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MARCH, 1902.

TONNAGE STATISTICS *of the* DECADE 1891-1900.

By SIR JOHN GLOVER.

[Read before the Royal Statistical Society, 21st January, 1902.

The Right Hon. LORD AVEBURY, President, in the Chair.]

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It is many years since it occurred to me that a useful statistical result might be accomplished if persons in business collected the published figures of their own trades, and brought their knowledge and judgment to bear on their interpretation, seeing that statistics are for the most part collected and published by officials who are necessarily without trade knowledge and experience of the subjects to which they relate.

It also occurred to me that in the time to come there would be historians and statisticians who would keenly explore the facts of the wonderful century from which we so recently parted, and that the *Statistical Journal* ought to be an important book of reference to all such historians and inquirers. I desired at all events that the maritime facts of the last century should be recorded in the *Journals* of the Society. My paper to-night, with the papers I read in 1863, 1872, 1882, and 1892, completes the record up to 1900; and so finishes my self-imposed but most agreeable task. For other trades, and for the time to come, I may be excused for

commending the example, as it seems to me that the continuity of statistical record on one subject so secured would enhance the value of our *Journal*. I give this hint to our excellent Secretary. Notwithstanding friendly criticisms, and not at all unaware of its defects, I have purposely kept to the practice adopted in my former papers, by adhering as nearly as possible to a comparison of decades. Taking this method, with whatever disadvantages are inseparable from it, I only add that any other grouping is open to more objections and likely to be less accurate. It is quite true that 1900 is not a good year for comparison so far as the British flag is concerned, owing to so much tonnage being employed by the war, which does not make any mark in our records.

CHARACTER OF THE DECADE.

On the general character of the decade 1891-1900 some particulars must be noted. It could not be regarded as peaceful. The war between Japan and China made considerable demands on our tonnage, and led to great activity in the ports of the Far East in 1894 and 1895. The expedition to the Soudan; the war between Turkey and Greece in 1897; in 1898 the war between the United States and Spain: the further proceedings in the Soudan and the Fashoda incident; and in 1899 the beginning of the war in South Africa,¹ all made great demands on the carrying powers of our flag, which were further increased by the expeditions sent to China in 1900 by ourselves, Germany, France, and the United States.

There were also many other important occurrences during the decade affecting tonnage. The Russian famine in 1891-92 led to the prohibition of the export of grain from Russia in those years, and to the laying-up of a large number of steamers usually engaged in the trade, which had amounted to about 10 million quarters in 1890.

The silver controversy had a very disturbing effect on all Eastern trade. In 1893 financial difficulties, alike on the Continent, in America, and in the Australian Colonies, led to much contraction of business. In 1894 the corn trade was in such a condition that wheat fell during October to the phenomenally low price of 17s. 8d. per quarter. Sugar was little more than 1d. per pound, and American cotton fell to 3d. per pound. Quite naturally, great depression in trade and in freights occurred, and continued

¹ The tonnage of British vessels employed by Government in connection with the war that entered and cleared at ports in the United Kingdom was 383,931 tons in 1899; and 1,571,969 tons in 1900.

throughout 1895. The tide turned in 1896. After long stagnation and depression violent fluctuations followed in grain prices. The average price of wheat in 1896 varied to the extent of 11s. per quarter, and that of barley to no less than 13s. 5d., with immediate effects on freights in all directions. I must not omit to name another circumstance which still more affected grain prices and freights in 1898, viz., what is known as the wheat corner in the United States, for which Mr. Leiter was responsible. This produced the greatest fluctuations which had been known in wheat values for twenty years. The price reached 48s. 1d. and fell to 25s. 5d.—a difference of 22s. 8d. per quarter between highest and lowest. Besides American speculation, the suspension of the French import duty played an important part in these fluctuations.

Strikes also caused great disturbance in the freight markets. Strikes of dockers; strikes of colliers in South Yorkshire, in Wales, in Scotland, and in the North of England; strikes of engineers (one lasting for thirty weeks), all contributed to the difficulties through which shipping business had to be carried on. It was generally understood that the Welsh strike in 1898 led to the abandonment of the naval manœuvres for that year. I should also name that the famines in India were another disturbing factor, greatly lessening the quantity of produce which, but for them, would have come from India to Europe.

LEGISLATION DURING THE DECADE.

As regards legislation during the decade, I am pleased to say there was not much. A wiser spirit came over the officials of the Board of Trade. They did not encourage State attempts to show how a trade so hazardous as that of shipping should be carried on. Neither Mr. Bryce nor Mr. Ritchie nor Mr. Balfour interfered much, and the result is, far better relations between the department and the shipowners; and not infrequently some friendly co-operation to effect improvements. At the same time, plenty of legislative projects found their way into the Houses of Parliament. I understand that during the years 1891 to 1900 inclusive, no fewer than 91 Bills affecting shipping were introduced. Happily most of them were still-born. The winnowing quality of Parliament was so effectual that only 13 of this number became Acts; these, however, included two important measures of consolidation, making the law to which they relate more accessible and comprehensible.

The efforts of shipowners to get the cost of lighting our coasts put on the Consolidated Fund failed; but they led to the

compromise enacted by the Mercantile Marine Fund Bill of 1898, which in the meanwhile somewhat lessened the burden and improved the basis of charge. I must add, however, that this Bill does not seem likely to end the controversies that have occurred on this subject. They have confirmed the shipowners' opinions to the effect that the present system of lighting our coasts through three separate Boards, from which those who pay the dues are practically excluded, is extravagant, and that the lights, without which the King's ships could not be safely navigated, nor our shores be safely approachable, ought to be regarded here, as elsewhere, a national duty, which should be paid for out of the National Exchequer. The attempt to get the law of insurance consolidated has not yet succeeded, but the effort is likely to be renewed, and I hope will be successful. By far the most important measure of the decade was the Merchant Shipping Act, 1894, which consolidated into one Act no less than forty-eight previous statutes. It is said to be the longest Act on the Statute Book, and consists of 748 sections and 22 schedules.

There were several important inquiries which concerned shipping—The Royal Commission on Labour, 1892, the Mercantile Marine Fund and Light Dues, 1894, the Manning Committee in the same year. Rules of the Road and Sounding Signals, Screening of Side-lights, Lights and Signals for Fishing Vessels, Winter Atlantic Freeboard, and the Royal Commission on the Port of London.

TRADE DURING THE DECADE.

It is the prevailing fashion to speak of the trade of the United Kingdom as failing. It is quite true that comparing its percentages of increase with the percentages of other States on much smaller figures, the explanation of such observations may be found. But, comparing the trade of the United Kingdom with itself at different dates, the inference is altogether groundless and only proves the need for care in drawing conclusions from statistics. The value of our imports and exports was:—

	£		£
1860	375 millions	1890	749 millions
'70	547 „		
'80	697 „	1900	877 „

The quantities of certain leading articles of export and import are shown in—

TABLE I.—*Showing the Quantities of certain Articles Exported and Imported in 1860, 1870, 1880, 1890, and 1900.*

[000's omitted.]

	1860.	1870.	1880.	1890.	1900.
<i>Exports.</i>					
Coal..... tons	7,321,	11,702,	18,729,	28,738,	44,089,
Iron and steel.... „	1,442,	2,825,	3,792,	4,001,	3,540,
Salt „	696,	764,	1,051,	726,	547,
<i>Imports.</i>					
Corn cwts.	52,000,	74,103,	134,172,	155,620,	189,636,
Rice..... „	1,535,	4,077,	7,889,	5,957,	6,291,
Wool lbs.	148,000,	263,250,	463,508,	633,028,	583,739,
Wood loads	2,727,	4,460,	6,430,	7,212,	9,899,
Sugar cwts.	8,817,	15,304,	20,654,	26,994,	35,673,
Pyrites tons	93,	411,	658,	656,	741,
Guano „	141,	280,	80,	27,	33,
Petroleum gals.	—	6,859,	38,793,	105,080,	254,978,
Oil seed cake tons	—	158,	241,	282,	394,

These articles, from their great bulk, chiefly affect shipping and freight markets.

It will be observed that the increased export of coal is nearly equal to the whole coal export of 1880. Iron and steel are rather less in 1900 than in 1890, but the simple explanation is, that our domestic need was too great to admit of more; we were indeed obliged to import a considerable quantity of manufactured iron and steel both from America and the Continent.

A further decline in the export of salt is mainly explained by the proceedings of the Salt Union. The export was in 1880 over 1 million tons, in 1890, 726,000 tons, and in 1900 only 547,000 tons. It is not surprising that the high prices attempted by the Salt Union sent the buyers elsewhere, and that the Union is now endeavouring to write off a large portion of its capital as lost.

The corn import shows a very large increase; sugar the same; and the petroleum import far more than doubled. The decrease in the import of wool must, I fear, be attributed mainly to the shipment direct to Continental ports of large quantities which used to come to London for re-distribution, but which find the near Continental ports cheaper for that purpose. To some extent it may be the result of duties favouring direct shipments. The import of wood, a little under $7\frac{1}{4}$ millions of loads in 1890, grew to nearly 10 millions of loads in 1900, representing a very large increase in the demand for tonnage. It is not easy to estimate the total weight of cargo represented by these imports and exports, but for many years my able friend, Mr. John Williamson, of Liverpool, has made this estimate for the Chamber of Shipping, and he has been kind enough, for the purpose of this paper, to furnish me with his estimate for 1900, for which I take this opportunity of sincerely thanking him. His figures are:—

Estimated Total Weight of Imports and Exports.

For 1880.....	53 million tons	
„ '90.....	76½	„
„ 1900.....	102½	„

1890 showed an increase of 44 per cent. over 1880, and the figures for 1900 represent a further increase of 34 per cent.; in short, the weight has nearly doubled since 1880. It is not surprising that other States should be made envious by such vast maritime development, and that some Governments should generously help their subjects—by bounties on construction, by mileage subsidies, by tariff advantages, by preference rates on Government railways, and even by paying the Suez Canal dues on their shipping—to get some share of this ocean carrying, and, perhaps (or perhaps not), get it more quickly by these fictitious aids. Even a statistician may be surprised at the figures, though not at the world-wide envy they have excited. But it is not so easy to understand the prevalence of pessimistic views in spite of such easily accessible figures which he who runs, or even writes leading articles, might read. And I add that this observation might be made even if this were all the work done by our mercantile fleet; but, as I have repeatedly shown, and in a later part of this paper shall show again, these figures do not include our extensive carrying for other nations.

SOURCES OF GRAIN SUPPLIES.

One of the most frequent causes of disturbance in the freight markets is fluctuations in the sources of grain supplies: I show these in Table II (p. 8).

In this table I direct attention especially to the changes which have taken place during the decade in the sources whence our supplies of wheat came. The carriage of grain affords so much employment for shipping, that these variations are most important in their influence on the freight markets apart from their importance as a question of food.

The first observation I make on this table is that during the whole decade we required 44 million tons of wheat, wheat meal, and flour. The lowest annual import was a little over 4 million tons in 1897, when the English average price of wheat, as published in the "London Gazette," was 30s. 2d. per imperial quarter; and the highest was 5 million tons in 1895, when the average price was 23s. 1d. per imperial quarter. The changes in the sources whence this enormous supply came from are remarkable. Less came from the Pacific States than in the previous decade—only 12·32 per cent. against 19·32 per cent. of the total import. Less came from India—only 7·50 per cent. against 12·85 per cent. Less, also, from Australia—only 2·50 per cent. against 3·98 per cent. On the other hand, the United States and Canada increased from 35·80 per cent. to 49·48 per cent. The Russian supply was 16·09 per cent. for 1881-90, and 12·97 per cent. for 1891-1900. It may be said that the United States, Canada, South America and the Black Sea ports sent 84·77 per cent. of the wheat import, and as these countries have few vessels suitable for oversea grain carrying, the bulk of this carriage was done by our Flag.

