



Deck Cargoes of Timber and Safety at Sea

DECK cargoes, particularly of timber, seriously affect the safety and comfort of the crews of vessels. The disposition of such cargoes has therefore been the subject of regulation by several nations. In recent years the subject has been discussed internationally, both by shipowners, shipbuilders, naval architects, and by the seamen of various nations. Since ships were first constructed for the conveyance of goods, the carriage of deck cargoes has always presented a difficult problem, involving not only consideration of the design, construction, stability, load line, and sea-worthiness of ships, but also of weather and general sea-going conditions. Despite the close study which has been given to this subject, the problem is still unsolved.

Some conception of the danger to life and property entailed by the carriage of excessive deck loads, especially during winter in the Atlantic, may be gathered from a few examples drawn from the report furnished to the Hague Conference of the International Law Association by its Maritime Law Committee (1). Two cases are cited for the year 1912 alone, in which ships with heavy deck loads of timber left North America for Europe and were never heard of again: it is probable that the deck loads injured the vessels' stability and caused them to founder in a storm. Another ship was lost in 1910 in similar circumstances. In one instance quoted, a deck load of timber broke loose in a storm and shattered the hatch covers, with the result that water entered the hold and damaged the cargo below. In the same report it is stated that many accidents due to deck loads are known to take place in the Baltic, Black Sea and White Sea. It appears that the chief dangers attending the carriage of heavy deck loads lie in the impairment of stability and in the breaking loose of the cargo, with the likelihood of loss of the ship and death or injury of seamen. The report states further that "the losses consequent on the jettisoning of deck-load timber and on its being washed overboard during voyages from the Baltic to Great Britain and the Continent during the months September to December of the years 1903 to 1912 averaged 39.6 per cent. of all damages reported". From a human point of view, however, the loss of life attributable to improper loading of deck cargoes is far more important than the loss of property. Although statistics are not available, it is evident that casualties to seamen occasioned in accidents from this cause must be considerable both in number and seriousness.

(1) See *Deck Cargoes Sub-Committee's Report in Report of the Thirtieth Conference of the International Law Association*, Vol. II. London, Sweet and Maxwell. 1922. This Report has been extensively drawn upon in the preparation of this article.

INTERNATIONAL DISCUSSION OF THE PROBLEM

In May 1912, at a Conference of the International Law Association held in Paris, attention was directed to the inconvenience arising from the lack of uniformity in the legislation affecting the carriage of deck cargoes of timber in force in various countries. It was recognised that international agreement to remedy this situation must be the result of an adjustment between the views of practical men and experts. After discussion the following resolution was arrived at :

That the Executive Council of this Association respectfully recommend to the attention of the Governments the urgent importance of the co-operation of the Governments in arriving at an agreement upon the subject of deck loads, and especially deck loads of heavy wood in winter months.

The question was again exhaustively discussed at a Conference of the *Comité Maritime International*, an offshoot of the International Law Association, held at Copenhagen in May 1913, when a unanimous resolution recommended that any international agreement for the security of navigation should include general rules as to deck-loads. The matter was further considered at a Conference of the Association held at Madrid in October 1913.

On account of the war, the next Conference, which was held at the Hague, did not take place until 30 August 1921. A report on deck cargoes was presented by a sub-committee of experts in maritime law, and was discussed by lawyers, shipowners, and underwriters. It does not seem that seamen's organisations were consulted in the preparation of the report, or that they had any representation at the Conference. The recommendations relating to deck cargoes are given here in full.

(1) That all ships which carry deck cargoes exceeding 5 per cent. of their total dead weight capacity should have a certificate indicating their fitness to carry such deck cargoes.

(2) That a uniform system of issuing certificates of fitness should be adopted by the various maritime States.

(3) That with a view to arriving, if possible, at a uniform system in the various maritime States, it should be submitted to international expert opinion to decide whether, in addition to the above requirements, a uniform system of fixing a special load line and/or absolute regulations restricting height and weight of deck cargoes would be desirable.

(4) That the British regulations with regard to light woods can be modified with advantage.

(5) That the Maritime Law Committee take such steps as may be required to induce the Governments of the various maritime countries to arrive at an international understanding on the lines above mentioned.

The recommendations were unanimously adopted by the full Conference, with one amendment to the effect that a committee of experts be invited to consider the advisability of the fourth recommendation.

