Spain.—Three breadths are measured at the following places: 1st, at the mizen-mast ; 2d, a few feet abaft the foremast ; 3d, at a point half way between the two former. The heights at which the three breadths are taken at the above places are, 1st, on a level with the deck ; 2d, on a level with the upper surface of the keelson ; 3d, at a level half way between the two former positions.

To find the area at each section, the half of the sum of the upper and lower measurements is added to the middle mea­surement, and this sura is multiplied by the height of one above the other. Then half the areas of the fore and after section is added to that of the middle section, and this sum is multiplied by the length which the sections are apart from each other. The result will express in Burgos cubic feet the capacity of the part of the hold between the fore and after sections, and it still remains to add the spaces between these and the stem and stern·post. The former may be found, without any considerable error, by multiplying the area of the foremost section by half its distance from the stem ; and the latter in the same manner, by multiplying the area of the after section by half its distance from the stern-post. It is evident that the room occupied by the pumps must be deducted from the foregoing result, in order to obtain the fair quantity of space filled by the cargo.

Having thus found the capacity of the hold of any vessel in the above manner in Burgos cubic feet, it is to be divided by 4161/779 and the result will be the amount of displacement of such vessel in tons of Burgos measure, because each ton is reckoned equal to 4161/779 feet of Burgos.

Portugal.—*For single-decked vessels,* the length is mea­sured from the cabin bulkheads to the forecastle bulkheads. The depth is measured from the upper surface of the keel­son to the under surface of the beams. The extreme breadth of the deck is considered the breadth. the continued product of these three dimensions will give the contents in cubic feet, which, divided by 57726/1000, gives the tonnage.

*Vessels of two decks.* In these vessels two distinct opera­tions are made ; one for the hold, the other for the middle deck. For the hold :—The length is measured from the heel of the bowsprit to the stern-post. The breadth is the extreme breadth of the upper deck, deducting two feet. The depth is from the upper surface of the keelson to the under surface of the beams. For the middle deck :—The length is considered as half of that for the hold, the other half being allowed for cabins. &c. The breadth as before ; and for the depth, the height of the middle deck to the under surface of the beams.

The foregoing is the method adopted at Lisbon, but at Oporto the length of the vessel is taken from the second timber at the bows to the stern-post ; the breadth, at the widest part from the inside of each bulwark on the upper deck ; and the depth, from the upper surface of the keelson to the lower surface of the beams of the upper deck at the main hatchway.

If the keelson be more than ordinarily thick, allowance is made accordingly ; and where there arc two decks, the thick­ness of the lower deck is also deducted from the depth. The length is then multiplied by the breadth, and the pro­duct by the depth. This product is then divided by 96, the number of Portuguese cubic feet contained in a ton, and the result is the tonnage of the vessel.

Naples.—*For vessels with two decks,* the length is mea­sured from one end of the vessel to the other, *over all.* The length is also measured from the after part of the stem to the rudder hatch, under the poop. the mean be­tween these two lengths is multiplied by the extreme breadth of the vessel.

The depth is then taken from the bottom of the well to the lower surface of the upper or poop deck ; and the above product being multiplied by this depth, and divided by 94, gives the tonnage.

*For single-decked vessels,* the tonnage is found by multi­plying the extreme length by the extreme breadth, and the product by the extreme depth, and dividing by 94, as above.

Netherlands—The length is measured on deck from the stem to the stern-post. For the breadth, the hold is divided into four portions, and two measurements taken at each of the three divisions : 1. Across the keelson, on a level with its upper surface, from ceiling to ceiling : 2. The greatest breadth of the hold at each division. The mean of these six measurements is considered the breadth.

The depths are taken at each of the foregoing points of division, from the upper surface of the keelson to the lower surface of the upper deck between the beams, and the mean of these three is assumed.

The length, breadth, and depth are then multiplied toge­ther, and two thirds of the product is considered as the ton­nage. Rut an allowance for provisions and water, cabins, and ship’s stores, varying from 30/100 to 45/100, is deducted from the depth before it is multiplied by the length and breadth.

Norway.—From the after part of the stem, the length of the ship is taken to the inner port of the stern-post. Di­viding the length of the vessel into four equal parts, the breadth is measured at each of these divisions. The depth of the vessel, from the under surface of the upper deck to the keelson, is taken at the above three points of division.

Then multiply the length by the mean of the three breadths, and this product by the mean of the three depths.

The result of the foregoing is divided by 242½, if there be no fractional parts of feet ; but if there are, the calcula­tion is made in inches, and the divisor becomes 322·767, the result thus obtained being the burthen of the vessel in wood lasts of 4000 Neva pounds each. To reduce these into commerce lasts, one of which is equal to 5200 Neva pounds, it is multiplied by 10, and divided by 13.

Russia.—Length of the keel in feet, multiplied by the extreme breadth over the sheathing, and the product mul­tiplied again by half the breadth, and divided by 94, gives the number of English tons.

United States.—If the vessel be double-decked, the

*length* is taken from the fore part of the main stem to the after part of the stern-post, above the upper deck ; the *breadth,* at the broadest part above the main wales, half of which breadth is accounted the *depth.* From the length *three fifths* of the *breadth* is deducted ; the remainder is multiplied by the *breadth,* and the product by the *depth.* The last product is divided by 95, and the quotient is deemed the true tonnage of such ship or vessel.

If the ship or vessel be single-decked, the *length* and *breadth* are taken as above for a double-decked vessel, and three fifths of the breadth arc deducted from the length. The depth of the hold is taken from the under side of the deck-plank to the ceiling in the hold. These are multiplied and divided as aforesaid, and the quotient is the tonnage.

At Philadelphia a system of measuring, called carpenter’s tonnage, appears to be adopted. The rule is as follows.

*For vessels with one deck,* multiply the length by the breadth of the main beam, and the product by the depth. Divide this second product by 95.

*For double-decked vessels,* take half the breadth of the main beam for the depth, and work as for a single-decked vessel.

At New Orleans the mode at present in use is as follows.

Take the length from the stem to the after part of the stern-post, on the deck. Take the greatest breadth over the main hatch, and the depth from the ceiling of the hold to the lower surface of the deck at the main hatch.

From the length deduct 3/5ths of the breadth, multiply the remainder by the actual breadth and depth, and divide by 95, for a vessel with a single deck ; but if the vessel have a double deck, half the breadth of the beam is considered as equivalent to the depth, and is multiplied accordingly. (b z.)