TABLE II.—*Showing the Total Quantity of Wheat, Wheat Meal, and Flour Imported
Percentage Variation in*

	United States (Atlantic Ports) and Canada.	Per- centage of Total for the Year.	Russia (Southern Ports), Bulgaria, Roumania, and Turkey.	Per- centage of Total for the Year.	United States (Pacific Ports) and Chile.	Per- centage of Total for the Year.	Argentine Republic and Uruguay.	Per- centage of Total for the Year.	British East Indies.	Per- centage of Total for the Year.
	Tons.		Tons.		Tons.		Tons.		Tons.	
1891.....	1,770,150	42·63	786,384	18·94	442,674	10·66	124,547	3·00	650,237	15·66
'92.....	2,586,274	59·47	281,890	6·48	458,281	10·53	175,942	4·04	624,722	14·36
'93.....	2,105,653	49·04	510,603	11·90	748,191	17·43	394,429	9·19	309,804	7·21
'94.....	1,758,803	39·41	860,404	19·28	559,800	12·55	679,415	15·22	267,452	5·99
'95.....	1,548,618	30·94	1,272,422	25·42	723,580	14·46	605,783	12·10	440,147	8·79
'96.....	2,073,081	45·39	1,203,542	26·35	631,200	13·82	249,540	5·46	105,647	2·31
'97.....	2,248,428	55·23	737,539	18·12	553,405	13·60	50,170	1·23	28,638	0·70
'98.....	2,711,096	62·37	181,866	4·22	443,980	10·29	206,890	4·80	476,895	11·06
'99.....	2,701,473	60·31	113,400	2·53	352,995	7·89	579,006	12·93	409,610	9·14
1900.....	2,368,329	52·50	196,770	4·36	532,050	11·79	937,880	20·80	305	0·01
Total.....	21,871,905	—	6,144,820	—	5,446,156	—	4,003,602	—	3,313,457	—
Percentage of total for the ten years...	49·48		13·91		12·32		9·06		7·50	
Percentage of total for the decade 1891-90 ...	35·80		—		19·32		—		12·85	

* In the above table Canada is grouped with United States (Atlantic Ports), North Russia with separately, for Canada, Germany,

	1891.	1892.	1893.	1894.	1895.	1896.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Canada	210,154	261,705	211,915	201,196	209,395	277,466
Germany	53,946	38,484	23,912	45,679	49,843	61,885
North and south Russia.....	731,471	218,219	503,157	840,464	1,152,593	862,834

ENTRIES AND CLEARANCES.

I now come to the tonnage tables. I desire first to express my great obligation to Sir Alfred E. Bateman and Mr. Walter J. Howell for their help in the preparation of some of these tables. And I cannot speak too highly of the care which is shown in the compilation of all the statistical tables regarding shipping published by the Board of Trade.

*into the United Kingdom during each Year of the last Decade, whence it came, and the the Source of Supply.**

Russia (Northern Ports) and Germany.	Per- centage of Total for the Year.	Australasia.	Per- centage of Total for the Year.	Austrian Territories.	Per- centage of Total for the Year.	France.	Per- centage of Total for the Year.	Other Countries.	Per- centage of Total for the Year.	Total.
Tons.		Tons.		Tons.		Tons.		Tons.		Tons.
135,680	3.26	112,202	2.70	60,896	1.46	8,505	0.24	60,518	1.45	4,151,793
39,426	0.91	102,947	2.36	48,863	1.12	3,335	0.07	28,705	0.66	4,350,385
26,107	0.61	130,983	3.05	54,990	1.28	2,690	0.06	10,063	0.23	4,298,502
48,752	1.09	196,928	4.41	55,348	1.24	24,239	0.55	11,895	0.26	4,468,036
96,610	1.93	177,986	3.55	66,288	1.30	56,444	1.13	19,087	0.38	5,005,915
141,157	3.09	325	0.01	69,415	1.52	86,100	1.89	7,301	0.16	4,567,308
299,548	7.36	—	—	57,197	1.41	84,277	2.07	11,839	0.28	4,071,041
204,033	4.73	11,051	0.26	36,464	0.85	24,982	0.58	14,993	0.34	4,312,250
41,992	0.93	186,330	4.16	51,480	1.15	32,093	0.72	10,709	0.24	4,479,087
170,443	3.78	199,116	4.42	58,397	1.29	37,883	0.84	9,705	0.21	4,510,878
1,203,748	—	1,117,867	—	558,328	—	360,547	—	184,765	—	14,205,195
2.73		2.50		1.26		0.82		0.42		
—		3.98		2.27		—		—		—

Germany, and South Russia with the other Black Sea ports. The following are the figures, and North and South Russia:—

1897.	1898.	1899.	1900.	Total.	Percentage of Total for the Ten Years.
Tons. 317,559	Tons. 349,011	Tons. 387,771	Tons. 376,641	Tons. 2,802,813	6.34
70,337	40,936	26,336	93,222	504,600	1.14
755,281	317,784	126,085	224,931	5,732,819	12.97

TABLE III.—*Showing the Total Tonnage, Steam and Sailing, Entered and Cleared, with Cargoes and in Ballast, at Ports in the United Kingdom from and to Foreign Countries and British Possessions, and Coastwise, for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

[000's omitted.]

Year.	Tons.	Increase.	Increase per Cent.
1850.....	39,634,	—	—
'60.....	58,707,	19,072,	48.12
'70.....	73,198,	14,491,	24.68
'80.....	133,250,	60,052,	82.04
'90.....	164,340,	31,089,	23.33
1900.....	208,777,*	44,437,	27.04

* These figures are exclusive of the tonnage of British vessels employed by Government in connection with the South African War. The entrances and clearances of vessels so employed with cargoes and in ballast in 1900 amounted to 1,571,969 tons.

With one exception only, 1900 shows the largest increase of any of the five decades with which I have dealt. The exception was an increase of 60 millions in 1880 over 73 millions in 1870. The increase of 44 millions in 1900 over 164 millions in 1890 is satisfactory. The increase per cent., 27·04, is higher than the rate of increase in the previous decade, notwithstanding the area on which it is taken is 164 millions instead of 133 millions. As the entries and clearances in 1850 were under 40 millions and over 208 millions in 1900, the increase for the half century may be taken as five-fold.

TABLE IV.—*Showing the Tonnage, Steam and Sailing, Entered and Cleared Coastwise, with Cargoes and in Ballast, at Ports in the United Kingdom, for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

[000's omitted.]

Year.	Tons.	Increase.	Increase per Cent.
1850.....	25,129,	—	—
'60.....	34,017,	8,888,	35·37
'70.....	36,558,	2,540,	7·47
'80.....	74,514,	37,956,	106·55
'90.....	90,056,	15,542,	20·86
1900.....	110,254,	20,198,	22·43

TABLE V.—*Showing the Tonnage, Steam and Sailing, Entered and Cleared at Ports in the United Kingdom, with Cargoes and in Ballast, in the Foreign Trade only, for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

[000's omitted.]

Year.	Tons.	Increase.	Increase per Cent.
1850.....	14,505,	—	—
'60.....	24,689,	10,184,	70·21
'70.....	36,640,	11,950,	48·40
'80.....	58,736,	22,095,	60·30
'90.....	74,283,	15,547,	26·47
1900.....	98,523,*	24,240,	32·63

* See note to Table III.

In Tables IV and V the figures for the coasting and foreign trade are shown separately. The increased percentage coastwise, 22·43, is the largest save two in the half century. That in the foreign trade, 32·63, though by no means the highest percentage, marks the largest absolute increase: it is nearly seven-fold for the 50 years.

The vessels that entered and cleared with cargoes only are shown in :—

TABLE VI.—*Showing the Tonnage, Steam and Sailing, Entered and Cleared at Ports in the United Kingdom, in the Foreign Trade, with Cargoes only, for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

[000's omitted.]

Year.	Tons.	Increase.	Increase per Cent.
1850.....	12,020,	—	—
'60.....	20,837,	8,817,	73'35
'70.....	31,624,	10,786,	51'76
'80.....	49,678,	18,054,	57'08
'90.....	62,836,	13,157,	26'48
1900.....	79,858,*	17,022,	27'09

* See note to Table III.

Table V includes the tonnage of many vessels which entered or left our ports for foreign countries without cargoes; that figure was 98½ million tons; excluding all ballast entries and clearances, the figure is reduced to nearly 80 million tons, and compares with nearly 63 millions in 1890, starting with only 12 millions in 1850. The tonnage increase is exceeded in only one decade, and as the growth is continuous since 1850, it must be regarded as satisfactory so far as the foreign trade is concerned.

The proportion thereof done by the British flag and by foreign flags comes under our notice in Tables VII and VIII.

TABLE VII.—*Showing the Amount of British Tonnage, Steam and Sailing, Entered and Cleared at Ports in the United Kingdom with Cargoes only, and with Cargoes and in Ballast, from and to Foreign Countries and British Possessions for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

[000's omitted.]

Year.	With Cargoes only.			With Cargoes and in Ballast.		
	Tons.	Increase.	Increase per Cent.	Tons.	Increase.	Increase per Cent.
1850....	8,039,	—	—	9,442,	—	—
'60....	12,119,	4,080,	50'75	13,914,	4,472,	47'36
'70....	22,243,	10,123,	83'52	25,072,	11,157,	80'18
'80....	35,885,	13,642,	61'37	41,348,	16,276,	64'91
'90....	46,406,	10,520,	29'32	53,973,	12,624,	30'53
1900....	52,332,*	5,926,	12'77	62,710,*	8,737,	16'19

* See note to Table III.

TABLE VIII.—*Showing the Amount of Foreign Tonnage, Steam and Sailing, Entered and Cleared at Ports in the United Kingdom with Cargoes only, and with Cargoes and in Ballast, from and to Foreign Countries and British Possessions for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

[000's omitted.]

Year.	With Cargoes only.			With Cargoes and Ballast.			Proportion of Total Foreign Entries and Clearances to	
	Tons.	Increase.	Increase per Cent.	Tons.	Increase	Increase per Cent.	Total Entries and Clearances.	British Entries and Clearances.
1850....	3,981,	—	—	5,062,	—	—	Per cent. 34·89	Per cent. 53·61
'60....	8,718,	4,737,	118·00	10,774,	5,711,	112·00	43·63	79·58
'70....	9,381,	663,	7·00	11,568,	793,	7·00	31·57	46·13
'80....	13,793,	4,412,	47·00	17,387,	5,819,	53·00	29·61	42·05
'90....	16,429,	2,636,	19·12	20,310,	2,923,	16·81	27·34	37·63
1900....	27,525,	11,096,	67·54	35,812,	15,502,	76·33	36·35	57·11

The total amount of British tonnage entered and cleared with cargoes at ports in the United Kingdom to and from foreign countries was the subject of special comment in my last paper. 8 million tons in 1850 became 12 millions in 1860; 22 millions in 1870; nearly 36 millions in 1880; and 46 millions in 1890. It then seemed that some slackening in the pace might have occurred, but the figure for 1900 is over 52 millions.

The total amount of foreign tonnage is even more remarkable. Under 4 millions in 1850, it became nearly $8\frac{3}{4}$ millions in 1860; over $9\frac{1}{4}$ millions in 1870; $13\frac{3}{4}$ millions in 1880; nearly $16\frac{1}{2}$ millions in 1890; and attained the remarkable figure of $27\frac{1}{2}$ millions in 1900.

While it may be interesting to record the percentages in comparing these increases, they are only misleading if taken without qualification. Thus the British increase of 10 millions in 1870 makes $83\frac{1}{2}$ per cent., and a very similar increase in 1890 yielded only 29·32 per cent. So in the percentages of foreign increases. An increase of nearly $4\frac{1}{2}$ million tons in 1880 yielded 47 per cent., while a similar increase in 1860 yielded 118 per cent. A more detailed examination shows that the main increase of foreign entries and clearances is chiefly at certain coal ports, coal cargoes and moderately cheap bunker coal being the essential conditions on which these boats can trade in our ports at all. It must again be borne in mind that the work done by the British flag which

figures in this comparison is by no means the whole of our cargo-carrying, as will appear when I come to speak later on in this paper of the work done by us for other nations.

Meanwhile, in Tables VII and VIII it is very interesting to observe that immense as has been the growth of foreign tonnage with cargoes in our ports, as shown in Table VIII, the corresponding growth under our own flag has been such that the proportion of 34·89 foreign to total entries and clearances which measured the fact in 1850, is only 36·35 in 1900. The total tonnage in the foreign trade in 1850 was only 14½ millions; by 1900 it grew to 98½ millions, but notwithstanding this enormous increase, the foreign proportion was only 1½ per cent. more. The vitality of our flag could hardly have a stronger proof. It is further interesting to note how soon the artificial stimulus of the repeal of the navigation laws was exhausted. The foreign proportion in 1850 jumped from 34·89 to 43·63 in 1860, but immediately afterwards it declined; in 1870 it was only 31·57; in 1880 still less, 29·61; and in 1890, 27·34. There had been lessened proportions of foreign tonnage in every decade until the last, when it increased to 36·35, a trifle higher than it was in 1850.