At an International Shipping Conference attended by some two hundred delegates of the shipowners of fourteen of the maritime countries of the world, which was held in London in

November 1921, it was decided that international rules should be adopted covering the carrying of deck cargoes of wood goods, and that with this end in view a committee of shipowners should be appointed to consider the various arrangements in force and make recommendations. The committee on deck cargoes appointed by the International Shipping Conference met at Christiania in February 1922, and after thorough consideration decided to recommend the international adoption of the Norwegian regulations with modifications. These regulations are summarised below together with those of other countries.

At the time of the Washington Conference in 1919, the Seafarers' Joint Council of Great Britain sent a letter to Mr. G. N. Barnes containing a list of fifteen questions relating to the working conditions of seafarers which it desired to be placed on the agenda of that Conference. Among these was that relating to the international prohibition or restriction of deck cargoes.

In January 1920 the subject was again brought up for consideration at a meeting of the International Seafarers' Federation at Antwerp; this meeting had been summoned to prepare proposals for the agenda of the Second General Conference of the International Labour Organisation which was held at Genoa in June 1920. One of its recommendations was that the Genoa Conference should consider the question of the limitation or prohibition of deck cargoes, and also a compulsory international load line.

In October 1921 an appeal was addressed to the International Labour Office by Mr. Damm, Secretary of the International Seafarers' Federation, requesting the Office to take all steps necessary to have the question dealt with by the Joint Maritime Commission, an organ consisting of representatives of shipowners and seamen, created by the Governing Body of the International Labour Office in March 1920. In his letter Mr. Damm stated that, while the question of deck cargoes might be of financial interest to shipowners, it was of vital interest to seamen who undergo great risk in having to climb over deck cargo at sea.

In the January 1922 issue of the *Journal* of the Mercantile Marine Service Association, an organisation representing captains and navigating officers in the British mercantile marine, reference is made to the appointment by the International Shipping Conference of November 1921 of the committee referred to above. The Association expresses its regret that no representatives of shipmasters are included in the proposed committee and states that this "exclusion must obviously weaken any representation made unless the views of those serving on board ship, on whom the responsibility of the safety of life and property at sea devolves, are obtained".

It is evident, therefore, from the foregoing that both shipowners and seafarers are of opinion that the time has arrived when the subject should be definitely determined by international action. The Joint Maritime Commission provided a means through which

the two parties jointly could review this difficult problem. At a meeting of this Commission in Paris on 7 March 1922 motions were unanimously adopted to the effect that the International Labour Office should proceed with the collection of documents bearing on the question, e. g. on legislation, agreements, and statistics of casualties ; that a sub-committee of four members should be nominated to study the question of deck cargoes, to whom the documents should be submitted before publication ; that the documents collected should be published and sent to the different organisations interested in legislation on deck cargoes. The members of the sub-committee appointed were : for the shipowners, Mr. Cuthbert Laws (Great Britain), and Mr. Salverson (Norway), and for the seamen Mr. Havelock Wilson (Great Britain), and Mr. Rivelli (France).

NATIONAL LEGISLATION

The success of international action depends largely upon preparatory work done by the different nations concerned. Hence it will be useful to review briefly the legislation dealing with deck cargoes of timber now in force in various countries in order to see what different attitudes have been assumed towards this problem. As the question arises of applying a special freeboard to ships carrying deck cargoes of wood, it may here be remarked that the only states which have yet adopted load line regulations, irrespective of the kind of cargo carried, are France, Germany, Great Britain and its Dominions, Japan, Norway, the Netherlands, and Sweden.

A consideration of the legislation dealing with deck cargoes of timber in force in various countries shows that there are two chief types of regulation, based on different principles. In Great Britain and Finland, on the one hand, regulations are imposed restricting the height and weight of deck cargoes, while in Norway and Germany, on the other, a special freeboard is assigned to vessels according to the type of vessel or subject to proof of their suitability. In the Netherlands a modification of the second type of regulation is in force ; vessels require special certification for the carriage of deck cargoes, which may or may not include a special freeboard. In Norway, Germany, and the Netherlands, legislative restrictions apply only to ships sailing under the national flag. Sweden and Denmark prescribe general regulations only, and no restrictions at all are imposed in Belgium, France, or the United States. Spain had regulations similar to the British, but suspended them owing to the war.

