A NEW ERA IN PORT DEVELOPMENT

By

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The word is "containerization." In its current usage, it might be defined as the packaging and transport of cargo in containers of such size and shape as to minimize handling and time in transit and to maximize the efficient use of available carrier space. The full meaning of the word lies in its application to general cargo, as distinguished from single or special cargo. The idea of shipping merchandise in some sort of box, crate or can is about as venerable as shipping itself. In a sense, truck trailers, railway freight cars and ships are all containers. However, with respect to port operations, the word container has acquired a specific connotation.

The transfer of sealed containers between carriers such as the trucking lines and the railways has been going on for sometime. Most of us have seen truck trailers riding the railways in the "piggyback" operation. It is only natural that the seagoing carriers would someday join the club. The rush to participate has been of such proportions as to create alarm that it may be overdone.

The enthusiasm is understandable, for, with the possible exception of labor, there are apparent advantages for everyone who is directly concerned with the movement of merchandise from producer to overseas buyer. The advantages arise from the speed with which large quantities of merchandise can be moved on and off the carrier. A ship which is prepared to carry containers can be loaded, or unloaded, in a small part of the time required to load, or unload, a ship of similar capacity with "loose" cargo. That is, the port time of the ship for loading, or unloading, is greatly reduced. This contributes to more efficient use of the ship and to more efficient use of port facilities. Since a ship which is prepared to carry containers will occupy a berth for a shorter period of time than a conventional ship, the number of ships which can be accommodated at that berth during a given period of operation can be greatly increased, providing adequate facilities for handling containers are available. The improved efficiencies associated with "containerization" are expected to result in rate changes favorable to the shipper. The required labor force is expected to be smaller in number, but more highly skilled.

Before the apparent advantages can be enjoyed, a discouraging number of special requirements must be satisfied. The ships must have characteristics that accommodate the containers, the port facilities must be adequate for loading, or unloading, the containers, a large

storage yard may be required within the port area and the containers themselves must be of appropriate size and construction. And, these are but the requirements for physical movement of the containers. There are numerous other requirements regarding the use of containers as part of a business operation.

There have been several approaches to overseas "containerization." Thus far, all of those which have shown a marked degree of success, or the promise of such success, have required the use of ships having very special characteristics. One approach has been the roll-on/roll-off operation, in which truck trailers are moved on and off the ship by means of tractors. No special lifting equipment is required. However, the dock and the ship must be so constructed as to permit movement of the trailers from one to the other. This type of operation is open to criticism because the transport of containers on wheels results in an inefficient use of space. Another approach is that known as LASH (lighter-aboard-ship) in which barges containing the pay load are carried within the ship. This requires that the ship have very special characteristics. The only special port facilities needed are those for accommodation of barges. It appears that this approach may be of more advantage for single cargo than for general cargo. An approach which shows some promise for general cargo involves a lift-on/lift-off operation, in which containers arriving at the port are loaded, or unloaded, by means of heavy lifting equipment provided by the port. For full utilization of its advantages, this operation presently requires not only a ship having very special characteristics but very special port facilities for handling the containers. A variation on this approach is use of the ship's gear for loading, or unloading, the containers. However, this requires that the ship have very special equipment.

At present, the cost of altering a conventional freighter for use as a container ship is evidently quite high. It appears that the trend is toward the construction of new ships that are specially designed to fit the purpose. However, there is current research aimed at development of devices which will enable horizontal movement of the containers within a conventional freighter. Just how successful this undertaking will be remains to be seen.

The handling devices required for the lift-on/lift-off operation must meet special requirements. Such a device must not only be capable of lifting the massive containers, but must have sufficient mobility to place the container at the desired location. A considerable variety of quay cranes, mobile cranes and straddle carriers have been developed. Also, some rather elaborate schemes have been proposed for making the loading, or unloading, more or less continuous.

A major problem is the container itself. It should have sufficient structural strength to allow handling and to protect the contents while in transit. Also, it should protect the contents against weather damage.

If it is a refrigerator unit, its control system should be such as to minimize the possibility of malfunction, with consequent spoilage of contents. The extent of the problem is reflected in the disappointingly high insurance costs. Another consideration is the desirability of standardization of dimensions in order that all systems be compatible. The International Standards Organization has recommended a height of 8 ft, a width of 8 ft and a length of 10, 20, 30 or 40 ft. However, those recommendations have met some opposition.

At least for the present, any one of the approaches to "containerization" means a considerable outlay of funds. This and an uncertain demand for such services call for prudence in planning. Some of the large ports are compelled to provide for some degree of participation. Some of the smaller ports may find little justification for such service. On the other hand, it is possible that a particular small port might find "containerization" to be exactly what it needs. In short, it will behoove the officials of any port to make a searching study of current and potential traffic before launching any extensive outlay of funds in anticipation of "containerization."

In addition to the aforementioned aspects of "containerization," there are others which demand attention. Channel depths may not be sufficient to accommodate some of the new container ships. The ownership and retrieval of containers may pose a problem when they are intended to carry general cargo. The responsibility for packing general cargo in containers may be difficult to fix. There is a matter of safety in the question of how high containers can be stacked on the open deck of a ship. In order to improve the door-to-door movement of sealed containers across international boundaries, there is need for better understanding between some nations.

In short, "containerization" has arrived, and, along with it, a growing number of problems. As a consequence, the authorities responsible for operating the significant ports of the world must face the difficult decision of whether they will or will not participate. The ultimate results of this new development are far from clear. Some observers are of the opinion that there has already been some shifting of traffic patterns, both to and away from ports with container facilities.