I need not add in passing, that whatever the bounties paid by foreign nations to their flags may have had to do with the production of this result, we enjoyed no help of that sort from our Government. The chief factors in the case of our own flag were improvements in the size, speed, and efficiency of our cargo steamships. British shipowners were free sellers of old and small steamers and sailing vessels to foreigners, who have fewer State obstacles put in the way of their use than we have. Foreigners have to a very large extent bought our wooden fleet, and the production here of such vessels has practically ceased. They have also bought large numbers of iron and steel steamers from us, and have thus been greatly helped by our own tools in their competition with us.

The proportion of foreign tonnage in our trade fluctuates between the different flags. This is shown in:—

TABLE IX.—*Showing the Tonnage of Steam and Sailing Vessels with Cargoes only, and their Nationalities, Entered and Cleared at Ports in the United Kingdom, from and to Foreign Countries and British Possessions, in the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

Nationality.	1850.	1860.	1870.	1880.	1890.	1900.
British	8,039,308	12,119,454	22,243,039	35,885,868	46,406,250	*52,332,155
Norwegian	331,664	948,212	1,975,575	2,914,407	3,792,739	5,700,197
German	—	1,797,747	1,433,595	2,576,819	3,354,754	4,361,507
Swedish	125,649	366,700	591,985	1,310,707	1,448,559	2,988,239
Dutch	240,444	445,556	436,214	1,049,377	1,768,904	2,754,228
Danish	285,263	618,681	623,798	1,158,572	1,485,616	2,454,537
Spanish	46,328	128,181	293,800	584,721	1,154,290	2,236,992
French	369,624	616,410	785,658	1,133,630	1,271,181	2,027,654
Belgian	71,775	112,537	305,384	461,078	696,121	1,294,410
Italian	—	275,688	811,903	884,206	364,321	1,041,354
Russian	163,254	242,673	538,443	470,336	456,621	992,022
American	1,215,225	2,734,381	1,134,215	882,277	272,735	548,186
Austrian	—	316,511	356,701	260,923	100,914	331,364
Other countries	1,132,140	115,187	94,370	106,029	263,070	795,299
Total foreign	3,981,366	8,718,464	9,381,641	13,793,082	16,429,825	27,525,989
Total British and Foreign } Proportion of Foreign	12,020,674	20,837,918	31,624,680	49,678,950	62,836,075	79,858,144
Proportion of British	33·2	41·9	29·7	27·8	26·15	34·47
Proportion of British	66·8	58·1	70·3	72·2	73·85	65·53
	100·0	100·0	100·0	100·0	100·0	100·00

* See note to Table III.

In Table IX I have again placed the Foreign flags in the order of highest tonnage, not in alphabetical order. Norway is again at the top, having kept the highest proportion for four decades. Were Sweden and Norway put together they would show more than any other two flags. Their hold on the wood carrying trade from Sweden and Norway mainly explains this. Germany keeps the second place, as in the last three decades; Sweden is third; Holland becomes fourth; Denmark fifth; Spain follows as sixth; and France as seventh. A large increase is shown by Belgium; the Russian tonnage nearly doubled; the American more than doubled; and the Italian trebled.

The extent to which the work is done by steamers only is shown in:—

TABLE X.—*Showing the Tonnage of Steam Vessels, with Cargoes only, and their Nationalities, Entered and Cleared at Ports in the United Kingdom from and to Foreign Countries and British Possessions, in the Years 1860, 1870, 1880, 1890, and 1900.*

Nationality.	1860.	1870.	1880.	1890.	1900.
British	3,976,852	11,825,002	27,052,131	42,127,266	50,226,821*
German	344,959	399,673	1,149,645	2,523,635	3,940,999
Norwegian	18,115	27,952	138,276	917,105	3,657,750
Dutch	122,838	161,062	875,774	1,645,283	2,648,473
Swedish	16,165	62,556	593,175	826,692	2,356,764
Spanish	37,088	180,119	518,726	1,114,086	2,224,885
Danish	29,652	92,561	536,417	1,029,044	2,136,978
French	42,699	206,602	552,758	984,550	1,745,694
Belgian	58,849	288,095	457,338	692,994	1,292,113
Italian	432	3,765	7,796	67,319	881,663
Russian	20,717	98,561	46,697	145,218	556,433
American	8,809	4,852	139,070	108,558	531,394
Austrian	300	6,704	None	36,833	328,299
Other countries	27,541	19,138	53,253	237,177	754,634
Total foreign	728,164	1,551,640	5,071,925	10,328,494	23,056,079
Total British and foreign	4,705,016	13,376,642	32,124,056	52,455,760	73,282,900
Proportion of foreign	15.5	11.6	15.9	19.69	31.46
„ British	84.5	88.4	84.1	80.31	68.54
	100.0	100.0	100.0	100.0	100.0

* See note to Table III.

The figures change slightly in Table X, when the sailing ships are excluded and the comparisons made with steam vessels. In my last paper I emphasised the increase in the entries and clearances of foreign steamers in the decade—they were 10 millions against 5 millions in 1880; but in 1900 there was a further increase of nearly 13 millions, raising the total from 10 to 23 million tons. Germany is at the top of the foreign nations, followed by Norway, Holland, Sweden, Spain, Denmark, and France. All the entries and clearances increased largely, and the various countries abroad seem to have freely used the old steamers we sold to them in competition with us in our own trade. It is not singular to find therefore that our proportion of the steamer business declined in the decade just ended from 80.31 to 68.54, and that the proportion of foreign tonnage grew from 19.69 to 31.46. It is, however, very satisfactory in one sense. We are often assured that we are the best hated people throughout the near Continental States, but we are helped to believe that such hatred must be

very superficial, or these foreign flags would not in constantly increasing quantities visit our free ports. It would seem rather that in maritime transactions, at any rate, we enjoy the full confidence of all the leading European States in a constantly increasing degree.

TABLE XI.—*Showing the Tonnage of Steam Vessels, British and Foreign, Entered and Cleared at Ports in the United Kingdom, with Cargoes and in Ballast, from and to Foreign Countries and British Possessions, for the Years 1840, 1850, 1860, 1870, 1880, 1890, and 1900.*

Year.	Total Tons of Steam Vessels.	Of which British.	Percentage of British.	Increase per Cent. of British Steam.
1840	791,555	663,048	83	—
'50	2,209,847	1,802,955	81	171
'60	4,967,473	4,186,620	84	132
'70	15,072,331	13,341,058	88	228
'80	37,213,942	30,976,037	83	132
'90	61,685,009	49,023,775	79	58
1900	90,299,441*	60,302,653*	66	23

* See note to Table III.

In Table XI I show the total steamer entries and clearances under all flags, with and without cargoes. The growth of our trade, as well as the part played in it by steam, is thus clearly indicated: nearly 62 millions in 1890 becoming over 90 millions in 1900. The growth of foreign tonnage in our trade is very marked here. But, as I have before pointed out, our compensation lies in the large extent to which the long over-sea voyages of so many States is done by our ships, without making any record in our returns. The foreign tonnage, by its short trips and frequent records, in fact gets credit in excess of its contribution to cargo carrying, while our tonnage does so much work for which it gets no credit at all in the returns.

I only mention these matters as explanations, not by any means in the way of either objection or complaint.

The preponderance of our flag in the former decades was so large, that it was not necessary to emphasise much other work which the figures did not indicate. But I may be permitted again to remark how strikingly the decrease of the British percentage in 1900 to 66 indicates the danger of hasty use of percentages, because the drop in the percentage coincided with an increase of $11\frac{1}{4}$ million tons in the entries and clearances under our flag.

I have perhaps said enough regarding entries and clearances, and the quantities and values of goods carried, and now proceed to give some particulars regarding the British fleet by which our share of the world's work is done.

TABLE XII.—*Showing the Number and Tonnage of Vessels, Steam and Sailing, Registered as belonging to the United Kingdom, for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

Year.	Number.	Net Tonnage.	Rate of Increase.
			Per cent.
1850.....	25,984	3,564,833	—
'60.....	27,663	4,658,687	30·7
'70.....	26,367	5,690,789	22·1
'80.....	25,185	6,574,513	15·5
'90.....	21,233	7,945,071	20·8
1900.....	19,751	9,280,164	16·8

My first observation is that the increase of 11 millions of British entries and clearances was accomplished by a reduced number of vessels. I have repeatedly directed attention in previous papers to the reduction in the number of ships under the British flag. Between 1850 and 1880 the number was nearly stationary; it was 25,185 in 1880, it fell to 21,233 in 1890, and to 19,751 in 1900.

As to how the registered vessels shown in Table XII were divided between steam and sailing vessels is shown in :—

TABLE XIII.—*Showing the Number of Vessels Registered as belonging to the United Kingdom, with their Average Size, distinguishing Steam from Sailing, for the Years 1850, 1860, 1870, 1880, 1890, and 1900.*

Year.	Steamers.				Sailing Vessels.			
	Number of Steamers.	Net Tonnage.	Increase.	Average Size.	Number of Vessels.	Net Tonnage.	Increase.	Average Size.
			Per cent.				Per cent.	
1850....	1,187	168,474	—	140	24,797	3,396,359	—	130
'60....	2,000	454,327	170	227	25,663	4,204,360	23·7	164
'70....	3,178	1,112,934	145	350	23,189	4,577,855	8·8	198
							Decrease.	
'80....	5,247	2,723,468	144	518	19,938	3,851,045	15·8	193
'90....	7,381	5,037,666	85	682	13,852	2,907,405	24·5	210
1900....	9,178	7,202,509	43	785	10,573	2,077,655	28·5	196

By Table XIII, it appears that while the number of sailing vessels fell from 19,938 in 1880, and 13,852 in 1890, to 10,573 in 1900, the number of steamers increased from 5,247 in 1880, and 7,381 in 1890, to 9,178 in 1900, indicating a change in the composition of our fleet of the utmost importance. Sailing vessels fell nearly half their tonnage, from nearly 4 millions in 1880 to little over 2 million tons.

Steam vessels increased from less than $2\frac{3}{4}$ million tons to nearly $7\frac{1}{4}$ million tons, and the average size of sailing vessels has

fallen under 200 tons, while that of steamers has increased to nearly 800 tons. Altogether, the number of vessels under our flag is less than at any period during the last half century. We had 25,984 in 1850, and 19,751 in 1900.

Mere numbers, however, have in this case to be corrected by the size of the vessels, and whether they are sailing or steam. The average size of sailing vessels is decreasing, as well as their number. Both the size and number of steam vessels have largely increased. It may indeed be said roundly that the building of sailing vessels has ceased, except for very small coasting purposes.

The result is that our effective carrying power (reckoning one ton of steam as equal to three tons of sail tonnage—I retain the opinion expressed in my previous paper that this allowance is inadequate) had grown to nearly 24 million tons in 1900, against 18 million tons in 1890, 12 millions in 1880, 8 millions in 1870, and $5\frac{1}{2}$ millions in 1860. In the last decade of 1891-1900 the effective tonnage increase is 33 per cent., and compared with 1880 it has doubled. It is only because we have lived into a pessimistic time, in which it is the fashion to depreciate whatever we do ourselves, and to exaggerate systematically what other flags do, or say they are going to do, that we hear warnings of the decadence of our flag; but in this Society, where comparative figures get a fair chance of appreciation, I feel sure that no symptoms of decadence will be discovered in the figures I have just repeated. This conclusion will be confirmed when I now submit Table XIV, showing the proportion of entries and clearances in other States done by the national flag, by the British flag, and by all other foreign flags.

