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STRUCTURAL CHANGES IN OCEAN-LINER TRANSPORT AND THE CHALLENGES  
FACING LATIN AMERICA AND THE CARIBBEAN \*/

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\*/ Presentation at the Latin American Seminar on Shipping Management, held at Guayaquil, Ecuador, from 21 to 25 July 1986. This preliminary version was prepared as part of a project financed by the Government of the Netherlands, and is distributed for comments and suggestions.



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## SUMMARY

Correct decisions with respect to ocean-liner transport activities of Latin American and Caribbean countries require an understanding of the market, service, technological and legal forces which are changing the structure of the industry. These forces which are neither independent nor isolated and together constitute a discernible pattern which must be understood for survival. The central message of this document is not only that yesterday's ocean-liner structure is coming to an end but also that the ideas put forward about tomorrow's won't last forever either. To provide a basis for understanding such changes, this document presents an overview of the forces which are restructuring ocean-liner transport, problems which might result and suggests possible courses of action.

Historically, all ocean cargoes were transported by liner vessels. When homogenous cargoes reached certain volumes they have been spun-off or separated from the remaining liner cargoes and began to be carried in specialized vessels under contractual or charter arrangements. General cargoes are non-homogenous and have resisted this trend, but with their carriage in standard marine containers they now present a homogenous transport unit. While the separation of containers will not occur in all trades, it is considered that in high-volume, balanced routes the process has already begun. This can be seen from the weakening of the liner conference system, the growing strength of non-conference lines, the increasing use of large-scale vessels and intermodal-landbridges, the development of new technologies and load-center ports, chronic overtonnaging and provisions in certain national legislation which support the spin-off or separation of containers from other liner cargoes.

In response to these forces it is suggested that Latin American and Caribbean countries might wish to evaluate, among others, the possibility of collaborating to harmonize their individual liner policies and to establish subregional consortia.



## PREFACE

With financing provided by the Government of the Netherlands, the Transport and Communications Division of ECLAC has undertaken studies of the market, service, technological and legal forces which are restructuring not only the ocean-liner industry but also its land transport counterpart. At present these studies are in an advanced state of preparation and should be completed during 1987. In recognition of the timeliness of such investigations and in response to an invitation from the Ecuadorian Navy to participate in the Latin American Seminar on Shipping Management, which was held at Guayaquil, Ecuador, from 21 to 25 July 1986, it was decided that an overview of the ocean-liner study would be presented. The seminar was organized by the Ecuadorian Navy and the Directorate General of Maritime Interests of Ecuador, and co-sponsored by the International Maritime Organization (IMO), the United Nations Development Programme (UNDP) and ECLAC.

In the changing world of ocean-liner transport, strategic planning is a must, but it is not enough. Planning implies undertaking activities which will assist in reaching preselected goals. To correctly identify such goals, strategic planning must be based on an indepth understanding or strategic vision of the forces -market, service, technological and legal- which are changing the industry. A strategic vision of the ocean-liner industry would provide at least partial answers to the questions: What do such forces mean for a specific line, country and region, and what measures should be taken in response thereto?

## I. Introduction

To say that ocean-liner transport is in a recession or even a depression is an obvious understatement when viewed from the perspective of the crisis environment in which the industry has operated for the last 10-12 years. Even though shipping executives are aware of the elements which make up this environment, many seem unaware that such elements are neither isolated nor unrelated and together constitute a discernible pattern which are restructuring the industry and must be understood for survival.

Without an appreciation of the market, service, technological and legal forces that are restructuring the ocean-liner industry, shipping executives may act on assumptions that are out-of-date. If industry leaders are out of touch with the present, will they be able to understand and deal with the unfolding future? Trends are not destiny and if anticipated they can provide substantial opportunities. The decisional flexibility that trend anticipation provides in the short term can become decisional paralysis in the medium and long terms if not understood and properly utilized. Trend anticipation permits shipping lines to avoid forced choices and can reduce or eliminate the seemingly inevitable nature of the future.

In the ever-changing scene of world trade and ocean-liner transport, many long-term projections of the early 1970s, and decision made thereon, have become almost irrelevant to the situation in the mid-1980s. Despite the assistance of computers, cluster diagrammes, mathematical models and matrices, any attempt to look at the future remains, as it must, more of an art than a science. To identify the trends presented in this document extensive use was made of the insight, vision and seasoned judgement of numerous industry specialists. Based upon the information provided by such specialists, the central message of this document is not only that yesterday's ocean-liner structure coming to an end but also that the ideas put forward about tomorrow's won't last forever either. For those ideas which prove incorrect, it should be understood that accuracy of predictions is of secondary importance to the broader issue of stimulating discussions. In fact, when dealing with the future being approximately correct and formulating appropriate questions to stimulate discussions are the fundamental goals sought. To stimulate discussions this document cannot and does not rest with generalizations, but rather takes enormous risks by making declarations and asking specific questions for which only the future can provide conclusive proof.



## II. Services

In a time of structural change ocean-liner transport must be approached differently if carriers are to remain viable. However, what that approach might be will be determined by a correct interpretation of the service, market, technological and legal forces which are bringing about such changes. While all of these forces contribute to the restructuring of the ocean-liner industry, some of the more important aspects in the services area are related to (a) the impact of market forces on homogenous liner cargoes, (b) the fungible nature of container transport and its impact on conference, (c) intermodalism and the growing use of landbridges, (d) large-scale vessels, (e) load centering, (f) overtonnaging and (g) ocean-liner and commercial concentration.

### A. The impact of market forces on homogenous liner cargoes

If one begins with the age of modern ocean transport, which started with the development of the steam engine and establishment of the liner conference system during the 1860s, the impact of market forces on homogenous liner cargoes can be clearly seen. During the early history of ocean-liner transport all cargoes were carried by liner vessels -whether they were minerals, petroleum, grains, passengers or what is today referred to as general cargoes. Nonetheless, when the above homogenous cargoes and others such as automobiles, pipes, paper rolls and lumber reached appropriate volumes, they were spun-off or separated from ocean-liner transport and began to be carried in specialized vessels under contractual or charter arrangements.

It is important to highlight that general cargoes have resisted this trend due to their non-homogenous nature and the need to handle and stow each individual unit. However, with the ever widening use of containers general cargoes now present a homogenous transport unit. The possible spin-off or separation of containers from ocean-liner transport and their carriage in specialized vessels under contract arrangements should be evaluated from two different viewpoints; that is, the volume and balance of containers in movement, and the frequency of service required by shippers and consignees. With reference to the first, it should be highlighted that just as not all automobiles are transported in the approximately 370 specialized pure-car carriers, not all containers will be separated from ocean-liner transport and carried under contract arrangements. However, on those high-volume routes where there exist a reasonable balance in flows, such a separation could occur. The volume and balance of flows must be weighed against the frequency requirements of shippers and consignees, but where such considerations can be harmonized even greater support will be given to a spin-off of containers from ocean-liner transport.

Historically specialized vessels carrying homogenous cargoes often made 50 per cent of their voyages in ballast. With increasing competition among contract carriers and the attendant need to reduce unremunerative voyages, naval architects began to develop flexible vessel designs which would permit the carriage of numerous other cargoes. With reference to container ships, features have been incorporated into such designs which permit the carriage of lumber, grains and minerals. Whether a balance in the flow of containers in a specific trade is required to support a spin-off or separation from ocean-liner transport must be understood in the light of the market trend to separate homogenous cargoes, which usually occurs without such balance, and the possibility of utilizing flexible vessel designs which facilitate the carriage of other cargoes to reduce and even eliminate ballast voyages. Due to the already flexible nature of container transport systems and chronic overtonnagins, which has created a shippers' market with excessive competition, it is considered that a reasonable container-flow balance or the availability of alternative cargoes should contribute to a spin-off or separation of containers from ocean-liner transport.

It seems probable that the spin-off or separation of containers and their carriage under contract arrangements will permit manufacturers, integrated trading companies and others to view transport as part of their purchasing, marketing and stock departments, with cargo owners and carriers jointly devising systems and procedures to reduce cargo damage and ensure timely deliveries. Cargo owners will seek creative and innovative transport partners who will share risks and awards, as well as offer total co-operation in order to obtain the objectives of safe product transport, economy, forward planning, incorporation of new technologies and expanded use of information systems. In recognition of this trend the executive director of the US Atlantic North Europe Conference has indicated that such contracts will become more sophisticated and regularly renewed every two-to-three years.

The trend to spin-off or separate homogenous cargoes from ocean-liner transport has continued without interruption since the 1880s when the first petroleum tanker was constructed and must be carefully interpreted in the light of its possible impact on containers. It might be argued that the trend to separate homogenous cargoes from ocean-liner carriage might not be applicable to containers, as they are homogenous transport units rather than a homogenous cargo. Another argument might be that homogenous cargoes are usually carried for a reduced number of shippers and consignees, while containers can involve numerous shippers and consignees. Notwithstanding the cogency of these and many other arguments, numerous questions remain: Will these or any other factors be sufficient to preclude such separation? If it does occur, what will be the structure of the liner industry without containerized cargoes? Will the loss of container cargoes by liner companies result in the economic decline of the liner industry?

## B. The fungible nature of container transport and its impact on conferences

Before the carriage of containers, it can be generally stated that ocean-liner companies offered a package of services with four common elements; that is, a technology, route, frequency and price. However, more important to shippers and consignees than these common elements provided by all lines were the service aspects involved in handling and stowage of general cargoes. The handling and stowage of such cargoes was an art as well as a science and required great experience to place compatible cargoes in the same hold and to appropriately stow them for ocean carriage. Shippers were known to forego vessels of one company specifically because they knew their cargoes would be better cared for by another.

With the growing use of containers in ocean-liner transport most companies which operate cellular vessels are no longer involved in the handling and stowage of general cargoes. In fact, to an ever increasing extent these functions are usually carried out at interior cargo terminals and factories where containers are filled and emptied. Such a change appears minimal but its impact is enormous; that is, without the service aspects of cargo handling and stowage ocean-liner transport has become a fungible or totally interchangeable commodity. Where different shipping companies offer similar vessel technologies, routes, frequencies and prices, ocean-liner services have become identical. As a result, conferences exercise much less control over carriers than in the era of general cargo vessels. In an age of fungible transport services a greater degree of control lies in the hands of cargo owners, few of whom operate liner vessels, and differences between lines are a less significant factor when choosing a carrier. In fact, probably the most important lesson to be learned from the fungible nature of ocean-liner transport is that a shipping company does not need the 125 years of experience of Hapag-Lloyd to successfully engage in ocean-liner transport.

The growing influence of non-conference carriers and the weakening of the liner conference system are directly related to the fungible nature of ocean-liner transport of containers. For example, when containers were introduced into Australian trades in the early 1970s, liner conferences were estimated to have carried slightly in excess of 90 per cent of all cargoes. By 1985 that amount had fallen to 70 per cent. Another example would be the trade from France, Italy and Spain to the US. The Mediterranean-USA Conference controls only about 50 per cent of that trade and is to be dissolved 30 September 1986, unless an understanding is reached with non-conference carriers Evergreen Line (EL) and Maersk Line. These lines have a combined share of the Italy-USA market of 24 per cent. Representatives of EL have indicated that while its rates are approximately 20 per cent below those of conferences, the line will operate profitably. It should be highlighted that in a period of less than 10 years EL established east and westbound round-the-world (RTW) services, three

end-to-end services (trans-Pacific, trans-Atlantic and Asia/Europe), numerous feeder services and inland transport arrangements. Due to the fungible or commodity nature of ocean-liner transport, where competing companies offer the same technology, route and frequency, price has become the deciding factor in the selection of carriers.

As can be seen from the following diagram, modern liner conferences are composed of three distinct parts; that is, consortia, the traditional breakbulk or general cargo element and rate agreements.

#### CONFERENCE EVOLUTION

PAST:

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| Individual |
|ship operators|
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|Breakbulk conferences|
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PRESENT:

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| Container conferences |
| (Consortia -- breakbulk -- rate agreements) |
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FUTURE:

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| Multinational | | Traditional | | Brokers' |
| lines | | conference | | services |
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While the reasons for establishment of general cargo conferences are well known and documented, most commentators consider that the creation of consortia and rate agreements are merely an extension of the original conference framework. However, these new arrangements have come about due to a myriad of factors such as the fungible or identical nature of container transport systems, new legal regimes such as the US Shipping Act of 1984, intermodalism, large-scale vessels, overtonnaging and declining trade volumes, which are exogenous to and often in contradiction with the conference system.

In this most international of businesses, shipping lines without joint operating arrangements with other ocean carriers are the exception rather than the rule. Ship operators have gone from total independence and a loose amalgamation in the form of general cargo conferences to tighter relationships such as consortia, container-space (slot) chartering and joint marketing arrangements.

To establish a consortia, MNLs or joint operating arrangements there must be a willingness to compromise among participating liner companies in areas such as objectives, ownership of shares, investments -types, amounts and frequency, duration and financial compensation. The need to compromise does not necessarily mean that national interests will not be satisfied, but such objectives should be evaluated in the light of national interests.

A fundamental corollary of the need to compromise in order to achieve common objectives is the requirement that participants utilize or combine the inherent advantages and least cost factors available to each. The search for least cost factors could give rise to MNLs on a global scale. For instance, the flag or even the ownership of a vessel could become meaningless when a ship is crewed in one country, managed from another, financed elsewhere and is part of an international distribution chain which might see the ship operating between two other countries for its economic life. The question then becomes, how can national maritime policies be elaborated to take into account not only national interests but also the trend towards tighter and larger relationships between liner operators?

