TONNAGE.

Tonnage has long been an official term, intended ori­ginally to express the burthen that a ship would carry, in order that the various dues and customs which are levied upon shipping might be levied according to the size of the vessel, or rather in proportion to her capability of carrying a burthen. It has hence arisen that the term: “ tonnage,” as applied to a ship, has become almost synonymous with that of size. It is indeed the only term that is used to give an idea of the magnitude of merchant-ships, which are inva­riably spoken of according to their tonnage, or as being ships of 50, of 500, or of 1000 tons. Not only are all dues and customs levied according to the tonnage, but ships are also built, and bought, and sold, for a price per ton of their ad­measurement ; and by the conditions of Lloyd’s classifica­tion-list of shipping, they must be timbered and fastened, and must have their anchors, cables, and boats, all in pro­portion to the same datum. Tonnage, therefore, in so far as these considerations are involved, is virtually assumed to be a correct representation of the size of a ship.

In order to levy the dues on shipping, it was necessary to establish some one method to be in general use for cal­culating this tonnage ; and consequently there has long been a rule, enforced by law, for the measurement of the ton­nage of ships or vessels, and much mischief has arisen to the mercantile shipping of Great Britain through the erroneous principles which have been adopted at various times in forming these rules.

It is evident that tonnage may express several results of measurements, and in each case may be a sufficiently fair cri­terion of the burthen of a merchant-vessel, by which to levy the dues ; because all that is required thus far, either on the part of the government or of private interests, or on that of the owner, is, that the dues should be levied in equal proportions on all vessels. Thus tonnage may be the product of a scries of measurements, intended to express either the exact size, or an approximation to the exact size, of the ship. It may be the actual displacement or weight of the ship, either with or without cargo ; it may be the displacement of the cargo, or the dead-weight which she will carry to a fixed draught of water ; or it may be the capacity of the space which she has for the stowage of cargo. Yet to each of these there are most important practical objections. the first, or that by which the measured bulk of the ship would be the tonnage, might be easily evaded, and would lead to injurious results ; because, as there must necessarily be fix­ed measuring places, such a law would have the effect of restricting the form of vessels to that one shape which would carry the largest cargo under the least possible mea­surements at these places. If the actual displacement, either load or light, of a vessel, were to be her tonnage, it would be subject to the inconvenience that it could only be calculated correctly from the drawing of the ship, and therefore would be inapplicable to foreign ships arriving in our ports. An exact account of the draught of water, either load or light, would also be necessary; which, as be­ing a variable quantity when the load draught is involved, and one of great difficulty to be determined when the light draught is required, would present almost insuperable ob­jections ; and, besides, the draught of waiter is a quan­tity easily concealed or falsified for fraudulent purposes. Above all objections, however, may be reckoned this, that if either the load or the light displacement were taken to represent the tonnage, it would be the interest of the ship-owner to build large vessels with slight scantling and ina­dequate fastening, that the weight of the vessel might be small in proportion to that of the cargo. If. the tonnage were to express the difference between the two displace­ments, that is, the excess of the load displacement over the light, or the dead-weight of the lading, although this would be by far the most correct in principle,—in fact, although it be even mathematically correct,—there is the objection against it, that it involves a knowledge of both light and load draughts of water, and is therefore on this account, practically at least, as objectionable as the whole displace­ment. Lastly, if the tonnage were to be the space or ca­pacity for the stowage of cargo, numerous openings would be afforded for fraudulent evasion ; because the manner of measuring the ship for this space must be defined, and it is easy to build space which will not come within the limits of the defined measurements ; or it is easy to build a vessel of such a form that the measurements made at the given measur­ing places shall not give a correct account of her capacity.

Until January 1836, the rule for computing the tonnage of ships was as follows. the length was taken on a straight line along the rabbet of the keel of the ship, from the back of the main stern-post to a perpendicular line from the fore part of the main stem under the bowsprit. The breadth was taken from the outside of the outside plank in the broadest part of the ship, cither above or below the main wales, exclusivcly of all manner of doubling planks that might be wrought upon the sides of the ship. If tl>e ship to be measured was afloat, a plumb-line was dropped over the stern, and the distance between such line and the after part of the stern-post, at the load water-mark, was measured ; then was taken the length from the top of this plumb-line, in a direction parallel with the water, to a perpendicu­lar immediately over the load water-mark, at the fore part of the main stem. Subtracting from this length the before-mentioned distance between the plumb-line and the after part of the stern-post, the remainder was reckoned to be the ship’s extreme length, from which three inches were deducted for every foot of the load draught of water. With the dimensions thus obtained, the rule then was: “ From the length taken in cither of the ways above men­tioned, subtract three fifths of the breadth taken as above; the remainder is esteemed the just length of the keel to find the tonnage; then multiply this length by the breadth, and that product by half the breadth, and dividing by 94, the quotient is deemed the true contents of the tonnage.”

This rule is still in force for ships that were registered previously to the passing of the new act. It is evident that the tonnage as determined by it was intended to express the size or bulk of the ship, the half breadth being an assumed equivalent for a mean depth. The evils which arose out of this assumption were very great. As the depth was not at ail involved, it might be increased to any extent without increasing the tonnage ; while, on the contrary, as the square of the breadth was involved, an undue preponderance was given to this dimension, and it became necessary, on the part of ship-owners, to restrict it within the least possible limits. The effect of such a law was obvious. The British merchant-ships, in order to profit by its inconsistencies, were built exceedingly narrow and deep in proportion to the length, so that, according to parliamentary returns, we find, on an average, the mercantile navy would carry 1/3d more weight than its legally registered tonnage. In fact, the ships became little more than oblong boxes, most dangerous as sea-boats, and, from their want of stability, not capable of carrying sufficient sail to insure their safety on lee shores. Hence, after every gale of wind, the leeward coasts were covered with their wrecks ; and hence Lloyd's books regis­tered annually the average loss of six ships in four days.