The proportion of Russian trade done by Russian ships has slightly improved. It was 7·3 per cent. in my last paper, it had grown to 10·3 in 1898, the last year for which I could obtain the record. Very probably it is a little more now. During the last decade chiefly, the volunteer fleet came into existence; it was built in English ports, and stands in a highly privileged position to the Government, which besides other advantages pays all the Suez canal dues on its voyages out and home. The large traffic between the Black Sea ports and the new Russian ports in the Far East has given it constant employment. Some of the vessels have great speed, and are capable of being made into formidable vessels of war in case of need. Though they mark an improved position in the proportion of entries and clearances under the Russian flag in Russian ports, it is doubtful whether they could be run at all as common cargo ships, apart from the privileged position accorded to them by the Russian Government. It does not appear from Table XIV that ordinary trading vessels under the Russian flag

TABLE XIV.—*Total Tonnage of Vessels, Steam and Sailing, Entered and Cleared, with Cargoes and in Ballast, in the Foreign Trade of the undermentioned Countries.*

Year.	Country.	Under National Flag.	Percentage of Total Tonnage.	Under British Flag.	Percentage of Total Tonnage.	Under other Flags.	Percentage of Total Tonnage.	Total Tonnage.	Percentage of Total Tonnage under all Flags other than National.	Same Percentage in my Paper for 1890.	Same Percentage in my Paper for 1880.
1900....	United Kingdom	—	—	62,710,836	63.7	35,812,857	—	98,523,693	36.3	—	—
1898....	Russia	1,794,749	10.3	7,812,463	44.7	7,864,702	45.0	17,471,914	89.7	92.7	86.5
'99....	Norway	4,218,940	66.1	765,729	12.0	1,396,219	21.9	6,390,888	33.9	36.9	30.0
'99....	Sweden ...	6,271,089	38.3	1,966,768	12.0	8,146,940	49.7	16,384,747	61.7	66.3	64.6
'99....	Germany	13,383,514	47.5	8,424,687	29.9	6,371,625	22.6	28,179,823	52.5	57.6	62.4
'99 ..	Holland	4,697,251	25.0	8,389,483	44.6	5,739,186	30.4	18,825,920	75.0	69.5	69.3
1900 ..	Belgium	2,765,166	16.3	7,564,392	44.6	6,648,098	39.1	16,977,646	83.7	—	—
1899....	France	10,137,277	28.4	15,350,161	43.0	10,205,374	28.6	35,692,812	71.6	63.9	72.0
'99....	Portugal	1,247,648	7.3	9,811,570	57.3	6,069,497	35.4	17,128,715	92.7	—	—
'99 ..	Italy	19,028,051	48.8	9,265,791	23.8	10,663,412	27.4	38,957,254	51.2	75.2	61.0
1900....	United States* ..	7,980,353	16.9	24,888,543	52.8	14,287,359	30.3	47,151,255	83.1	77.9	78.7

* Exclusive of lake trade between United States and Canada.

have increased to any considerable extent. The entries and clearances in Russian ports under foreign flags in 1889 were 92·7: in 1898 they were still as high as 89·7. The trade for 1898 amounted to nearly $17\frac{1}{2}$ million tons. The British proportion of this last figure was 44·7 per cent., that of all other foreign flags was 45 per cent.; in 1889 our proportion was 55·1 per cent., and the proportion of all other foreign flags was 37·6 per cent. No doubt this marks a considerable growth in the figure of other foreign flags in the Russian trade. Probably the change is largely attributable to the bad harvests experienced by Russia in recent years. She has had less to export, the entries and clearances, which were nearly $17\frac{1}{2}$ millions in 1898, were 18 millions in 1897, 19 millions in 1895, and nearly 20 millions in 1894. The fact remains that of the reduced trade we did 44·7 per cent., and all other foreign flags together 45 per cent.

Norway shows a larger proportion of entries and clearances done by its own flag compared with 1889, and that the British proportion fell from 16·3 in that year to 12 per cent. in 1899. The proportion of foreign tonnage in the Swedish trade fell from 66·3 to 61·7 per cent. It would seem that this was mainly at our expense, for while the proportion of other flags in Swedish ports was 44·2 in 1889, in 1899 this figure had improved to 49·7, whereas our proportion in 1889 was 22·1, and in 1899 only 12 per cent.

There are economic explanations for this. To whatever extent the Swedish trade requires small ships, we have practically given it up, and the Scandinavian nations have been the chief buyers of the smaller and older class of steamers which it has suited us to sell; their work in the Swedish trade has largely contributed to produce the above changes in the figures.

The trade of Germany in 1889 was 28 million tons, of which $47\frac{1}{2}$ per cent. was done by the German flag, nearly 30 per cent. by the British flag, and 22·6 by other flags. The position of the German flag in its own trade is improved, as one would expect. In my Paper for 1880 it was done by foreign tonnage to the extent of 62·4, in the next decade by 57·6, and in the last decade the proportion of foreign fell to $52\frac{1}{2}$ per cent. The great efforts which Germany is now putting forth to increase its oversea carrying, and the sympathetic patronage and assistance given by the German Government to these efforts, may very likely have further improved these German figures by this time. Maritime efforts seem to be more appreciated by some rulers and governments than by others.

Holland appears to be declining in its maritime position, only 25 per cent. of its entries and clearances were under the Dutch flag, 44·6 were under the British flag, and 30·4 under other

foreign flags; this latter figure compares with 17·5 in my last paper, and largely explains the fall in the British proportion from 52 in 1889 to 44·6 in the decade under review. The explanation is not easy, especially as the trade appears to have increased in the decade from nearly 11 million to nearly 19 million tons. The proportion under the national flag has been declining throughout the half century. It was 41·8 in 1850, and 25 per cent. in 1899; while foreign tonnage, which was 58·2 in 1850, increased with almost constant progression to 75 per cent. in 1899.

Belgium, with about the same trade as Holland, did less under its flag than in 1850. The decline in the proportion has been constant: in 1890 it was 19·0 per cent., and in 1900 only 16·3 per cent. In both Holland and Belgium there was more tonnage employed under the British flag than under all other foreign flags put together.

The French figures are very interesting. The total entries and clearances in 1899 were 35,692,812 tons, a fair increase during the decade from 28,967,848 tons in 1890. The French proportion of this tonnage was 31·9 per cent. for 1890, and 28·4 per cent. for 1899. It varied very little throughout the decade, but generally downwards. The British proportion of entries and clearances in 1889 was represented by 40·6 per cent.; in the larger trade of 1899 it was 43 per cent. In my Paper for 1880 the percentage of all foreign flags in the French trade was 72 per cent.; in the next decade, perhaps helped by bounties, it fell to 63·9 per cent., but by 1899 the proportion of foreign had again grown to 71·6 per cent. Throughout the last decade a large number of sailing vessels appear to have been built in France, including some large vessels; but the average size is so small, that the bulk must have been for petit cabotage, from which, as well as from the Algerian coast, foreign ships are excluded. The average size of the sailing ships built in 1900 appears to be only 70 tons, and the effect on the proportion of French tonnage in the French entries and clearances being what I have stated, viz., only 28·4 per cent. in 1899, against 31·9 per cent. in 1890, it is difficult to see what benefit the French Government and people have derived from the large sums paid in postal subsidies, and in bounties for construction and navigation. It would appear that the British tonnage in French ports exceeds by one-half all other foreign tonnage put together, and by about the same proportion does it exceed the tonnage under the national flag. If one could be assured that this would necessarily and always be the result of bounties, it would of course suit us that they should be extended in other States. As affecting France, for whose supposed interest they are given, they are certainly remarkable.

On the Italian figures it is difficult to say anything. A change in the method of making the return appears to have been made in 1897, by which the entries and clearances were increased from 17 million tons in 1896 to $36\frac{1}{2}$ million tons in 1898, and to 39 million tons in 1899. As I am unacquainted with any facts to justify these figures, I say nothing about them pending some explanation or verification.

The United States have been much in evidence lately—buying fleets, and indicating what an important part they are about to play in ocean carrying. What can be said against such a frankly disclosed intention? They were once great maritime carriers; they were formidable competitors of ours; they taught us new ideas regarding the size and forms of ships, and we—not too proud to learn—bettered the instruction. They had virgin forests at their disposal. In our competition with their wooden sailing ships we were beaten. In 1850 they did nearly 60 per cent. of the entries and clearances in the United States ports; by 1860 their proportion was 70·8 per cent. Then two things happened, which not only stopped their progress, but put the American flag into a very subordinate position for the rest of the century. The Southern rebellion led to the loss of their fleet, either by destruction, by capture, or by sale. We had in the meantime found it possible to build ships of iron and to propel them by steam. Hence, by 1870, their proportion in American ports fell from 70·8 per cent. to 38·2 per cent., by 1880 it further fell to 18·9 per cent., in 1890 it was only 22·5 per cent., and so lately as 1900 it was 21·9 per cent.

It is a remarkable fact that notwithstanding the large increase in the total tonnage entered and cleared in American ports since 1860, the amount of entries and clearances under the American flag remains practically the same now as it was forty years ago.

The figures are as follows:—²

Tonnage Entered and Cleared with Cargoes and in Ballast in the Foreign Trade of the United States.

Year.	Total Tonnage.	Tonnage under American Flag.	Percentage of Total Tonnage.
1860.....	17,065,125	12,087,209	70·8
1900.....	56,444,146	12,344,570	21·9

² These figures, as well as those on which the foregoing percentages are based, include the lake trade between the United States and Canada, as the figures exclusive of this trade are not available for the earlier years. It will be observed, however, that the figures in Table XIV are exclusive of the lake trade.

The percentage of tonnage in the United States ports which was not national, was, in my Paper for 1880, 78·7 per cent.; in 1890, 77·9 per cent.; and in 1900, 83·1 per cent. The British proportion was, in 1880, 51·7 per cent.; in 1890, 52·8 per cent.; and in 1900, 52·8 per cent. Very little variation.

This table shows, though still only in some degree, the work done by British vessels in the trade of foreign countries, which must be allowed for somehow before the relative position of our flag can be appreciated. It also furnishes an important set-off to the figures of foreign tonnage in the transactions of our ports. I may add that these operations by our flag in and between ports abroad are the main source of Sir R. Giffen's "Invisible Export," and a remarkable measure of the degree in which we trade internationally.

It will be observed that the proportion of entries and clearances under the British flag, and under the national flag in the countries stated, was as follows:—

	Under the British Flag.	Under the National Flag.
	Per cent.	Per cent.
Portugal	57·3	7·3
United States.....	52·8	16·9
Russia	44·7	10·3
Holland	44·6	25·0
Belgium	44·6	16·3
France	43·0	28·4
Germany.....	29·9	47·5
Italy	23·8	48·8
Norway	12·0	66·1
Sweden	12·0	38·3

Table XV indicates some remarkable changes since 1890. It excludes small ships, and, on the authority of Lloyd's Register Book, gives an account of the size and tonnage of the merchant navies of the various countries of the world, distinguishing steam vessels from sailing. In 1890 the British Empire had 8½ million tons, with a percentage of 60·5 steam. In 1900 this had grown to 9½ million tons, with a percentage of 77·9 steam. The United States tonnage increased nearly 50 per cent., and its proportion of steam had more than doubled. Germany had a similar increase in tonnage, and its increased proportion of steam was under 25 per cent. France had increased only from 730,464 tons to 840,674 tons in 1900, and the proportion of steam fell from 67·7 to 64·5.

The tonnage under the Norwegian flag fell from 1,516,069 tons to 1,343,252, but the proportion of steam grew from 11·7 to 34·8, it nearly trebled, in fact.

The proportion of steamer tonnage for the enumerated nations gives an average of 67·5, against the British average of 77·9.

MERCHANT NAVIES OF THE WORLD.

TABLE XV.—*The Number and Tonnage of Vessels of 100 Tons* and upwards belonging to each of the several Countries of the World, as recorded in "Lloyd's Register Book."*

Country.	1890.						1900.					
	Steamers.		Sailing Vessels.		Total.		Steamers.		Sailing Vessels.		Total.	
	Number.	Net Tonnage.	Number.	Net Tonnage.	Number.	Net Tonnage.	Number.	Net Tonnage.	Number.	Net Tonnage.	Number.	Net Tonnage.
United Kingdom ...	5,574	4,874,912	3,593	2,467,212	9,167	7,342,124	7,020	7,072,401	1,894	1,727,687	8,914	8,800,088
Colonies	839	281,903	2,075	894,040	2,904	1,175,943	910	378,595	1,014	381,477	1,924	763,402
Total British.....	6,403	5,156,815	5,668	3,361,252	12,071	8,518,067	7,930	7,451,326	2,908	2,112,164	10,838	9,563,490
United States	416	363,985	2,856	1,306,488	3,272	1,670,473	932	1,031,216	2,203	1,295,305	3,135	2,326,521
Austro-Hungary	180	86,930	238	118,482	368	205,412	214	240,868	56	23,613	270	269,421
Belgium	77	72,958	8	4,104	85	76,162	115	111,624	2	420	117	112,044
Denmark	217	98,664	591	120,993	808	219,657	369	240,599	433	106,738	802	347,337
Holland	163	147,031	382	161,762	544	308,793	289	307,574	117	63,068	406	370,642
France.....	526	494,960	854	235,504	1,380	730,464	662	542,305	552	298,369	1,214	840,674
Germany.....	741	638,065	1,135	640,400	1,876	1,278,465	1,209	1,344,605	501	490,114	1,710	1,834,719
Italy	213	190,192	1,343	515,942	1,555	706,131	312	343,020	864	443,306	1,176	786,326
Japan	165	88,024	124	33,123	289	121,147	484	393,393	583	36,370	1,066	389,673
Norway	395	178,383	2,974	1,337,686	3,369	1,516,069	806	467,123	1,574	876,129	2,380	1,343,252
Russia.....	236	106,155	945	271,265	1,181	377,420	496	202,277	750	251,495	1,246	543,682
Spain.....	389	270,224	494	119,094	1,883	390,318	423	116,882	175	43,540	597	169,431
Sweden	471	130,696	998	204,183	1,470	434,879	678	266,032	755	218,722	1,433	478,745
Other countries.....	568	267,332	2,579	645,101	3,147	912,433	980	593,828	1,052	351,098	2,032	554,926
Total	11,108	8,295,514	21,190	9,166,279	32,598	17,461,793	15,898	13,856,513	12,524	6,674,370	28,422	20,530,883
												675

* In the case of steamers, 100 tons gross and upwards; in the case of sailing vessels, 100 tons net and upwards.