If the trend towards ever tighter relationships between liner operators continues, Latin American liner operators run the very real risk of becoming part of large MNLs. Currently, vessel operators of this region are slowly being absorbed into extra-regional consortia, with the attendant risk of becoming minority stockholders or single vessel operators in resulting MNLs. This could mean a loss of control over their ocean-liner activities and the important role of shipping in trade promotion. The long-term impact of this trend must be carefully studied in order to answer numerous questions such as what is an appropriate presence in ocean-liner transport for Latin American and Caribbean countries and what would be the response of MNLs to the individual transport needs of such countries? Responses to these and other questions will assist shipping lines and governments of this region to elaborate a common ocean-liner transport policy.

Rate agreements have replaced the traditional conferences on numerous trade routes, such as those to and from the USA. A major reason for this is that the US Shipping Act of 1984 has given individual lines numerous new tools which enable them to respond more rapidly to shippers' requirements. These legislative tools include the right to quote independent freight rates, enter into service contracts and to offer time/volume rates. Service contracts are agreements by which a shipper or group of shippers offer a certain volume of cargo in exchange for a guaranteed rate and service commitment from a carrier, that have resulted in liner tariffs becoming increasingly meaningless. Without the traditional conference powers to ensure compliance with standard rates and to minimize competition, rate agreements have become "talking shops" for carriers. As containers are spun-off or separated from other conference cargoes in high-volume routes, rate agreements could evolve into meeting

places for owners' and charters' brokers to negotiate and formalize contractual arrangements for the carriage of containers.

### C. Intermodalism and the growing use of landbridges

The historical meaning of intermodal transport was simply the transfer of goods between different modes, whereas today it implies a systems approach to all activities and functions in the distribution chain to reduce and, where possible, eliminate interruptions in the continuous movement of goods from origin to destination. The entire distribution chain, in which liner transport is but one link, has taken on greater importance as the value of goods carried has increased. Intermodalism is an integrative way of dealing with the distribution chain to increase its potential; that is, it involves the co-ordination of distribution chain activities in order to create circumstances in which the underlying cost structure is lower than the sum of service costs of each individual activity. It is a service innovation which redraws the market boundaries of shipping lines, conferences and ports to enable carriers to penetrate areas traditionally served by competitors operating out of a different range of ports. No distribution chain activity can be treated in isolation, as each has a number of interfaces with others that can produce or eliminate system efficiencies. For example, ports can spend endless sums of money on facilities and market them at reduced rates to bring shipping lines to their berths only to find that carriers go elsewhere because Customs are more co-operative. Without the "system optimization" provided by intermodalism, the whole can be very much less than the sum of its parts.

On the other hand, multimodal transport is an institutional concept which involves the issue of one bill of lading by a multimodal transport operator (MTO) who assumes responsibility as a principal, not as an agent, for the entire transport operation from origin to destination. This does not mean that a MTO can not seek to eliminate breaks in carriage operations and integrate distribution chain functions, but when such efforts are made the MTO is combining intermodal functions with the institutional, multimodal concept.

To take full advantage of the systems approach, intermodalism requires the creation of structural ties between each of the activities in the distribution chain. To do this certain institutions must be created, while others must be modified and/or strengthened, but the most important changes are related to the reduction, simplification and harmonization of trade procedures and requirements of national Customs authorities, banks and insurance companies, and the use of computers and information technology to bring the diverse elements of the distribution chain together in order that they might function as a system.

The establishment of intermodal systems does not seem to represent a logical extension of the ocean-liner industry, as many European and US lines have indicated they do not wish to engage in inland transport operations, but rather a radical shift of direction, often a negation, of earlier operating procedures. American President Lines (APL) offers Asian and US shippers an intermodal system which utilizes the US landbridge and articulated railway wagons that permit the carriage of containers stacked two-high. This arrangement allows containers to be delivered to US east coast destinations 86 hours after being discharged from vessels on the west coast, which is three and one-half days earlier and less costly than the all water route. Rail-ship intermodal operations require a great deal of schedule co-ordination. For shipping lines which operate on a weekly schedule, even a minimal delay in the return of a train to the US west coast could make a second set of double-stack container wagons necessary. APL has estimated that its intermodal-landbridge arrangements have resulted in savings from inland activities of approximately 40 per cent and a system savings of about 25 per cent.

When speaking of the US landbridge it is important to clarify the routes utilized for eastbound, westbound and northbound cargo movements. With reference to eastbound cargo flows, there are three major routes; that is, (1) northern -US Pacific Northwest ports to Chicago, Illinois, and US North Atlantic ports, (2) mixed -US Pacific Southwest ports to Chicago and US North Atlantic ports, and (3) southern -US Pacific Southwest ports to US Gulf and US South Atlantic ports. Presently there are approximately 21 block trains which carry over 400 TEUs each and depart US Pacific ports on a weekly basis. The quantity of containers filled with imports which move eastbound from those ports has been estimated at 10 000 TEUs per week on double-stack container trains, which is approximately 25 per cent of all US intermodal movements. The ocean-liner companies which take advantage of US eastbound intermodal movements include the domestic lines of that country as well as those from Asia and many cross traders. For example, Mitsui O.S.K. Lines and Southern Pacific Transportation Company (railroad) began a double-stack container service from Los Angeles, California, to Chicago during January 1986 and claim that the overall transit time from Tokyo, Japan, to Chicago is just 14 days. On the other hand, westbound there are routes from US Atlantic ports to US and Canadian interior destinations such as Chicago Houston, Texas, and New Orleans, Louisiana, and Montreal, Canada. Finally, the US Gulf ports of Houston and New Orleans currently offer traditional container on railway flatcar (COFC) services to many northern destinations.

Even though the US landbridge has proven extremely popular for liner operators worldwide, it has been estimated that double-stack container systems may capture only 40 per cent of the COFC and road trailer on flatcar (TOFC) market. Due to the tremendous quantity of containers filled with imported goods moving eastbound each week from US Pacific ports to inland destinations, there is a pressing need to

locate cargoes -both domestic and export- for the return trip. A crucial element in double-stack container operations is locating cargoes at inland destinations for a remunerative backhaul. To ensure the availability of such cargoes, APL purchased three domestic freight brokers from the Brae Corporation in 1985, established AP Intermodal and AP Domestic, and engages in an extensive marketing programme.

Other landbridges on the American Continent include those of Canada, Mexico, Panama and various South American alternatives. In recognition of the benefits of double-stack intermodal movements of containers, during August 1986 the Government of Canada completed the construction of new routes between Calgary, Alberta, and Vancouver, British Columbia, on the west coast. The purpose of this undertaking was to lower track gradients from 2.44 to 1.0 per cent, which reduces the number of locomotives required, double track parts of the route, reduce track curvatures and construct two tunnels at the Rogers Pass in the Canadian Rockies, one of 1.9 kms and another of 14.7 klm, in order to facilitate the use of double-stack container trains. Alberta Intermodal Services, a company established by the Government of the Canadian province of Alberta to co-ordinate the movement of containers from Calgary and Edmonton to Pacific Northwest ports, indicated that it moved 6 000 TEUs during the first five months of 1986. This volume of containers exceeded forecasts by 10 per cent.

The Mexican landbridge is located at the Gulf Tehuantepec, between the ports of Salina Cruz and Coatzacoalcos, and was inaugurated during April 1982. The terminal ports of the Mexican landbridge do not have a substantial hinterland, as is the case with those of Canada and the US, and offers its services as a true "bridge" between two ocean movements. Panama has sought to build upon the large amount of shipping which utilizes its Canal by offering landbridges across the Isthmus for various types of cargoes. These landbridges form part of what the Government of Panama calls its center-port-concept or centerport. This concept involves the integration of Atlantic and Pacific ports with land, railway and pipeline transport systems, and the use of its character as an entrepot, for the movement of goods between oceans, as well as their storage and transformation. Finally, efforts have been made to use numerous routes between the east and west coasts of South America. Most recently Argentine wheat was transported by railroad from that country to Antofagasta, Chile, and at this latter port loaded aboard ship for carriage to Mexico. The Andes have always been a physical barrier to commercial exchanges, and in this movement it was no exception. Upon reaching the foothills the 30 car trains had to be broken down into units of 10 and pulled by multiple locomotives over the mountains.

The other major landbridge is the trans-Siberian (TSL) which presently carries 20 per cent of Japan and South Korean trade to Europe on block trains with a 30 day transit. Use of the TSL has been increasing since 1970 and currently has reached approximately 200 000



TEUs annually. With construction of a second trans-Siberian line almost complete it is estimated that transit times will be reduced 25 per cent, since the average speed of trains will increase from 45 to 60 klms per hour, and that 600 000 containers will be carried by the year 2000. During September 1982 Soyuztransit, the agency which operates the TSL, decided to demonstrate its potential and made the 11 000 klm trip from the Far East port of Vostochny to Brest, Poland, in 12 days. This transit time should be compared with the ACE Group consortium which requires 29 days for the all-water route. With reference to rates the TSL is 10 to 20 per cent, and in some cases 30 to 40 per cent, lower than those of conference carriers. As a partial response, conference members grant reductions of between 10 and 30 per cent to shippers of certain commodities who provide a regular volume of traffic.

Numerous carriers and cargo owners make use of the TSL. As examples, the Japanese shipping company YS Line provides services between Asia and Europe only by the TSL. Finanglia Ferries, a joint venture of Finncarriers and United Baltic Corporation of the United Kingdom (UK), seeks to use the Finnish-Russian compatible rail gage as well as connections to provide cargoes for its vessels which trade between Kotka, Finland, the UK and continental Europe. The Japanese automobile manufacturer Nissan has recently begun to utilize both the TSL and specialized car carriers, but for a period of 10 years it made exclusive use of the TSL to move automobile spare parts from Japan to various Western European countries. During this time Nissan found that the rates and transit times were either less or comparable to those of conference carriers. The reason for Nissan's change is related to European import limitations for assembled automobiles and the resulting need to fill its chartered vessels.

One can only speculate on the impact the TSL could have on liner shipping in the Asia-Europe trade if, for example, transit times were a consistent 20 days and double-stack container wagons were utilized. A transit time of 20 days is possible, as the 25 per cent increase in train speed should result in a reduction of transit times to 22.5 days. The considerations regarding the use of double-stack container wagons on the TSL would probably be the same as those for almost any other landbridge; that is, the distances containers would be carried, the volume of demand, availability of backhaul cargoes and the cost to remove physical obstacles. It should be kept in mind that where technological innovations result in cost savings and/or increases in efficiency, they have a way of imposing themselves on existing systems. Thus, one might ask if TSL productivity increases, which result from double tracking and double-stack container wagons, would be sufficient to make 20 per cent of existing liner vessels in Asia-Europe trades redundant? If so, in which alternative trades would those vessels seek employment?

The impact of landbridges and intermodalism on the demand for ocean-liner services will be enormous, but the potential of such arrangements on vessel designs, trade routes and trading economics could even be greater. Indeed, such potential might be compared with the changes brought about by the opening of the Panama (1914) and Suez Canals (1869). It will be remembered that these canals changed locational linkages between production and consumption, brought together geographically distant markets, modified the cost structure of transport, influenced the maximum dimensions of vessels and greatly reduced the volume of shipping services utilizing trade routes via Cape Horn and the Cape of Good Hope. While landbridges will not divert all liner traffic, as did the canals, it would appear that landbridges could take a large part of such traffic. In the light of a possible decrease in demand for liner services brought about by the growing use of landbridges, one should ask if the liner industry is on the threshold of a world fleet reduction similar to that when cellular ships displaced their general cargo counterparts?

#### D. Large-scale vessels

Economies of scale refer to a reduction of average production costs as the size of a plant increases. Applied to liner shipping this would mean increasing vessels sizes to lower average transport costs per container. Full exploitation of economies of scale in the ocean-liner industry is limited by the magnitude of demand for transport services. For an individual liner operator this means that the overall demand in the trade routes served must be measured against factors such as competition, frequency requirements of shippers and consignees, seasonality of cargo flows, etc. In this sense, economies of scale in ocean-liner shipping can exist at almost any vessel capacity range. For example, short-sea transport operators might have economies of scale at a maximum of 250 TEUs, whereas deep-sea operators in north/south trades could have 1 500 TEUs and those dedicated to east/west trades might reach 3 000 TEUs. In liner shipping scale-economy vessels are those which lower the average transport cost per container and, at the same time, reflect trade characteristics in areas such as types and volumes of cargoes in movement, degree of imbalance, frequency requirements of shippers and consignees, actual and projected competition, etc.

For over 100 years any attempt by liner vessel operators to reflect the characteristics of trade demand and reach new scale economy levels was restricted by slow loading and discharge rates of general cargo vessels. Containerization did not eliminate this restriction, but rather raised it to permit the size of ocean-liner vessels to be increased considerably. For example, a general cargo vessel of approximately 10 000 DWT requires five days and nights to load and a similar period to discharge the same cargoes. On the other hand, cellular container vessels of twice the size generally require only one-fifth of that time or one day.

Larger vessels permit operating costs to increase at less than linear parity with freight rates. Vessel design and technical advances have been made which reduce transports cost per container per mile and permit large vessels to earn profits or lose less when smaller vessel would do worse. Nonetheless, in a market with declining trade volumes the matching of vessel cargo needs to achieve an adequate return on investment with the frequency requirements of shippers and consignees may become impossible. For instance, the Lorenzo Shipping Corporation (LSC) operates a fleet of 48-60 TEU vessels in the Philippine inter-island trades. With a decline in inter-island trade volumes LSC competitors operating 500 TEU vessels have gone bankrupt, as they had to wait for additional cargoes to fill their vessels and could not maintain the frequency required by shippers and consignees. LSC not only maintains the desired frequency but also a reasonably profitable operation.

With the arrival of the RTW services of EL and US Lines (USL), numerous European and US ship operators as well as those of this region believe that they face the very real risk of forced rationalizations or becoming mere feeder operators for those services. USL utilizes 12 vessels of 4 258 TEUs in its eastbound service, while EL employs 22 vessels of 2 728 TEUs in its east and westbound services. Both of these lines offer traditional end-to-end, ocean-feeder and inland transport services.

