tons built in 1900 made up 12 % of the whole tonnage. In 1890 there were no vessels built whose displacement exceeded 9000 tons ; in 1900 such vessels constituted 11½ % of the whole, and about ¾ % of the whole were over 16,000 tons. The year 1908 was notable for the number of large vessels launched; 10 British and 4 German

vessels were launched whose tonnage averaged about 15,000 tons each, their tons displacement being about 50% greater. In 1910 there were afloat more than 80 vessels exceeding 12,000 tons, and having an average tonnage of more than 15,500 tons each (see Table XI. page 885). Six of these vessels were over 20,000 tons and had an average gross tonnage of 25,640 tons each. The tonnage of the largest vessels has almost continuously increased, and vessels with a tonnage of 45,000 tons are now being built, the fully loaded displacement of the vessels being more than 50,000 tons.

Fig. 4 shows the tonnage of wood, composite, iron and steel vessels added to the Register year by year since 1860, and figures for a number of the years are given in Table I. The tonnage of *wood and composite* vessels added in 1860 was 161,180, increasing to 166,210 tons in 1865 and then falling away at a fairly uniform rate until in 1880 only 19,938 tons were reported, and since that date practically no increase in output of this class of tonnage has taken place. The tonnage of *iron* ships produced in 1860 was about 63 % of that of wood ships; while wood shipbuilding fell off, iron shipbuilding increased, and in 1870 the tonnage of iron ships was more than five times that of wood and composite ships. The output of iron ships increased until 1883, when a maximum of 856,990 tons was reached. Steel had now come into use, and iron shipbuilding fell away rapidly, amounting only to 50,579 tons in 1888; this figure fell to 10,679 tons in1895, and since then very few vessels have been built of iron. *Steel,* which had been used in shipbuilding to a limited extent for special purposes for some eight years, came into use for the hulls of merchant ships in the later ’seventies. In 1880 the tonnage built—38,164 tons—was 4½ % of that of iron ships, by 1885 the ratio was 60%, and in 1890 the tonnage of steel ships, 913,484 tons, was just 20 times that of iron ships. From that date the statistics of steel shipbuilding are practically those of steam

vessels above given.

From Table II., which gives the distribution of ownership of existing merchant vessels and other vessels, excepting warships, it appears that the total tonnage of the world’s shipping, excluding vessels under 100 tons and the wood vessels on the Great Lakes of America, is about 42 millions. Of this total, rather less than one-ninth is in sailing vessels, and the remainder in steam vessels. Taking the number of ships instead of their aggregate tonnage, the sailing vessels are 27 % of the whole. Out of the 42 million tons,

Great Britain and her colonies own about 19 millions, or 45⅓% of the whole, 18 millions being steamers and 1 million sailing vessels.

Next to Great Britain, the largest shipowning country in the world is the United States of America, with 5 million tons of shipping, 12 % of the total. Then come in order Germany, with nearly 4½ millions, 10½% of the total; Norway, with 4·8%; France, with 4·5%; Italy, with 3·2%; Japan, with 2∙7‰ Holland, Sweden and Russia with 2∙4 to 2·1%; and Austria-Hungary, Spain and

Denmark each with about 1∙8 %. The leading particulars as to the distribution of ownership of the merchant shipping throughout the world for 1873, 1890, 1900 and 1910 respectively are represented graphically in the block diagrams given in fig. 5, which have been constructed from particulars given in Table II. and similar tables for the other years named. The total tonnage owned in these years, excluding vessels under 100 tons and wood vessels on the Great Lakes of America, is represented by squares drawn to scale, in duplicate, and divided up amongst the countries owning shipping in proportion to their ownership. Parts of each holding are shaded in the squares on the right so as to show what portion is sailing tonnage and what steam tonnage, and in the squares on the left so as to show the distribution of the total as regards materials of construction in each country. The total tonnage owned is given for each year named, and the percentages owned by various

countries are tabulated between the pairs of squares.

The tonnage of the shipping of the world has advanced

at an increasing rate for many years; the character of this advance may be gathered from the data given in fig. 5. In 1873 Great Britain and her colonies owned 43∙25%,and in 1890 52·35%; but although the advance in the shipping of Great Britain and her colonies has continued approximately at the same uniform rate, such has been the increasing rate of the advance of the world’s shipping that the percentage owned by the British Empire fell to 49·1% in 1900 and to 45·36 in 1910. This increasing rate of advance of the tonnage of the world’s shipping is shown by Table III. The remarkable rate at which the shipping of the United States and Germany has advanced

will also be seen.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table III.—*Rate of Increase of the World's Shipping.* | | | | |
| Year. | 1873. | 1890. | 1900. | 1910. |
| World’s tonnage (tons)  World’s tonnage | 17,545,563 | 22,151,651 | 29,043,728 | 41,914,765 |
| taking 1873 as |  |  |  |  |
| 100 . | 100 | 126 | 165 | 240 |
| Average rate of |  |  |
| increase per |  |  |  |  |
| annum from1873 Proportion owned |  | 1∙5 % | 2∙4 % | 3·8 % |
| by Britain . Proportion owned | 43·25 % | 52∙35 % | 49·1 % | 45∙36 % |
| by United States. . | 14∙27 % | 8∙23 % | 9∙47 % | 12·06 % |
| Proportion owned |  |
| by Germany | 5·88 % | 7∙08 % | 9∙13 % | 10∙34 % |

Table IV. gives the output, for the year 1909, of merchant and other vessels throughout the world, excluding warships, all ships of less than 100 tons and the wood vessels of the Great Lakes of North America. The block diagrams in fig. 6 are constructed in the same way as the diagrams in fig. 5, and are arranged to show the output of the principal ship­building countries of the world in 1900 and in 1909, the reference square for scale representing one-tenth the amount of that of fig. 5. The total output for the year 1900 was 2,343,854 tons, of which 1,509,837 tons, or 65% of the whole, was built in the United Kingdom; 303,339 tons or 13% was built by the United States of America; 9·4% by Germany and 5·4% by France. In 1909 the total output was 1,551,532 tons, of which 971,113 tons or 63·5% was built in the United Kingdom; 178,402 or 11∙5% was built in the United States of America; Germany built 8·1%; France only

3%; the output of Holland and Belgium has risen from 1·38% in 1900 to 4∙34% in 1909; and Japan appears with 2·98% instead of about ∙6% in 1900.

*American Shipping.—*Under the Registration Laws of the United States vessels may be (a) registered; (*b)* enrolled ; or (c) licensed. The proportion of vessels coming under these three headings as given by the United States Commissioner of Navigation, 30th June 1909, is shown in Table V.

It will be seen that the *Registered Tonnage.* includes only vessels engaged in the Foreign Trade and in Whale Fisheries, which amount in the total to 1633 vessels of 887,505 tons and include the smallest vessels crossing the St Lawrence equally with ocean liners. Two hundred and twenty-seven of the registered vessels are less than 100 tons, and only nine are over 10,000 tons, namely the “ Minnesota,” “ Manchuria,” “ Mongolia,” “ Siberia ”and

“ Korea ” on the Pacific, and the “ St Louis ” and “ St Paul,” “ New York ” and. “ Philadelphia ” on the Atlantic routes. The *Enrolled Tonnage* includes vessels engaged in the coasting trade and local fisheries which are over 20 tons; and the *Licensed Tonnage* vessels similarly engaged, but of a size not exceeding 20 tons. The whole of the tonnage included is officially described as tonnage