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REMINISCENCES OF A
LIVERPOOL SHIPOWNER
BY MR. WILLIAM B. FORWOOD



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REMINISCENCES
OF A
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THE PORT OF LIVERPOOL—1873
From the Picture by S. Walters

REMINISCENCES

OF A

LIVERPOOL SHIPOWNER

1850-1920

BY

SIR WILLIAM B. FORWOOD, K.B.E., D.L.

*Author of "Recollections of a Busy Life":
"Economics of War Finance": etc.*

ILLUSTRATED WITH 22 PLATES

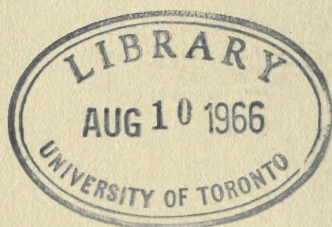
LIVERPOOL
HENRY YOUNG & SONS, LIMITED

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PREFACE

The following sketches were contributed to the Liverpool Press (*Liverpool Daily Post*, *Liverpool Courier*, *Journal of Commerce*), and they are now published at the request of many friends. Advantage has been taken of the opportunity for revision, and to add further reminiscences.

A chapter has also been added descriptive of the part played by the British merchant seaman in the war; and another, published in 1917, portraying the attitude and work of the British shipowner during the war.

To do adequate justice to the history of our shipping during the past sixty years would occupy several volumes. In the following pages all that has been attempted has been to outline the principal events in the fewest possible words, in the hope that they may serve for future reference; and also keep alive that interest in our mercantile fleet which is so essential to the prosperity of our Country and the welfare of our people.

BROMBOROUGH HALL, CHESHIRE,

August, 1920.

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REMINISCENCES
OF A
LIVERPOOL SHIPOWNER

CHAPTER I

THE PASSING OF THE SAILING-SHIP

The old sailing-ship, with all the romance which surrounds it, must long linger in the affectionate regard of all British people as the creator of our great overseas trade and the builder-up of our commercial prosperity. The sailing-ship was the mistress of the seas for centuries. She founded our maritime supremacy, was the conveyer of the first fruits of our manufacturing industry to the ends of the world, and enabled us to train a race of sailors unequalled for their skill, courage, and patriotism, who in times of national peril have protected our homes and safeguarded the freedom of the world.

Liverpool owes her greatness as a city and her position as the first port in the world to her shipping. Possessing the only deep-water haven on the West Coast, she naturally became the port of shipment for the manufactures of Lancashire and Yorkshire directly our export trade began to develop. The beginnings of the shipping trade were small, for in 1751 there were only 220 vessels belonging to the port. The opening up of the American trade in

1756 gave a great impetus to shipping. It was destined, however, to receive a serious check by the world-wide war which started in 1756, and was waged almost continuously for sixty years.

The first of this long series of wars known as the Seven Years' War (1756-1761) was followed by twelve years of peace, and it was during this time that our trade with America made its greatest headway. The War of Independence with America, which broke out in 1773, proved most disastrous to Liverpool. It paralysed our trade and there was dire distress in the town. It is recorded: "Our docks are a mournful sight, full of gallant ships laid up and useless." This unhappy war lasted seven years.

But perhaps the most terrible period for our shipping was in 1810, when America, feeling herself "crushed between the upper and the nether millstone of Napoleon's mastery on land and England's supremacy by sea," declared war and threw her strength into privateering. The result to the trade of Liverpool was most disastrous. The number of ships entering the port fell from 6,729 in 1810 to 4,599 in 1812. When, in 1815, peace was again brought about, there was a most rapid recovery in business in every direction.

Our British arms which had been victorious in the great war on the continent of Europe had also made our country supreme at sea; foreign shipping

had almost disappeared, and our shipping trade reaped an enormous advantage, our tonnage rapidly increasing.

The period from 1815-1860 may be termed the halcyon days of the British ship; and the period from 1850-1880 witnessed the "passing" of the sailing-ship. With the "passing" of the sailing-ship we have lost many interesting and attractive features. The attitude of the shipowner has entirely changed. His quiet, leisurely occupation has gone, and with it much that was picturesque and gave pleasure and enjoyment. With the advent of the steamer a new era opened up, characterised by the hustle of increased activity. Speed is the criterion aimed at, calling for constant and strenuous work.

The shipowner of the olden days had time to take a deep personal interest in the upkeep of his ship. He strolled down from his office almost daily to the dock where she was lying. Of the sixty-four shares into which the ownership was divided he probably owned at least one-half; this gave him a very real concern in his ship's welfare. He watched and supervised her construction with the same solicitude as he would the building of his own house. And when completed and she took up her loading berth in the Prince's or Salthouse Dock, all fresh painted, the rigging tarred down, the ratlines all taut and evenly spaced, every rope and hawser carefully coiled down and in its place, it was

excusable if the owner viewed his ship with some pride. A large poster displayed in the ship's rigging announced the port for which she was taking cargo and the date of sailing—a date which was never kept. She remained in dock week after week while her cargo gradually trickled down.

This long delay involved a loss of interest and earning power, and also a serious loss of interest to the owners of cargo shipped by her. Mr. Donald Currie, when he left the Cunard Company, made up an ownery for five or six ships for the Calcutta trade, and was anxious that Jardine, Skilmer & Co., of Calcutta, should take the agency at that port. But they had suffered so much from the delay of their cargoes that they made it a condition of their acceptance that Mr. Currie should strictly adhere to his advertised dates of sailing; and certainly he had no cause to regret it, for practically Jardines loaded his ships with their own goods, and Mr. Currie's fleet rapidly increased. This was the beginning of fixed days of sailing from Liverpool, which are now almost universal.

Although the pleasure of a shipowner was more personal and greater in the days gone by, it was accompanied by much anxiety, and the risks were greater than those of to-day. A wooden ship was liable to decay, and the periodical surveys by Lloyd's were times of much concern. They might expose some defect which might involve the stripping

and rebuilding of the part affected. The highest class at Lloyd's A1 for thirteen years, soon ran out, and the continuation of the class always involved many repairs.

The preparation of a captain's instructions prior to the commencement of a voyage entailed much thought; every contingency had to be provided for; there were no "cables" by which subsequent instructions could be sent, or the owner consulted.

Cargoes at the loading ports were uncertain, and the change of ports in ballast had to be provided for. The most carefully-worded instructions often failed to provide for the very contingency which happened, or more frequently the captain did some stupid thing. The owner was in dread lest his ship should find no homeward cargo and have to shift ports, or lest she be damaged or dismasted, and put into some remote port not contemplated in his instructions. He had visions of heavy repair bills and bottomry bonds.

Sailing-ship owning was profitable to those who possessed high-class ships, but I cannot recall many fortunes made out of soft wood ships, the cost of their maintenance and repair being so heavy.

In a brief résumé of the history of the sailing-vessel it is not necessary to pass in review the early steps taken in the evolution of a ship,

for shipowning did not assume a position of any importance before the year 1600, when, during the reign of Queen Elizabeth, the East India Company was founded.

The East India Company's first ships were vessels of from 300 tons to 600 tons. They were all heavily armed, and only conveyed the cargoes belonging to the Company. The "John" Company was highly successful, and at the close of the eighteenth century had not only a large fleet of ships, but also possessed a large portion of the continent of India. The ships of the Company were remarkable vessels; they were frigate built, large carriers, and stately looking, but badly designed, very slow, required a large quantity of ballast, and their cost was about £40 per ton. Improvement in design and equipment was very slow; there existed no incentive to improvement; the profit made was derived mainly from the cargoes they carried; and it has been said that the improvements made in British shipping from the reign of Queen Elizabeth to the Victorian era were so gradual as to be perceptible only when measured by centuries.

When we speak of the ships of the sixteenth, seventeenth, and eighteenth centuries, we cannot but be surprised to find how slight were the improvements made during these three hundred years. During the latter half of the eighteenth century the finest ships were constructed in France, and at

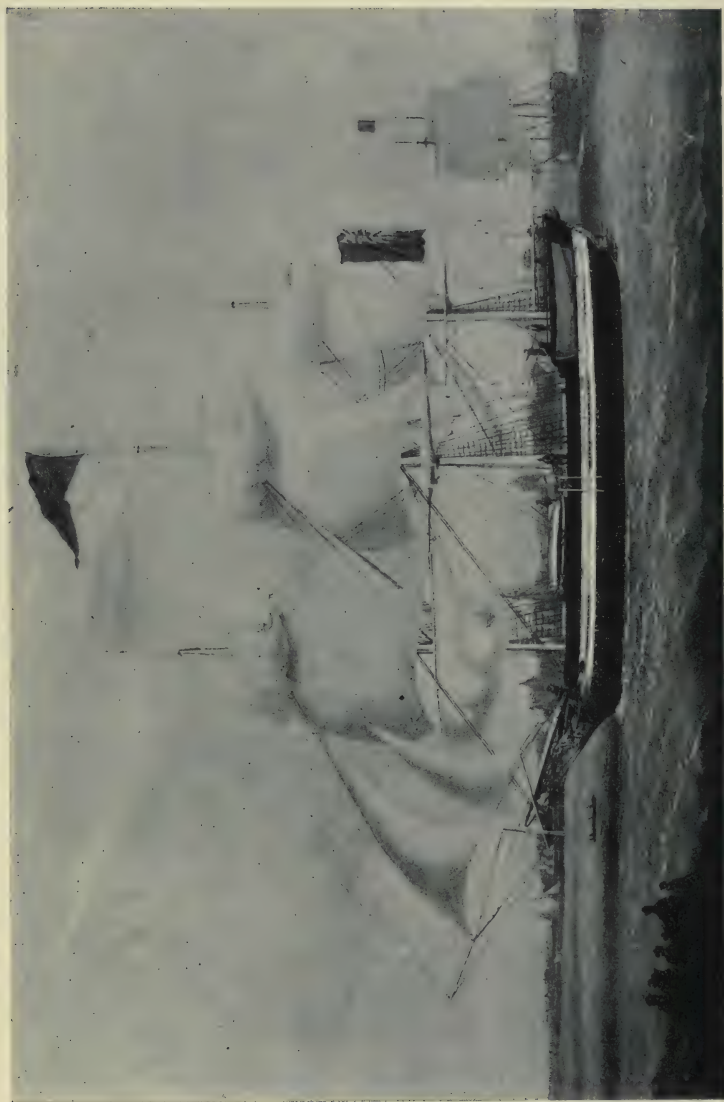
that period the best ships in the British navy were those captured from the French.

The treaty of peace between the United States of America and Great Britain, signed in 1814, marks the beginning of a new era in the history of shipping. The progress, however, for some years was slow ; design and construction were hindered by our obsolete tonnage laws, which encouraged the building of a very undesirable type of ship. Meanwhile America was going ahead. Not only did she produce more ships, but they were well designed and equipped, and it was the general opinion that the American ship was superior to the British ship. When, in 1832, the monopoly of the East India Company came to an end, and the commerce of the Orient was thrown open to all British ships, there was at once an effort made to establish British shipping on a broader and more substantial basis. The opening of the China and East India trades gave rise to that competition which had been so long dormant, and without which there can be little incentive to improvement.