In general terms, when selecting a vessel for an ocean-liner service three dimensions are normally considered; that is, (1) costs -operating, investment, charter, etc., (2) physical limits -ports, canals, etc., and (3) trade requirements -volume of goods, degree of imbalance, frequency needs of shippers and consignees, competition, etc. USL obtained a very low container cost per mile (US\$ 0.034 at 100 per cent utilization) with the above vessels and constructed all 12 to PANAMAX limits. These vessels were designed for a crude petroleum price of approximately US\$ 30 per barrel and, as a result, have a maximum speed of 18 knots. With the reduction in the price of crude petroleum to US\$ 10 and even less, this speed has become uncompetitive. With reference to the policy of constructing large, energy-efficient vessels, it will be recalled that the current owner of USL, Malcom McLean, was the owner of Sea-Land Services until its sale to R.J. Reynolds Industries. While owner of Sea-Land and prior to the era of expensive oil he constructed large (at that time), energy-inefficient vessels -the famous 33 knot "energy-hungry" SL7 container ships. As these foreign built vessels subsequently became uneconomic to operate, they were sold the US Government, converted and placed in its national defense fleet.

Time will only tell whether USL has correctly matched the characteristics of its large-scale vessels with trade requirements, but it can be advanced that during 1985 USL lost US\$ 66.7 million, another US\$ 72.17 million during the first quarter of 1986 and expects a loss of the same magnitude for the second quarter of the same year.

It would appear that greater consideration might have been given to other cost aspects and trade requirements. Due to such losses USL renegotiated its loan agreements, and is to prepay three years of first mortgage loans on its 12 large-scale vessels and defer other debt payments over the next two years. The extent to which the US Government views USL vessels as part of its overall maritime policy must also be considered, as this could determine the availability of subsidies, a sale and leaseback arrangement or another purchase for its national defense fleet.

#### E. Load centering

As the simplicity and economy of containerization can be lost through port-to-port movements, numerous factors such as large-scale vessels, increasing cost-effectiveness of land transport services, efficient ports and simplified Customs and other trade requirements have greatly expanded the traditional hinterland of ports. For example, the port of Houston, on the US Gulf Coast, finds its major competitors to be the west coast ports of Los Angeles and Oakland, California, and the east coast ports of Jacksonville, Florida, Savannah, Georgia, and Norfolk, Virginia. The expansion of one port's hinterland means that it will begin to draw cargo which historically flowed through another port. The increase in demand for the services of certain ports will result in their becoming transshipment, load or hub centers for other ports.

Ship operators take many factors into account when determining whether a specific port will be served directly or by a feeder arrangement, but probably the most important is related to the volume, balance and stability of cargo flows. It is interesting to note that during the late 1960s Singapore was foreseen as the transshipment center for all Australia. Due to sufficient cargo volumes to commercially justify direct vessel calls, this did not come to pass. Moreover, certain ports of Australia have resisted the trend towards load-centering. For example, the south coast port of Adelaide made various efforts over a period of 10 years to obtain the cargo volumes needed and now receives limited direct vessel calls. Under present conference arrangements approximately 50 per cent of containers originating at and destined to Adelaide are carried by vessels which call at Melbourne on the southeast coast and transported between those ports by Victoria Railways. The other factors ship operators consider are distance of a port from the normal vessel route, port facilities, costs and efficiency, vessel turnaround time, inland transport connections and proximity to other ports with greater cargo volumes.

The above described trend towards load-center ports is real, but its impact in east/west and north/south liner trades could be quite distinct. East/west trades, which are usually between developed countries, present carriers with a reasonably balanced, large flow of high-value cargoes. On the other hand, north/south trades between developed and developing nations are generally unbalanced with a wide

range of cargoes which often provide only minimal compensation. Likewise, origin and destination countries in east/west trades have extensive inland transport infrastructures and legal regimes which permit the rapid flow of goods between interior points and ports, whereas in north/south trades such infrastructures and legal regimes have only begun to be placed in operation. Further, distances between the principal Latin American ports are greater than those of Asia, Europe and North America. Due to north/south trade characteristics, the lack of inland transport infrastructures and institutions and greater distances between ports, vessel operators should continue to make direct calls for the foreseeable future.

#### F. Overtonnaging

Between 1970 and 1984 world seaborne trade grew by 32 per cent, while the size of the world merchant fleet increased by more than 100 per cent. By type of vessel, the world-wide surplus is approximately 36 per cent for tankers, 22 per cent for dry-bulk carriers and 33 per cent for container ships. Freight rates for many types of ocean-liner cargoes are less than a third of what they were five years ago. The fall in freight rates probably understates the extent of the overall reduction; that is, five years ago rates were generally quoted for port-to-port carriage, while today these same rates often include inland movements. With the spin-off or separation of containers from liner shipping and their transport by contractual arrangements, as was mentioned at parts II.A. and B., container ship capacity and demand might be more easily matched and result in even greater overtonnaging. In this situation it is unlikely that rates will provide liner operators an acceptable return-on-investment until a balance is restored between the demand and supply of shipping services, and many commentators do not expect this to happen before the mid-1990s.

With decreasing cargo volumes in numerous trades, an excess of transport capacity and reduced freight rates, a major question comes to mind: Why are there so many new vessels? While each person would have a response based on his view of the industry, it would seem that the answer is focused in three related areas; that is, (1) large new vessels with technical advances which significantly lower operating costs, (2) an excess of shipbuilding capacity which is supported by governments and banks, and (3) an oversupply of funds from governments and banks to lines and shipbuilders. This situation has created a vicious circle in which lines must buy technologically advanced, larger vessels to remain competitive, but without funds they seek assistance from their banks and governments. The banks and governments, which have become or are owners of the lines, must provide the funds or accept bankruptcy of their lines. In order to utilize the funds nationally and to avoid unemployment at domestic shipyards, governments and banks usually finance the construction of new vessels at their shipyards. After acquiring new vessels, the older vessels are often not sold for scrap but rather to other shipping companies at reduced prices thereby adding to the oversupply

of transport capacity.

Overtonnaging results in rationalizations and bankruptcies in the short and medium terms, but the greatest danger of this problem stems from its long-term impact on the critical mass of skills, institutions and equipment which support the industry. On the one hand shipping appears to be a dying or "sunset" industry with a continuous reduction in the number of vessels and employment opportunities, while on the other it has all the characteristics of a dynamic "high-tech" industry with technical and service innovations and legal regimes which permit new operating patterns and cross-modal mergers. Even though the critical mass is being redimensioned to conform to new realities, the attractiveness of the industry for a career is declining due to its "sunset" characteristics. It should be remembered that the existing community of seafarers has always recruited the next generation -they are the captains, chief mates, chief engineers and professors who make the industry known to others and thereafter train and guide their replacements. From a career point of view, rationalizations and bankruptcies create a disincentive for persons to enter the industry.

Most governments and shipping lines consider that overtonnaging is a universal threat to the industry and that some form of global action should be taken to deal with this situation. In addition to its impact on the critical mass, ocean-liner transport provides a central focus for almost all aspects of international trade. For example, international trading companies have indicated that without an operating presence in ocean-liner transport it would be very difficult to negotiate a favorable charter arrangement, understand what are acceptable losses from transport and even present an appropriate request for cargo insurance. It has been suggested by shipping interests of the United Kingdom that efforts should be undertaken to determine the minimum fleet size for that country and the needed levels of Government support. Thus, for both developed and developing countries ocean-liner transport provides an important learning environment that goes far beyond the mere movement of goods.

#### G. Ocean-liner and commercial concentration

With every increase in vessel, port and inland transport productivity there is an concomitant decrease in the required number of vessels, ports and inland transport equipment. The growing industrial concentration of ocean-liner transport can be seen from the arrival of large-scale vessels, load-center ports and the seemingly ever-increasing reach of inland transport systems. The major goal of such concentration is not the creation of monopolies, but rather economic survival through service rationalizations and economies of scale. It has been estimated that by the end of the century there will be only two liner carriers in Japan, one in Korea and three in the USA. This is to be accomplished through a decrease in the number of individual lines and vessels, but without a reduction in either service frequency or capacity.

In a similar manner, commercial exchanges are being concentrated in the hands of an ever-decreasing number of persons. This can be seen from declarations of carriers that 80 per cent of their cargoes come from less than 50 shippers. Moreover, the growing use of service contracts and shippers' associations contribute not only to the concentration of commercial activities but also to the strong negotiating power of cargo owners. Service contracts and shippers' associations permit the grouping of small quantities of cargo and the joint negotiation of freight rates. This joint negotiation is usually carried out by representatives of cargo owners, which again reduces the number of persons involved in commercial exchanges. In certain regions a close relation between cargo owners and carriers has always existed. For example, the major liner operators of Japan regard themselves as bound by custom to provide services to those destinations indicated by Japanese trading companies.

The increasing concentration within the ocean-liner industry and the trade interests it serves should be evaluated in the light of a possible spin-off or separation of containers from other liner cargoes and their carriage under contractual or charter arrangements. If such a separation does occur, ocean-liner companies on high-volume routes will probably become part of the production and/or consumption functions. These arrangements should permit greater efficiencies in distribution chain activities, but one might ask if this could lead to large multinational companies and transnational corporations as well as cartels controlling the commercialization of goods. Not all of the homogenous cargoes which have been spun-off from ocean-liner transport have fallen totally under such control. Nonetheless, joint ventures between Korean and US automobile manufacturers regarding the production and commercialization of Korean automobiles in the US, the purchase, transport and sale of bananas by Dole, Geest Industries and United Brands, and the control of oil prices by the Organization of Petroleum Exporting Countries are all examples of the need to study the relation between the growing concentration of trade and transport on the one hand, and the commercialization of goods on the other.

### III. Ocean-liner technologies

The history of containerization during the last three decades has shown that changes in ocean-liner technologies require a fairly long period of commercial, financial, legal and social acceptance. This period has also shown that technological advances in ocean-liner transport rarely follow a straight line path, but often proceed as part of a dynamic, lurching process. One might ask, what was the process that led to containerization and will it be repeated in the development of new ocean-liner technologies?

From the point of view of transport, modern commercial transactions involve a split between producers and carriers. Production and transport are considered individual activities which are carried out by specialists in each field. In recognition of the cost and time savings possible from a partial closure of this split, Malcom McLean of McLean Trucking took a revolutionary step by developing a cargo unit which could be carried indistinctly by liner vessels, trucks and railroads. This closure involved the carriage of the same sacks, crates and barrels but, rather than individually, they were placed in large reusable metal boxes which would come to be known as containers. The shipping line Mr. McLean established demonstrates this partial closure with its name "Sea-Land" Services. Other ocean-liner carriers such as APL have taken this original initiative and further closed the split between production and transport by developing double-stack container wagons and creating an intermodal system of all links in its distribution chain - ports, vessels, Customs and inland transport services - between Asia and the US.

The ocean-liner technologies which will be developed in the future should come about from a further closing of the split between production and transport. The final closing of the split may ultimately see ocean-liner companies becoming part of shippers' marketing functions and/or the consignees inventory activities through contract carriage arrangements, as was discussed in part II.A. It should be highlighted that in this situation international competitiveness may arise not so much from the comparative advantage of being a traditional seafaring nation but from the ability to integrate ocean-liner services into the production and consumption functions.

The first step in this process should start with a change in the commercial dialogues which are carried out independently and range from those between financial institutions, shipbuilders and ship operators, to those between ship operators, cargo owners and ports, and finally those between cargo owners, ports and inland transport modes. In the future such dialogues will probably commence at the design, financing and ownership stages of new transport technologies and continue with vessel operations, modifications and even scrapping. For example, ship operators, shipbuilders, banks, cargo owners, ports



and inland transport modes will establish a long-term relation based on the needs of a specific trade in order to reduce the lengthy process for acceptance of new vessel designs and, at the same time, create more cost-effective, specialized transport technologies. These technologies will reflect and will be modified to reflect the market, technological, service and legal forces which are continuously restructuring the ocean-liner industry. These changes in the traditional commercial dialogue process will bring about new technologies or new applications of existing ones in the following areas (a) vessels, (b) containers, (c) cranes and marshalling yards and (d) computers and communications.

#### A. Vessel technologies

While most industry specialists agree that major advances have been made in hull design and main-propulsion efficiency, few have evaluated the passive character or terminal inefficiency of cellular vessels during loading and discharge operations. For example, the preparation of a general cargo vessel for loading and discharge operations utilizes most of the crew and begins at sea with the rigging of booms and the partial opening of hatches. On the other hand, cellular vessels rely totally on port labor to prepare vessel for as well as carry out container handling operations. To reduce such passivity, some consideration might be given to vessel modifications which assist loading and discharge operations. For example, a "key stone" container slot might be created for each row, with movement of containers inside the vessel to and from such slots. These slots would receive from and deliver containers to the gantry crane, thereby reducing the enormous amount of crane travel time.

Another vessel technology change which can be foreseen would be a closer relation between, for example, sources of financing, shipbuilders, ship operators, shippers, consignees and ports. Historically, general cargo vessels and even certain cellular vessels with their own cranes could be shifted between different trades as the demand for transport services changed. In fact, general cargo vessels were referred to as GALA or "go anyplace, load anything". If current trends continue, however, in the future liner vessels will become extremely inflexible; that is, they will be designed through collaboration of the above mentioned parties for specific uses (cargoes) and trades (routes and ports).

The change of liner vessels from GALA to use and trade specific may be compared with a change from buying clothing at the Salvation Army to a boutique. It should be understood that the change from "Salvation Army shipping" to "boutique shipping" is quite profound for both developed and developing countries. Developed countries have historically looked to their developing counterparts for the sale of vessels which have been displaced technologically, but no longer can they be looked upon as potential purchasers of vessels which were designed for other uses and trades. Even the successful practice of

the Greek shipping fraternity to purchase second hand vessels and make extensive modifications should be questioned in the light of the market, service, technological and legal forces which are restructuring the industry. To create an economically viable, competitive liner fleet, developing countries must employ vessels which are designed for the specific cargoes and trades they wish to serve.