TABLE XVI.—*Number and Tonnage of all Vessels of 100 Tons and upwards Built by each of the several Countries of the World during 1890 and 1900, as recorded in "Lloyd's Register Book."*

	1890.					
	Steam Vessels.		Sailing Vessels.		Total.	
	Number.	Gross Tons.	Number.	Net Tons.	Number.	Tons.
United Kingdom	632	1,076,220	84	121,015	716	1,197,235
Colonies	16	7,185	92	37,355	108	44,540
Total British.....	648	1,083,405	176	158,370	824	1,241,775
United States	30	58,903	145	89,975	175	148,878
Austro-Hungary	5	1,352	2	661	7	2,013
Denmark	12	8,685	9	1,500	21	10,185
France	14	27,666	18	6,896	32	34,562
Germany	56	87,382	12	15,083	68	102,465
Greece	—	—	32	8,704	32	8,704
Holland and Belgium	20	23,376	4	2,757	24	26,133
Italy	1	345	43	19,297	44	19,642
Japan	—	—	—	—	—	—
Norway.....	36	17,170	20	9,983	56	27,153
Russia	2	979	15	4,073	17	5,052
Sweden	33	12,692	—	—	33	12,692
Other countries	23	6,586	6	969	29	7,555
Total	880	1,328,541	482	318,268	1,362	1,646,809

	1900.					
	Steam Vessels.		Sailing Vessels.		Total.	
	Number.	Gross Tons.	Number.	Net Tons.	Number.	Tons.
United Kingdom	645	1,452,802	6	6,605	651	1,459,407
Colonies	16	6,570	31	5,498	47	12,068
Total British	661	1,459,372	37	12,103	698	1,471,475
United States	93	192,560	104	105,371	197	297,931
Austro-Hungary	12	14,945	—	—	12	14,945
Denmark	9	16,163	11	1,831	20	17,994
France	13	31,094	52	70,224	65	101,318
Germany	70	203,179	20	8,671	90	211,850
Greece	—	—	—	—	—	—
Holland and Belgium	25	31,288	25	8,505	50	39,793
Italy	13	47,149	24	7,233	37	54,382
Japan	14	13,335	—	—	14	13,335
Norway.....	35	28,949	1	269	36	29,218
Russia	2	250	35	6,149	37	6,399
Sweden	17	5,447	5	729	22	6,176
Other countries	2	2,608	5	1,514	7	4,122
Total	966	2,046,339	319	222,599	1,285	2,268,938

Note.—The figures for steamers are based on the gross tonnage, and for sailing vessels on the net.

How the various flags stood regarding the number of ships built in 1890 and 1900 is shown by Table XVI, which excludes vessels under 100 tons, and is taken from Lloyd's Registry. The United States and Germany doubled their proportion. France nearly trebled its tonnage; this sounds large, but the increase was only from 34,562 tons to 101,318 tons, and this chiefly in sailing vessels, of which the bounties are the explanation. Italy nearly trebled its production, chiefly in steam—also largely explained by bounties. Of the total production in 1900, viz., 2,268,938 tons, the British portion is 1,471,475, or 64 per cent., of which 99·2 per cent. was steam.

TABLE XVII.—*Steel and Iron Vessels Built in the United Kingdom, and Classed by "Lloyd's Register," during the Years 1880, 1890, and 1900.*

	Steel.				Iron.			
	Steam.		Sailing.		Steam.		Sailing.	
	Number.	Gross Tons.	Number.	Gross Tons.	Number.	Gross Tons.	Number.	Gross Tons.
1880	19	31,905	2	1,342	313	411,658	29	35,801
'90	469	921,491	56	107,578	91	39,226	4	5,294
1900	508	1,130,266	6	5,893	71	14,229	—	—

I pointed out in my last paper how rapidly steel was replacing iron in the construction of ships. The transformation has become still more complete during the last ten years. Out of a total of 579 steel and iron steamers classed by Lloyd's last year, only 71 were of iron, and no iron sailing vessels were classed at all.

REMOVALS FROM THE REGISTERS.

TABLE XVIII.—*Showing the Tonnage removed from the Registers of the United Kingdom in each Year from 1891 to 1900.*

Year.	Steam.		Sail.		Total Removed from the Registers.	
	Vessels.	Net Tons.	Vessels.	Net Tons.	Vessels.	Net Tons.
1891.....	321	241,564	678	156,039	999	397,603
'92.....	280	182,594	602	165,391	882	347,985
'93.....	318	229,331	633	168,564	951	397,895
'94.....	345	278,365	595	147,903	940	426,268
'95.....	406	346,514	618	178,465	1,024	524,979
'96.....	396	325,394	604	189,127	1,000	514,521
'97.....	435	365,412	647	190,664	1,082	556,076
'98.....	483	432,587	683	226,722	1,166	659,309
'99.....	514	458,321	717	171,137	1,231	629,458
1900.....	531	460,683	706	182,088	1,237	642,771
Total	4,029	3,320,765	6,483	1,776,100	10,512	5,096,865
Average	402	332,076	648	177,610	1,051	509,686
Average of the decade 1881-90 }	310	179,199	969	239,100	1,279	418,299

In my last paper I showed that during the decade 1881-90 an average of 969 sailing ships and 310 steamers disappeared from our registers every year. The pace slackened during the decade 1891-1900, but though the total number was less, viz., an average of 1,051 instead of 1,279, and only 648 sailing vessels instead of 969, the number of steamers that disappeared rose from an annual average of 310 to 402, and the total tonnage that went off increased from an annual average of 418,299 to 509,686 tons. No other State added half as much to its registers as went off our registers during the decade. Of course some of the vessels that disappeared were wrecked, some were broken up, but a large number were sold to foreigners, which partly explains the increases observed in the steamer tonnage of some flags, especially the Scandinavian, Spanish, and Italian. During the decade we added to the registers 6,431,958 tons, and there were from all causes removed from our registers 5,096,865 tons.

What shall we say? Is this the proof of decadence? I mark it rather as a sign of health and strength, courage, and enterprise in this great British industry. Without saying anything against the tonnage that we sold, it is enough to add that it was replaced by larger and more competent vessels, so that to the flag this loss was gain; and the competency to make it was the very best sign of the intelligent enterprise of those who made it.

WRECKS AND COLLISIONS.

I show separately the wrecks during the decade by:—

TABLE XIX.—*Showing the Number of Total Wrecks during the Years stated which occurred to British and Foreign Vessels on or near the Coasts of the United Kingdom, and the Number of Total Losses arising from Collision included therein.*

	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	Average of the Ten Years 1891-1900.	Average of the Ten Years 1881-90.
Wrecks in- volving total loss	427	434	249	489	434	323	430	358	376	356	387.6	462.8
Total losses from col- lisions in- cluded in the above figures	83	72	60	72	78	73	70	79	67	75	72.9	73.0

The satisfactory fact is shown in this table that the great reduction in wrecks on our coasts which characterised the decade 1881-90, made further progress between 1891 and 1900. The average of the former was 462.8; this figure fell in the last decade to 387.6.

In the total losses arising from collisions I regret to say there is no similar reduction. In fact, the figures for the two decades are nearly the same: 73·0 for 1881-90, only fell to 72·9 in 1891-1900. I stated my views on this subject fully in my last paper. The collisions continue. So does the inoperative system of penalties. These are often very heavy, always uncertain, and they are inflicted on innocent persons who do not cause the collisions, but suffer vicariously for the faults of those whose competency for their duties the Board of Trade has certified. I am not sanguine of any further reduction in the number of collisions until this system is radically changed. So long as the persons whose greater care could avoid collisions suffer next to nothing, and innocent persons pay the damages, and lawyers reap rich harvests out of the litigation, it seems probable that both the collisions and the litigation will continue. Possibly some day we may be wiser. When penalties are inflicted only on those who are to blame for collisions, and are of a character which need not be defeated by insurance, there will be fewer collisions and less litigation. In any case, it must be noted that in spite of all the Board of Trade regulations to prevent collisions, and the great improvements which have taken place in our maritime affairs in every other direction, in this serious matter there is no improvement. I record the fact with much regret.

MEN EMPLOYED.

TABLE XX.—*Showing the Number of Men Employed in Steam and Sailing Vessels in the Home, Foreign, and Fishing Trades, belonging to the United Kingdom, Isle of Man, and Channel Islands, and distinguishing British from Foreign Seamen.*

Year.	Number of Men Employed in		Total.	Of which British.	Foreign.
	Steamers.	Sailing Vessels.			
1850....	8,700	142,730	151,430	—	—
'60....	26,105	145,487	171,592	157,312	14,280
'70....	48,755	147,207	195,962	177,951	18,011
'80....	84,304	108,668	192,972	169,692	23,280
'90....	129,366	84,008	213,374	186,147	27,227
1900...	161,170	50,255	211,425	174,532	36,893

It was certain that the number of men employed in sailing vessels would show a very large reduction, for the simple reason that the number of sailing vessels is so largely reduced. In 1870 we had 147,207 men employed in sailing ships; in 1900, only 50,255. In steamers in 1870 we had 48,755 men employed; in 1880, 84,304; in 1890, 129,366, and in 1900, 161,170. Taking the number of men employed in sailing and steam together, it will be seen that the total has fallen from 213,374 in 1880 to 211,425 in 1900. This reduction is explained by the large decrease in the

number of sailing vessels already alluded to, and also by the increase in the size of steamers. These figures exclude Lascars. Adding Lascars, the total number of men employed in 1900 was 247,448. The proportion of foreigners employed to British (Asiatics excluded) was in 1870, 9·2 per cent.; in 1880, 12·1 per cent.; in 1890, 12·7 per cent.; and in 1900, 17·4 per cent. This proportion would be less if Asiatics were included as British seamen. If, on the other hand, the Asiatics are included as foreigners, the proportion would be larger. As to the proportion of foreigners in our vessels, however regrettable it may be, I do not see the grounds either for the surprise or anxiety which finds expression in newspapers and reviews. Having regard to the large proportion of the over-sea carrying trade done by our flag for foreign States, it ought not to be a matter of surprise that the seafaring people of such States get some employment in our ships, especially as the wages we pay are higher, and the food and accommodation better than in foreign vessels. Of course in one respect it would suit us better to have only British subjects in our ships, but we live and trade so internationally as to make it quite impossible, even if it were reasonable, to object to foreign labour. If we decided that our ships should carry only for our own country and its colonies and dependencies, the tonnage under our flag would be far too much, and would certainly undergo large and immediate reduction. That would be far more against both our interest and security than the employment of some foreign labour incidental to our extensive trade in foreign ports. This fact, indeed, is a mere consequence of the freedom of our trade. Moreover, to look at the matter practically, with the pressure on our labour market for the last three years, where would the 70,000 men be found in the United Kingdom if we suddenly decided to employ no foreigners or Lascars in British ships? We have no such amount of able-bodied labourers to spare from other industries. It is, moreover, becoming clearer that during any naval war in which we might be engaged, our maritime trade would be so reduced that, while the war lasted, the bulk of the foreign labour could be dispensed with. At the same time all that is possible to do to keep up British labour on board British ships should be done, so as to keep the maritime spirit of the nation active. In this connection it is satisfactory to observe that some practical steps are being now taken to increase the number of apprentices, to which efforts I wish the greatest success. It is not, however, a matter in which Parliament can do anything. The regulations are too numerous already; as these increased, apprentices became fewer, and the number of foreigners in our service increased. The time may rather have come to consider whether much of this well-intended

but mischievous interference between master and servant should not be repealed. It would certainly not be tolerated between any class of masters and servants on shore, and does not seem to have answered in relation to employment at sea.