As some countries differentiate between heavy woods and light woods as cargoes, it will be well before proceeding further to see how the two terms are understood.

The Finnish, British, and Norwegian regulations agree in that "heavy wood goods" in each case includes mahogany, oak, and teak. The Finnish definition also covers pine or fir in beams at

least 6 metres long and 20 centimetres thick at the top end, telegraph poles and spars of the same woods, the latter at least 10 metres long and 6 centimetres thick ; alder, aspen, and birch logs more than 2½ metres long ; wood pulp ; further, any timber heavier than fir, the units of which are of greater cubic capacity than 0.5 cubic metres. Pitch pine is one of the heavy woods mentioned in the British and Norwegian regulations. The Finnish and British definitions also bring any number of store spars above five into the same category. "Light wood goods" may be defined negatively as goods not specifically described as "heavy wood goods".

By the British Board of Trade Rules issued under the Merchant Shipping Act of 1906, no ship, British or foreign, may arrive in any port in the United Kingdom from abroad carrying a deck cargo of timber, except under prescribed conditions. The chief conditions required by the Board of Trade Rules are that during the period from 31 October to 16 April deck cargoes of heavy wood must be carried in covered spaces and only in classes of ships approved for the purpose by the Board, and that certain measures must be taken to protect seamen from risk arising from the carriage of wood in uncovered spaces. These conditions are substantially the same as those contained in the proposals suggested by the Board in 1915 for international adoption ; the latter have merely been slightly modified to allow of universal application.

In Germany, the Netherlands, and Norway, the principle has been adopted that ships carrying deck cargoes of timber should have a special freeboard, permitting the vessel to be loaded deeper than when other kinds of cargo are carried. In the case of Germany, however, it must be pointed out that the special freeboard is only applicable to ships whose keels were laid before 1 January 1919, and that so far as the load line is concerned, no distinction is now made between cargoes of timber and other kinds of cargo. In these three countries, special load lines are allowed on proof of the ship's stability ; the Dutch and Norwegian regulations require, in addition, that the deck and bulwarks should be of adequate strength. The system is more stringent in the Netherlands, in that no ship may carry a deck cargo of timber exceeding 5 per cent. of its dead weight capacity unless it has been certified as structurally suitable ; if so certified, it may also be allowed a special freeboard when a full deck cargo of timber is carried. In Germany, the regulations of the Seafarers' Association (*Seeberufsgenossenschaft*) permit the use of lower load lines only when the entire cargo in the hold and on deck consists of timber. Norwegian wood-cargo ships may be loaded below the ordinary cargo mark if at least half the cargo in the holds, calculated according to weight, consists of light wood or wood pulp.

Both the German and the Norwegian regulations provide for several load lines for ships carrying wood cargo. The position of the load line varies with the season and the voyage. In the case

of a German vessel, the captain estimates the line in accordance with the scale laid down by the Seafarers' Association.

All ships, whatever their cargo, are allowed to make a certain deduction from the ordinary freeboard for voyages in fresh water, and this deduction is made the basis of other deductions allowed when a wood cargo is carried. These are as follows :

I. In summer—

(a) Between the harbours of the Baltic and the North Sea : $1\frac{1}{2}$ times the freshwater deduction.

(b) For all other voyages : the amount of the freshwater deduction.

II. In winter—

(a) Between the harbours of the Baltic and the North Sea : the amount of the freshwater deduction ;

(b) For all other voyages : $\frac{1}{2}$ the freshwater deduction.

In Norway wood-cargo ships which have been approved as such are marked with four special load lines for summer, winter, winter in the North Atlantic, and fresh water respectively. For steamers to be permitted to load down to the wood-cargo mark, no single part of the deck cargo must in winter exceed 15 cubic feet (0.4 cubic metres) in volume, nor during the summer must any cargo exceeding this volume be carried at a greater height than that of the bulwarks.