The American trade gave the first and great impetus to shipowning in Liverpool. The famous New York packets, the pioneer Black Ball Line, were established in 1816. This Line consisted at first of vessels of from 300 to 500 tons register. These little ships with their full bodies and bluff bows made wonderful passages, averaging 23 days

outwards and 43 days homewards. They were for many years the only means of communication between this country and the United States. The "Dramatic" Line was started in 1836, with vessels of about 700 tons, and it is noteworthy that the "Sheridan," of 895 tons, built the following year for this Line, was found to be too large for the Liverpool trade; but the trade rapidly grew and the packet ships gradually increased in tonnage. In 1846 the "New World" was built, of 1,400 tons. As a child I recollect being taken down to the dock to see this ship, as being the largest sailing-ship in the world; and many still living will remember the "Isaac Webb," the "Albert Gallatin," the "Guy Mannering," and the "Dreadnought." The ships of the "Black Ball" Line and the "Dramatic" Line were grand ships, and made many wonderful passages.

There are three outstanding events which greatly contributed to the improvement of British shipping, and may be said to mark the beginning of our great maritime position—the establishment, in 1834, of Lloyd's Register; the founding, in 1846, of the Marine Department of the Board of Trade; and, in 1849, the repeal of the Navigation Laws. These laws, devised originally for the protection of British shipping, and to secure for it a certain monopoly of the carrying trade, had become antiquated, and a hindrance to its development.



"PRINCESS CHARLOTTE," 1815

It was not, however, until we found the commerce of the world was largely being carried by American ships, which were faster and better built, that an agitation was started to abolish those laws.

There was considerable opposition to their repeal, and the first result was not encouraging ; there was a decrease in the tonnage of British ships entering our ports, and a large increase in foreign tonnage, especially of American ; and although this created a feeling of despondency, and gave rise to the fear that we had lost for ever our premier position in the overseas carrying trade, it really proved a great stimulus to enterprise, and renewed exertion, and not many years elapsed before we had regained, and more than regained, our position in the shipping world.

To America belongs the credit of introducing the clipper ship, which was specially designed to make rapid passages. The discovery of gold in California created a great rush, and there was a gigantic movement of human beings by land and by sea. The land journey across America was long and hazardous, and this gave rise to a large emigration by sea, and the necessity for providing a class of ship which would be able to make rapid passages. This the old-fashioned frigate-built ship was unable to do.

The era of the clipper ship may be said to date from 1848, when gold was first discovered in

California. The building of these ships in America proceeded rapidly, and in four years one hundred and sixty were built. They were the swiftest ships the world had ever seen, making the voyage from New York to San Francisco in from 100 to 120 days. They were remarkable for their fine lines, lofty spars, and great sail-carrying capacity.

The discovery of gold in California in 1848 was quickly followed by the discovery of gold in Australia in 1851, and a rush of emigration immediately set in, which had to be carried by sailing-ships. The regular traders were small vessels with very limited passenger accommodation; so shipowners very quickly turned their attention to the clipper ships built in New England and in New Brunswick, which had been so successful in the Californian trade.

The first clipper ship constructed for the Australian trade was the "Marco Polo," of 1,622 tons. She was built in 1851, at St. John's, for James Baines & Co., of Liverpool, and she was the pioneer of the famous Australian Black Ball Line. The "Marco Polo" was a handsome ship, built with a considerable rise of floor and a very fine after end, and carrying a large spread of canvas. She made some remarkable passages under the command of Captain Forbes, who did not hesitate to shorten the distance his ship had to travel by sailing on the great circle, and going very far south. The

“Marco Polo” may be said to have set the pace in the Australian trade. She was quickly followed by such renowned ships as the “Lightning,” the “James Baines,” the “Sovereign of the Seas,” and the passages of these ships created as much public interest as those of our Atlantic greyhounds do to-day. We had also the White Star Line of Australian clippers, which owned the “Red Jacket,” the “Blue Jacket,” and the “Chariot of Fame.” The “Red Jacket” made the record passage of 64 days to Melbourne, and was one of the most famous of the American built clippers.

Although America can claim to have introduced the clipper ship, our English shipbuilders were not much behindhand. The tea trade with China offered great rewards for speed, and the ship landing the first cargo of the new teas earned a very handsome premium. The competition was, therefore, very keen. These tea clippers were very beautiful vessels of about 800 to 1,000 tons, of quite an original type; and, unlike the American clipper, they relied for their speed more upon the symmetry of their lines than upon their large sail area. They had less beam and less freeboard than the American clipper, and as their voyages necessitated a good deal of windward work, this was made their strong point of sailing, and probably they will never be excelled in this. The names of the “Falcon,” the “Fiery Cross,” the “Lord of the Isles,” will still dwell in the memory of many.

In 1865 a memorable race took place between ten celebrated tea clippers, and the evenness of their performances was remarkable. The times of the passages of the first five, from the anchorage in China to Deal, varied from 99 to 101 days, and the prize, 10s per ton, was divided between the "Taeping" and the "Ariel"—the one arriving first at Deal, and the other being the first to dock in London. There were similar races every year, which always aroused great interest.

The greatest development in sailing-ships was brought about by the substitution of iron for wood in their construction. The iron ship, among other advantages, could be of larger size, was more durable, and less costly in maintenance; and in 1863 a notable further improvement was made when, in the Liverpool ship "Seaforth," steel lower masts, topmasts, and topsail yards, and also standing rigging of steel wire were introduced, and about the same time double topsail yards were adopted.

We are apt to make light of the great increase in American shipping since the late war, and think that the competition of America will not last and will not be serious. We should, however, not forget how large a proportion of the world's carrying trade by sea was done by America prior to her civil war in 1863, and the excellence of her ships. The tariffs she imposed after this war killed her shipping and made shipbuilding, except for her coastwise trade,

impossible. The result of the late war has been to make the cost of shipbuilding nearly as great in this country as in America, and she will certainly make a serious bid for her share of the trade.

With the passing of the old sailing-ship we have lost much that was picturesque and much that appealed to sentiment. The river Mersey at the top of high water filled with sailing craft of all kinds, from the great Australian clipper down to the Dutch galliot or the British sloop with her brown sails, presented a panorama which has no equal to-day, and called forth thoughts of adventure and perils by the sea which a great Atlantic liner or even the modest coasting steamer fail to suggest, although they may speak to us in the spirit of the times—of that security and speed which has brought the very ends of the earth together.

This short sketch of the old sailing-ship days would be incomplete without alluding to the position of the sailor, which was far from satisfactory. His life was hard and very rough. He usually lived in the forecabin, which was close and damp. The chain cables passed through it to the chain lockers below, the hawse-pipes had often ill-fitting wooden plugs, and when the ship plunged into a head sea the forecabin was flooded. There was no place for the men to dry their clothes, and no privacy. Their food was salt tack, and it was no wonder that they enjoyed their noggin of rum. These were, however,

days before we had the luxury of preserved provisions or ice-houses. But the old British tar came of a hardy, good humoured race. I have seen them when off Cape Horn take marling-spikes aloft to knock the ice off the topsail, and merrily singing one of their chanties while they tied in a close reef.

The pay of a sailor was small—£3 a month for an A.B.; and when they returned home from a voyage they were pounced upon by the boarding-house keepers, who did not let them out of their clutches while they had any money left. The neighbourhood of our Sailors' Home was a perfect hell, a scene of debauchery from morn to night. The sailor had no chance; and when he sailed again he had no money to buy any decent or warm clothes. Thanks to such philanthropists as the late Samuel Smith, Alexander Balfour, and Monsignor Nugent, this reproach to Liverpool was, after a great and long fight, removed, and the interests of the sailor are to-day safeguarded in every way by the Board of Trade, and greater interest is exhibited in his welfare by the shipowner. While thus recording the conditions of a seaman's life we must not forget that the conditions of life generally were much harder and rougher than those of to-day, and the sailor had many compensating advantages when at sea. It was while he was in port that he required safeguarding.

CHAPTER II

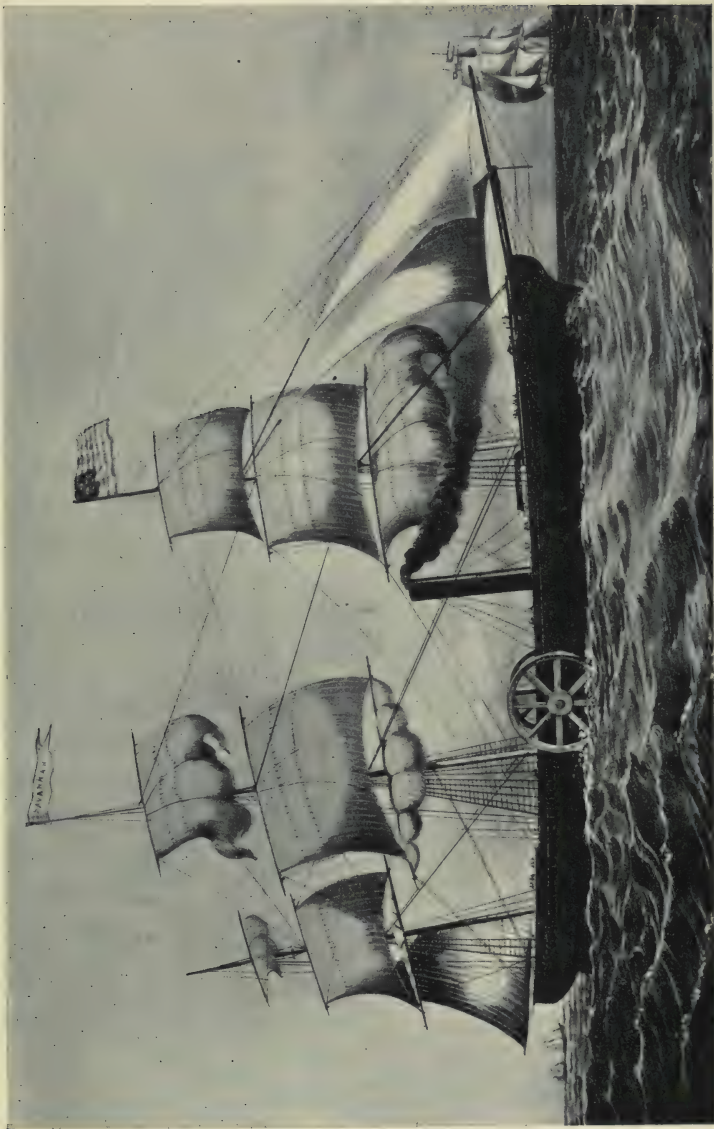
THE ERA OF THE STEAMSHIP

With the "passing" of the sailing-ship much of the poetry and romance of the sea disappeared. The era of the steamship is more prosaic, but it brought with it a recognition of the spirit of the times that the expanding trade of the world and the march of civilisation, demanded speed and regularity in our sea services for their development, and what we have lost in romance we have more than made good by the wider distribution of the world's products which the facilities for travel and the rapid conveyance of our merchandise have made available. All parts of the world have been brought within easy reach of the traveller, and our trade routes have been increased and expanded. We have opened up new markets for our exports, and new sources for the supply of food. Our people are now largely fed by supplies of perishable food which reach us from the far distant Antipodes. It is, indeed, difficult to say what might have happened if we were still dependent upon the old sailing-ship. The advent of the steamship was most fortuitous. Just as in our means of conveyance by land, new means and forms

of transport have been developed with our increasing population, so it would appear that, as the growth of our population and the spread of civilisation have demanded it, improved facilities for travel by sea have been opened up.