MORTALITY AT SEA.

TABLE XXI.—Deaths of Seamen reported as having occurred at Sea from Various Causes in Merchant Vessels Registered in the United Kingdom, Compared with the Number of Seamen required to Man the Vessels which were Employed during each of the Years stated.

Year.	Steam Vessels.								
	Total Number of Seamen Employed, including Masters.	Deaths by Wrecks and Casualties.		Deaths by Accidents other than Wrecks or Casualties.		Deaths by Disease, &c.		Total.	
		Number.	Per- centage.	Number.	Per- centage.	Number.	Per- centage.	Number.	Per- centage.
1891	122,342	374	0'31	137	0'11	267	0'22	778	0'64
'92	126,728	302	0'24	164	0'13	372	0'29	838	0'66
'93	127,703	292	0'23	103	0'08	210	0'16	605	0'47
'94	128,479	572	0'44	164	0'12	284	0'22	1,020	0'79
'95	129,739	304	0'23	158	0'12	274	0'21	736	0'57
'96	129,089	416	0'32	149	0'12	266	0'20	831	0'64
'97	131,145	369	0'28	204	0'16	263	0'20	836	0'64
'98	131,156	203	0'15	120	0'09	240	0'18	563	0'43
'99	133,471	607	0'45	157	0'12	249	0'19	1,013	0'76
1900	136,155	374	0'27	127	0'09	339	0'25	840	0'62
Average of the ten years }	—	381	0'29	148	0'11	276	0'21	806	0'62

Year.	Sailing Vessels.								
	Total Number of Seamen Employed, including Masters.	Deaths by Wrecks and Casualties.		Deaths by Accidents other than Wrecks or Casualties.		Deaths by Disease, &c.		Total.	
		Number.	Per- centage.	Number.	Per- centage.	Number.	Per- centage.	Number.	Per- centage.
1891	62,154	800	1'29	228	0'37	203	0'33	1,231	1'98
'92	60,765	700	1'15	225	0'37	220	0'36	1,145	1'88
'93	61,325	528	0'86	197	0'32	152	0'25	877	1'43
'94	59,188	607	1'03	245	0'41	164	0'27	1,016	1'71
'95	56,754	583	1'03	221	0'39	182	0'32	986	1'74
'96	53,825	634	1'18	228	0'42	173	0'32	1,035	1'92
'97	50,858	408	0'80	179	0'35	135	0'27	722	1'42
'98	47,286	246	0'52	146	0'31	160	0'34	552	1'17
'99	43,445	425	0'98	129	0'30	149	0'34	703	1'62
1900	41,017	303	0'74	104	0'25	128	0'31	535	1'30
Average of the ten years }	—	523	0'96	190	0'34	166	0'31	880	1'61

Note.—Fishing vessels and their crews, yachts and their crews, as well as Lascars, are entirely excluded from the above figures.

The records on this very important subject for the decade are satisfactory. Since the angry controversies on the subject it has been much more scientifically treated. It is quite understood now, that before coming to any conclusion as to the loss of life from sea casualties, we must deduct from the deaths which happen at sea those which arise from disease and accidents to which men are exposed wherever they are employed, whether at sea or on land. The public returns are constructed so as to enable this to be easily done. If there were no deaths from wrecks or sea casualties, our seafaring population would, if employed on shore, yield the ordinary quota of deaths. The variety of climate to which seamen are exposed, the hardships and exposure to which night and day occupation renders them liable, and the dissipations in which they sometimes indulge, have also to be considered. It happens also that the figures of a particular year in a decade are affected by specially disastrous storms as in 1894 and 1899.

But the question which the statistician or the philanthropist asks is the simple one—What is the general result? And I answer, unhesitatingly, that the table shows improvement. With the exception of the two years named, the number of steamer deaths by wreck and casualties was low. The highest was 0·45 per cent. of those employed in 1899, and 0·44 per cent. in 1894, but one year in the decade it is as low as 0·15 per cent., and the average is 0·29 per cent. The deaths from the same causes in sailing vessels were highest in 1891, 1·29 per cent., and lowest in 1898, 0·52 per cent. The average for the decade was 0·96 per cent. It still seems to be true that the loss of life on board sailing vessels from wreck and casualty is three times that on board steamers. Both as regards steam and sailing vessels unquestionably greater care is exercised by captains and officers; food conditions are all better than they used to be; and having regard to the fine air in which a sailor may live, his life chance ought to be more than equal to that of most labourers on shore.

I have given the best information in my power as regards the loss of life. These figures have to be taken always with some qualifications, so difficult is it to be certain that the area on which the ratio is calculated is correct, and that the lives exposed to risk are so exposed continuously; as a matter of fact they are not. But as these qualifications applied equally to other decades, the comparative instruction which results from the figures is probably very near the truth. Of course, if a quarter of a million human beings are employed anywhere, such a number would yield its quota of deaths from accident, disease, &c., apart from accidents directly arising from the particular employment. The vessels are much better than formerly, the accommodation for the crews is better, food is much

better, and the sanitary arrangements are better. No doubt there is room for improvement, but so there is in all our towns, if the current literature on the Housing Question is half true.

I am confirmed in this view by a wider consideration. Marine underwriters are probably the most acute judges as to whether sea risks are increasing or diminishing. I have made inquiry as to premiums charged on leading classes of risks in 1880, 1890, and 1900. Only as a sample I give the following table:—

REDUCTION IN PREMIUMS OF MARINE INSURANCE.

TABLE XXII.—*Rates of Premium by the best Vessels on various Voyages as under*

	Premium in 1880.	Premium in 1890.	Fall per Cent.	Rise per Cent.	Premium in 1900.	Fall since 1890.	Rise since 1890.	Total Fall.	Total Rise
<i>Specie per steamers.</i>									
From Mexico	s. d. 10 —	s. d. 6 —	40	—	s. d. 5 —	16	—	50	—
„ New York	3 4	2 —	40	—	1 3	37	—	62	—
„ Australia.....	12 6	5 9	54	—	4 6	22	—	64	—
„ South Africa	7 6	4 —	47	—	2 6	38	—	66	—
To Rio Janeiro	5 —	3 —	40	—	2 6	16	—	50	—
„ Bombay	5 —	3 —	40	—	2 6	16	—	50	—
Average fall.....	—	—	43	—	—	24	—	57	—
<i>Goods f.p.a. per steamers.</i>									
To St. Petersburg (summer)	10 —	6 8	33	—	6 8	—	—	33	—
„ Mediterranean	10 —	6 —	40	—	6 —	—	—	40	—
„ Cape ports	15 —	7 6	50	—	7 6	—	—	50	—
„ Bombay	7 6	6 3	17	—	5 —	20	—	33	—
„ Hong Kong	17 6	12 6	29	—	7 6	40	—	57	—
„ Melbourne	12 6	8 9	30	—	7 6	14	—	40	—
„ New York.....	6 8	5 —	25	—	4 —	20	—	40	—
„ West Indies	10 —	10 —	—	—	6 8	33	—	33	—
„ Montreal (summer).....	7 6	6 8	11	—	7 6	—	12	—	—
Average fall	—	—	26	—	—	12	—	36	—
<i>Goods f.p.a. per steamers.</i>									
From St. Petersburg (sum'r)	10 —	7 6	25	—	6 8	11	—	33	—
„ Mediterranean	7 6	6 —	20	—	6 —	—	—	20	—
„ Cape ports	12 6	10 —	20	—	6 8	33	—	47	—
„ Bombay	15 —	6 3	58	—	6 3	—	—	55	—
„ Hong Kong	27 6	12 6	55	—	10 —	20	—	63	—
„ Melbourne	20 —	10 —	50	—	7 6	25	—	62	—
„ New York	7 6	5 —	33	—	5 —	—	—	33	—
„ West Indies	12 6	10 —	20	—	10 —	—	—	20	—
„ Montreal (summer)	6 8	7 6	—	12	9 6	—	27	—	42
Average fall	—	—	30	—	—	7	—	32	—

TABLE XXII *Contd.*—*Rates of Premium by the best Vessels on various Voyages.*

	Premium in 1880.		Premium in 1890.		Fall per Cent	Rise per Cent.	Premium in 1900.		Fall since 1890.	Rise since 1890.	Total Fall.	Total Rise.
	s.	d.	s.	d.			s.	d.				
<i>Sailers.</i>												
Wool from Melbourne	30	—	20	—	33	—	25	—	—	25	16	—
Nitrate „ W. Co. S. Am....	40	—	27	6	31	—	32	6	—	18	19	—
Jute „ Calcutta	30	—	30	—	—	—	45	—	—	50	—	50
Grain „ Frisco	40	—	30	—	25	—	35	—	—	16	12	—
Goods to Melbourne	20	—	17	6	17	—	22	6	—	29	—	12
Average fall.....	—		—		21	—	—		—	28	—	3½
<i>Cargo steamers.</i>												
Cotton—Galveston to U.K.	15	—	15	—	—	—	20	—	—	33	—	33
Rice—Rangoon to U.K.	25	—	12	6	50	—	11	3	10	—	55	—
Coals—Tyne to Genoa	12	6	7	6	40	—	7	6	—	—	40	—
Grain—Odessa to U.K. (sum'r)	12	6	10	—	20	—	10	—	—	—	20	—
„ „ „ (winter)	25	—	20	—	20	—	20	—	—	—	20	—
„ New York to U.K.	15	—	10	—	33	—	10	—	—	—	33	—
Average fall.....	—		—		27	—	—		—	—	23	—
„ rise	—		—		—	—	—		—	4	—	—

In every trade except one there is a large reduction in steamer premiums. The exception is in the St. Lawrence risks. On sailing ships there has been very little reduction from the premiums current twenty years ago, and there is a rise in the premiums current in 1890. Generally it may be said that the decline in steamer premiums from 1880 to 1900 on specie was about 57 per cent., and on goods by liners about 34 per cent. On goods by ordinary cargo steamers there was a fall between 1880 and 1890 of about 27 per cent., but between 1890 and 1900 there was very little change. It is said, and no doubt it is true, that some of this decline in insurance premiums is due to increased competition between underwriters; but after due allowance is made for that, it seems to confirm the lesson taught by the reduced loss of life at sea, viz., that traffic by sea is far safer than it ever was, and reflects credit on British shipbuilders, marine architects, captains, and officers, whose minds have for a long time been bent on the accomplishment of this most gratifying result.

SUEZ CANAL TRAFFIC.

TABLE XXIII.—*Showing the Number and Net Tonnage of Vessels that passed through the Suez Canal in 1870, 1880, 1890, and 1900.*

Year.	Number of Vessels.	Net Tonnage.	Transit Receipts.	Mean Net Tonnage per Vessel.	Proportion of British Vessels to Total Tonnage.
			frs.		Per cent.
1870	486	436,609	5,159,327	898	—
'80	2,026	3,057,421	39,840,487	1,509	79'97
'90 ...	3,389	6,890,094	66,984,000	2,033	77'37
1900	3,441	9,738,152	90,623,608	2,830	56'73

NOTE.—The above figures include warships, transports, and Government chartered vessels.

This table will be construed as showing that the British flag is losing place. It is true that it cannot now be said that four-fifths of the traffic is done under our flag, as it was in 1880. The fall in the proportion was only to 77'37 per cent. in 1890. But in 1900 the British proportion had fallen to 56'73 per cent. of the total. There are, however, some obvious explanations of the fact.

1st. Our Government had employed during 1900, in connection with the war in South Africa, from and to the United Kingdom alone no less than 1,571,969 tons of shipping, hardly any of which went *via* the canal; a large proportion of this tonnage would have been using the canal, and consequently increasing the British proportion of tonnage for 1900, but for the war.

2nd. It is to be recollected that when it was correct to say that four-fifths of the canal traffic was done by our flag, the other nations had not suitable vessels for that route.

3rd. Further, Germany was a very moderate second to us even in 1890 with only 7'12 per cent. of the traffic, and, still more remarkable, France was third with only 5'31 per cent. Holland was fourth with 3'61 per cent. That state of things was not likely to last. I am not prepared to say that it was desirable that it should last.