Sweden (and Denmark, which has similar regulations with regard to deck cargoes of timber) makes no distinction between heavy and light wood, nor does it provide for a special freeboard for wood-cargo ships. It does, however, prescribe general conditions for the safety of the men and the ship. These safety measures may be considered in conjunction with those imposed by the countries already dealt with and with those embodied in the international proposals of the Board of Trade. Sweden, Great Britain, and Norway have identical regulations with respect to the railings or bulwarks to be fitted round any open deck which is loaded with deck cargo ; these regulations also agree with the international proposals. The regulations of all the countries and the international proposals are unanimous in insisting that deck cargo must be so loaded as not to endanger the stability of the vessel and that it must be securely lashed to prevent it from shifting. The Netherlands, Norway, and Sweden stipulate some or all of the following conditions : that the steering, pumps, life-boats and life-saving appliances, and entrance to the crew's quarters, should not be interfered with and should remain accessible even though the cargo should shift. The framers of the German, Norwegian, and Swedish regulations have been careful to state that where the surface of the deck load is very uneven, provision must be made for the safe movements of the men by fixing down railed-in planks for them to walk on ; the German regulations further require that within the position of the deck cargo a line must be stretched amidships for the men to hold on to.

PROPOSALS FOR INTERNATIONAL ACTION

British Board of Trade Committee

In January 1914, in response to a request made by the International Law Association, the Committee of the British Board of Trade, which had already reported on load lines, considered the question of deck cargoes of wood goods and formulated regulations for the carriage of such cargoes suitable for international adoption⁽²⁾. The Board of Trade Committee gave careful consideration to the question of a special load line for timber-laden vessels, which would permit them to be loaded more deeply than vessels loaded with other cargoes. After examining the specific conditions contained in the Load Line Rules of the Netherlands, Norway, and Russia, the Committee was unable fully to agree in detail with those conditions or with their application. The Committee expressed the opinion that in the great majority of cases the carriage of deck cargoes of wood goods increases the risk to the vessel and to the crew, and that it was not desirable to make any provisions for the assignment of a special timber load line. As a result of their investigation into the question of the carriage of deck cargoes the Committee came to the conclusion that regulations were necessary for the safety of life and property at sea, that the operation of the British law and rules had been beneficial in this respect, and therefore strongly recommended that every endeavour should be made to obtain international agreement on the subject. Finally, the Committee drafted the following regulations for the carriage of deck cargoes of wood goods in winter based upon the British law and rules, and advised that these regulations might properly be adopted by international agreement.

(1) Heavy or light wood goods shall not be carried as deck cargo on any vessel from European or Mediterranean ports between the months of October and March, both inclusive, and in other parts of the world during the recognised winter months, except under the conditions hereinafter specified.

(2) For the purposes of these regulations

(a) the expression "deck cargo" means any cargo of wood goods carried either in any uncovered space upon deck, or in any covered space not included in the cubical contents forming the vessel's register tonnage;

(b) the expression "heavy wood goods" means

(I) any wood goods whose weight per cubic foot exceeds 38 lb. (avoirdupois);

(II) any unit of wood goods whose cubic capacity exceeds 15 cubic feet;

(III) any round, square, waney, or other timber, of whatever description, and

(IV) any more than five spare spars or store spars, whether or not made, dressed, and finally prepared for use;

(c) the expression "light wood goods" means

(I) any wood goods whose weight per cubic foot does not exceed 33 lbs. (avoirdupois); and

⁽²⁾ See Report of the *Board of Trade Committee on Load Lines of Merchant Ships and Carriage of Deck Cargoes of Wood Goods*. London, H. M. Stationery Office. 1916.