The passing of the sailing-ship made very slow progress in the beginning, for although steamers entered the Atlantic and the East India trades about 1840, the old-fashioned wooden paddle steamer was not a serious competitor except in the conveyance of passengers and mails. It took thirty or forty years to develop improvements in the design of steamers and to effect the evolution of the marine engine, and the progress made was gradual. The high-pressure engine, the compound engine, the turbine, and now the geared turbine were all steps in the direction of securing the economy and efficiency necessary to make the steamer an effective competitor in the conveyance of heavy or bulky cargoes ; but once this point was reached, the sailing-vessel was doomed except in the small coasting trades. The opening of the Suez Canal also gave the steamer a great advantage, and perhaps did more than anything else to destroy the position of the sailing-ship in the long trades. It will be interesting to watch the effect which dear coals and cost of sailing may have in reviving the fortunes of the sailing-ship.

Steamers are now mostly owned by public companies, which we regret to say are largely centred



SS. "SAVANNAH," 1818

in London, and are represented in Liverpool by managers. A steamer somehow fails to arouse the same enthusiasm as the old sailing-ship; much of the old romance and sentiment has gone. The managers have so many steamers to look after that their work becomes more or less mechanical; they cannot take the same personal interest in them. The manager of one large fleet boasted that he never went down to the dock to see his steamers—this he considered was the business of his marine superintendent.

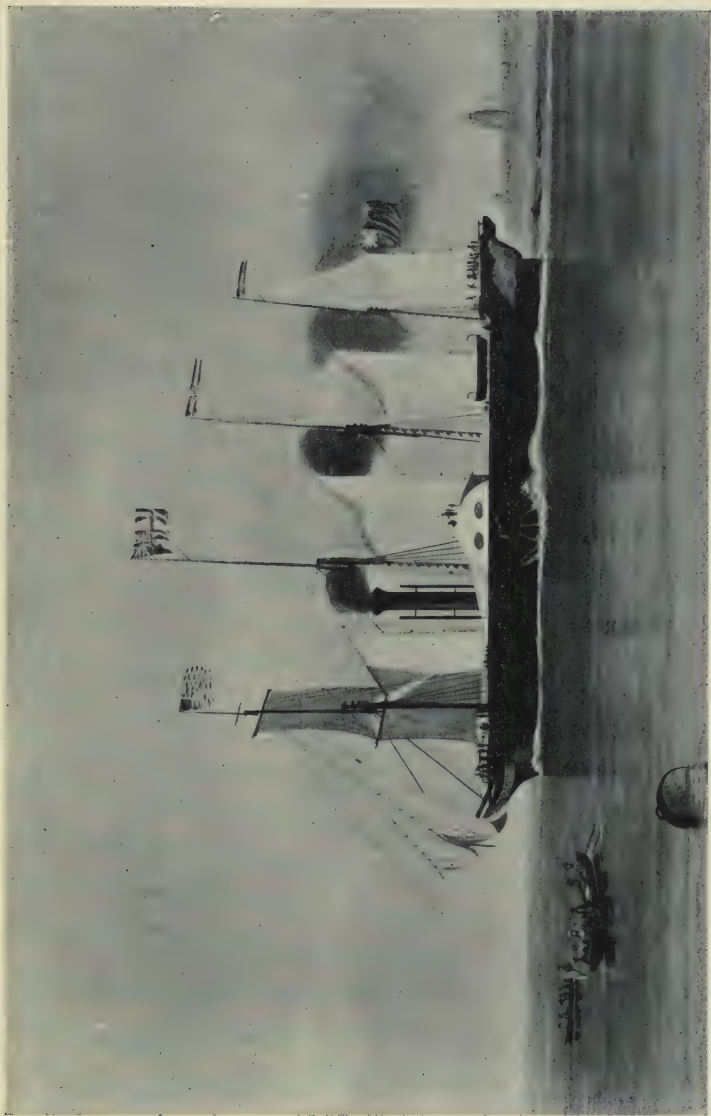
The shareholders in a limited liability company in the same way have not the same close touch with their property that the owner of a sixty-fourth share had in the old sailing-ship. The one was personal, the other is remote. The subscription lists of our nautical charities prove this. The Bluecoat School and the Seamen's Orphanage do not appeal to them as they appealed to the Bryan Blundells, the MacIvers, the Brocklebanks, Allans, Beazleys, and Ismays and the general public of fifty years ago.

We cannot dwell upon the many early efforts to apply the steam engine to the propulsion of a ship. The first steam vessel to cross the Atlantic was the "Savannah," a vessel 130 feet in length and 26 feet broad. She was built in New York in 1818; she was an auxiliary vessel, her paddle wheels being taken off and placed on deck when the wind was fair. She sailed from Savannah on the 24th May, 1819, and arrived at Liverpool on the 20th

June. The first vessel to steam all the way across the Atlantic was the "Royal William," built at Quebec in 1831. She was 830 tons, with side-lever engines of 200 horse power. She sailed from Quebec to London on the 4th of August, 1833, and after a stormy passage arrived in the Thames on the 11th September.

A more serious attempt to bridge the Atlantic was made in June, 1838, when a second "Royal William" of 720 tons was built at Liverpool, and her paddle engines of 400 horse power were made by Fawcett, Preston & Co., of Liverpool. She made several successful passages, and was our first passenger steamer. The Transatlantic Steamship Company, which had chartered the "Royal William" afterwards built the "Liverpool," of 1,150 tons, and 464 horse power. She made several voyages, averaging 17 days out and 15 days home.

Mr. Maginnis in his very useful and excellent work "The Atlantic Ferry," claims for the "Sirius" the honour of inaugurating the Atlantic steamship service. She was owned by the British & American Steam Navigation Company, of which Mr. John Laird was the Chairman. She was 703 tons, and sailed on the 5th April, 1838, making the passage in 16½ days, maintaining an average of 8½ knots, on a consumption of 24 tons. About the same time the "Great Western," of 1,340 tons, sailed from Bristol, making the outward passage in 13½ days.



SS. " GREAT WESTERN," 1838

The British & American Steamship Company encouraged by the successful voyage made by the "Sirius," built, in 1839, two sister ships, the "British Queen" and the "President." They were 1,863 tons gross register, and 700 horse power. The "British Queen" sailed from Portsmouth, July 12th, 1840, and the "President" on July 17th, 1840. The "President," after sailing from New York, on March 11th, 1841, with a small number of passengers, was never again heard of, and in consequence of this disaster the British & American Steamship Company ceased to exist.

We cannot omit from our brief review of the early history of the steamship, an allusion to the "Great Britain," the first large iron steamer. She was 3,270 tons, and was launched at Bristol in 1843. For very many years she was our largest ship, and considered to be one of the wonders of the day. She was placed in the Liverpool and New York trade, and sailed on the 26th July, 1845, on her first voyage. I remember seeing her pass down the Channel off Seaforth. Her six masts greatly impressed my child intelligence. She was wrecked the same night on the Irish Coast, but she was afterwards got off, and had a very varied and chequered career, and underwent many changes. Her six masts were reduced to four, then to three. She had new engines, and was placed by Gibbs, Bright & Co., in the Australian trade. Then she

was converted into a full rigged sailing-ship, and in 1883 was condemned at the Falkland Islands as no longer seaworthy, and remained there for many years as a coal hulk.

It cannot be said that these early endeavours to establish a steamship trade were very encouraging, and the great scientist of that day, Dr. Lardner, stated that he had no hesitation in saying that the project announced in the newspapers of making a voyage directly from New York to Liverpool was perfectly chimerical. They might as well talk of making a voyage from New York to the moon.

All the more honour to those pioneers who had the courage and the prescience to go ahead ; and to Mr. Samuel Cunard and his partners the steamship trade must be for ever deeply indebted, for to them we owe the first serious and successful effort to establish a steamship service across the Atlantic. They built, in 1840, the "Britannia," "Acadia," "Columbia," and "Caledonia,"—the first ships of the now celebrated Cunard Line.

The Inman Line was founded in 1850, the Guion Line in 1866, and the White Star Line, which now shares the great Atlantic trade with the Cunard Company, was established in 1870.

The evolution from sail to steam involved changes in the design of the hull of a ship. At first it was considered that to turn a sailing-ship into a steamer it was simply necessary to fit a hull designed



SS. "PRESIDENT," 1840

for a sailing-vessel with a steam engine. It was soon, however, discovered that the fine lines and deep keel required to carry sail were not required in a steamship, and in course of time full-bodied hulls with square bilges without keels were adopted.

An iron steamer is but a rectangular girder or tank with the ends sharpened, the co-efficient of fineness varying from 62 to 78 degrees, according to the speed or deadweight capacity required. In 1860 Sir Edward Harland, with a view to easy propulsion, introduced steamers into the Mediterranean trade with a length of ten times their beam. These were so successful that when he built the fleet for the White Star Line he carried out the same principle, thereby also securing steady sea boats. He also introduced central passenger saloons and cabins, which speedily made the White Star ships very popular. Cabin accommodation placed in the centre of the ship has now become general. Some further modifications in design have taken place; ships have, relatively, now less length and more beam, and the cabin accommodation is built up citadel fashion in the middle of the ship.

The most notable evolution has, however, been in size and speed. The "Britannia," built in 1840, was 1,200 tons, with $8\frac{1}{2}$ knots speed. She was followed by the "Great Britain," in 1843, 3,270 tons; she was, however, too large for the times, and did no good. The "Great Eastern,"

built in 1855, was of 18,915 tons, and 12 knots speed, and was also a failure, although if she had been given sufficient power she would probably have hastened the era of large and fast vessels.

The demand for speed was for some years the governing feature in the design of steamers in the Atlantic trade, and to a smaller extent in the Eastern trades, in which the carrying of coal for long voyages has also to be considered. The increase in power required to obtain high speeds necessitated the adoption of twin screws, and with the still higher powers required by the "Mauretania," "Olympic," etc. (60,000 h.p.); four propellers are found necessary.

In the Atlantic trade, the "Arizona," built by John Elder & Co. for the Guion Line, was the first of the "Atlantic greyhounds." She was quickly followed by the "Alaska" and the "Oregon," the latter being built in 1882, with a speed of 19 knots. She was the fastest ship of her time, and became the property of the Cunard Company. She was again eclipsed by the Cunard ships "Umbria" and "Etruria," in 1885, with a speed of 19½ knots. In 1888 the "City of Paris" and "City of New York" had attained a speed exceeding 20 knots. For some years no improvement in speed was obtained until the advent of the "Campania" and "Lucania," in 1893, with a tonnage of 12,900 and a speed of 22 knots.



SS. "BRITANNIA," 1840

Although steamers thus gradually increased in size and power, the "Oceanic," built in 1899 for the White Star Line, may, I think, claim to be the pioneer of the great Atlantic liners. She was 16,900 tons and 704 feet long, and 21 knots speed. She was quickly followed by the "Lusitania" and "Mauretania," built for the Cunard in 1907, with a tonnage of 33,000, and a speed of $24\frac{1}{2}$ knots. They were again eclipsed in size by the "Olympic," "Aquitania," and the "Imperator," all about 50,000 tons; but the "Mauretania" still holds the blue riband of the Atlantic for speed. It is scarcely safe to say that the last big ship has been built; size is only limited by commercial considerations and the depth of water available in our harbours, as an iron ship, being a girder, her length is limited by the depth which can be given to the girder. The cost of construction may, however, limit the size of ships, at all events, for some years.