4th. Bounties on building and on navigation, and special railway rates, and, as another method of helping the national flag, the payment of the Suez Canal dues on its vessels by at least one flag (as I have already mentioned), have changed the

conditions; and, coupled with the employment of so large an amount of tonnage in South Africa, largely explain the reduction in our percentage for 1900. But when it is remembered that the tonnage in the canal trade increased seven-fold between 1870 and 1880; that it more than doubled between 1880 and 1890; and that between 1890 and 1900 it increased 41 per cent., it was inevitable that our percentage in the earlier decades could not continue. I need only add to this that in 1898, the year before the South African war made such demands on our ships, the British tonnage in the Suez Canal traffic was 8,691,093 gross tons, against 7,771,346 gross tons for 1900, compared with German 1,353,161 gross tons in 1898, grown to 2,047,230 gross tons in 1900. The circumstances were quite exceptional. While we were occupied in South Africa and diverted some canal tonnage, Germany sent a considerable amount of tonnage through the canal for its China expedition. Our contribution to that expedition was done mainly from India, and consequently made no mark on the canal returns.

5th. I must add, moreover, that several circumstances have been operating, especially during the latter half of the decade, calculated to reduce our proportion. India has so largely developed her coal production, that she takes comparatively little British coal now. The exports of coal from Calcutta were 137,000 tons in 1891; in 1900 they were 1,737,244 tons. This enormous increase in the output of native coal necessarily lessens the Suez Canal traffic outwards under our flag. In a less degree the same observation may be made regarding salt, supplies of which are now imported into India from various places east of Suez. This means a larger employment of British ships in Indian waters, but less Suez Canal traffic. Owing to bad crops and famines, India had less to export to Europe, which of course tells directly on the canal traffic. Then it would seem that the increased size of steamers is lessening the advantages of the canal route compared with the Cape, so that many liners now prefer the latter for the Australian and New Zealand trades.

The proportion of British, French, German, and Dutch tonnage in the canal traffic throughout the decade is shown in :—

TABLE XXIV.—*Showing the Tonnage of British, German, French, and Dutch Vessels that Passed through the Suez Canal, with their Proportion to the Total Tonnage, for each of the Years 1890-1900.*

	1890.		1891.		1892.		1893.		1894.		1895.		1896.		1897.		1898.		1899.		1900.	
	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.
<i>British.</i>																						
Tonnage... 000's omitted	7,438,	5,351,	9,484,	6,887,	8,104,	5,886,	7,977,	5,752,	8,326,	5,996,	8,382,	6,062,	8,067,	5,817,	7,389,	5,319,	8,691,	6,297,	9,046,	6,586,	7,771,	5,805,
Proportion to total } tonnage ... Per cent. }	76·3	77·3	77·6	78·6	74·5	75·5	74·2	75·1	73·8	74·6	70·8	71·8	66·9	68·0	66·4	67·3	67·1	68·2	65·5	66·6	56·7	57·6
<i>German.</i>																						
Tonnage... 000's omitted	781,	490,	870,	596,	809,	553,	798,	555,	887,	626,	977,	693,	1,120,	806,	1,194,	858,	1,353,	969,	1,492,	1,070,	2,047,	1,466,
Proportion to total } tonnage ... Per cent. }	7·5	7·1	7·1	6·8	7·4	7·1	7·4	7·2	7·9	7·8	8·3	8·2	9·3	9·4	10·7	10·8	10·4	10·5	10·8	10·8	15·0	15·1
<i>French.</i>																						
Tonnage... 000's omitted	555,	365,	616,	407,	635,	415,	702,	461,	710,	467,	1,005,	672,	819,	532,	807,	519,	891,	571,	940,	598,	1,167,	751,
Proportion to total } tonnage ... Per cent. }	5·7	5·3	5·0	4·6	5·8	5·3	6·6	6·0	6·3	5·8	8·5	8·0	6·8	6·2	7·3	6·6	6·9	6·2	6·8	6·1	8·5	7·7
<i>Dutch.</i>																						
Tonnage... 000's omitted	341,	248,	369,	268,	433,	319,	443,	327,	484,	356,	497,	365,	520,	350,	532,	382,	526,	381,	583,	418,	704,	506,
Proportion to total } tonnage ... Per cent. }	3·5	3·6	3·0	3·0	3·9	4·1	4·1	4·3	4·3	4·4	4·2	4·3	4·3	4·4	4·8	4·8	4·1	4·1	4·2	4·2	5·2	5·2

Note.—The above figures include war ships, transports, and Government chartered vessels.

THE ISTHMIAN CANAL.

My two previous papers alluded to the proposed Panama Canal. I ventured the opinion that after the heavy losses suffered, the European public were not likely to risk further capital in the enterprise. Lately, however, it has become apparent that the United States have come to the conclusion that a canal ought to be made, and that to prevent the development of European interests on the Isthmus, as well as to secure its control in time of war, the United States ought to make it. Our interest is in favour of the canal being made, and it seems likely that the United States will give us proper securities for its neutrality during war, and its use on common terms to all flags during peace. I hope the obstacles arising out of the Clayton-Bulwer Treaty will be extinguished by friendly arrangement between the two Governments.

BOUNTIES AND SUBSIDIES.

On this subject, the Society's *Journal* for September contained a paper so full of interesting information by our esteemed Secretary, that I do not think it needful to say much, except to refer all who desire information thereon to that paper. In addition, I may refer to a paper presented to Parliament in June, 1901 (Commercial No. 4, 1901), respecting bounties on ship building, &c., in Austria, France, Germany, Italy, Russia, and other countries.

It is uncertain while I write whether the United States Government will decide to make an effort by subsidies to improve its position in the over-sea trade. A large party in America favour the policy of subsidies as a means of accomplishing that end. But it would not suit us to have our food carried in subsidised American ships to the exclusion of our own flag. It is enough that it should be grown abroad. If we are to be excluded from its carriage, we should have to inquire what alternatives the "resources of civilisation" have left to us. Tariffs have greatly restricted our exports to the United States, so that for the most part our vessels have to go there empty; we could not be indifferent to the exclusion of our ships from grain carriage merely because vessels with large bounties could carry cheaper. It is hardly possible to see how such trade could be regarded as either free or fair. Many things, however, are likely to happen to prevent such a catastrophe.

It is strange to see so many liners subsidised to run to British ports, such as Bombay, Calcutta, Singapore, Hong Kong, and

Australian ports. Against other flags than ours in these ports, in open competition, nothing can be said; but it will be very regrettable should it become necessary to levy duties on such subsidised flags equal to their bounties should the practice go much further. A bounty is only another form of a discriminating duty against us when it relates to trade in British ports, and of course that is a game at which two can play. I hope nothing of the kind may become necessary, and it certainly is not necessary yet.

France, I think, led the way in this system of bounties, and so far as appears she has not gained much by it. Between 1890 and 1900 French imports and exports increased only 12 million £ sterling, from 327 to 339 million £. That is a poor result seeing that the French Government paid during the ten years 1891-1900 in bounties for construction and navigation nearly $5\frac{1}{4}$ million £ sterling, in addition to over 10 million £ sterling in subventions for postal services. It is also significant that the total entries and clearances of French shipping at French ports in 1890 was 9,254,879 tons, and in 1899 only 10,137,277 tons; and that the percentage of tonnage entered and cleared under the French flag in French ports fell from 31.9 in 1890 to 28.4 in 1899. The total tonnage of the French mercantile marine is given at 932,735 for 1889, and 957,755 for 1899. These cannot be regarded as encouraging facts for States which are contemplating the adoption of the bounty system against us.

The German bounties cannot be easily stated. They are not limited to payments for postal services, nor to money grants; they include some tariff questions and preferences on railway rates which practically exclude foreign vessels from certain kinds of business. They were avowedly adopted not merely as the value of the postal service, but as value paid for "important interests of the German export industry, the requirements of the navy, and of colonial policy." The increase in the total tonnage of Germany is only from 1,320,721 in 1889 to 1,639,552 in 1898, but the proportion of steamers in this quantity is not stated. It has probably largely increased. It is without doubt true to say that, without subsidies, the German lines to East Africa and to our Australian ports could not have been run. Mr. Consul-General Ward ends his report, published in the Parliamentary paper already referred to, by saying that owing to the impossibility of procuring further statistics than he sends, he is not able to furnish the same in a more complete form, but that the figures which he has sent will sufficiently prove that "the direct and indirect bounties granted by the State to the several German steamer lines above referred to have been of very valuable use towards

“developing German trade with the Levant, East Africa, Australia, and the Far East.”

I only mention, as regards Japan, that the amount paid for bounties in 1890 was 153,563*l.* sterling, and that it increased by 1899 to 584,696*l.*

CONCLUSION.

In concluding this paper I think I am justified in saying that our investigation has revealed no signs of decadence. We have passed through great changes; from wooden to iron and steel ships; from sail to steam; from small to large and much larger vessels; and the figures I have submitted indicate health, strength, and ever increasing efficiency.

There are two points relating to shipping which I wish specially to emphasise. The first relates to coal supplies; the second to food supplies—the first essential equally to our naval and to our mercantile fleet; the second essential to our very existence as a nation of forty millions inhabiting a group of islands on the western verge of the European Continent.

As to Coal Supplies.—It is more than satisfactory that we are not now solely dependent on our own coal measures. The mineral is being worked in constantly increasing quantities in other parts of our Empire, notably in Canada, in Australia, in India, in Natal, and in Borneo. It is also being worked in France, Belgium, Germany, Spain, and Russia. It is believed that the United States is raising nearly as much coal as we do. Eastwards of the Red Sea it may be said that the bulk of the coal consumed is either Indian or Japanese, and there is every reason for believing that in a short time supplies of excellent China coal will be available. It is consequently reasonable to conclude that the supplies of this essential commodity will not fail such nations as have the means for its cheap carriage by sea. It is perhaps even more reasonable still to expect, that before the new century is much older, more economic methods of using coal will reward the eager scientific research now being pursued by the engineers of all countries. Moreover, the use of petroleum for sea-propulsion seems to be on the eve of large development; and, lastly, when electric power has got fairly into use on land, it is quite possible that means will be devised for its use at sea. The vain attempts recently made to keep coal far above its normal value in the United Kingdom can only demonstrate their futility by hastening all these attempts to find substitutes for it and to economise its use. Whether, therefore, one thinks of coal as a factor in shipping or in national defence, I venture to submit that there are

no grounds for pessimistic fears, whatever reasons there may be for watchfulness—sometimes even for anxiety.

As to Food Supplies.—I may be permitted to point out how greatly the importance of the tonnage question has changed since my earlier papers. The tonnage question was then thought chiefly to concern shipbuilders and shipowners, underwriters and seamen. The public took very little interest in it. It is quite otherwise now. The public is at last waking up to the fact that the tonnage question relates vitally to our supplies of food. It is only dawning on the public mind and imagination what is meant by four out of every five loaves which come to our tables being absolutely dependent on sea-carriage. No doubt we are defended by the navy, but we are fed by the mercantile fleet. Any failure of the latter would soon develop a state of things which the most powerful navy could not prevent. In this way the questions of national defence, of coal, and food supply have become inextricably mixed; the tonnage question is therefore not less but more important than it ever was. Of course the question of food comes first, for unless the people are fed, what would there be to defend? The most magnificent fleet at sea would not keep a starving population quiet. May I ask, therefore, whether any one thinks it a *safe arrangement* to be dependent on foreign-grown wheat and sea-communications for the daily bread of four-fifths of our population? Ought our rulers to be satisfied with such a degree of dependence? Is it possible that the only answer of statesmanship to such a problem is—*Laissez-faire*? The stake is too big! No doubt Votes, and Education, and Housing, and other things are important, but compared with food, with daily bread, and the terrible risks of its absence, or its insufficient supply, even these things are insignificant. Our present position is the direct result of laws wisely enacted in totally different circumstances—laws, moreover, which answered the nation's purpose at the time, though they failed to accomplish the glowing pictures of prosperity to our own agriculture with which they were heralded. Our wheat production has declined one-half since those laws were enacted, while our consumption has doubled. Do not all these circumstances indicate that the time has come for their reconsideration? "New occasions make new duties"—even our own territories, instead of sending us a larger proportion of wheat than in the previous decade, are sending us less. Surely our interest must lie in some policy which would largely increase the contribution of our own territories, so that we may not aggravate the risks of sea communications by depending to such an increasing extent on foreign nations being willing to sell. I hope those who record the next series of tonnage decades, may

be able to point out that the facts I have mentioned took such possession of the British people and of their Parliament, that they decided to make the Old Country and her Colonies and dependencies more useful to each other in this matter of food supplies, and took the necessary measures to secure that end in time. We have the ships to carry the wheat, and we have the navy to protect its transit—but I submit it ought to be a prime object of English policy, to lessen our dependence for daily bread on those who either might properly want the corn themselves, or be reluctant sellers to us in case of war.