It has been stated often that container ships are four to five times more productive than their general cargo counterparts. In practical terms this means that container vessels carry as much cargo and travel as many nautical miles in four to five years as did general cargo vessels in 20 years. Not only are container ships more productive than general cargo vessels, but overtonnaging, as discussed in part II.F., has given shipbuilders an incentive to make continuous and rapid advances in ocean-liner technology so that new vessels can be sold. Owners and operators should evaluate such advances to determine which of them might be incorporated into vessels to improve productivity -carry more cargo, decrease port-stay requirements, etc., and efficiency -reduce crew requirements, fuel consumption, etc. Just as the yearly financial statement determines the financial health of a carrier, a five year technical and economic evaluation could easily determine levels of obsolescence and the costs-benefits of needed modifications versus scrapping. In order to avoid the risks involved in ownership of vessels which may become technologically obsolete, many ocean carriers probably will charter rather than own the ships they operate, and will maintain an ongoing relation with financial institutions, shipbuilders and cargo owners to either modify or scrap chartered vessels when they are not the most cost-effective means to meet cargo and trade needs.

#### B. Container technologies

Historically the maximum dimensions for land transport in the USA have always had a major influence on the marine container size. The factor which led to this is related to the pioneer status of US carriers in this field and the broad trade relations of that nation. For example, in 1956 Sea-Land Services (SLS) was the first shipping company to begin carrying containers and the dimensions selected was 35' X 8' X 8'. This size were selected for two reasons: first, 35' was the maximum length permitted on roads of New York, New Jersey and Texas; and second, the 8' height was the maximum physically permitted on the then existing chasses for movements between New Jersey and New York via the Hudson Tunnel. Two years later Matson Navigation Company (MNC) began transporting containers with the same width and height but 24' long on the US west coast for approximately the same reasons.

In 1977 the ISO published its Recommendation 688 concerning dimensions for freight containers, which did not utilize either the 35' or the 24' lengths as international standards. Nonetheless, the ISO considered that the range of sizes adopted (lengths of 10', 20',

30' and 40', with uniform 8' X 8' widths and heights) were sufficiently flexible to encompass the trades served by SLS and MNC. The impact of the ISO freight container dimensions on international container movements can be seen from the changes at SLS. For 20 years SLS utilized 35' containers, as its road transport services and container terminals are wholly owned and operated, but approximately 10 years ago SLS began the costly process of changing from 35' to 40' lengths. By way of comparison, MNC is able to continue with the 24' length, as its services are limited to a domestic closed-loop between the US west coast and Hawaii.

No longer are the US ocean-liner carriers the only pioneers in the industry, but the enormous trading potential of that nation and the growing use of intermodal systems in its trades, as was discussed in part II.C., have created a need to be compatible with inland transport systems of that country. It should be noted that the US Government adopted legislation entitled the "Surface Transportation Assistance Act of 1982" which increases the maximum dimensions for road transport in interstate movements to a length of 48' and a width of 8'6". This dimension was selected to increase the productivity of road transport vis-a-vis its rail competition, but its potential impact on international maritime transport must be carefully watched.

Approximately five years ago APL began experimenting with non-ISO size marine containers in its intermodal transport system between Asia, US west coast ports, and interior as well as east coast destinations. The dimensions tested were 45' and 48' lengths, with the latter having a width of 8'6". From these experiments it was found the 48' X 8'6" X 9'6" containers have the following advantages: (1) an internal volume of 2.9 TEUs, (2) permit double-stack container platforms -five platforms equal one wagon- to carry 4.9 TEU instead of 4.0 TEU and (3) permit two European standard pallets (1.2m X 0.8m) to be loaded side-by-side. In recognition of these advantages the Association of American Railroads (AAR) adopted this dimension as the US domestic container size; it is being tested by Canadian National Rail; numerous container manufacturers such as Jindo of South Korea and Synergen, Adamson and Yorkshire Marine in the United Kingdom have received orders for these new units; Sea Containers is acquiring 25 units for leasing; and the European railway joint venture, Intercontainer, has 390, 2.5 meter (8' 2.5") wide units of various types and recently purchased thirty 40' ISO units with side-access doors of the same width for European trading. Units of 2.5m width are now being referred to as the trans-Atlantic or Europallet container.

With all of the activity related to intermodal efficiencies and the 48' X 8'6" X 9'6" containers, ocean-liner carriers are faced with the following question: Is there a trend away from ISO standards? As a partial response to this question, it must be remembered that there are at present only 1 500 of these 48' units, which can be compared with almost 4 million standard ISO containers. Nonetheless, numerous shipping lines as well as the technical secretariat of ISO TC-104

consider that there is a real possibility of these units being utilized more extensively by Asian and European exporters to the USA. Due to the need for Latin American exporters to interface smoothly with land transport systems not only in the USA but also in Europe, and as the interface requirements of those markets are quite different, the commercial acceptance of this non-ISO unit must be carefully watched.

### C. Port and inland transport technologies

There are a number of areas in which technologies are changing the traditional relation between liner vessels, ports and hinterlands. Some of the more important are related to (1) cranes and marshalling yards, and (2) inland transport.

1. Crane and marshalling yard technologies. The research and development activities of crane manufacturers largely seek to reduce the time vessels spend in port loading and discharging containers, operating and maintenance costs, and the purchase price as well as installation costs. In this context numerous electronic aids have been added to, among others, increase travel speeds and assist in spotting containers -which is estimated to account for approximately 50 per cent of cycle time. Specialists in the field project that by the end of this century major reductions in vessel port-stay times at high-throughput ports will be achieved by lifting containers in groups of eight or 10. The future may prove such projections correct but one might ask, what will be the cost of such multiple container moves and are there other less costly means to accomplish the same objective?

A crane capable of lifting approximately 300 tons (10 containers with 30 tons each) would not only be very expensive but also heavy. Existing docks at even the most advanced ports might have to be reconstructed for such cranes as well as the point loading requirements of 10 containers. It should be noted that cranes of this capacity are usually on barges to eliminate the need for such special construction. Due to these and other aspects, it is considered that efforts might be fruitfully directed toward modifications of existing cranes which would increase their productivity. These efforts might indicate that major productivity increases could be obtained by a change from serial to simultaneous loading and discharge operations through, for example, the utilization of double-spreader cranes. A double-spreader crane would operate like a single-spreader, except that the former would lift ship and shore containers at the same time and the two units would rotate 90 degrees at mid-boom to permit such units to pass. Double-spreader cranes should be only marginally heavier than existing single-spreader units, thereby permitting the use of existing docks.

The major advances for the marshalling areas of ports will probably involve electronic aids to assist in the identification, transmission and storage of information related to containers and

their cargoes. At those ports with a high throughput of containers the marshalling yards might be more closely integrated with the gantry crane through, for example, a conveyor or multiple trolley systems to ensure the rapid movement of such units to and from cranes.

2. Inland transport technologies. From the earliest days of containerization extensive inland movement has always been a theoretical possibility, but numerous factors have combined to change that possibility into an economic and practical reality for Europe and North America. One of the most important factors which contributed to such change in North America was double-stack container wagons, which allow two ocean containers to be stacked atop each other for inland railway transport.

Since the Second World War intra-European cargo movements have been dominated by road transport. The reasons for this are found in the virtual destruction of alternatives during the War, relative short transport distances, design advances of road transport equipment and low-cost petroleum products prior to 1973. During the early 1970s European railroads began to look at different alternatives which would allow them to participate in the intra-European movement of goods. As a result, the railroads began to develop intra-European, non-ISO, non-stackable containers of various lengths and heights, but usually 2.5 meter (8' 2.5") wide, which are compatible with road transport requirements. These containers, or swap-bodies as they are called, are of light construction and have lifting points only at the bottom corners. Following the swap-body initiative, in 1983 European railroads combined to form a joint venture called Intercontainer for the transport of swap-bodies and ISO units between participating countries. Today 12 European nations participate in Intercontainer and approximately 50 per cent of all European COFC and TOFC movements utilize swap-bodies. During 1985 Intercontainer transported approximately 905 000 swap-bodies and ISO units, which is a 9.7 per cent increase over the previous year.

While swap-bodies are not interchangeable between land and sea modes, to a limited extent they are carried by trucks on roll-on/roll-off vessels in European short-sea trades. It has been estimated that a 30' swap-body constructed in Europe not only costs approximately US\$ 3 600, or twice the price of a comparable ISO unit from a Far East manufacturer (US\$ 1 500-1 800), but also is more expensive to repair. One specialist in the matter has suggested that if swap-bodies were replaced with ISO units it would ensure intermodal compatibility with ocean carriers and, at the same time, reduce investment and repair costs. During August 1986 technical committee 104 (TC/104) of the ISO sent out a questionnaire to member countries concerning standards for swap-bodies and found that only 33 per cent consider such standardization necessary. With the advent of Europallet containers constructed to ISO standards, one might ask if swap-bodies will continue to be utilized for intra-European cargo movements in the medium and long terms.

On the other hand the USA has not, as yet, developed a domestic container such as the European swap-bodies, and until the early 1980s there was very little inland movement of ISO units. Inland transport in the USA of ISO containers became a practical reality with the deregulation of the road and rail transport industries in 1980. In general terms, the Motor Carrier Act of 1980 and the Staggers Rail Act of 1980 sought to remove bureaucratic constraints on competition and increase productivity through service and technological innovations. Since these acts were adopted loss making routes have been eliminated and new labor agreements have been negotiated, but the new maximum land transport dimensions, discussed in part III.B., and double-stack container railway wagons have been major contributors to such productivity increases.

There are numerous variations in the design of double-stack container wagons, but it can be generally stated that such wagons are approximately 280' long and composed of five articulated platforms. Each platform carries four TEUs each, with 20 TEUs per wagon. Twenty double-stack container wagons are normally grouped to form a train which carries 400 TEUs. On the other hand, as APL utilizes one 48' X 8'6" X 9'6" container on the second tier of each platform, the same train would carry 490 TEUs. Containers are secured for transport either by the use of bulkheads at each end of platforms or by the use of interbox connectors between the corner fittings of the base and stacked containers. A standard railway wagon weighs approximately 31.9 metric tons, while the articulated double-stack container wagon only 14.6 metric tons or 54.2 per cent less. The reason for this is that a single five-platform, double-stack container wagon has 80 per cent fewer couplers and 40 per cent fewer wheels and brakes, that the equivalent five conventional flat railway wagons. This weight difference permits the same locomotive and, hence, crew to transport more cargo.

It has been estimated that locomotives pulling double-stack container wagons will consume only 60-67 per cent as much fuel per container as conventional COFC and TOFC operations. One US railroad has indicated that double-stack container wagons will average 225 000 miles per year, instead of the 80 000 miles per years for flatbed railway wagons, and that double-stack container wagon maintenance costs, on a per-container basis, are as low as 12 per cent of those for conventional equipment. The per-container line haul cost savings of double-stack container trains over conventional TOFC and COFC is approximately 40 per cent, which results in an estimated rail-haul cost of US\$ 0.40 per mile per container.

The European and USA initiatives in inland transport technologies are important to Latin American and Caribbean countries, as they must have a smooth interface with each. This creates numerous problems as these technologies are quite different and 48' X 8'6" X 9'6" units presently would not be permitted on most European roads. Nonetheless, Asian and European exporters might come to see the 48' length as a

means of making greater use of North American road and rail transport economies, while those of Europe have already begun to look at the 8' 6" and 8' 2.5" (2.5m) widths as providing such economies with reference to their standard pallets.

#### D. Computer and communication technologies

In 1966 the international transport of containers was a matter of vision, but a mere four years later they had become the basis of ocean-liner transport. Twenty years later the use of computers in ocean-liner transport is often a matter of vision, but within a very short period of time computers will become the fundamental basis for operation and control of containers and their cargoes, charter arrangements, consortia and the diverse elements of the distribution chain itself. The ocean-liner industry has been slow to see the advantages of computer applications to their daily activities. Computers are no longer a "management aid" but rather a "production tool" which will accelerate the market, service, technological and legal forces which are now transforming liner shipping. The production tool and acceleration aspects of computers are so important that the impact of the silicon chip on liner shipping has been compared with that of the container in 1960. The areas in which computers find their greatest applications in ocean-liner transport are related to ship operations, container operations, communications between ships and ports, and communications between ports, inland transport modes, interior cargo terminals and national Customs authorities.

Vessel applications include bridge, engineroom, cargo and administrative functions. Computers assist persons in each of those areas to gather, analyze, integrate and transmit data related to position, speed, weather, fuel consumption, repair functions, stability calculations, tank levels, draught, temperature, documentation, and accounts, as well as to carry out training, inventory and word processing activities. For example, computer applications to the repair cycle and functions have permitted a 30 per cent reduction in repair costs and a decrease in inventory investment requirements.

Computers can assist shoreside container operations to ensure the maximum utilization of the cubic space in such units, prepare vessel loading plans, reduce restows, elaborate commercial documentation and control of container inventories. With reference to the latter, a European liner company has found, upon adopting a computerized inventory control system for containers, that its manual system resulted in as much as 25 per cent of such units not being ready for service.