CHAPTER III

THE EVOLUTION OF THE MARINE ENGINE

The steamship as a practical proposition developed slowly, being retarded by the dilatory evolution of the marine engine. The first serious effort to apply steam power to vessels of any size dates back to only 1838-1840, years which witnessed the establishment of the Royal Mail, the Peninsular and Oriental, and the Cunard Steamship Companies. Their first vessels were steamers of 1,200 tons, having a speed of eight or nine knots. Such vessels were not formidable competitors of the old packet ships, except in the passenger trades; their average passage across the Atlantic, occupying from thirteen to seventeen days, not being a great improvement upon the passages of the sailing-packets. The ships of the Dramatic Line averaged $20\frac{1}{2}$ days, and those of the Black Ball Line 21 days.

The advantage of the greater regularity in the passages of the steamer was, however, obvious, and greatly stimulated invention. The improvements in the paddle engine were slow. We were a long time getting away from the side-lever engine, working at a low pressure. The "Britannia," built in 1840, was 1,200 tons; her engines indicated 740



SS. " GREAT BRITAIN," LAUNCHED 1843

horse-power, giving a speed of $8\frac{1}{2}$ knots. The "Scotia," the finest paddle steamer ever built, and the last of the great paddle boats, was built in 1860, and had the same type of side-lever engine, but her tonnage was 3,871, with an indicated horse-power of 4,800, giving her a speed of 13 knots. The most rapid passage made by the "Britannia" was 14 days 8 hours; the most rapid made by the "Scotia" was 8 days 15 hours.

The screw propeller was invented in 1836, but for a long time it was thought to be inferior to the paddle as a means of propulsion, and there was some difficulty in applying the power to the screw shaft. The side lever in various forms was tried, but proved a failure. The "Great Britain," 3,270 tons, launched in 1843, had engines which worked upward on to a crank shaft, and the power was brought down by endless chains to the screw shaft. This did not prove satisfactory. Then we had oscillating engines working a large geared wheel fitted with wooden teeth to increase the revolutions of the propeller. Then came the direct-acting engines with inverted cylinders, which for years were almost the universal type of engine, and were a very efficient form of low pressure engine.

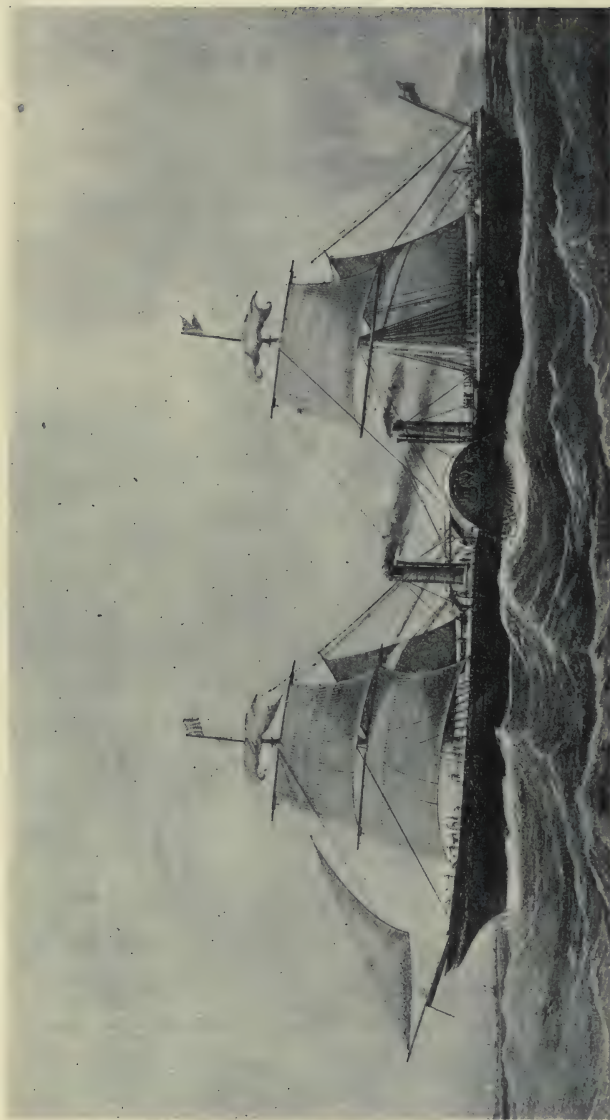
The compound engine revolutionised the steamship trade, ensuring such economy of fuel as to permit of long voyages being successfully undertaken. The compound engine developed into the

triple expansion engine ; the object being to get the last ounce of power out of the steam by first using it in a high pressure cylinder at 180 lbs., then passing it into a larger cylinder, using it expansively, and finally passing it into a still larger cylinder at about 8 lbs. pressure, and again allowing it to expand. The triple expansion engine came into general use in 1886.

The turbine, invented by Sir Charles Parsons in 1897, has effected a revolution in the engines of large size. The principle is simply to allow steam at a high pressure to impinge upon blades fitted to a rotor which it revolves on the principle of the syren. The steam is afterwards used expansively in a second rotor working directly upon the screw shaft. The advantage of a turbine engine is its simplicity—few working parts and a saving in weight and space ; its disadvantage is that a separate turbine has to be employed to obtain sternway. Recently, geared turbines have been introduced which are lighter, slightly more economical in fuel, and are sweeter running machines.

It is noteworthy that whereas gears were necessary in olden times with engines working at a low pressure to speed up the propeller shaft, with turbines gears are used to reduce the revolutions.

Meantime, greater boiler efficiency was being obtained. The " *Britannia* " worked with a pressure of 12 lbs. This was gradually increased to 30 lbs



SS. "SCOTIA," 1860

in boilers constructed in 1868, and this was practically the range of pressure during the period of single-expansion engines. The salt water used in these boilers caused them to become quickly salted up, which not only diminished their efficiency but shortened their lives, and it was not until the compound engine was invented by John Elder that cylindrical boilers, working at a pressure starting at 60 lbs. and increasing to 190 lbs., were introduced. These proved a great success. By the use of fresh feed water and replenishing it from the condensers, salting was prevented and the life of a boiler greatly increased.

No further great improvement in the boiler has taken place. The water-tube boiler is still in an experimental stage, and attention is now being directed to oil fuel, which will reduce the engine-room staff, ensure greater cleanliness and quicker despatch.

The result of these improvements in marine engines and boilers has been to reduce the consumption of coal from 4 lbs. per indicated horse-power to 1.4 lbs., which cannot be considered otherwise than a great achievement. The future high cost of coal is sure to stimulate invention, and we may at no distant date expect developments in internal combustion engines adapting them to high powers which may open up a new and great era for mechanically-propelled vessels, and again entirely

change the world's outlook. We have also always before us the probability of further discoveries in electricity; the recent developments in wireless telegraphy teach us that we are only on the threshold of discoveries which will bring this mighty but mysterious power more and more into the service of man.

CHAPTER IV

THE MAKERS OF OUR SHIPPING TRADE

These sketches of the growth and development of our shipping trade would be incomplete without some reference to those who built up its great prosperity—men who are entitled not merely to our consideration but to our admiration ; men whose memories should be treasured by Liverpool people, because they afford to generations yet to come examples of industry and perseverance in the face of difficulties which should not be without beneficial effect if kept in remembrance. Things move so rapidly, and our memory is so limited that we are apt to view the things of to-day as of our own creation, and lose sight of the strenuous spade work done by our forefathers.

Much as we must appreciate the enterprise and ability of our shipowners of to-day, it is no disparagement of them when we claim that the work of those who have gone before was equally enterprising within its limits, and was even more strenuous and anxious. They had to do with a business world only just emerging from the chrysalis state, and without those helps and facilities which modern science has placed at our disposal. But

while claiming this, we must avoid considering those who have passed before as "giants" of industry. They were simply the men who, when placed in circumstances of difficulty, always rise to the occasion and develop those faculties of industry, resource and imagination which are so happily characteristic of our race.

That we may, therefore, appreciate the labours of those who have built up our prosperity we must consider shortly the circumstances in which they worked and the tools they had to work with. We have already alluded to the difficulties which a ship's husband had to contend with owing to the absence of "cables," or any speedy means of communication with distant places, and to the anxieties attending the maintenance of the old wooden ships; but these did not entirely disappear when iron ships were introduced. The early steamers were badly designed, very short of freeboard, insufficient in strength and short of engine power; they were frequently loaded too deeply, and we had many casualties. One of the greatest improvements in the construction of an iron ship was the introduction of iron decks, which gave the constructional strength required, and when water ballast tanks were also adopted a ship not only gained additional strength, but also mobility and seaworthiness.

The place of the old cargo boat was in course of time taken by the so-called "tramp," the modern



CHARLES MACIVER



WILLIAM INMAN



THOMAS H. ISMAY



SIR EDWARD HARLAND

cargo carrier—a good wholesome ship, a large carrier, with sufficient power to take care of herself in all weathers. With modern machinery a tramp can go to the ends of the earth without replenishing her coal supply. One remarkable change has taken place which would have shocked the shipowners of fifty years ago; steamers no longer carry sails and the tendency is to do away with masts. The “standard” ship has only one mast, which is only used for signalling. The excellence of modern machinery and the general adoption of the twin screw have rendered breakdowns very rare, and the “wireless” is at hand to summon assistance when required. If the cargo steamer of to-day has improved, the design of the passenger ship has made even greater progress. Those who travelled across the Atlantic in the early sixties will recall the stuffy passenger saloons, placed right aft, with no seats except the long settees, and lit only by candles suspended on trays, which swayed to and fro sputtering grease right and left. The state-rooms were placed below the saloon and were lit by oil lamps, one between every two rooms. These were religiously put out at ten o’clock every night.

There was no ventilation, and no hot water was obtainable. We have always thought that the introduction of the electric light was a greater boon, and more appreciated on board ship than anywhere else. On a rough, wild night, when everything in

your state-room is flying about, and you begin to conjure up thoughts of possible disaster, if you switch on the electric light, all is at peace. The very waves appear to be robbed of their fury. There were no smoke-rooms in the olden days—the lee side of the funnel in fine weather, the fiddlee at other times. Here, seated on coils of rope, and ready to lift our feet as the seas rolled in from the alleyways on either side, we smoked and spun our yarns. There was an abundance of food in the saloon in the shape of great huge joints of meat and dishes of vegetables, which were placed on the table, and it required some gymnastic agility to be ready to seize them, when the ship gave a lurch, to prevent their being deposited on your lap. We had no serviettes, but there came the enormous compensation for all deficiencies—it was deftly whispered, “the Cunard never lost a life,” and not another word was said.

The conditions of life in the steerage were wretched. The sleeping berths were huddled together, necessitating the occupants climbing over each other; there was no privacy, no washing accommodation except at the common tap, no saloon or seating accommodation except on the hatchways. The food was brought round in iron buckets, and junks of beef and pork were forked out by the steward, and placed in the passenger's pannikin, and in a similar way potatoes and plum duff were served out.

All this has been changed, and in place of discomfort we have luxurious accommodation for every class of traveller; and this change has been brought about by the men concerning whom we propose to make some notes.

SIR EDWARD HARLAND

It is very difficult to give to any one man the credit for the great improvements which have been made, but I think ship designing owes much to the late Sir Edward Harland, of Belfast. He was the first to introduce the long ship with easy lines—easily propelled and excellent sea boats.