DISCUSSION ON SIR JOHN GLOVER'S PAPER.

SIR FRANCIS S. POWELL, Bart., M.P., referring to the remarks in which the author deprecated the pessimistic spirit which was so much abroad at the present time, said that, so far as the existence of a pessimistic spirit led to exertion, he thought it was a wholesome sign, but exertion was not always wise, and changes made under the influence of that spirit might increase the very evils which they were intended to remove. It was most gratifying to hear of the great advance which had been made in our mercantile marine. The changes which had taken place, so far from having been a terror to the builders and owners of ships, had been an encouragement, and that encouragement had been followed by success. That circumstance was one which ought to lead them to new hopes. Complaints were constantly being made in the reports of foreign consuls,—in which there was a good deal of information of a valuable character,—as to the inflexibility of the leaders of British industry, who seemed to be unable to adapt themselves to new conditions, and showed a want of appreciation of the circumstance which indicated the necessity of change. It was quite clear, however, from Sir John Glover's paper, that that apathy and inaptitude did not attach to the owners of our mercantile marine, and he thought that to every Englishman who was proud of England's position amongst the nations of the earth as Mistress of the Seas, it must be gratifying to find in the rigid and scientific and careful investigation of so high an authority as Sir John Glover, evidence that should lead them on to new hopes,—those hopes being justified by the encouragement and experience of no less than fifty years.

Mr. T. V. S. ANGLIER called attention to a deficiency that had struck him, and rather surprised him, viz., that Sir John, having shown how much our people depended on this great mercantile

fleet for their food, had made no mention of the food of the ships themselves, *i.e.*, freights. The history of freights during all these decades was very interesting. It illuminated many subjects which vitally affected the progress of the fleet, as freights were the entire food, so to speak, on which the ships existed. They would not have seen these enormous increases if they had not had occupation for the ships, or, in other words, freights for them to earn; and in his opinion an important statistical paper might be written tracing the history of the freights by which the ships lived. He had been a very careful follower in Sir John Glover's footsteps, and had gathered, from somewhere about the year 1834, a correct and reliable history of the subject.

Mr. EVELYN CECIL, M.P., remarked that, owing to his position as Chairman of the House of Commons Committee on Shipping Subsidies, he could not express an opinion as to what ought to be done, but he might mention one or two facts which had either come out in the evidence, or which the evidence had suggested to him as bearing upon this most interesting paper. One of the facts which he did not think had been mentioned was, that Germany, at any rate, and possibly some other countries, had been building large merchant vessels, running at a speed far exceeding that of any vessels we possessed. He referred more particularly to the "*Deutschland*," which he believed steamed at 23 knots, and he believed that the "*Kaiser Wilhelm der Zweite*" and the "*Kronprinz Wilhelm*" steamed at about the same speed. So far as the evidence adduced before the Select Committee went, the average speed of English fast vessels was about 18 knots. This of course raised a further question as to whether, if we were at war, we should not be very seriously handicapped, in the first place, by the operations of fast merchant vessels belonging to foreigners, and, in the second place, by not being able to commandeer, if he might so express it, merchant vessels of our own which could run at as great a speed as the foreign vessels. He noticed also that it was suggested in the paper that the German Government gave a sympathetic patronage and assistance to the mercantile marine, and that efforts in a maritime direction appeared to be more appreciated by some Governments than by others. The German Emperor took a very active interest in the mercantile marine, which his position in the country enabled him to do. It was difficult therefore to draw a precise parallel between Germany and ourselves. Another matter mentioned in the paper was the employment of Asiatics. If large vessels were to be manned entirely by Asiatic crews in time of war, some difficulty might arise. In the German contracts with their subsidised steamship companies there was an article inserted to insure that the large majority, and, as far as possible, the whole of the crew, should be native Germans. For ships trading to the tropics it was no doubt necessary to make an exception as regarded the stokers and people employed in the engine rooms. He felt much freer to touch upon the question of our food supply in time of war. It was probably true that four-fifths of the population were dependent upon foreign

wheat for their food; but while they were all aware of that, the remedy was never made so clear. It was often stated that statesmen ought to grapple with the problem more thoroughly, but what precisely was intended by that statement was always somewhat vague. If it was intended that our wheat supplies should be hoarded up, after all, they could not be hoarded up indefinitely. He understood Sir John to suggest that they should try to get the Colonies to grow more wheat, and that was perhaps the most practical form that the suggestion could take. There was a district in the new Orange River Colony, on the borders of Basutoland, which was by all accounts very well adapted to the growing of wheat. And he had no doubt there were Colonies in other parts of the world which might be persuaded in some degree to assist the mother country by growing more wheat; but if these Colonies found it more suitable to grow something else, or that it was not worth their while to compete with Russia in shipping food to England, he very much doubted whether they would do it. Possibly, owing to his inability to grasp the question, he did feel some difficulty in understanding what was the remedy they were to set themselves to establish. In conclusion, he observed that, closely connected with the history of freights, was the question of shipping conferences or rings, and their effect upon the mercantile marine, which he thought might well be considered in connection with this subject.

Mr. E. R. P. MOON, M.P., referred to the point which the author had raised in relation to our food supply. He failed to understand what was the precise remedy contemplated by the author, for the difficulties and dangers which he recognised and deplored. To send the people back to the land—if that were practical—would be equally desirable, as well for the *physique* of the race as for the purpose of increasing our home-grown food supplies. Speaking as a member of the Navy League, he felt that this was an additional reason for the maintenance of a navy on which they could place absolute reliance, since it was desirable to leave these economic questions to work themselves out in their own way, for it had been found that interference with them always caused unexpected and serious dislocations. In conclusion, he asked how¹ it was that in Table XX the number of foreign seamen in the mercantile marine was given at 36,000, whereas a little further on in the paper the number was given as 70,000.

Mr. R. H. HOOKER noticed that the imports in Table II were the sum of the imports of wheat and wheat flour. Although this was correct from the point of view of tonnage statistics, since from that standpoint they wanted to know the weight actually carried, he thought it would be better, when the author spoke of the food supply, to convert the flour into its equivalent of wheat before making the addition. The proportion coming to this country in

¹ The alteration in the heading of Table XX here suggested has now been carried out.—ED.

the form of flour had considerably increased of late years, so that the supply of foreign wheat, expressed as grain, had grown more than the author showed.

Mr. Hooker's main object in rising was to call attention to the desirability of the use of statistics of "ton-miles," or as Sir Alfred Bateman had expressed it, the "carrying energy" of our ships. During the past half century there had of course been a great increase in the average distance travelled by ships, and a calculation of the ton-mileage performed would show a much larger growth in the work done than was indicated by statistics of the actual tonnage. The carrying energy might, he thought, be obtained with a fair degree of accuracy by multiplying the tonnage from each country by the average distance of the principal ports concerned. He had had the curiosity to see whether the data given by Sir John Glover could not be made to yield a very rough "first approximation" of the change in average distance travelled between 1860 and 1900, by considering the quantity of goods imported as a function solely of the tonnage, distance, and speed (or rather efficiency). A rough estimate of the quantities imported might be obtained by correcting the value of our total trade by Mr. Sauerbeck's index numbers. As regards increase in efficiency, the author spoke of one ton of steam as being equivalent to three tons of sail. Since 1860 most of our tonnage had changed from sail to steam, and he would therefore assume the efficiency to be now three times as great as in that year. On these assumptions it would appear that the average distance from which our imports now came was something like four times what it was in 1860. Of course numerous other considerations ought to be taken into account in such a calculation;—for instance, no allowance had been made for increase in speed (on the other hand the proportion of sailing vessels is still appreciable)—but these remarks would serve as a sketch of a method which might be followed. Such a method might perhaps be termed "juggling with figures," but it would be interesting to ascertain whether the more accurate method of calculating the ton-mileage indicated above would yield a figure anything like this.

He wished to ask the author also whether similar considerations could be held to affect the number of foreigners employed in British vessels. He had seen it stated that Norwegians especially were frequently taken on for short voyages between England and Norway, and that there was a constant change in the crews of such vessels. Many foreigners would thus be recorded several times in the course of a year, so that if he were correct in his surmise a record of "man-miles," analogous to a record of "ton-miles," might show the British element as a somewhat larger percentage than appeared from the statistics at present available as to the number of seamen.

The PRESIDENT expressed the great interest with which they had listened to this important and valuable paper. It was, he believed, the first time in the annals of the Society, or of any other, that it had fallen to any one to record the history of his own business for fifty

years, yet, seeing their friend so hearty and so vigorous, he thought they would hope that they might have the great pleasure of having another paper by him ten years hence. Sir John had pointed out some facts which might well induce their friends over the water, who were endeavouring artificially to stimulate their shipping industry by grants and bounties, to consider how very little good they effected by these attempts, and how very expensive they were to their own people. For his own part he must confess he would be very glad to see such regulations, for instance, as prevailed in the trade between France and Algiers and in other parts of the world, done away with, and he thought Parliament might very well consider whether some friendly remonstrances might not be addressed to foreign countries with reference to prohibitions which were, he believed, of no advantage to the countries adopting them, and which were certainly injurious to the rest of the world. Sir John had pointed out that the history of the past ten years showed no signs of decadence or falling off so far as our trade and commerce were concerned, or at any rate so far as regarded the great interest with which his name was so intimately associated. With reference to the latter part of the paper, his difficulties had been very much the same as those of Mr. Cecil and Mr. Moon. He quite felt the gravity of the facts Sir John Glover had mentioned. We had a population which it was impossible to feed upon the produce of these islands, but he had derived some consolation from the fact that the great wheat-growing countries of the world were not likely ever to be united against us. There was safety perhaps in the number of quarters from which our supplies came. As to storing up quantities of food, his little knowledge of natural history rather induced him to entertain grave doubts whether large stocks could be stored for any length of time. He understood that Sir John Glover's suggestion did not lie in that direction. Sir John would, perhaps, in the interests of statesmen and members of Parliament, make some suggestions as to the direction in which he would like them to carry out his views, and perhaps on a future occasion he might develop that most interesting subject.

Sir JOHN GLOVER (in reply) referred to Sir Francis Powell's remark that pessimistic ideas were sometimes beneficial, and said that in his opinion that depended a good deal on the quantity. He urged that the moral was that they should beware of percentages unless they knew something of the figures on which they were founded. He considered Mr. Angier's suggestion as to the inclusion of a history of freights in the history of tonnage was valuable, and he hoped Mr. Angier would contribute a paper on freights. If he might be allowed to differ from Mr. Cecil, he would say that shipping rings were rather outside this subject. Reference had been made to the high speed of German boats; but he had no doubt Mr. Cecil was fully aware that if it suited us to build boats to go at 25 knots, it was quite within our skill and competence to do it; there was no difficulty whatever about it if the shipowners got a sufficient subsidy. If the English Government

thought that such vessels would be an advantage to the nation, and would guarantee say 5 per cent. interest on the cost of a 25-knot fleet, they could have it as soon as it could be built. By payment of a subsidy of that sort they could have the call on these steamers whenever they were wanted, either for cruisers or for any other purpose. If other States in an earlier condition of development thought it was to their interest to do that, they should not blame the Englishman who thought that 20-knot boats paid better and cost less. But our fast boats on the Atlantic now went at 22 knots in case of need. Possibly Mr. Cecil did not know how extremely moderate the subsidies to English mail lines were. He very much sympathised with Mr. Moon's observation about the people going back to the land, and he could not conceive of anything more foolish than for a growing nation like this to allow its wheat crops to be diminished. He thought he would speak with the approval of every one present when he said that there was not a single statesman who was concerned with our Free Trade policy, who had ever contemplated such a condition of the food question as that into which we had now drifted. The opinions of Sir Robert Peel on that subject were disclosed in his memoirs. He predicted as the result of a free trade policy that there would be a great increase in the value of land, and that the position of the agriculturist would be greatly improved. He (the speaker) wished these things had come true, but they had not. With reference to the observations of Mr. Hooker, he had only to say that for freight and tonnage purposes there was no difference between wheat and flour. For some purposes, with which Mr. Hooker was familiar, there were differences, but for tonnage purposes there was no difference. He rightly surmised that Norwegians and Scandinavians made shorter voyages, and consequently many records in each return, while English ships to a far larger extent made long voyages, and did not so frequently return to this country, so that they performed a great deal of work which did not appear in the returns. A great proportion of the work of the world done by British ships was not recorded in our returns, though what was shown in the returns was good enough.

A hearty vote of thanks to Sir John Glover for his paper was then proposed by the President, and carried unanimously.