Communication technology permits vessels to communicate with ports regarding existing container stowage, tank contents, etc., so that the latter can prepare discharge and loading plans, determine

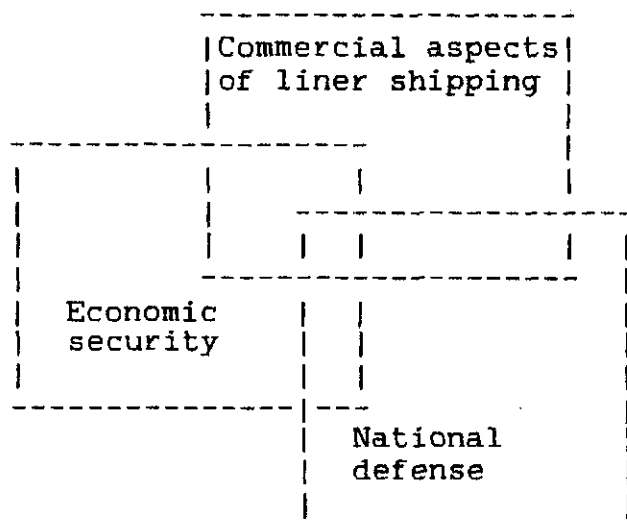
equipment requirements and identify shoreside storage locations for incoming and departing containers. These communication links are also utilized to provide information related to navigation and weather routing. In a similar manner the same technology permits ports to communicate with inland transport modes, interior cargo terminals and national Customs authorities. For example, Customs authorities can receive information regarding goods which are to enter and leave the country many days before the vessel arrives. With such information containers can be pre-selected for inspection, while others pre-cleared if all required documents have been filed. The North American railroad, Burlington Northern, automatically transmits data (without human intervention) concerning the containers, their contents and destinations on its trains to a computer at the US west coast port of Seattle, Washington, before they have departed Chicago for that port.

Due to the growing interdependence of all activities in the distribution chain, which historically have been treated as unrelated, there is a pressing need to create structural ties between all modes and functions in order to take advantage of the benefits of "system optimization". Such structural ties can generally be grouped into two categories; that is, those of an institutional nature and those of a physical nature. The role computers and communications technologies have come to play and will play in joining the diverse activities of the distribution chain to create a systems approach is generally understood, but what needs to be studied in greater detail is how these important production tools might be incorporated into the institutional and physical activities of land and water transport of this region.



IV. THE EMERGING LEGAL  
ENVIRONMENT OF OCEAN-LINER TRANSPORT

Ocean-liner transport is such a dynamic and permanently evolving field that the legal regimes which govern its activities should be forward looking and, if possible, anticipate changes. In elaborating legal regimes for ocean-liner transport, most countries give consideration to the following three overlapping areas:



The importance and relative weights given these areas by a country and the means utilized to satisfy each result in a statement of its ocean-liner transport policy -whether explicit or implicit. Due to the wide range of interests each of these areas represents, ocean-liner transport has an intimate relation with other government policies and it is in the political arena where one must first look for changes. Indeed, it might be said that the commercial aspects of ocean-liner shipping are controlled by non-market considerations -economic security and national defense- and any attempt to separate ocean-liner transport from the general economic, industrial and political environment is not only impossible but would result in a meaningless exercise.

The relevance of this intimate relation can be seen from the service innovations which have come about in the last two-to-three years. To understand these innovations it should be highlighted that the physical elements of modern liner shipping -containers, specialized cranes, cellular vessels, etc.- have existed since the mid-1960s, but new legal regimes and those under discussion permit such elements to be utilized differently or in new combinations. This is something like rewriting the rule book for chess and permitting a

piece that could only move in two directions to now move in four or six or in combination with other pieces. The process of learning to operate liner vessels according to new and constantly evolving competition rules is not easy, but it is necessary for survival.

In this context, the legal measures being elaborated or which have been adopted by (a) developed countries, (b) developing countries and (c) jointly by developed and developing countries must be evaluated to answer many questions. Some of the more important are: What impact will these regimes have on fleet development programmes and trading economics of Latin American and Caribbean countries? What organizational and operational changes are needed for Latin American and Caribbean shipping lines to anticipate the emerging legal environment of ocean-liner transport? Does the emerging legal environment accelerate, anticipate or restrict the market, service and technological forces which are restructuring the industry? What new commercial relationships should be created? Which old ones must be terminated? Until these and many other questions are answered liner companies will be compelled to operate in a political environment so disperse that they literally cannot tell from one day to the next what strategies and plans are most appropriate.

#### A. Measures adopted by developed countries

Probably the most important legislation adopted by developed countries for the ocean-liner industry are (1) the US Shipping Act of 1984 and (2) the proposal to include liner shipping within the European Community's Treaty of Rome. Of course, there are many other legal instruments such as (3) Lomé III and (4) Note 1 to Annex A of the Code of Liberalization of Current Invisible Operations (CLIO), as well as (5) quasi-legal instruments which result from US/Consultative Shipping Group (CSG) discussions.

1. The US Shipping Act of 1984. This Act is more than just another national law for three reasons: first, approximately two-thirds of all liner vessels call at US ports and, therefore, must comply with its requirements; second, the new tools it creates for the industry -service contracts, time-volume rates, independent action, extension of antitrust immunity to intermodal combinations and rates, shippers negotiating directly with lines, not via conferences, and shippers' associations- are supportive of the market, service and technological forces which are restructuring the industry; and third, lines may now respond rapidly to changes in trade demand, as all agreements filed with the Federal Maritime Commission (FMC) -other than assessment agreements- become effective 45 days after filing, unless the FMC seeks injunctive relief. Due to the importance of this Act for ocean-liner transport, it will be evaluated with reference to (a) enforcement philosophy, (b) commercial implications, (c) national economic security and defense aspects, and (d) specific clauses of this and other related US maritime legislation which are of interest to ocean-liner companies.

a) Enforcement philosophy. Many articles and even books have been written in an effort to explain the Shipping Act of 1984. However, a spokesperson for the FMC at a conference sponsored by it and the Old Dominion University, 12-13 June 1986, held at Norfolk, Virginia, USA, indicated that

"Whenever any industry is subjected to a major modification of the regulatory scheme under which it functioned for decades, it can be expected that it will take many years for the players to sort out all of the new information they receive about the changed environment and make the appropriate adjustments."

It would appear that three situations must occur for the Act to be fully understood; that is, ocean-liner transport must be a (1) buyers' market, (2) a sellers' market, and (3) the FMC must have approximately 10 years to interpret the creative maneuvers of lines, conferences and shippers which seek to reduce what are seen as unnecessary burdens. Due to cronicly overtonnaged trades, the growing use of intermodal-landbridges and large-scale vessels, and freight rates in real terms at 1977-1979 levels, the liner industry is currently a shippers' market. Until this situation is reversed, numerous provision of the Act will not be utilized nor fully understood. Once the pendulum in this cyclical industry has swung to create a sellers' market, vessels operators will begin to see aspects of the second situation.

With reference to the third situation, the Act provides for a five year review and establishment of a shipping line advisory group. The FMC itself has begun to gather information by questionnaires from seminar participants, liner operators and many others. Also, the FMC has begun to monitor trades, rather than gather information on a case-by-case basis, and this implies an even more active role for it in ocean-liner transport. For guidance in interpreting the Shipping Act of 1984, the FMC will be influenced by the legislative history of the Act, the large body of case law related to ocean-liner transport it has developed over the years, information from the trades it monitors and by the enforcement philosophy of the FMC's new Chairman -Mr. Edward V. Hickey.

Mr. Hickey recently stated that he would do everything in his power to quickly and aggressively employ statutory weapons contained in sections 13(b)(5) of the Shipping Act of 1984 and 19 of the Merchant Marine Act of 1920 when the circumstances warrant. The statutory weapons to which he referred will be treated at part IV.A.1.d). However, counterbalancing Mr. Hickey's declaration is section 13(b)(6) of the Act which provides that

"Before an order under this subsection becomes effective, it shall be immediately submitted to the President who may,

within 10 days after receiving it, disapprove the order if the President finds that disapproval is required for reasons of the national defense or the foreign policy of the United States."

b) Commercial implications. The Act presents shippers with new opportunities to deal with carriers. Prior to the Act shippers could only negotiate with conferences, but now they can negotiate directly with any one line, a group of lines or the conference itself, as well as establish shippers' associations. These associations are defined at article 3(24) as

"...a group of shippers that consolidates or distributes freight on a nonprofit basis for the members of the group in order to secure carload, truckload, or other volume rates or service contracts."

The Act includes shippers' associations to balance the strengthened antitrust immunity of liner conferences and the negotiating power given large shippers through time-volume rates and service contracts. Without shippers' associations, liner operators would be able to recover any freight revenue lost through negotiations with large shippers by raising rates for shippers with small quantities of goods. In order to provide small shippers equal access to time-volume rates and service contracts, the Act provides that they may form associations and that carriers may not refuse to negotiate with such associations. The US Department of Justice has issued guidelines for its approval of such associations; that is, any one association should not control more than 35 per cent of cargoes on offer, and the transport cost should not exceed 20 per cent of the final commodity price.

If the market, service, technological and legal forces which are restructuring ocean-liner transport result in a spin-off or separation of containers from the liner industry, service contracts and time-volume rates, as well as the earlier mentioned legislative tools, should support their carriage under contractual arrangements. An indication of such support can be seen from the 5 206 service contracts which were filed with the FMC by 2 May 1986, and from the FMC's declaration that in certain trades between the Far East and US over 50 per cent of all liner cargoes are now subject to service contract arrangements. It should be highlighted that 75 per cent of such contracts involve non-conference carriers, thereby indicating not only the growing strength of those carriers but also the impact of the forces which support the increasing use of service contracts. The use of service contracts is not restricted to US trades and, for example, Asian shippers to Europe are now demanding the right to use such new tools. Service contracts effectively incorporate liner companies into the physical distribution systems of shippers and consignees, thereby

permitting a reduction of their inventory investments through just-in-time deliveries.

Some years from now academic discussions could be held concerning the weakening of the liner conference system and whether it was caused by the Shipping Act of 1984 or the nature of containers and ocean-liner transport services, as was presented at parts II.A. and B. It would appear, nonetheless, that challenges to conference supremacy are already well underway. It has been estimated that for a liner conference to stabilize freight rates and minimize competition in a trade route, its members must control approximately 80-90 per cent of the cargoes. The Far Eastern Freight Conference (FEFC), for example, recently indicated that 47 per cent of the eastbound and 37 per cent of the westbound cargoes are now transported by non-conference carriers. Certain carriers have begun to regulate and prohibit the use of service contracts, as permitted at section 4(a)(7), in response to shippers' demands for clauses in such contracts which require amendment of original agreements if a reduced freight rate is offered. The Asia North America Eastbound Rate Agreement (ANERA) has adopted service contract guidelines for its members. However, whether or not the Act contains a provision for service contracts is considered largely irrelevant, as other homogenous cargoes such as petroleum, minerals, grains, automobiles, paper, lumber, etc., separated from liner shipping without earlier legal initiatives. Thus, the growing use of contract carriage arrangements for ocean-liner transport reflect the market, service and technological forces which are restructuring the industry, and the Shipping Act of 1984 merely supports those forces.

c) National economic security and defense aspects. For many years the US Government has maintained its national merchant marine through a combination of subsidies and cargo reservation regimes. As examples, US liner operators receive operating-differential subsidies and until recently construction-differential subsidies, as well as reservation regimes which are applicable to coastwise, military and economic assistance cargoes. With few notable exceptions, the magnitude of these subsidies and reservations regimes make US liner shipping one of the most protected of those in market-economy countries. Originally, each of the above measures sought to harmonize the commercial, economic security and defense aspects of its national maritime policy. Nonetheless, differences in interests among shipbuilders, ship operators, cargo owners, the armed forces and others has led the US Government to seek measures which individually treat those areas.

With reference to the first or commercial aspects of international liner shipping, the operating-differential subsidy has created and perpetuates a fiction in US ocean-liner policy; that is, its international services are largely conducted on a commercial basis. With crew wages now reaching approximately 60 per cent of vessel operating cost, such is not the case. Crew wages not only

occupy a pivotal position in the daily expenses of US liner operators but the operating differential subsidy can make the difference between a profit or a loss. If the Liner Development Act (S-2662), current being considered by the US Senate, is approved, US liner operators would be allowed to buy, build and charter new tonnage on the open market, rather than from US shipbuilders, and yet still qualify for all existing subsidy payments. Wage subsidies would be calculated on a weighted index of crew costs for foreign vessels in competition with US flag vessels on a similar trade. There is nothing wrong with this fiction per se, as long as other countries which trade with the US are not required to structure their liner operations in accordance with it.

In addition to the commercial fiction for international operations, the US Government also individually treats the remaining two areas -economic security and national defense- of its ocean-liner policy. Defense requirements are fulfilled through its Ready Reserve Force fleet, which is operated by the US Military Sealift Command, while economic security is considered adequately satisfied through US owned fleets that are registered under its laws as well as those of other countries. In a similar manner certain European nations with long experience in shipping and largely dedicated to cross-trading activities indicate that these three areas are treated separately. Indeed, at times such countries even deny that considerations are given to economic security and national defense issues. For such countries these latter issues are usually covered by economic union agreements, continental transport alternatives and mutual defense treaties which are of such magnitude as to eliminate any need for their consideration in an ocean-liner policy. These nations also assert that their fleets receive only interest equalization or local shipbuilding subsidies and cargo reservation for domestic trades, but the major subsidy comes from the internationalization of their fleets through the use of low-cost, foreign crews.

The individual treatment of the commercial, economic security and national defense aspects of ocean-liner transport by the US and other developed nations has important implications for developing countries which either do not have sufficient means to deal with such aspects separately or have taken a national, sovereign decision to deal with them in another manner. The impact of the evolution from joint to individual treatment of the three areas of ocean-liner policy could be enormous for shipping lines of other countries, if access to their own trades with Europe and the USA is conditioned on use of substantially the same means to support their liner operators.

d) Specific provisions of US maritime legislation which are of interest to ocean-liner companies. To ensure access for US vessels in cross or non-US trades and for all vessels in direct US-foreign trades, sections 13(b)(5) of the Shipping Act of 1984 and 19 of the Merchant Marine Act of 1920, respectively, provide the FMC with broad powers. The regulations for these sections permit the FMC to

institute proceedings on its own motion or upon the filing of a petition.