In designing passenger ships, Sir Edward Harland was the first to see the advantage of placing the saloon passenger accommodation in the centre of the ship (citadel fashion), thus adding greatly to the comfort of ocean travel.

The modern cargo boat—the so-called “tramp,” because she has no fixed trade, but vagrant-like seeks her cargoes at any likely port—owes much also to the genius of Sir Edward. The old-fashioned wave line theory in design, with its concave water lines and hollow sections, had produced bad sea boats and poor cargo carriers. Sir Edward was the first to perceive that long, easy convex water lines, with full sections, gave buoyancy at every point, were more easily propelled, and had large deadweight and measurement capacity. I think,

therefore, when considering who were the makers of the shipping industry of to-day, his name must ever occupy a foremost position.

We must also give credit to Messrs. Randolph Elder & Co., for the introduction of the compound engine, and to Sir William Pearse (who became the head of the firm) for the "Atlantic greyhounds," the "Arizona," followed by the "Alaska" and the "Oregon." These ships were the first to make speed one of the first considerations of Atlantic travel.

THE SHIPBROKER

In the olden days we had not only shipowners but shipbrokers, who had lines of ships to various places, and who either chartered vessels or loaded them upon commission. The loading brokers made it their duty to call upon the forwarding agents every morning to ascertain what goods they had for shipment. This duty was never relegated to clerks, but was always performed by one of the principals. We have a very vivid recollection of the daily morning visits of Mr. Mors, Mr. Astley, Mr. W. Imrie, Mr. Thomas Moss, Mr. McDiarmid, and others. This business of the shipbrokers eventually came to an end when regular lines of steamers were established, but they for long occupied a very influential position in the shipping world.



SS. "OREGON," 1883

CHARLES MACIVER

The most outstanding figure among ship-owners of 1850-1880 was Charles MacIver, of the Cunard Line, a man of resolute courage and stern discipline. Clean shaven with aquiline features, he looked like a man born to command.

I remember when I was Mayor, in 1880, a commission was given to Herkomer to paint his portrait. He asked me what sort of man Mr. MacIver was, and then proceeded to Calderstones to paint his portrait. In a few days he returned, saying he was going home, as he had not found the strong man I had described. In a few months he returned and called to tell me that he had found my Mr. MacIver and painted him. It appears that on his first visit Mr. MacIver was suffering from illness.

Mr. MacIver built up the Cunard Line, which in the fifties paid one-third of our Liverpool dock dues. I can visualise Colonel MacIver marching down Water Street at the head of 1,000 of his men whom he had drilled and trained. This was one of the first Volunteer regiments raised in 1858, when we had fears that Napoleon III intended to invade this country. Many stories are told of Mr. MacIver's stern discipline. It is said one of his captains asked permission to take his wife to sea with him. Permission was granted, but when the day of sailing arrived he received passenger tickets for himself and his wife, also an intimation that he had been superseded in

command of the ship. I remember doing some small service for Mr. MacIver which required some promptitude in its execution. In thanking me he added, "Young man, always kill your chickens when young"—and this was the principle he acted upon when threatened with opposition in any of his trades.

Mr. MacIver was very public-spirited, and a liberal supporter of our seamen's charities.

It was a rule with the old Cunard Line not to introduce improvements until they had been well tried, and they continued to construct wooden paddle steamers long after the iron screw steamer had proved its efficiency. It was no doubt this policy which built up the wonderful reputation the line has always enjoyed for safety.

Although Charles MacIver was the master-builder of the Cunard Company, he was not actually one of the founders. These were Samuel Cunard, George Burns, and David MacIver. David MacIver died in 1845, and his brother Charles took his place. I was staying at Castle Wemyss in 1890, when I received a message that Sir George Burns wished to see me. The old man was lying on what proved to be his deathbed. His features, which were those of a handsome, strong, and resolute man, were thrown into striking relief by the halo of long, flowing, silver-white locks, which fell on his pillow. His mind (he was then ninety-five) evidently loved to live in the distant past, and he told me with pride,

not of the doings of the Cunard Company, with which he had been so long and so honourably associated, but of the old sailing brigs, which in the days of his youth carried the mails between this country and Halifax.

Several of the first Cunard ships were built by John Wood at Port Glasgow. As a schoolboy I spent my summer holidays at his house. He was then building the wooden steamer "Lusitania" for my father's firm. She was intended to trade between Lisbon and Oporto. Old John Wood was the father of shipbuilding on the Clyde, and a brass plate inserted in the wall of Messrs. Duncan's shipbuilding yard at Port Glasgow now marks the site of his house.

I treasure these links of memory with those olden days of the shipping industry; they bridge over a period of most remarkable achievement and progress.

Sir George Burns was made a Baronet by Queen Victoria on the occasion of her Golden Jubilee, and his son was raised to the Peerage on Her Majesty's Diamond Jubilee under the title of Lord Inverclyde. Lord Inverclyde took a very warm interest in shipping matters; he was a keen yachtsman, and dispensed at Castle Wemyss a splendid hospitality. He was for many years Chairman of the Cunard Company.

After the Cunard Company was formed

into a Limited Company, in 1882, Mr. John Burns was the Chairman, but as he lived in Scotland, the Deputy-Chairman (the late Mr. David Jardine) had the practical charge. His devotion to the interests of the Company through difficult times was most praiseworthy. He built the "Umbria" and "Etruria," the two most successful and popular ships ever owned by the Company. The Marine Superintendent of the Cunard Line (Captain Watson) was a remarkable man, a seaman of the olden school, with great knowledge of a ship, but with a very narrow outlook. Of those who have passed away in connection with the Cunard Company, the most conspicuous figure was the second Lord Inverclyde, who succeeded Mr. Jardine as Chairman in 1905, and remained so until his death, five years later. Lord Inverclyde had a great grasp of affairs, and was a thorough master of the management of a steamer. He built the "Mauretania" and "Lusitania," and had he lived he was destined to take a leading position in the country. Lord Inverclyde was succeeded as Chairman by Mr. William Watson, who died in 1909.

THE INMAN LINE

Ten years after the Cunard Company was established the late Mr. William Inman, in conjunction with Richardson Brothers, of Belfast, founded a



SS. "UMBERIA," 1884

line of steamers to Philadelphia. Their first steamer was the "City of Glasgow." They shortly after made New York their headquarters in America. Mr. Inman's policy was to cultivate the emigration trade, which had hitherto been carried by sailing ships ; in this he was very successful, and the Inman Line, which existed for nearly forty years, will be remembered as containing some very fine and fast ships. The last ship Mr. Inman built, the "City of Rome," was certainly the handsomest ship entering the Port. Mr. Inman died in 1881 comparatively young. He was an excellent public-spirited citizen, always ready and willing to help forward any good cause. We saw much of him at Windermere, where he loved to spend his holidays, and owned quite a flotilla of craft on the lake. Before he died the pride of place on the Atlantic had, however, been wrested from his hands by the more enterprising White Star Company. The Inman steamers passed into the hands of the Inman and International Steamship Company, under the direction of the late Mr. James Spence and Mr. Edmund Taylor, and eventually drifted to Southampton, and the old Inman Line, loved by Liverpool people for their handsome ships with their overhanging stems and long graceful lines, is now only a memory.

THE COLLINS LINE

In 1850 an American line called the Collins Line started in the New York trade. It consisted of wooden paddle steamers with a tonnage of 2,800. They were for those times most luxuriously fitted. They had straight stems, and were known by their black funnels with red tops. The Company was not a financial success, and the steamers were withdrawn in 1858.

THE WHITE STAR LINE

The White Star Line was originally a line of clipper ships trading to Australia, and owned by Pilkington and Wilson. The Line was bought by Mr. T. H. Ismay, who had formed a partnership with Mr. Imrie. Mr. Schwabe, of Broughton Hall, West Derby, was a large shareholder in Messrs. Bibby's Mediterranean Line, and had, much to his annoyance, been notified that he could not have any further interest in their steamers, and the story goes that over a game of billiards he asked his friend, Mr. Imrie, to establish a new Line to New York, and promised, if he would do so, and would give the order to build the ships to Messrs. Harland and Wolff, he and his friends would take a substantial interest. Messrs. Ismay, Imrie & Co. accepted the proposal, and in conjunction with the late Mr. G. H. Fletcher founded, in 1870, the White

Star Line of steamers to New York, Mr. Fletcher being associated with Mr. Ismay in the management. In the design of the "Oceanic," "Baltic," "Atlantic," the first steamers built for the Line, Mr. Harland adopted the novel features to which I have already alluded, and these, with the personal interest which Mr. Ismay displayed in making travellers by his Line comfortable, quickly made the White Star Company very popular. It was this personal touch which contributed largely to the success of the Company, and built up its great prosperity.

Mr. Ismay was a personal friend of whom I saw much in private life. I did not consider his prominent position was due so much to his brilliance, although he was distinctly an able man, as to his personality. He was also very thorough in all he did, and had great initiative. He had the happy gift of winning the confidence of those with whom he was associated, and the power of selecting excellent lieutenants and placing responsibility upon them. He was ambitious—but not for honour, for he had refused a Baronetcy—but that the White Star Line should be pre-eminent. I was his guest on board the "Teutonic," in 1897, on the occasion of the Queen's Diamond Jubilee; the ship was filled by the leading people of the land. All that was great and distinguished in politics, in literature, and art, etc.,

were represented. We had also the Kaiser Wilhelm II as a visitor. I was struck by Mr. Ismay's composure and the perfection of all his arrangements.

The occasion was also made memorable by the appearance of the "Turbinia," Sir Charles Parson's experimental ship. She rushed about at headlong speed, but always under control, and it was evident that the turbine was destined to become—as it has—a great motive power with immense possibilities. Mr. Ismay unfortunately did not live to see the completion of his *chef d'œuvre*, the "Oceanic."

S. B. GUION

The Guion Line occupied for many years an important and distinct position. Founded in 1866, their steamers were specially constructed for the emigration trade. After enjoying considerable success, they were unfortunate in adopting new designs which proved very costly experiments. Upon the death of Mr. Guion, in 1885, the steamers were transferred to a public company, which ceased to exist in 1894. Mr. Guion was very highly esteemed, he was a member of the City Council and Chairman of the Watch Committee; his pleasant, genial smile and his little jokes still linger in my memory.



SS. "OCEANIC," No. 1, 1870

We have not alluded to the National Line, which was established in 1862, and which, after enjoying a fluctuating career of prosperity and adversity, came to an end in 1892.

THE MEDITERRANEAN TRADE

In the forties the Mediterranean trade was conducted by sailing brigs and fore and aft schooners. The late Mr. W. Miles Moss, of James Moss & Co., told the story that in 1849, feeling convinced that the time had arrived to introduce steamers, he invited those engaged in the trade to dinner at his house. He gave them his opinion, and added that he had contracted to build a steamer to cost £21,000, and invited his guests to take an interest with him. They responded to the extent of £12,000 only. Mr. Moss significantly added, "I took the balance." This steamer was the "Nile," and was the beginning of the Moss, Bibby, Viana, Chapple Lines. They all rapidly grew to be enterprises of great importance, and the sources of large wealth. James Moss & Co. were the pioneers in the steam trade to Egypt and the Levant, their first steamer being the "Nile."