- (II) any unit of wood goods whose cubic capacity does not exceed 15 cubic feet.
- (3) The conditions under which heavy wood goods may be carried as deck cargo are as follows :
- (a) that the goods must only be carried in covered spaces ;
 - (b) that the goods must be carried only in iron or steel steamships having covered spaces ; that is to say, poops, bridges, forecastles or shelter-decks, which form part of the permanent structure of the vessel and which comply with the following requirements—
 - (I) the space must be within a superstructure which extends from side to side of the vessel ;
 - (II) the outside plating must be continuous from deck to deck and throughout the full length of the space ;
 - (III) the length must be bounded by iron or steel partitions, and the total area of the openings in any such partition must not exceed one-fourth of the area of the partition itself ;
 - (c) that the goods must not be carried in any covered space in such a manner as to make the vessel, for any reason, unfit to proceed to sea and to perform the voyage safely, having regard to the nature of the service for which she is intended ; and
 - (d) that the goods must be properly stowed and secured so as to prevent shifting.
- (4) The conditions under which light wood goods may be carried as deck cargo are as follows :
- (a) in the case of a covered space the goods may be carried to the full height of that space ;
 - (b) in the case of an uncovered space on a deck forming the top of a break, poop, or other permanent closed-in space on the upper deck, the goods may be carried to a height not exceeding 3 feet above the top of that closed-in space ;
 - (c) in the case of an uncovered space, not being a space on a deck forming the top of any permanent closed-in space on the upper deck, or a space on a deck forming the top of a covered space, the goods may be carried to a height not exceeding the height of a bulwark or main rail, or one-fourth of the inside breadth of the vessel, or 7 feet, whichever height is the least ;
 - (d) in the case of an uncovered space, not being a space on a deck forming the top of any permanent closed-in space on the upper deck or a space on a deck forming the top of a covered space, and the uncovered space is bounded throughout by an open rail, the goods may be carried to the height of the open rail or to a height not exceeding 3 feet, whichever height is the least ;
 - (e) in the case of an uncovered space—
 - (I) there shall be fitted on each side of the vessel temporary rails or bulwarks of a substantial character for the full length within which the deck cargo is stowed, extending to a height of not less than 4 feet above the line of the top of the deck cargo ;
 - (II) the uprights of the temporary rails or bulwarks shall be of substantial scantlings and be placed not more than 4 feet apart, and the heels of the uprights shall extend down to, and rest on, the deck of the vessel ;
 - (III) there shall be attached longitudinally to these uprights for the full length of the deck cargo, spars, deals, battens, guard-ropes, or chains, at intervals of not more than 12 inches apart in a vertical direction ; if ropes or chains are used, they shall be set up taut and securely attached to each upright ;
 - (IV) the temporary rails or bulwarks may consist of closely spaced vertical deals, provided they are properly secured and that there are protected openings at intervals for water clearance ;
 - (f) that the goods must not be carried in any covered space, or in any uncovered space, in such manner as to make the vessel for any reason unfit to proceed to sea and to perform the voyage safely, having regard to the nature of the service for which she is intended, and

(g) in all cases the goods must be properly stowed and secured so as to prevent shifting.

(5) Where a deck cargo of wood goods is carried in contravention of these regulations, the master of the vessel, and also the owner, if he is privy to such contravention, shall be liable to a fine not exceeding five pounds for every hundred and fifty cubic feet of space in which the wood goods are carried.

For the purpose of this fine the space in which wood goods are carried shall be deemed to be the space limited by the superficial area occupied by the goods and by straight lines enclosing a rectangular space sufficient to include the goods.

A master or owner shall not be liable to any fine under this regulation in respect of any wood goods which the master has considered it necessary to place or keep on deck during the voyage on account of the springing of any leak, or of any other damage to the vessel received or apprehended.

Committee of International Shipping Conference

As stated previously in this article, the committee on deck cargoes appointed by the International Shipping Conference met at Christiania early this year and decided to recommend for international adoption the Norwegian regulations with slight modification. The proposed regulations are published in a report submitted by the British Chamber of Shipping to the Board of Trade on 13 March, and are quoted below in full⁽³⁾.

Freeboard

Steamers that are intended for use in the wood-cargo trade (wood-cargo ships), and which fulfil the subjoined special requirements, shall, in addition to the ordinary freeboard mark, be furnished with a special wood-cargo freeboard assigned for summer trade, and one for winter trade, and, further, one for winter trade in the North Atlantic, which freeboards shall mark the deepest permissible loading of these vessels, when they carry wood cargoes on deck, in accordance with the regulations given below.

The size of the wood-cargo freeboards shall be determined in accordance with further rules given below.

The wood-cargo freeboard for the summer is to be in force for voyages between April 1st and October 15th, both inclusive, and the wood-cargo freeboard for the winter and the wood-cargo freeboard for winter voyages in the North Atlantic, i. e. between European (excluding Baltic ports and ports within the Naze and the Scaw) or Mediterranean ports and American ports north of Cape Hatteras, are to be in force for voyages between October 16th and March 31st, both inclusive.

For the Baltic the wood-cargo freeboard for the summer is to be in force between April 1st and October 24th, both inclusive, and for the winter between October 25th and March 31st, both inclusive.

The seasonal freeboards are to apply to the date of sailing from the loading port.

Nature of Cargo

(1) For steamers to be permitted to load to the said wood-cargo mark, only light wood-cargo must be carried on deck and at least on a level with the bulwarks, but not less than 4 feet (1.2 metres).