The regulations for section 13(b)(5) of the Shipping Act of 1984 are found at 46 Code of Federal Regulations (CFR) 587 and enumerate conditions which are considered to unduly impair access of US vessels to trades between non-US ports, including any intermodal movements related thereto, and establish procedures under which US liner operators may apply to the FMC for relief. However, any limits, restrictions or requirements placed upon US vessels for participating in non-US trades will not be subject to FMC review unless a US liner operator is commercially able to enter the trade in question.

As was noted at part IV.A.1.a), the enforcement of section 13(b)(5) is limited by section 13(b)(6). Nonetheless, 46 CFR 587.2 enumerates a wide range of conditions which are defined as unduly impairing the access of a US flag vessel to non-US trades. The two areas of fundamental interest for Latin American and Caribbean liner operators are those related to subparagraph (b)

"Reservation of a substantial portion of the total cargo in the trade to national-flag or other vessels which results in a failure to provide reasonable competitive access to cargoes by U.S. flag vessels."

and to the inclusion of intermodal movements in such transport operations.

Pursuant to subparagraph (b), the FMC must define "... provide reasonable competitive access to cargoes by U.S. flag vessels" in the light of its reservation schemes for coastwise, military and economic assistance cargoes, as well as numerous bilateral cargo sharing agreements. Turning the requirements of this subparagraph around, does it mean that the US will eliminate such regimes and agreements in order to "provide reasonable competitive access to US cargoes by non-US flag vessels"? With reference to intermodal movements which form part of non-US trades, one can imagine, for example, USL's RTW service discharging Asian cargoes at Panama for on-carriage by its feeder vessels to either Chile or Peru and from one of those countries to La Paz, Bolivia, by land transport. Without clarifying decisions by FMC administrative law judges or policy statements by the Chairman of the FMC in these matters one can assume a certain intent but it is most difficult to determine the scope that will be given to the practical application of such provisions.

The regulations for section 19 of the Merchant Marine Act, 1920, are found at 46 CFR 585 and define conditions resulting from actions of governments or from competitive methods or practices which are unfavorable to shipping in the foreign trade of the US. The definition of these conditions are quite similar to those of 46 CFR

587.2, and create two areas of interest for Latin American and Caribbean liner operators. The first is found at 46 CFR 585.3 (b) and relates to conditions which

"Reserve substantial cargoes to the national flag or other vessels and fail to provide, on reasonable terms, for effective and equal access to such cargo by vessels in the foreign trade of the United States;"

This subparagraph would seem to implicitly recognize the validity of national cargo reservation regimes, if such regimes provide, on reasonable terms, for effective and equal access to such cargo by other vessels in the foreign trade of the USA. It seems to indicate that only if cargo reservation regimes fail to or do not make such provision would they be considered an unfavorable condition in the foreign trade of the US. Of course, what constitutes "equal access to such cargo" is left to the FMC to define. In the present, chronically-overtonnaged market a mathematically exact equal access could result in no liner operator having a large enough load to economically justify his voyage. It should be highlighted that this section of the Act has been given renewed vigor and applied to the cargo reservation schemes of the Philippines and Venezuela, and the FMC is currently studying cross-trader access to the trades between the US, and Argentina and Brazil.

The second area of interest is at 46 CFR 585.3 (d), and relates to conditions which

"Are discriminatory or unfair as between carriers, shippers, exporters, importers, or ports or between exporters from the United States and their foreign competitors and which cannot be justified under generally-accepted international agreements or practices and which operate to the detriment of the foreign commerce or the public interest of the United States."

This subparagraph would seem to indicate that discriminatory conditions are justified or accepted if they are carried out pursuant to a generally-accepted international agreement. In this context, the United Nations Convention on a Code of Conduct for Liner Conferences entered into force on 6 October 1983 and would, therefore, seem to be a generally-accepted international agreement. Due to the well-known position of the US Government against the Code of Conduct, it might be pertinent to question if this clause permits liner conferences to apportion cargoes among their members in US-foreign trades?

2. Liner shipping within the European Communities Treaty of Rome. For many years the principal focus of transport activities of the Commission of the European Communities was related to road, rail and



waterway cargo movements between member countries. At that time, maritime transport was considered to be a national matter governed by member states' laws, conference agreements and the market. However, in response to numerous factors such as non-commercial competition, overtonnaging, national cargo reservation regimes and the United Nations Convention on a Code of Conduct for Liner Conferences, various member states adopted the Code of Conduct together with their own Brussels Package and this became the first pronouncement of a shipping policy for the European Economic Community (EEC).

Current efforts to include shipping within paragraph 2 of article 84 of the Treaties Establishing the European Communities, better known as the Treaty of Rome, are a partial response to the above factors as well as an expression of EEC support for the US Shipping Act of 1984. The proposals currently being considered by the Commission and member countries as elements of a common shipping policy are: (1) diplomatic action and countermeasures against third countries protecting their fleets by reservation or bilateral arrangements, (2) freedom to provide shipping services by all EEC nationals, with a transition period of five years for international trades and 10 years for cabotage, (3) consultation procedures between EEC members and third countries, (4) criteria for defining a national shipping line within the Code of Conduct, (5) application of the Rules on Competition, found at articles 85-90 of the Treaty of Rome, to shipping in order to counter various practices defined as unfair, and (6) fines against shipowners who charge unfair prices in EEC liner trades. As there is no agreement on the structure and application of the latter two proposals, they have been temporarily set aside by the Council of Ministers. Of the remaining four proposals, there is complete agreement except for freedom to engage in cabotage by all EEC nationals.

An EEC common shipping policy has numerous facets, but the major impact for Latin America and the Caribbean would be its position on cargo reservation regimes. By means of the Code of Conduct and the Brussels Package the EEC has recognized the right of all countries to divide trade shares, as well as for regions to reserve certain aspects of their trade relations for themselves. Of the above proposals, the first contains measures which might be used against cargo reservation, but many EEC member countries have such regimes. As example, France reserves the import of oil from Algeria for national vessels, Spain reserves its trade with the Canary Islands for national vessels, Greece reserves its island trade for national vessels, and other EEC members, while not having a formal cabotage regimes, implicitly limit access to domestic cargo movements. So important are these cargo reservation schemes that they have become the major obstacle to the adoption of a common EEC policy for shipping. As a result, it appears that cabotage will be eliminated from the proposed common policy so that member states may approve the remaining proposals by the end of 1986.

3. Lomé III. Beginning in 1964 the EEC has governed its trade development and investment relations with former dependent overseas countries and territories by means of conventions which are negotiated every five years. With the addition of new member states to the EEC, the number of former dependent overseas countries and territories becoming contracting parties to each successive convention has continually increased. For example, during negotiations between the EEC and the United Kingdom for its own entrance into the EEC, Mauritius asked to accede to the trade convention in force at that time and was permitted to do so on 30 June 1973. Other countries wishing to accede to the convention led to the adoption of Protocol 22, annexed to the Acts of Accession to the EEC of the United Kingdom, whereby the EEC offered to 21 Commonwealth countries of Africa, the Caribbean and Pacific an opportunity to negotiate their future relations within the framework of this trade and investment convention.

The fifth trade and investment convention, known as Lomé III, was signed between 65 African, Caribbean and Pacific (ACP) states and the EEC on 8 December 1984. The financial package of this Convention totals 7 400 million European Currency Units (1 ECU = US\$ 1.02) and provides ACP states access to EEC markets for products such as bananas, rum, sugar, etc., and sources of financial and technical assistance for projects and programmes in areas which range from trade promotion to transport and from environment to industry.

The accession of Mauritius to the EEC-ACP Lomé Convention framework at its own request and the continued expansion of the number of eligible ACP states indicate a most flexible attitude of contracting parties. With the entry of Portugal and Spain into the EEC on 1 January 1986 a number of questions arise concerning the desirability of a protocol, similar to number 22 mentioned above, which would permit Latin American countries to accede to Lomé III. For example, Article 252 of Chapter 3, entitled "Provisions relating to establishment and services", requires reciprocal, non-discriminatory treatment of national firms by all contracting parties. With reference to transport, Article 88 provides that

"The Contracting Parties agree that competitive access to the trade shall not be impaired."

Thus, the questions are: Should Latin American countries seek to become contracting parties to Lomé III? If yes, what would be its impact on trade and transport?

4. Note 1 to Annex A of the Code of Liberalisation of Current Invisible Operations (CLIO). The Organisation for Economic Co-operation and Development (OECD) was established by a Convention signed at Paris, France, on 14 December 1960, and currently has 24 market-economy developed nations as members -Australia, Canada, 19

European nations, Japan, New Zealand and the US. This Convention provides that the OECD shall promote various economic growth and trade expansion policies, and in order to achieve these policies its members agree

"to pursue their efforts to reduce or abolish obstacles to the exchange of goods and services and current payments and maintain and extend the liberalisation of capital movements." (emphasis added).

To carry out the above agreement as related to shipping services, member countries negotiated and adopted Note 1 to Annex A of CLIO. Transport services within the scope of CLIO are enumerated at part C to Annex A, while Note 1 provides guidelines for the liberalization of all international maritime transport services and related freight charges. Note 1 contains only three sentences, but they have a large potential impact on the US initiative to include all services, which includes maritime transport, within the framework of the General Agreement on Tariffs and Trade (GATT). The first sentence provides that residents of one OECD state have an unrestricted opportunity to avail themselves of the international maritime transport services offered by residents of another OECD state. This is followed by a requirement that international maritime transport services "should" not be hampered by measures such as exchange controls, preferential flag treatment or clauses in trade agreements, to ensure that normal commercial considerations "should" alone determine the method and flag of shipment. Finally, the third sentence provides that

"The second sentence of this Note does not apply to the United States."

Even though the second sentence uses the word "should", thereby indicating that its provisions constitute a suggestion and compliance is discretionary, the US Government clearly indicates from the third sentence that it does not wish to liberalize international maritime transport services. If this interpretation is correct, then why is the US Government seeking to have all services, which includes international maritime transport, placed in a GATT framework? Would the US Government permit the national defense aspects of its maritime policy to be subject to GATT requirements of non-discrimination against liner services of other countries in areas such as right of establishment, access to markets and commercial presence, as well as dispute settlement, most-favored-nation treatment and transparency of subsidies? It would appear that the US Government either has changed its position since Note 1 to Annex A of CLIO was adopted or has not considered the implications of such liberalization for its maritime transport policy.

5. US/Consultive Shipping Group (US/CSG). It will be remembered that the US Shipping Act of 1916 gave liner operators complete immunity from antitrust laws of that country for any activity covered by an agreement on file and in effect at the FMC. However, a series of US court decision in the 1950s and 1960s eroded that immunity. Liner operators in Europe and the US became increasingly uncertain as to whether an agreement on file with the FMC was sufficient to protect them from an antitrust violation. The US/CSG discussions were an outgrowth of the uncertainty surrounding antitrust immunity of the Act of 1916. In recognition of the need to clarify this situation, an important feature of the Shipping Act of 1984 was to explicitly indicate that antitrust immunity includes not only those activities in agreements on file with the FMC but also for those entered into pursuant to such agreements.

The CSG members include Belgium, Denmark, Finland, France, the Federal Republic of Germany, Greece, Italy, Japan, the Netherlands, Norway, Sweden and the United Kingdom. Participating at meetings are representatives of those countries, as well as representatives from the EEC and the US. As a result of the positive US/CSG contribution to the harmonization of European and US ocean-liner policies for antitrust immunity, discussion have continued to be held to ensure that other elements of such policies are compatible. The current focus of US/CSG discussion is related to policies which safeguard and promote competition in all sectors of ocean shipping. At the last meeting of the US/CSG, held at Copenhagen, Denmark, 28-30 April 1986, a joint statement of their conclusions was prepared. The three operative paragraphs of that statement indicate

"1. They will seek to maximise the amount of cargo subject to competitive access.

2. Whether or not the UN Liner Code applies to their trades, the participants reaffirm their resolve to avoid the introduction of new governmental measures, and to resist measures introduced or encouraged by third countries, where their effect is to exclude or restrict competitive access by each others' shipping lines to cargoes in their trades. The participants will maintain the right of commercially operated non-conference lines to compete freely for liner cargoes.

3. The participants have agreed that they should continue to consult regularly and, where appropriate, to coordinate actions relating to their shipping policies. In particular, they intend to consult on:

- (i) the means jointly to resist harmful protectionist actions;
- (ii) the means to improve competitive conditions in shipping;
- (iii) the means to overcome restrictive commercial practices that have the effect of substantially restricting or closing trades, especially those practices that give effect to restrictive shipping policies of third countries;
- (iv) each others' regulatory practices; and

(v) the future direction of the consultations."

While some of the wording of the above three paragraphs is in general terms, the statement demonstrates a clear and joint intention to resist protectionism in ocean-liner shipping by ensuring competitive access of their conference and non-conference liner operators to the cargoes generated by third countries. This can be regarded as an indication of a possible US/CSG position at the 1988 review of the Code of Conduct regarding the extension of its scope to include non-conference operators. In the light of US/CSG activities to co-ordinate their shipping policies to achieve common goals, one might ask if should Latin American and Caribbean countries should do the same to preserve their own national shipping policies?

#### B. Measures adopted jointly by developed and developing countries

The major legislative efforts of developed and developing countries encompass four conventions negotiated under the auspices of the United Nations Conference on Trade and Development (UNCTAD) - a Code of Conduct for Liner Conferences, the International Multimodal Transport of Goods, the Carriage of Goods by Sea (the Hamburg Rules) and the Conditions for Registration of Vessels, as well as the discussions currently taking place at GATT concerning the inclusion of services within its framework. In the light of the market, service, technological and legal forces which are restructuring ocean-liner transport three areas are of fundamental importance; that is, (1) liability regimes for the carriage of containers, (2) possible topics for the 1988 review conference for the Code of Conduct and (3) the initiative to include services within the GATT framework.