THE BIBBY LINE

The Bibby Line to the Mediterranean was established in 1850 by John and James Bibby, who

had for many years owned a Line of small sailing-vessels trading to Italy.

The success of the Line was largely due to the genius of a young man, Mr. F. R. Leyland, who worked his way up from one of the lower rungs of the ladder, and eventually became the owner of the company. The career of Mr. Leyland is one of the most remarkable in our annals; receiving but a scant education he became a great linguist, an excellent musician, and as lover and connoisseur of art he had few superiors. Mr. Leyland's dispute with the great Whistler as to the decoration of his Peacock room will be remembered by many.

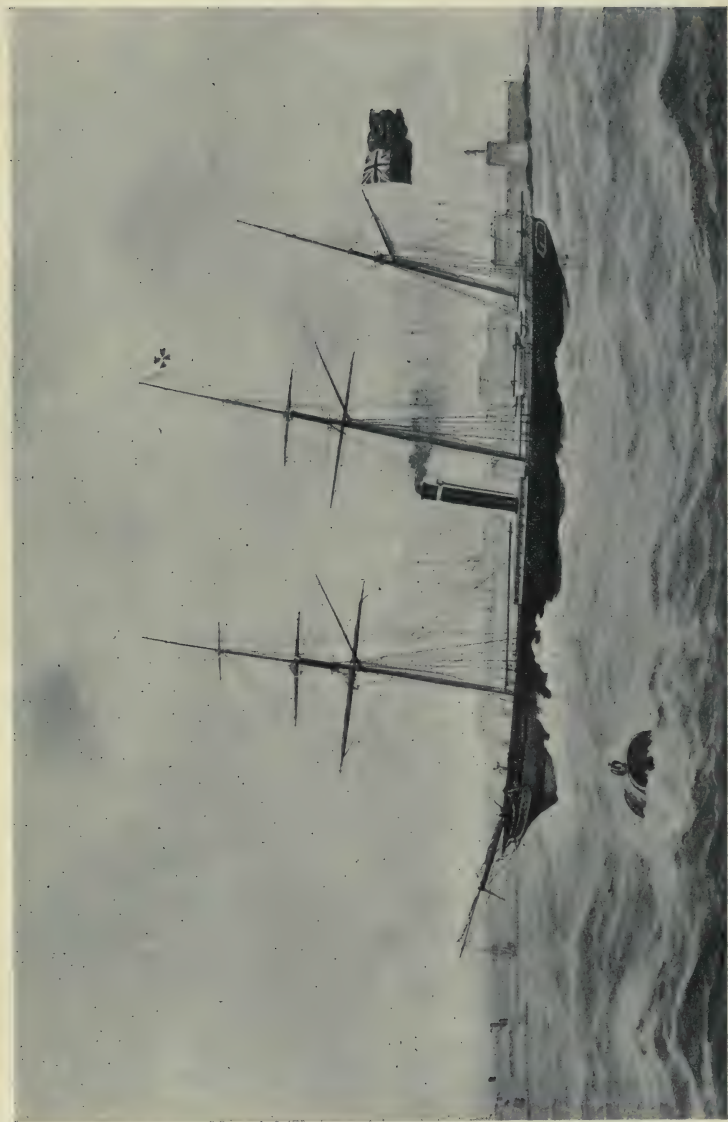
The Bibby Line was revived by the nephews of the Messrs. Bibby who built up the old Bibby Line. The present Bibby Line has made for itself a very leading position in the East Indian trade.

W. J. LAMPORT

The Liverpool shipping trade owes much to the late Mr. W. J. Lamport, who for many years was the Nestor of the trade, and also the founder, in co-partnership with Mr. George Holt, of the firm of Lamport & Holt. Mr. Lamport was a very able man and was the author of the first Merchant Shipping Bill.

T. AND J. HARRISON

Messrs. T. and J. Harrison, in the sixties, owned a few iron ships in the Calcutta trade, and



SS. " NILE," 1850

some small steamers in the Charente wine trade. The late Mr. James Harrison was a genius—some thought he was a little eccentric, but he saw much further than most men, and recognised that there was an opening in the India trade for ships of moderate power that could make their passages with some regularity, and he boldly chartered the ships of Messrs. Malcolmson, which were large carriers, and with their engines of small power placed right aft, they quickly made a great success. Mr. James Harrison's mantle fell upon very worthy shoulders in the late Mr. John Hughes, and under his direction the little Charente Line developed into the important Harrison Line of to-day. Mr. James Harrison's sons are among the foremost of the supporters of our charities, and have contributed largely to the building of our Cathedral.

ALFRED HOLT

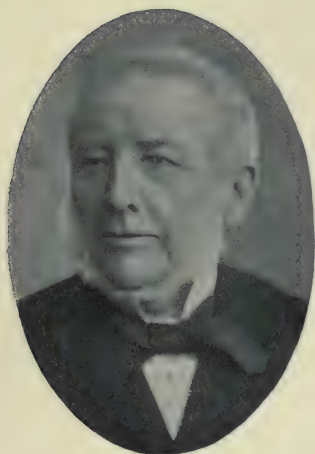
Mr. Holt claims a prominent niche in our gallery. He was essentially an inventor and a pioneer. In the early sixties he owned a line of small steamers trading to the West Indies, and afterwards he entered the China trade in association with the Swires, and was the founder of the prosperous Holt Line. Mr. Holt was for long years the advocate of the single engine, which he claimed to be the most economical, and also

of models having fine lines and a big rise of floor—claiming that it was most economical in practice to have an easily-driven vessel. Experience has, however, demonstrated that ships with full bodies can be more cheaply propelled at moderate speeds.

Mr. Holt was the Chairman of the Dock Board, and was the inventor of the "plateway"; a scheme suggested to be adopted on our highways in order to facilitate the conveyance of heavy goods in competition with the railways, a scheme of which we shall hear more.

SIR ALFRED JONES

The late Sir Alfred Jones was a remarkable personality. He climbed up to the prominent position he eventually occupied by the sheer force of his will and character, backed by marvellous industry. I once asked him why he did not take a partner. His answer was, "I will do so as soon as I can find a man as 'intense' as myself." On my inquiry how he got through his work he replied, "System. My day is mapped out—a certain hour for my steamers, another for my banana trade, another for coal, another for my properties, another for my theatres in the Canaries." With all this he spent several days each week in London, taking his correspondence clerks with him on the train and shedding them on the way as he completed his letters. For sheer force of



SIR THOMAS BROCKLEBANK



W. MILES MOSS



FREDERICK R. LEYLAND



SIR ALFRED JONES

character and power for work, Sir Alfred was the most remarkable man Liverpool has produced in my day.

MR. WALTER GLYNN

We had in Mr. Walter Glynn a successful manager of the Leyland Line, and also a very useful member of the Dock Board. Very blunt of speech, his directness of purpose was a very useful quality in public affairs.

MR. WILLIAM JOHNSTON

Mr. William Johnston, the founder of the Johnston Line, devoted himself to the building up of his own business, in which he was most successful. He was the first to recognise and profit by through freight arrangements in connection with the great trunk lines of railway in America.

RATHBONE BROTHERS

were among the first to form a Line of steamers to Calcutta. The "Orion," "Pleiades," and others, were handsome vessels, but the general impression was that they were not sufficiently large carriers for such a distant trade. Mr. William Rathbone's memory will be long treasured by Liverpool as one of our most useful public men. He represented the

town in Parliament for many years, and Liverpool was never better represented. He had an office at the rear of his private residence in London, where he kept a staff of clerks for his Parliamentary business. Those were days when a Member could initiate and carry through legislation. Mr. Rathbone took a leading position in the reform of the Poor Laws, and in the promotion of the first Merchant Shipping Bill. His brother, Mr. Samuel G. Rathbone, devoted his remarkable ability to local affairs, and was a very valuable and leading member of the Town Council.

TURNER, MORRISON & Co.

the owners of the Asiatic Line, trading on the coast of India, were represented by the late Mr. Alfred Turner, who was one of our most large-hearted citizens. When we failed in the eighties to raise money to build a Cathedral on the St. John's site, he defrayed the whole of the initial expenses. He was for some years the President of the Seamen's Orphanage.

Sir THOS. ROYDEN

was at one time one of our most prominent ship-builders. He afterwards devoted his attention entirely to ship owning, in which he was most successful. Sir Thomas was a tower of strength to the Tory party, his eloquence and his smile being

among their most valuable assets. Sir Thomas lived to a good old age, and was always prominent in Liverpool affairs.

Sir ARTHUR FORWOOD

founded, in 1865, the West India & Pacific Co., of which he was the Managing Director, until he entered Parliament. He was a man of striking ability and power of organisation, and was endowed with enormous energy. As the leader of the Tory party in Liverpool and in the County he did a great work for Liverpool, and he became the Parliamentary Secretary to the Admiralty.

THE BOOTH LINE

The Booth Line occupies a prominent position, and has built up a large trade with the Northern Brazilian ports. It was founded by the Right Hon. Charles Booth, the philanthropist, and the late Mr. Alfred Booth. The original Booth Line amalgamated some years ago with Messrs. Singlehurst & Co.

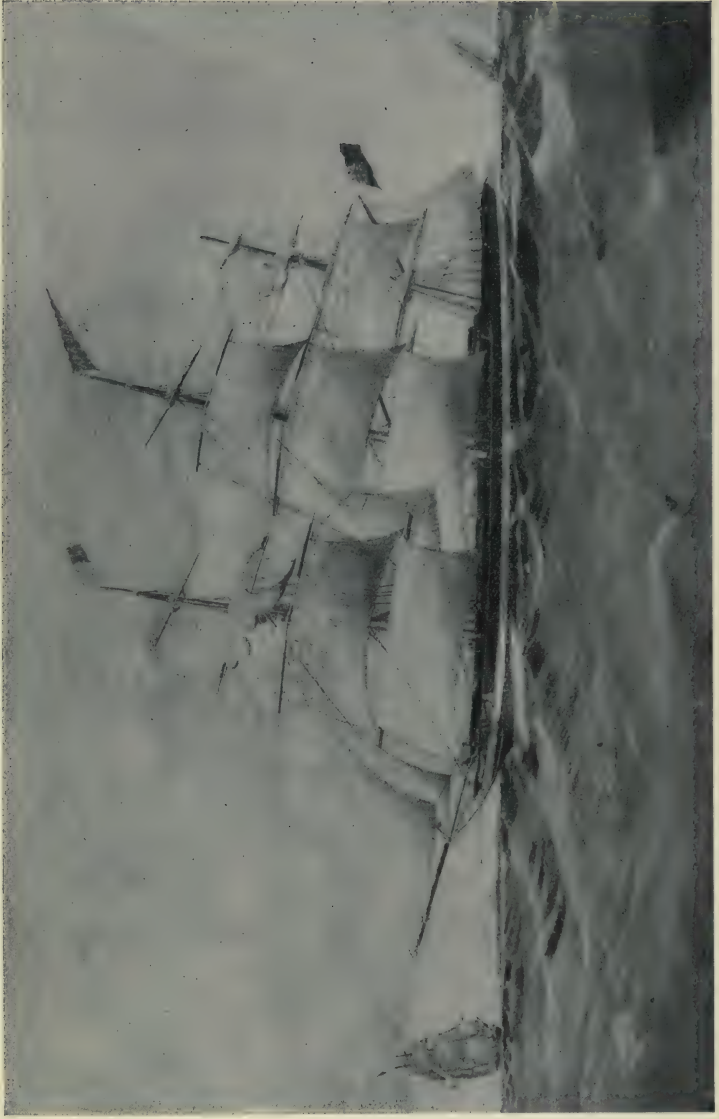
It is impossible to refer to the many who have been interested in our Atlantic steam trade who valiantly bore their part in the struggles of the past. In these days, which have been days of remarkable prosperity, one is apt to forget the struggles of the past, and in no trade were they more severe than in the Atlantic.