(2) On wood-cargo ships that are loaded deeper than to the ordinary cargo mark, no single part of the cargo on deck must in winter exceed 20 cubic feet (0.57 cubic metres) in dimensions.

(3) By the term "light wood" shall be understood pine, fir, spruce, or similar light sorts of wood or wood goods.

(3) INTERNATIONAL SHIPPING CONFERENCE: *First Report of the International Deck Cargoes Committee*. London. March 1922.

Construction of Vessel

(1) In order to be permitted a special wood-cargo freeboard, a vessel must be built with scantlings adequate to obtain the minimum ordinary freeboard according to Table "A" with corrections for erections, etc. It must possess the highest class in a recognised classification society with regard to the trade for which the ship is intended.

(2) The ship must be provided with a forecastle, the length of which shall be at least 0.07 times the length of the ship, and the height at least 4 feet (1.2 metres). The forecastle need not be closed at the after end.

The ship must also have a midship erection, poop or raised quarter deck, of statutory height, covering the engine and boiler openings.

(3) The ship must further be provided with either permanent bulwarks of at least 3 feet $3\frac{1}{2}$ inches (1 metre) in height, and of adequate strength, well shored and provided with the necessary freeing ports, or with railings of the same height as the above of special strength and of approved construction.

(4) The steering gear must be so placed and protected that it is not hindered in its movements. On ships above 250 feet registered length without a raised quarter deck or poop, the hand steering gear aft must be protected by a steel hood or deck house of sufficient dimensions to provide proper access.

(5) The ventilators shall be placed inside a line running flush with the outer side of the hatchway coamings or arranged in an equally satisfactory manner.

(6) The coal hatches or other openings in the deck under the erections, the ends of which have no permanent means of closing, shall be provided with coamings arrangements for battening.

The Height of the Deck Cargo

The deck cargo must never be so high as to obstruct the outlook from the bridge.

Navigation and Life Saving Appliances

(1) The deck cargo must generally be so placed as in no way to hinder the safe manœuvring or navigation of the ship.

(2) The deck cargo must not be stowed in such a manner as to hamper the use of or access to the ship's pumps, life boats, or other life saving appliances.

Security of Deck Cargo

(1) The deck cargo is to be supported by stanchions spaced not more than three meters apart.

(2) These stanchions are to be housed in deck sockets.

(3) The stanchions and sockets are to be of adequate strength, having regard to the amount of deck cargo carried.

(4) Eyebolts are to be provided spaced not more than three meters apart. The eyebolts are to be attached to the main structure and preferably to the sheerstrake. They may, however, be secured to the bulwark stanchions if these are of special strength.

(5) That portion of the deck cargo which does not extend above the height of the erections is to be efficiently lashed, and is to be secured independently from any deck cargo carried above that height. The lashings for deck cargo carried above the height of the erections must be provided with sliphooks, or other similar releasing arrangements.

Stowage of Cargo

(1) The master of the ship is responsible (Norwegian and Danish : *det paaahviler* ; Swedish : *aligger*) that the stowage of the cargo and the amount of ballast carried is such as to ensure sufficient stability, having due regard to the weight and height of deck cargo carried.

(2) The master of the ship is required to note daily in the ship's log the height of deck cargo, the amount of ballast carried, and the list, if any.

(3) On leaving port, after a deck cargo of wood goods has been loaded, the ship must not have a list.

(4) The master of the ship is responsible that the deck cargo is so stowed and supported that the deck is not unduly strained.

Entrance to the Crew's Quarters

On the crew's quarters must be fitted properly protected means of entrance placed on top of the forecandle deck, bridgedeck or raised quarter deck or poop deck, so that these quarters are always accessible. Under these entrances there must be placed efficient staircases.

Railings above the Deck Cargo

When wood cargo is carried upon an open part of the deck, there shall be fitted on both sides of the ship temporary railings or bulwarks of a substantial character, for the full length within which the deck cargo is stowed, extending to a height of not less than 4 feet (1.2 metres) above the top line of the deck cargo.

The uprights of such temporary railings or bulwarks shall be of substantial dimensions, reliably fastened and be placed not more than 4 feet (1.2 metres) apart. There shall be attached longitudinally to these uprights for the full length of the deck cargo, spars, deals, battens, guardropes or chains at intervals of not more than 12 inches (0.30 metres) vertically. If ropes or chains are used, they shall be set up taut and be securely attached to each upright.