1. Liability regimes for the carriage of containers. From the earliest days of steam to about 1970 general cargo ships were the supreme workhorses of ocean-liner transport. Until the International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, also known as the Hague Rules, were adopted in 1924, existing legal regimes permitted almost unlimited freedom of contract and ship operators were virtually divesting themselves of any liability for cargo loss or damage, however caused, by means of exemption clauses in their bills of lading. However, the Hague Rules circumscribed such freedom by defining, among others, the standards of care for cargoes and the period of responsibility for operators of general cargo vessels. Such responsibility is from "hook-to-hook", or from the time individual cargo units were attached to the hook of a vessel's crane at the port of loading until they were released from the hook at the port of discharge. Within this responsibility regime at paragraph 2 of article III carriers are required to

"... properly and carefully load, handle, stow, carry, keep, care for, and discharge the goods carried."

From the time goods are attached to the ship's hook until they are released therefrom, ocean-liner companies are required to exercise due diligence to preserve the cargo. The ship must be in proper condition to receive the cargo, and the cargo must be loaded with care as well as correctly stowed, lashed and well secured for the intended voyage. With the changes brought about by unit-load systems one might ask, are these requirements applicable to containers where such units are stuffed and stripped at interior cargo terminals or at factories? Should operators of cellular vessels be required to assume such responsibility when they are no longer involved in the handling and stowage of the goods carried?

The Hamburg Rules were elaborated to bring the Hague Rules up-to-date and were adopted on 30 March 1978, but have not, as yet, entered into force. At article 4 the "hook-to-hook" period of responsibility for vessel operators is extended to cover the period during which such operators are in charge of the goods at the ports of loading and discharge. This extension recognizes that shipping lines have progressively begun to look inland and engage in activities both before and after the "hook", but it should be questioned whether it provides sufficient flexibility to recognize the growing role of shippers, consignees and their agents in cargo handling and storage activities, as well as filling and emptying of containers?

At article 5 of the Hamburg Rules the standards of care for cargoes is based on liability for fault. Paragraph 1 of article 5 provides that

"The carrier is liable for loss resulting from loss of or damage to the goods, as well as from delay in delivery, if the occurrence which caused the loss, damage or delay took place while the goods were in his charge as defined in article 4, unless the carrier proves that he, his servants or agents took all measures that could reasonably be required to avoid the occurrence and its consequences."

The commercial practice of loading and sealing containers at factories and interior cargo terminals, as well as the speed with which containers ships are loaded and discharged, effectively precludes operators of such ships from inspecting cargoes before accepting them for carriage. If cargoes are found damaged upon opening containers, to exculpate themselves vessel operators must establish where the damage occurred and who is responsible or compensate the injured party.

With the possible spin-off or separation of containers from ocean-liner transport and their carriage by contractual or charter arrangements, one might ask if the absence of specific legislation portends a return to freedom of contract based upon the negotiating strength of each party. The second sentence of article V of the Hague Rules and the cases decided thereon have been embodied in paragraph 3

of article 2 of the Hamburg Rules. The latter provides a partial answer by indicating that

"The provisions of this Convention are not applicable to charter-parties. However, where a bill of lading is issued pursuant to a charter-party, the provisions of the Convention apply to such a bill of lading if it governs the relation between the carrier and the holder of the bill of lading, not being the charterer."

It would appear, therefore, that there might be a change of direction towards freedom of contract between shippers and carriers for containers transported under charter arrangements. While there are no conventions which specifically cover this matter, there are numerous sources of experience which could be utilized by the ocean-liner industry to define the extent of such freedom. For example, charter-parties for the carriage of traditional bulk cargoes, related industry practices and guidelines laid down by courts in resolving disputes, as well as the requirements promulgated by the FMC for service contracts filed with it pursuant to the US Shipping Act of 1984, might all provide some orientation for the negotiation of charter arrangements for the carriage of containers. Nonetheless, where and when these practices and guidelines for bulk cargoes, and the requirements for service contracts in US-foreign trades might be employed for containers will await a decision of the market place.

2. Possible topics at the 1988 review conference on the Code of Conduct for Liner Conferences. Preliminary negotiation on various aspects of a code of conduct for liner conferences began as early as 1967. Such negotiations later were centered at UNCTAD and by 1974 resulted in the approval of the Convention on a Code of Conduct for Liner Conferences. To have a better understanding of the Code of Conduct one must take into account the ocean-liner environment which existed between 1967 and 1974, and the mandatory form in which it was elaborated.

With reference to the ocean-liner environment between 1967-1974, it will be remembered that the first international movement of containers occurred in 1966 and was a trans-Atlantic voyage between the US and Germany. By 1967 there were no more than five container vessels trading internationally, and by 1974 that number probably increased to approximately 25. In other words, the container revolution was at its earliest stages and general cargo conferences controlled ocean-liner shipping. With reference to the diagram at part II.B., during the period 1967-1974 the evolution of liner conferences had reached the stage of breakbulk agreements. The Code was elaborated prior to the structural changes brought about by containerization and, of course, prior to the market, service, technological and legal forces which are currently restructuring the industry. This is not to indicate that the Code is not a useful

instrument, but merely that it, like many other legal regimes, has been largely overtaken by changes in the industry it seeks to regulate. Thus, the questions facing all contracting parties are: What changes are needed to bring the Code up-to-date and how can those changes as well as the Code be structured to ensure that it will not be rapidly overtaken again by future events?

In this context, it is considered that some of the areas which might be discussed at the 1988 Code review conference could include individual proposals by developed and developing countries, as well as those made jointly. With reference to the first, developed countries might propose (a) the elimination of article 2 -participation in a trade, and (b) the right of economic communities to become contracting parties to the Code. On the other hand, some of the areas which might be proposed by developing countries could include (a) the allocation of cargo shares by governments rather than conferences, (b) the inclusion of outsiders or non-conference lines within the scope of the Code, (c) a definition of the role of load-center ports, intermodal-landbridge services, large-scale vessels and their relation to the fleets of developing countries. Both groups of countries might make proposals related to (a) the separation of containers from other liner cargoes and their transport by chartered vessels, (b) the broker activities of conferences, (c) uniform interpretation of the Code, and (d) changes to the structure of the Code which might permit easier and more frequent modifications.

### 3. The initiative to include services within the GATT framework.

In response to section 102(g) of the 1974 US Trade Act, which defines international trade as including commercial exchanges of both goods and services, the US Government at the Tokyo Round of trade negotiations proposed the inclusion of services. No major concessions were granted on this proposal, as the US and its main trade partners were preoccupied with other issues. However, at the November 1982 GATT Ministerial Session, the US sought to establish a work programme on services in GATT. Strong resistance by developing and certain developed nations led to a Ministerial Declaration which recommended that GATT contracting parties undertake national studies on services and suggested that they exchange relevant information through international organizations such as GATT.

The strong resistance by developing countries to the establishment of a work programme on services in GATT is based on a belief that the structure of GATT is inappropriate for negotiations on services, that it lacks experience as well as jurisdiction in those matters and that the specter of trade retaliation -one country or group of countries restricting the admission of certain goods because other(s) have done the same for its goods- could be expanded to cross-sectorial or goods-services retaliations. With reference to the latter, the US Trade and Tariff Act of 1984 specifically provides for cross-sectorial retaliation; that is, if a country wishes to reserve a specific service area for its citizens, other countries may



retaliate in the form of restrictions against its trade in goods. In the light of these considerations, since the Ministerial Declaration of 1982 service negotiations have not been held within the framework of the GATT agreement, but rather at GATT Headquarters utilizing its conference facilities through what is now called the "Jaramillo Track" for the Colombian Ambassador at Geneva, Switzerland, Felipe Jaramillo, who is also chairman of the GATT committee on services.

The proposal to include services within GATT starts from an assumption that all services are basically alike and can be treated the same. Services have historically been separated into factor or those requiring an investment, non-factor, public, private, producer or those which add value to a product, consumer, etc., but these classifications merely provide a description of the common characteristics of each group of services. While many services do have certain characteristics in common, such as an inability to be stored for future use, the differences between them come not from such characteristics nor activities carried out by each but from government policies which determine their individual structures. For example, as was discussed at part IV, the structure of ocean-liner transport is largely determined not by the commercial aspects of such services, which is roughly equivalent to a functional description of that activity, but rather from considerations related to economic security and national defense. Unless and until the government policy issues surrounding each service are analyzed, the true nature of services and their relevance in the national development process will not be fully understood.

It is most difficult to liberalize trade in services by treating them all the same or even by grouping them into classes according to functions, activities or characteristics. A more complete understanding of services might be obtained through the preparation of analyses of government policies which determine the individual structure of each service. This would be a complex undertaking, but without such analyses negotiations on the "Jaramillo Track" face the very real risk of entering a no-man's land of non-issues, non-papers and non-binding agreements. As an example of the need to analyze government policy issues which determine the structure of a specific service, the US initiative to include all services within GATT is difficult to reconcile with its rejection of the second sentence of Note 1 to Annex A of CLIO. Indeed, the US position regarding Note 1, as presented at part IV.A.4., could well be an expression of economic security and national defense considerations which will not permit its liner shipping to be subject to GATT requirements. Once the structure of each service has been determined, negotiations on the "Jaramillo Track" can be directed toward those where an agreement would be beneficial for all.

### C. Measures adopted individually by Latin American and Caribbean countries

The legislative efforts of Latin American and Caribbean countries include the adoption of cargo reservation regimes, establishment of state owned shipping lines, creation of maritime transport fora to facilitate regional collaboration, and participation in regional multinational shipping lines. While each of these efforts is important, only that related to cargo reservation regimes will be treated in this document. Nonetheless, the establishment of two regional fora and three multinational shipping lines clearly indicate the willingness of Latin American and Caribbean countries to collaborate in matters related to ocean-liner transport. For instance, the West Indies Shipping Corporation (WISCO) was established in 1961 by 12 Caribbean countries and presently operates four cellular vessels which are largely dedicated to the requirements of owner countries -three in short-sea services between the Caribbean islands and the US east coast, and the other on a Caribbean inter-island route.

The majority of merchant fleets of this region were established on the basis of the continued supremacy of two important pillars; that is, cargo reservation regimes and the liner conference system. The impact of market, service, technological and legal forces on the liner conference structure was treated at parts II.A., and B., and IV.A.1. b), and the results of those same forces on cargo reservation regimes will be treated in this part. It should be highlighted that the fundamental question treated in this part is not whether cargo reservation regimes have assisted in the establishment and operation of such fleets, as they most certainly have, but whether the present structure of such regimes is appropriate in the light of changes which have taken place and are occurring in the industry.

It will be recalled that most cargo reservation regimes were prepared and adopted in the years between the end of the Second World War and the start of the container revolution, and reflect the era of general cargo vessels and labor intensive port operations. Since that time the characteristics of ocean-liner transport have ineluctably changed. For example, Latin American and Caribbean fleets have changed to multi-purpose and cellular vessels which permit the carriage of a wide range of cargoes as well as containers. Not only have the characteristics of such fleets changed but also there have been changes from modal to intermodal and multimodal transport systems and the ocean-liner industry has entered an age of system optimization, chronic overtonnaging, scale-economy services, contract carriage of homogenous cargoes and fungible transport services.

1. The impact of market and service forces on cargo reservation regimes. In Latin American and Caribbean trades the spin-off or separation of containers from ocean-liner transport and their carriage under contract arrangements will depend on the volume and balance of

containers in movement, and the frequency of service required by shippers and consignees. Currently, these factors weigh heavily against a separation of containers from ocean-liner transport services. Nonetheless, the trade flows of this region have only begun to be containerized and as this process advances the basis for such separation should be created. For example, it has been estimated that by the end of this century the amount of cargoes carried in containers for Latin American and Caribbean countries will increase by 31 per cent. As both international trade and liner transport are dynamic and permanently evolving fields, a spin-off of containers in high-volume Latin American and Caribbean trades could occur within the next decade. Thus, it would appear that sufficient time exists within which present transport equipment might be amortized and appropriate plans made to participate in the remaining liner services as well as in the contract carriage arrangements for containers.

With reference to the plans for future participation in liner and contractual carriage arrangements, it is most important to consider what impact such separation might have on the cargo base to which reservation regimes are applicable. It might be thought that after the spin-off of containers in a specific trade route they will be treated as any other bulk cargo, but this probably will not be the case. Even after containers are spun-off from ocean-liner services, they will retain many of the characteristics of liner cargoes -such as the continuity of flows and frequency requirements of shippers and consignees. These common characteristics will probably preclude their treatment as either liner or bulk cargoes. As containers transported under contractual arrangements would have characteristics of both liner and bulk trades, their spin-off might lead to a reclassification of cargoes subject to cargo reservation regimes. Such reclassification might involve a change from the traditional bulk and liner categories to bulk, liner and those which are carried under contractual arrangements in liner trades or quasi-liner cargoes. Thus, the current structure of cargo reservation regimes for bulk and liner cargoes might be restrictive if a separation occurs and future efforts might be made to determine if a third category is needed for quasi-liner cargoes.

As containers will share both bulk and liner cargo characteristics, liner operators of this region could be caught in a vicious circle; that is, to engage in the contract carriage of containers a sufficient volume and balance is needed to meet cargo owners' frequency requirements. Without such volume and balance containers must be transported on traditional liner vessels, which after the spin-off will be much more expensive than their contractual counterparts. The higher cost of liner carriage for containers could reduce the volume even further and increase cargo owners' efforts to utilize contractual arrangements for the carriage of their containers. To break this vicious circle, Latin American and Caribbean countries with similar trade patterns might join their individual cargo bases.

The efforts of cargo owners to utilize contractual arrangements for the carriage of containers might take many forms. For example, it could begin with requests for lowering transport costs through the use of contract carriers in trans-Atlantic and trans-Pacific trades, while liner operators from this region would act as long-distance feeders between ports of this region and those of North America. The second step might be the formation of large international consortia in which the liner companies of this region would have either active (operational) or passive (shareholding) minority roles. Finally, as minority participants in international consortia, countries of this region would face the risk of having a merchant fleet which might lack the flexibility to respond to national interests.