SAILING-SHIP OWNERS

Among the sailing-ship owners of the day Messrs. Brocklebank took the lead. Their ships, distinguished by a white band, seemed to monopolise the Albert and the Salthouse Docks. They were not only our largest shipowners but our largest merchants, their ships conveying mostly their own cargoes. They were very slow in changing over from sail to steam. Mr. Ralph Brocklebank took an active interest in the affairs of our Dock Board, and was for many years the Chairman. Sir Thos. Brocklebank took a prominent position in politics as a Unionist, and both were very public spirited.

Messrs. Rankin, Gilmour & Co., associated with the old firm of Pollock & Gilmour, of Glasgow, had a large fleet, mostly engaged in the timber trade. Mr. Robert Rankin lived at Bromborough Hall, and was for many years the Chairman of the Dock Board. The firm is now most worthily represented by Mr. John Rankin, to whose widespread philanthropy Liverpool is so greatly indebted.

Mr. Edward Bates was among our principal shipowners. His ships traded with Bombay, were built of iron, and bore family names. To the surprise of most people, Mr. Bates entered Parliament. He won the reputation of being the most regular member in his attendance, and was created a Baronet.



"ARACAN," 1854

Among other owners of sailing-ships we had Mr. James Beazley, who will always live in our kindly memory as the founder of the Seamen's Orphanage ; Mr. F. A. Clint, Mr. David Fernie, and others.

THE AUSTRALIAN TRADE

Probably the most active trade in the fifties was the Australian trade, the gold discoveries attracting a large emigration trade. Mr. H. T. Wilson (the Napoleon of the Tory party) was very prominent and active in this trade. He founded the White Star Line, which he afterwards sold to Mr. Ismay. Mr. James Baines (who never appeared to be able to buy a hat sufficiently large to contain his big head), with his henchman, Mr. Graves, was always active and pushing, and kept the Black Ball Line of Australian packets well to the fore. He owned quite a large fleet of clippers, including the celebrated ship the "Marco Polo," the "James Baines," the "Donald M'Kay," and others. The Australian trade did not make fortunes ; the soft wooden ships were costly to maintain, and competition became severe.

S. R. GRAVES, M.P.

was a prominent shipowner. He became one of the Members of Parliament for Liverpool ; he

was very popular in the House, and his friends expected he would have taken a high position had he lived. He was the popular Commodore of the Royal Mersey Yacht Club, and his schooner yacht "Ierne" will be remembered by many.

We must not forget the fruit schooners owned by Messrs. Glynn & Co., which filled the old George's Dock. They were the Witches of the Sea.

One of our most flourishing trades was the West Coast trade of South America. It was worked by small barques of 400-500 tons, always smart, well-equipped vessels, as they needed to be to do battle with the heavy westerly gales off Cape Horn. Messrs. Balfour, Williamson & Co., who owned many vessels in this trade, made a noteworthy departure in providing a home in Duke Street for their masters and apprentices when in port.

LEADERS IN SHIPPING

In bringing these sketches to a close, one feels it may be considered presumptuous to attempt to allot the position which each may claim in building up our shipping prosperity, but we may point to distinctive features in the work of each claiming recognition. I think Mr. Charles MacIver stands out prominently as the founder of our great Atlantic trade. Mr. T. H. Ismay demands our appreciation for the good work he did for the ocean traveller—he made the comfort of the passenger his first

consideration. The late Mr. W. Miles Moss can claim to be the pioneer of the Mediterranean steam trade. Mr. Inman was the friend of the Irish emigrant. Sir Alfred Jones, the active minded and energetic owner, whose ambition was boundless and success great. And last, but not least, Sir Edward Harland, the great master shipbuilder, whose genius prevailed everywhere, and is still felt.

It is very gratifying to be able to record the successful careers of many of our shipowners, who, from small beginnings, have achieved not only wealth, but positions of influence and importance. We have already alluded to Mr. Ismay, Mr. F. R. Leyland, and Sir Alfred Jones. The late Sir Donald Currie was for many years head of a department in the Cunard Co., and became in after years the Chairman and principal owner of the Cape Mail Line of steamers; and Sir Charles Cayzer, while in the service of the P. & O. Company, saved sufficient to buy a small sailing-vessel, and afterwards associating himself with Messrs. Arthurs & Co., of Glasgow, founded the important line of steamers bearing his name.

It is a subject for sincere regret that the recent craze for amalgamation has obliterated so many landmarks in the history of our shipping. In a very few years names which were household words with us will have disappeared. Ismay, Imrie & Co., the Inman Company, the Guion Line,

the West India and Pacific, the Dominion Line, the old Bibby Line have all already gone, and have become absorbed in still larger companies. The process is still making headway, and in a few years very few of the old companies will be left, and the headquarters of our great shipping industry will be in London. This will not make for the general prosperity of Liverpool, and we shall miss the old Liverpool shipowner in many ways. It will, however, be always pleasant to think of how nobly he did his duty. Messrs. MacIver, Inman, Ismay, Allan, Beazley, Sir Alfred Jones were all distinguished by their public spirit and their generous support of our charities, particularly those associated with the welfare of the sailor, and no Port in the world is so well equipped with institutions which care for his welfare.

CHAPTER V

OUR MERCHANT SHIPS AND THE WAR

*She walks the water like a thing of life
And seems to dare the elements to strife.*

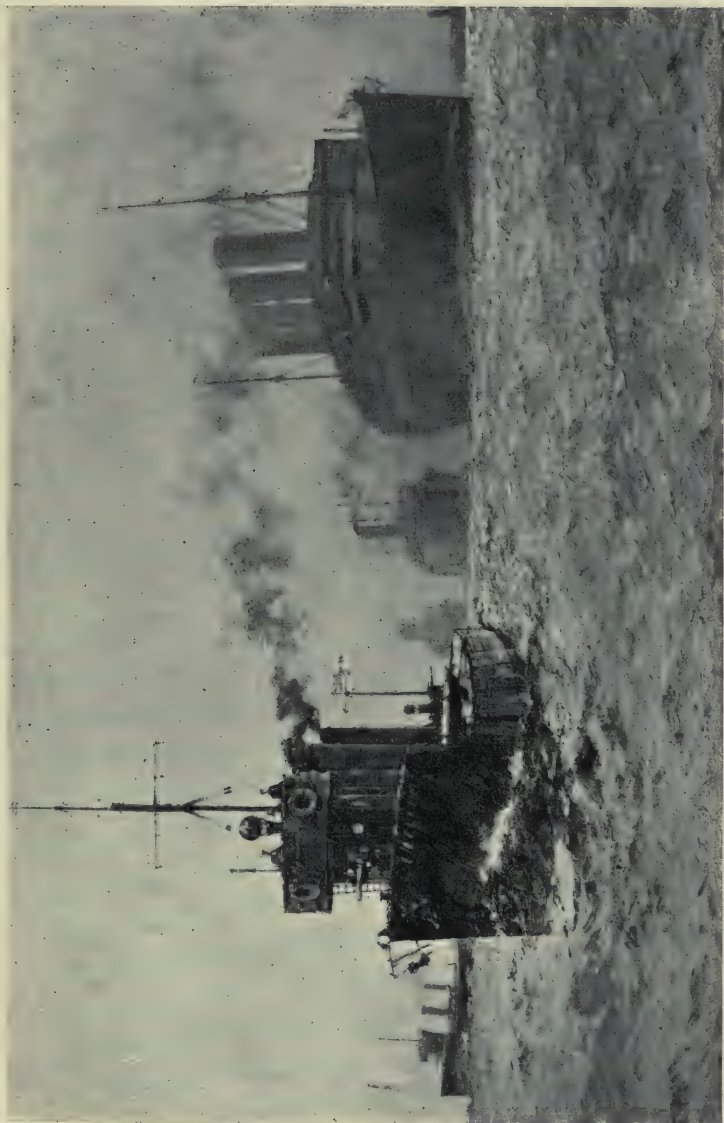
—BYRON.

The active part taken by our merchant ships in the War, and the brave deeds of our seamen are perhaps too recent to be considered "reminiscent," yet we cannot but feel that any story of the doings of our merchant navy during the past fifty years would be very incomplete without some reference to the noble part it played in the stirring events of the last five years, and how largely it contributed to the glorious and victorious result. The task of giving even a fragmentary account of the part which the Mercantile Marine took in the mighty conflict is rendered difficult in consequence of the lack of authoritative information, owing to the severe (but very proper) censorship exercised over the press during the War, and we shall have to await the official accounts to enable us to appreciate fully its work. But we know, however, sufficient of the arduous work of our seamen during this period, their courage and endurance in times of stress and peril, and their indomitable pluck in going to sea without any

hesitation, knowing by experience the dangers they would encounter, to rank their services among the most valorous in the history of our Country.

War was declared on the 4th August, 1914. This country was slow in realising the gravity of the situation. "Business as usual" expressed the light heart with which we entered upon a campaign which was destined to become a world war, involving us in immense sacrifices, and in responsibilities of which even now we cannot see the end. Warlike operations during the first few months were mostly on land. The seas appeared to be well under the control of the Navy, and therefore when sailing from Liverpool early in December for the Canaries, on the "Anchises" we did not take seriously into account any danger from a submarine attack, and the only special precaution taken during the voyage out was to summon all hands to their boat-stations with their lifebelts on. When we arrived at Las Palmas, we saw fourteen German steamers anchored within territorial waters, while their crews had been interned, a British cruiser paying an occasional visit to see that the ships were all still there.

The sympathy of the people of the Canary Islands was entirely with Germany, which for some time had been carrying on a carefully prepared propaganda. When the time arrived to return home, in April, 1915, the conditions had changed. The Germans had declared a submarine blockade on



SS. "AQUITANIA," WITH CONVOY, 1918

the 18th February. The submarine warfare had become active, and special precautions had to be taken. When passing Ushant a destroyer dashed up alongside, and gave the sailing directions upon which we were to proceed going up channel ; but even these would not have protected us if we had been a few hours earlier, for a steamer preceding us had been attacked and sunk while following the course we were sailing upon.

Our ship, the White Star steamer "Corinthic," was bound from New Zealand to London, with a cargo of frozen meat, and also carried many passengers. She was armed with two four-inch guns, manned by a complement of naval gunners.

At Dover we had to pass through a narrow passage protected by mines on either side ; off Margate we brought up for the night guarded by a destroyer, while ships of war were continually dashing past. There were evident signs of anxiety and activity, and we began to realise that we were at war, and to consider what could be done to counter the attack of a U boat. We had guns, but when a U boat showed herself, it would be almost too late to fire with effect. We remembered when on board the "Mauretania" on a voyage to New York, hearing at a distance of fourteen miles a fog bell ringing under water at the Nantucket lightship, and we thought the same principle might be utilized to detect a submarine at some distance by the

thud made by the propeller. We also thought of the long distance coming up the Channel which our ship had sailed without any protection, and the idea of reverting to the old system of "convoys" suggested itself, and we ventured, on reaching London, to write a letter to the *Times*, embodying these ideas, but they were censored by the Admiralty, although both were subsequently, after the lapse of three years, introduced, the "convoy" being found the best means of protecting our merchant fleet.