The temporary row or railings for the protection of the crew may also consist of closely spaced vertical deals, provided that they are securely fastened, and that protected openings for the escape of water are provided at suitable intervals.

Should the deck cargo be markedly uneven, it must be provided with foot-planks, which shall be securely fastened, and any considerable openings in the deck-cargo shall be covered or protected by means of rails.

The Determination of the Wood Cargo Freeboards

The wood-cargo freeboard for summer, winter, winter in the North Atlantic and for fresh water respectively shall be determined by deducting from the ordinary freeboard of the vessel an amount which takes into account the difference between the freeboard according to table "C" (awning deck ships) and the freeboard as determined in the ordinary manner. Some fraction of this difference is to be taken to allow for the decreased efficiency of the wood-deck-cargo, as compared with a steel erection. It has not yet been considered that this fraction need necessarily decrease with increase in size of vessel. The ordinary freeboard regulations concerning openings in sides of ship are to apply, having due regard to the deeper immersion permitted by these regulations.

(Note). — It will be necessary to give further detailed consideration to the values to be fixed for this fraction, and it is suggested that the Norges Rederforbund be asked to prepare a memorandum embodying the general recommendations above, having due regard to existing practice.

The Affixing of the Wood Cargo Freeboard Marks

The prescribed wood-cargo freeboards are to be marked on both sides of the vessel in the following manner: — At a distance of about 21 inches (540 mm.) abaft the centre of the disc a vertical line is drawn, and from this again a horizontal line is drawn pointing forward, the upper edge of this line denoting the wood-cargo freeboard for fresh water (in summer) and three horizontal lines, pointing aft, the upper edge of which denotes the freeboard for summer, for winter, and for winter in the North Atlantic respectively.

At each of the four lines the respective freeboard must be marked with initial letters to indicate :

- Wood-cargo summer
- Wood-cargo winter
- Wood-cargo winter, North Atlantic
- Wood-cargo fresh water

The length, thickness, and position of the lines are to be the same as required for the ordinary freeboard marks.

Equivalent Arrangements or Fitting

An arrangement or fitting which, in the opinion of the competent authority is in all respects as efficient as an arrangement or fitting required by these rules, may be accepted by such competent authority instead of such arrangement or fitting.

Application of Rules

(1) The Rules shall apply to vessels engaged in international overseas trade only.

(2) The Rules shall apply to new vessels only, after a date to be fixed. All ships which are completed or actually under construction on such date shall be considered as existing vessels, and such vessels shall be dealt with on their merits, having due regard to the practicability of alterations.

COMPARISON OF PROPOSALS

There are now, then, two sets of international proposals, one based upon the British, the other upon the Norwegian, regulations. Comparison of their main provisions shows that they are founded on quite different principles. The main point of difference is in the matter of a special freeboard for vessels carrying deck cargoes of light wood. The Board of Trade Committee, as has already been mentioned, considered this matter and decided against a special freeboard. They admitted that, from a theoretical point of view, vessels carrying wood cargo could be loaded more deeply than when carrying other cargoes and yet be quite as safe ; nevertheless they considered that in practice it would be impossible to ensure the execution of the various conditions necessary to maintain the safety of more deeply loaded vessels. It should be remarked that this finding was based upon an examination of timber-laden ships as they entered United Kingdom ports, and upon the evidence of shipmasters. Unfortunately this evidence cannot be published, as it was given under promise of secrecy. It appears probable, however, that the shipmasters, men in contact with deck cargoes as a practical problem, did not favour the introduction of the special freeboard.

The Committee of the International Shipping Conference, on the contrary, maintained that timber-laden ships can sail with a smaller freeboard and incur no greater risk than ships with other cargoes. Statistics show that under the Norwegian regulations which have been in operation since 1903, casualties have been no greater in the case of ships with light wood cargo than in the case of ships with other cargoes. Further, the evidence of the Dutch Government is cited to the effect that, out of the 911 ships certificated for wood cargoes, "not a single ship has been lost in consequence of deck cargo or less freeboard, nor sustained serious

damage, and not a single human life was lost as a direct result of the deck cargo carried". The Committee would argue that a smaller freeboard for ships with timber deck loads is a logical development of the principle of the British and other freeboard regulations, which allow ships with a complete superstructure (awning deck ships) to be loaded deeper than ships having a flush deck. The reasoning is that light wood cargo firmly fixed to the deck, not only increases the ship's buoyancy, but is comparable in its effect to a permanent superstructure. It is suggested, therefore, that a fraction of the greater freeboard allowed to awning deck ships should be assigned to ships with light wood deck cargo.