2. The impact of service and technology forces on cargo reservation regimes. It might be considered that the availability of financing is the fundamental factor which limits the incorporation of new technologies such as reduced-crew cellular vessels and 48' containers into Latin American and Caribbean fleets. While funding is important, the acquisition of new technologies by ocean-liner companies of the region fundamentally depends upon the types and volumes of cargoes in movement, the locations of cargo origins and destinations, the need for a smooth interface with other systems and the evolution of trade flows. Currently, the availability of financing weighs against the incorporation of such technologies, but the wide range of liner cargoes -containers, refrigerated, odd-sized units, automobiles, steel, etc.- presented for transport and reduced volumes limit the possibility for intensive use of specialized vessels and equipment. If the amount of cargo carried in containers increases 31 per cent, as was indicated in part IV.C.1., a base might be created for the utilization of such technologies. However, the inland technology requirements for Europe and North America are not only different but also in early stages of evolution, as was presented at part III.C.2., and each must be studied carefully to ensure the technology selected might have a long-term harmonious interface in those regions as well as in Latin America.

In addition to financing, cargo and interface problems, the major impact on cargo reservation regimes might come from the demonstration effect of a systems approach to the movement of goods through intermodalism, harmonized inland transport services, load centering, new technologies, facilitation of trade documentation and procedures, etc., by liner operators of developed countries which participate in Latin American and Caribbean trades. This could result in strong efforts by shippers and consignees of the region to limit the scope of application of cargo reservation regimes to traditional bulk and non-homogenous, non-containerizable liner cargoes, thereby permitting quasi-liner cargoes to be transported by contract carriers. With the possible spin-off or separation of containers from liner shipping and the attendant lowering of rates through contract carriage arrangements, shippers and consignees might allege the loss of market shares through what are viewed as excessive transport costs.

### 3. The impact of legal forces on cargo reservation regimes.

While not generally recognized, ocean-liner transport is an industry of shared sovereignty; that is, the ocean transport of goods between two or more countries requires compliance with the legal regimes of each. Liner operators seek to comply with the laws of each country they serve, but at times there are differences between the requirements of such laws. For instance, a bilateral trade agreement between two countries, which permits only the vessels of those nations to participate, might be at variance with the laws of another country whose vessels seek access to that trade. This variance is academic unless the latter country is a principal trading partner of the other two and can take retaliatory measures such as changing to other sources for the same goods or closing its ports to their vessels. Thus, an understanding of the relation between national ocean-liner regimes is of fundamental importance to shipping lines and, as a result, must be given careful and continuous study.

Of all the legal measures that are currently being applied to or elaborated for the ocean-liner industry, possibly those which might have the greatest impact on Latin American and Caribbean countries are related to the initiatives of the EEC and US as well as their common efforts at the GATT and at the US/CSG meetings. While each of these initiatives were discussed individually at parts IV.A.1., IV.A.2., and IV.A.5., it is important to consider their possible impact on the cargo reservation regimes of Latin American and Caribbean countries. An assessment of the exact impact of such initiatives is impossible, as each case will be determined by differing criteria of the relevant national authorities, but certain scenes can be suggested. First, section 13(b)(5) of the Shipping Act of 1984 and 19 of the Merchant Marine Act of 1920 clearly permit the FMC to bring actions against cargo reservation regimes. However, no such actions will be brought in the case of the former unless a US flag vessel is commercially able to enter the trade in question, while the latter will not be utilized unless a shipping line is denied the right to participate on an equal basis in the desired trade.

The second scene involves a backing away from the written law pursuant to the role the US Government sees for maritime transport in its overall commercial, economic and defense policy. As was discussed at part IV.A.1. a), section 13(b)(6) of the Shipping Act of 1984 limits the application of 13(b)(5) to presidential review. Moreover, the importance of shipping within that overall policy must be understood. An indication of the different roles maritime transport should play within such policy can be seen from the US initiative to liberalize international trade in services by including all services within the GATT framework, while at the same time denying the liberalization of shipping services within Note 1 to Annex A of CLIO. This conflict in the US position on liberalization of shipping services leads one to believe that shipping is accorded a secondary role in the formulation of national commercial, economic and defense policies and that the application of section 13(b)(5) of the Shipping

Act of 1984 and section 19 of the Merchant Marine Act of 1920 would be accorded a similar position. While these sections might be accorded a secondary role in US national policies, it does not mean they can be ignored. What it means is that when the effects of cargo reservation regimes begin to have an impact on primary policy considerations in the US, the probability of their being utilized increases enormously.

The third scene involves the application of the above sections against Latin American and Caribbean cargo reservation regimes. The impact of such application will depend upon two factors; first, whether the countries of this region unite to present a common position; and second, whether that position is presented at the diplomatic and/or legal levels. Of course, the circumstances of each particular case will govern such choices, but it can be advanced that a united region acting on both diplomatic and legal levels might provide the greatest opportunity for success.

## V. CONCLUSIONS AND RECOMMENDATIONS

At the introduction to this document it was brought out that the forces which are restructuring ocean-liner transport are neither isolated nor unrelated and together constitute a discernible pattern which must be understood for survival. In this context, the major service, market, technological and legal forces changing the industry have been evaluated and seem to indicate that containers will probably be spun-off or separated from ocean-liner transport in high-volume routes and carried under contractual or charter arrangements. The growing role of non-conference carriers and the attendant weakening of the conference system are the result of the homogenous nature of containers and the fungible or identical ocean-liner transport systems. Supporting these market and service forces are intermodal-landbridge transport systems, load-centering at a reduced number of ports, large-scale vessels and legal regimes which provide carriers with the rights of independent action on rates and of entering into service contracts with shippers.

In an era of structural change for the ocean-liner industry ship operators have become accustomed to living with a high degree of uncertainty and making decisions with only few of the relevant facts. This document has sought to assist such decision making by means of an overview of the forces which are changing the industry, and to provide Latin American and Caribbean countries with information which they might utilize to commence preparations for the ocean-liner environment of the future. While there are many areas which should be given additional study, countries of this region might wish to consider (a) an international convention for overtonnaging, (b) the repetition and direction aspects of ocean-liner shipping, (c) a change from traditional liner operators to trade route specialists and (d) the elaboration of a common operational and institutional liner policy which responds to the structural changes.

### A. An international convention for overtonnaging

In order to create a basis which might permit all relevant persons to collaborate in the development of measures to deal with overtonnaging, it is considered that international action might be appropriate. This could result in the preparation of either a mandatory or working type of convention. To elaborate a mandatory convention there are three requirements; that is, there must be (1) an agreement among possible contracting parties that an international convention is required to treat a specific problem, (2) an agreement among such parties concerning the contents of the clauses which will treat the problem and (3) the problem area treated must be relatively stable. Where each of these requirements is satisfied, the use of a mandatory convention would be indicated. An example of a mandatory convention fulfilling these requirements would be the Hague Rules, which has been in force since 1924. However, where these conditions are not satisfied, a working convention may be elaborated if there is

agreement only in the first area, and the matter or problem treated is in a constant state of evolution. In this latter situation, one might utilize a working type of agreement which is commonly employed in facilitation conventions such as the International Convention on the simplification and harmonization of Customs procedures, commonly referred to as the Kyoto Convention, and others.

The interests of governments, shipbuilders, ship operators, banks insurance companies, classification societies, shippers and consignees appear too divergent to formulate a mandatory convention. Nonetheless, as all of the above parties recognize the continuing dangers of overtonnaging, it might be useful to consider the adoption of a working type of convention. A working convention could establish a forum in which all contracting parties would meet to develop measures that respond to specific terms of reference and treat the agreed problems. For example, the forum might have two levels -governmental and technical- with annual meetings for the first, while the latter could meet more frequently. The areas treated by technical working groups would be determined by the convention's terms of reference, but they might range from limits on the availability of public and private sector financing for new vessels to incentives for scrapping of redundant tonnage, and from the strengthening of the relation between classification societies and insurance companies to the reduction of shipbuilding capacity.

At the meetings of technical working groups, participants would study and make proposals in three areas; that is, measures, recommended practices and general customs. It should be highlighted that measures could be mandatory if approved at the government level, while recommended practices might become measures within an agreed period of time and general customs might become recommended practices only through further action of the contracting parties. The inherent flexibility of measures, practices and customs would permit contracting parties to adopt proposals at the custom level to verify its usefulness. Once verified the custom might be proposed for upgrading to a recommended practice or sent back to the technical level for further study. If proposed measures, practices and customs are approved by, for instance, two-thirds of the contracting parties present and voting, they would be incorporated into the convention at their respective levels. Likewise, a similar procedure can be utilized for their removal.

#### B. The repetition and direction aspects of ocean-liner shipping

Commonly ocean-liner transport is defined by its physical elements such as vessels, containers, fork-lift trucks, gantry cranes, ports and many others. Everyone is aware of these elements and the activities carried out by each, but it is seldom recognized that such activities make liner transport a repetition industry; that is, day-in and day-out the same cargoes are loaded and discharged, the same vessels enter and depart the same ports, the same trade and



transport documentation is prepared, the same Customs formalities are complied with, etc. This repetition leads one to believe that the physical elements and daily activities define the totality of ocean-liner transport, but nothing could be further from the truth. While important, the physical elements and repetitive activities are merely a small part of the industry.

Upon critical examination, it can be seen that liner transport is much more than physical elements and operational activities. To see beyond these aspects it is necessary to separate the repetition and direction functions of shipping enterprises. There are many elements in common, but the first largely involves the daily operational activities, while the second requires an ongoing evaluation of the market, service, technological and legal forces which create an environment of constant change and permanent evolution for the industry. To see behind the cotidian mask of repetitive activities, one must look beyond the reactive or operational atmosphere of today and towards those elements which will assist in carrying out the policy and planning requirements of tomorrow. The stimulus of change which results from such forward looking evaluation should not be underestimated, as it can permit ship operators to develop an indepth understanding or strategic vision of the industry and anticipate as well as utilize the future.

### C. A change from traditional liner operators to trade route specialists

Traditional liner operators are experts in moving cargo between ports. When the costs of moving goods between ports is compared with that between origin and destination, it can be seen that the largest amount of revenue comes from shoreside activities. For example, Cast North America operates a two port system between Montreal and Antwerp, with an integrated inland transport system, and estimates that only 10 per cent of its costs are involved in ocean carriage. Similarly, Sea-Land indicates ocean transport costs are approximately 25-30 per cent, while Atlantic Container Line considers they reach 30 per cent. Thus, between 70-90 per cent of all income is generated from inland transport, cargo handling, storage and other related services, and liner operators of this region might wish to consider the advantages of becoming trade route specialists (TRS).

A TRS utilizes a systems approach to the entire distribution chain and seeks to harmonize all activities in the movement of goods from origin to destination. During such movements TRSs either provide or form joint ventures to provide whatever services are needed, whether they might be ocean carriage, terminal operation, land transport, storage, packing, etc. While success of traditional operators is largely based on time and place utility, economies of scale and price, TRSs enjoy wider parameters which range from shipper and consignee involvement in the design of vessels and in the selection of route structures to purchasing and inventory control

advisory services for cargo owners. The purchase of a vessel or cargo handling equipment by a traditional operator is an investment in transport, whereas a similar purchase by a TRS is an investment in the productive processes of a trade route. The demand for the services of traditional operators is largely determined by the terms of trade (FOB or CIF) and other requirements, while for TRSs these aspects become less relevant as goods are carried under contract from producers to consumers.

#### D. A common liner policy for Latin American and Caribbean countries

Survival of liner operators requires knowledge, skills and understandings beyond the technicalities of vessel operations. The major challenge facing Latin American and Caribbean countries in this time of structural change is related to the establishment of a common policy which might co-ordinate their ocean-liner activities. As was presented at part IV., the three principle elements of a liner shipping policy are commercial, economic security and national defense. Almost all Latin American and Caribbean countries have similar requirements in each of these areas, and this similarity permits them to consider the elaboration of a common liner shipping policy. To co-ordinate efforts in this matter, each country might wish to consider the establishment of an executive committee composed of the ministers of economy, trade and transport which would collaborate with their counterparts in the region to prepare common operational and institutional liner policies.

1. Operational aspects of a common liner policy. At present almost all countries of this region seek to satisfy their ocean-liner transport needs independently. While there are certain differences in national economic goals which are utilized to justify such independent operations, the long-term shipping crisis has made it necessary to join with other lines in efforts to rationalize services. As an example of the change in operating policies by shipping lines from other regions, the Chairman of Hapag-Lloyd, Hans Jakob Kruse, recently indicated that no European line is big enough to go it alone in prevailing market conditions.

In the light of the need for liner operators to rationalize their operations with other similarly situated companies, Latin American and Caribbean countries might wish to consider the elaboration of a common liner policy which could include co-ordination of the independent operating patterns of their fleets through (a) three subregional consortia -west coast of South America, east coast of South America, and Mexico, Central America and Panama, (b) use of Panama's center port concept to facilitate container movements between consortia, (c) use of rail and road intermodalism to reduce the number of ports of call, (d) expansion of West Indies Shipping Corporation (WISCO) services to include the broader Caribbean basin, and (e) a systems or intermodal approach to (a) through (d) so that, for example, WISCO

might deliver cargo to the east coast consortia at a Caribbean transshipment center for on carriage to Europe, and vice versa.

2. Institutional aspects of a common liner policy. The structural changes now occurring in ocean-liner transport have created a pressing need to evaluate the role accorded cargo reservation regimes by Latin American and Caribbean countries. In addition to the institutional aspects of a common liner policy presented at part IV., countries of the region might also consider what modifications to reservation regimes would reflect the ocean-liner transport environment of the future and, at the same time, avoid measures permitted by the common shipping policy of the EEC and the US Shipping Act of 1984. Other matters which might be analyzed include the separation of homogenous cargoes from liner transport, its fungible nature, the need to use intermodal systems, the control of overtonnaging and the formation of regional liner consortia and joint ventures in related areas.

