure the containers during the voyage. The decks are wide enough to accommodate additional containers stacked six high A second type of containership which is popular is the roll-on roll-off ship, which has ramps so that trailers can be driven onto the ship in the same way a ferry is loaded.

Impact on Labor Demand The job of longshoreman has traditionally been to sort, load, unload, and store the cargo either in the hold or on dock. Approximately 100 men must work for a week both to unload and to load the conventional cargo ship. In contrast, 40 men can do the same job in only 24 hours using a large container crane. One crane can move a 35-ton container from ship to shore in 2½ minutes—a job that would require 20 man hours if handled as break-bulk.[2]

The changes in methods of cargo handling brought about by containerized operations have caused friction with longshoremen's unions whose jobs are threatened. Instead of one gang per hatch on a 5-7 hatch ship, only two gangs are needed. Furthermore, the packing of cargo for the ocean voyage which longshoremen have traditionally performed on the docks can now be done hundreds of miles inland from

[2] Goldberg, Joseph P., "Containerization as Force for Change on the Waterfront," *Monthly Labor Review*, Vol. 91, January 1968, p. 8.

Photograph courtesy of Virginia Port Authority.

port. The inland exporter can pack his container, which is then brought via truck or train to the dock and hoisted aboard with longshoremen never touching the interior cargo.

The shipping companies and longshoremen's unions worked out an agreement in the early sixties whereby the companies would pay into a union fund part of the savings they made by using containers. In return, the unions consented to reductions in the number of gangs per ship and agreed to move the containers. A further aspect of the agreement was a penalty to be paid by the companies for any containers consolidated within a 50-mile radius of the port by non-members of the longshoremen's unions.

Turnaround Time The conventional cargo ship is in port much of the time, where it earns nothing. Revenues are lost by lengthy stays, and the effectiveness of improved ship power plants and navigational equipment are reduced. By comparison, the containership has a fast turnaround time which makes it more desirable from the ship owner's point of view. The containerships which move Army supplies to Viet Nam are in and out of Da Nang harbor in less than 24 hours, an increase in speed which has enabled the Department of Defense to reduce air freight contracts and return some old freighter ships to moth balls. Another example of faster turnaround is given in the freighter trip from Japan to the West Coast of the United States. Twenty-five days were required for a conventional cargo ship to make the trip, including 12 days in port. Containerships make the journey in 15 days of which only three are spent in port.

The shipping lines would like to take advantage of the rapid turnaround and increase the utilization of their container vessels by reducing the number of port calls. Then while the conventional ships chug in and out of ports looking for cargo, the containership would get a full load on one or two calls. With this goal in mind, some containership operators are waging a campaign to have inland traffic channeled into a small number of advantageous ports. One approach is to send a ship around to collect containers from small ports and then transfer them to a containership at the major port of call.

Cutting the Red Tape The advent of containerization has had considerable impact on the paper work attending cargo shipment. Under traditional shipping procedures separate sets of papers had to be prepared each time the cargo was received by a different carrier. This has been a source of considerable delay. The primary advantage of containerized shipments is rapid delivery, and to maximize this advantage advocates of containerization are trying to reduce the paper work. Shipping representatives from many countries have been meeting in Geneva to develop a simplified piece of paper which would replace the Bill of Lading in that it would be written out when the container was packed and would serve the needs of all through carriers, insurers, and bankers.

The new method of shipping presents challenges to the Customs Bureaus in many countries with container ports. In the past incoming shipments have been inspected at the port of entry, a procedure which will probably change where containers are not opened until traveling many miles inland from port. To avoid hindering the rapid travel of containers, the United States Customs Bureau is considering the establishment of regional inspection stations near heavy users of containers. Provisions are also being made for the temporary duty-free entry of containers which are to be re-exported within three months. Freer movement of containers without inspection or the posting of bonds has also been arranged.

Summary Despite its slow start container shipping has caught on in transoceanic commerce. Since 1965 ports and shipping companies on all major ocean trade routes have been preparing for container traffic. The facility with which containers can be moved by machines permits speedy delivery of cargoes and provides their major advantage over traditional methods of handling cargoes. The rapid transit of the container has meant increased productivity for all carriers involved and less waiting for consignees.

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