Attention may also be drawn to other points of difference. The Board of Trade Committee's proposals refer to heavy wood as well as light wood goods, whereas the proposals of the International Deck Cargoes Committee cover light wood goods only, for the reason that no agreement was reached regarding the carriage of heavy wood goods. The winter season suggested by the latter Committee is a fortnight longer than that given in the Board of Trade proposals. The Board of Trade Committee do not specify that a ship carrying a light wood deck cargo should comply with certain structural conditions: the International Committee, however, in connection with the qualification of ships for a special freeboard, lay down detailed regulations as to their construction. The chief safeguard of the Board of Trade proposals is in the rigorous limitation of the height of the cargo and of the individual weight of its units. In contrast, the International Committee merely requires that the height must not be such as to obstruct the view from the bridge. Limitation of height and weight acts as a general guarantee of stability, and in the Board of Trade proposals it has not been thought necessary to make specific provision for the maintenance of stability. The International Committee approaches the problem from the opposite direction: stability is a first consideration, and the ship's master is responsible for maintaining it, while the height can in general be such as will not endanger stability or interfere with navigation.

In this matter, one must not fail to take into account various technical improvements in vessels introduced in recent years which make for increased stability, and therefore render strict regulations of the height of the cargo less necessary.

The Board of Trade Committee took into account the views of seamen and of underwriters, both of whom might be expected to be concerned for safety. Their proposals are therefore cautious,—some think them excessively cautious. The opinion voiced by the Committee of the International Shipping Conference is mainly that of shipowners and their technical advisers, though it is reinforced by the testimony of a Norwegian delegation that the Norwegian rules are better from a seaman's point of view than the British rules.

In considering the respective chances of adoption of the two sets of proposals, it must be remembered that in only seven states

is load line legislation in force, and that therefore proposals based on the Norwegian regulations cannot be adopted internationally until load line regulations have already received international acceptance. This difficulty could not be raised in opposition to the international adoption of the British proposals. But there are other obstacles ; shipowners in all parts of the world find them too strict, while foreign shipmasters, as they find the existing British regulations obscure, would encounter equal obscurity in the British international proposals.

As an example of the anomalies arising out of the strict application of the present British regulations, may be cited the case of a ship being penalised at Hamburg for being insufficiently loaded, owing to her having rejected a deck cargo in America because of the penalties she would incur in Great Britain for overloading. Some years ago enquiries were made by the British Government as to whether other governments would be disposed to introduce legislation similar to that of Great Britain, but no action resulted, probably because the British regulations were considered to be too stringent, especially when applied to vessels in other trades than the Atlantic trade. With regard to such vessels, it is obvious that owing to the variety of type it would be difficult to frame regulations acceptable throughout the world. There exist ships of broad beam and shallow draught which are specially built for the timber trade in certain waters, and which are stable only when carrying deck loads of a considerable height : for the Pacific coasting trade, for example, vessels have been built to carry up to half their total cargo on deck. The British proposals have little chance of adoption where such types of vessel prevail.

Deck cargoes of light wood are carried principally in the Atlantic and Baltic trades. The Committee of the International Shipping Conference has the support of shipowners in all the countries concerned in these trades. Most of these countries already have load line regulations, so that they are in a position to extend them so as to provide a smaller freeboard for wood cargo ships. Regulations for the carriage of deck cargoes are particularly necessary in the Atlantic trade owing to the prevalence during the winter of severe storms, which experience has shown to be specially dangerous for ships with deck cargoes. The question arises, therefore, whether action should not be limited, in the first instance, to obtaining agreement for the Atlantic trade alone ; when rules for the latter are once in existence, conditions will be more favourable for the adoption of regulations in other trades.

Finally, it may be anticipated that the labours of the Deck Cargoes Committees of the Joint Maritime Commission and of the Maritime Law Committee will result in the formulation of further proposals. For, since the Board of Trade proposals seem designed to apply chiefly to the average vessel, while the International Committee is particularly concerned with ships of special construction, there would appear to be room for a set of proposals covering all classes of ships, perhaps on the lines of Dutch legislation.