When the war broke out suddenly, like a bolt from the blue, we were probably better prepared by sea than by land to meet the onslaught which had been so cunningly devised to take us unawares, for it was undoubtedly the intention of Germany to crush us and bring us under her heel within a few months.

The fleet had been summoned for a review by His Majesty the King, it was, therefore, practically mobilized, and ready at once to take up such positions as would paralyze the movements of the German fleet, but much more than this had to be done, our army had to be transported across the Channel, with all its stores and equipment; the forces so nobly supplied by our Dominions beyond the seas had to be brought over, and this had to be done by our merchant ships. The seas had to be policed, our commerce had to be carried on and to be protected, and all this with the knowledge that

German fleets still existed in the Pacific and South Atlantic, and also that many armed raiders were about. The rapidity with which all this was organised and carried out reflects the greatest credit upon our Navy and Merchant Service.

We managed to land our "contemptible" little army (as the Kaiser was pleased to term it) of 170,000 men, and place it in battle array on the Belgian soil without our enemy knowing when it arrived or where it was placed, and it was this ignorance of the whereabouts of our forces which we are now told enabled us to turn the defeat of the Marne into a victory.

On the seas our fleet was able to dispose of the German Pacific fleet by sinking it in the battle off the Falkland Islands. The raiders were, however, successful in destroying much shipping before they were run to earth by our navy, which in the end destroyed or captured them. The credit of destroying the "Cap Trafalgar" after a severe fight belongs to a Liverpool merchant ship, the "Carmania."

The war, however, developed new engines of maritime warfare—the submarine, the mine, and the seaplane—and our enemies speedily let it be known that they intended to carry out the traditions of their Hun forbears, and pursue a ruthless war, in which they would slay every man, woman and child, however peaceful might be their occupations, if they stood in their way—a policy which they carried

out with the greatest cruelty, outraging every dictate of humanity.

The U boats, whose legitimate sphere was only to attack warships or those carrying troops or munitions, broke the laws of nations, and attacked Hospital ships, sinking them with their freight of suffering humanity, passenger steamers, and merchantmen of every kind, not merely sinking them, leaving their people to drown or perish, but in many cases adding to their death struggles by firing upon them while in the water, or turning them adrift in their boats hundreds of miles away from the land.

Germany had realised at an early date in the war that she had no chance of defeating our Navy in regular warfare, and that the submarine was not a very effective weapon against a battleship; and therefore, after declaring a submarine blockade of British commerce, entered upon a submarine campaign against our merchant shipping, in which she met with varying success. Between the 24th February and the 13th October, 1916, she sank 183 ships and 144 fishing vessels, the highest number in one week being 35; and in the following year, between February 26th and November 18th (in nine months) the German submarine sank 661 vessels of over 1,600 tons, 247 under 1,600 tons, and 161 fishing craft; the number of ships unsuccessfully attacked being 550. During the war upwards



SS. "OCEANIC," No. 2, 1899

of 8,000 British sailors lost their lives through submarine attacks.

Submarines which at first were limited in the range of their operations by the amount of fuel they could carry, and could only conduct their nefarious warfare within the waters immediately surrounding Great Britain, were eventually built of sufficient size to be able to destroy our shipping when two or three hundred miles to the west of Ireland, and two or three U boats were constructed large enough to cross the Atlantic and destroy some shipping on the American coast; they were also armed with guns, which they freely used. Various estimates were put out as to the number of submarines afloat. They seemed to ever increase in numbers, and in their boldness and unscrupulous mode of warfare. Sometimes their attacks slacked off, as we are now told, while the Kaiser had passing qualms of conscience. Their movements were directed by wireless, and there is little doubt that they had sympathizers on the British coast, from whom they received information. The sinking of our shipping became alarming, sometimes, at the week-ends, the total reaching twenty and more steamers for the two days.

This was the condition of things with which our merchant fleet had to contend. Traversing day by day and hour by hour waters reeking with death and destruction, they knew that a submarine attack

probably meant death to a large number of the people on board, perhaps all; but the British sailors heeded it not, their country's call sounded in their ears, and without hesitation they went to sea, not only in ships engaged in commerce, but also in vessels acting as armed cruisers and as patrol ships, sweeping the seas in search of the enemy's raiders; or as transports, in which they conveyed nearly a million of British troops from the most distant parts of the world, and two millions of American troops across the Atlantic, with all their munitions of war and all their impedimenta. Such a brilliant performance must for all time stand forth as one of the greatest achievements in the world's history. Nor was the great and heroic work of our sailors limited to merchant ships. Our fishing fleets, fitted as minesweepers, carried on without flinching, the highly dangerous task of sweeping the seas to find and destroy the mines which the enemy had strewn in all its pathways. Even their mines were diabolically constructed to destroy innocent life, for contrary to international law, they remained active even after they were detached from their moorings, and were floating about. They were also sown by night, in the busy channels frequented by cross channel steamers and our fishing fleets. That all this was carefully thought out and "according to plan," is proved by the fact they could and did discriminate

where and what their submarines attacked, for the Isle of Man boats were immune from attack, because it was known that they regularly carried large numbers of German prisoners of war. The patrol and mine-sweeping services conducted by our fishermen and many yachtsmen were most arduous, exposed not only to submarines and mines, but to the cruel, cold winter weather and heavy seas ; yet they never faltered in their duty.

The sea along the east coast of England is sown with wreckage of steamers and fishing craft destroyed while pursuing their ordinary and innocent trades. The Irish Sea and the North Channel are also strewn with the remains of British shipping. For four years or more British ships followed their calling, passing through seas bristling with dangers, and the people of this country, which depends upon its overseas traffic for their daily bread, went about as usual, and suffered no actual privation from the shortage of food.

Such was the position of things—the dangers which our merchant ships had to encounter, and the problems which our Navy had to attack and to conquer. The versatility of our Navy is proverbial. It has been well said “ A sailor is a jack of all trades.”

A distinguished officer recently stated that when he retired from the Navy, he bought a brewery, which he worked for some years, and brewed the best beer in the district. He then laid a submarine cable

for the American Government, and ended up by managing a foreign coal-mine. Such is the remarkable adaptability of our naval men. It is not, therefore, surprising that when the submarine menace developed itself our navy was not slow in devising means of counter-attack, and of destroying the U boats. Destroyers and even submarines chased them, dropping depth charges containing high explosives, which were fatal if they struck the submarine, and even the concussion of the explosion at a considerable distance placed their electric batteries *hors de combat*. Wire netting protected our ships while at anchor, and was used to form a barrier across the Channel and to protect our ports.

It was found that U boats could be seen from an aeroplane when they were some depth under the water. Aeroplanes were, therefore, used to hunt the submarine, and indicate its position to an accompanying destroyer, or the aeroplane itself dropped a depth charge.

Underwater listening apparatus was invented, by which the thud of the propeller of a submarine could be distinctly heard, and the position of the submarine approximately ascertained.

Mystery-ships, fully armed, but having the appearance of an innocent coasting vessel, traversed the adjacent seas, but the most successful protection afforded to our transports and to our commerce was the adoption of the old system of "convoys."

Convoys were seldom very successfully attacked, and ships lost while being convoyed did not exceed 3 per cent. The convoy system required very careful organisation. Ships have different speeds and different destinations, so we had convoys for ships of varying swiftness. We had not sufficient war ships or destroyers to act as convoys from shore to shore in the Atlantic, therefore the convoys crossing the ocean were only under the protection of a ship of war, and only met their escort fleet of destroyers when they reached the danger zone. At a given point the convoy broke up, some ships going up the St. George's Channel to Liverpool, the others proceeding to London and the Channel ports. The convoy system in the later stages of the war became very perfect, and although some enemy submarines boldly penetrated the protecting line of destroyers, and sank a few ships, they seldom got away again, and the knowledge of this had a very wholesome and a very deterrent effect. The valuable services performed by both English and American destroyers to our Mercantile Marine deserves the highest praise.

The appearance of the River Mersey upon the arrival of a convoy was something to be remembered. Sometimes a convoy would consist of twenty or thirty large merchantmen, all dazzle-painted, stretching out in a long line from New Brighton to the Sloyne, while their escort of British

and American destroyers made their rendezvous at the Birkenhead floating stage.

Admiral Scheer, in his book, allows that the Germans lost half of their submarines, a considerable number he says were always under repair, and the difficulty of obtaining crews was an increasing one. Therefore, we think that it can be claimed that our navy had already mastered the U boat menace when the war ended.

To make it difficult for a submarine to find the range at which to fire their torpedos, our ships were carefully camouflaged or dazzle-painted, and presented a very grotesque and strange appearance, no two ships being alike. The painting was carefully designed, in many cases by an artist of eminence, the object being to confuse the eyes of a spectator at a distance. In some cases the ship was made to appear as if going the opposite way to that upon which she was actually proceeding. In others the ship gave the appearance of going at a much greater speed than that at which she was actually steaming. In others the ship at a distance had the appearance of being much shorter than she really was. In all these cases the submarine would have difficulty in ascertaining how far his quarry was away from him, which way she was proceeding, and how fast she was going. In order to render a submarine attack still more ineffective, our ships during the day time followed a zig-zag course,



SS. "MAURETANIA," CAMOUFLAGED, 1918

BUILT 1907

proceeding for a given period on a certain course, then suddenly changing it by several degrees, thus rendering it difficult for a submarine to get into a position to fire a torpedo.

Another device adopted by our ships when pursued by a submarine was to throw out a smoke screen, which for some minutes entirely hid them from the enemy, enabling them to alter their course and steal away from their pursuers.

The promiscuous mine-laying was a source of many disasters, but fortunately the invention of the "paravane" by a naval officer, proved an excellent protection. It consisted of two long steel bars, one on either side of the ship, attached at one end to the bows a few feet below the water, and at the other to an "otter," which, as the ship proceeded, spread the bars out and kept them away from the ship's side. When a mine was struck, the buoy-rope of the mine slid down and along the bar, and when it reached the "otter" the rope was caught and cut by a steel knife, and the mine was sunk.

Sufficient has been said to prove the very active and noble part taken by our Mercantile Marine during the war. Although we do not claim that they won the war, we can, at least, say that the war could not have been won without them.

We would also wish to bear testimony to the excellent spirit displayed by the Royal Navy

to the Merchant Navy. They were in the highest and best sense "comrades-in-arms," and we in Liverpool also gratefully recognize our debt to the United States. American destroyers were continually in the Mersey. We admired their seamanlike trim, and the smartness of the officers and crews, and we appreciate the excellent and arduous work they did in safeguarding our convoys, which not only demanded the exercise of great skill, but called forth courage and endurance.

CHAPTER VI
SHIPPING AND THE WAR

I.—NOW AND AFTER

The following Chapter was published during the War, and fairly describes the attitude taken by shipowners towards the War, and the great work they successfully performed.

It is unfortunate that no adequate statement has been forthcoming setting before the public the important services shipowners are performing for the country, and the serious position of the shipping industry. Even in the House of Commons the voice of the shipowner has never been effectively raised.

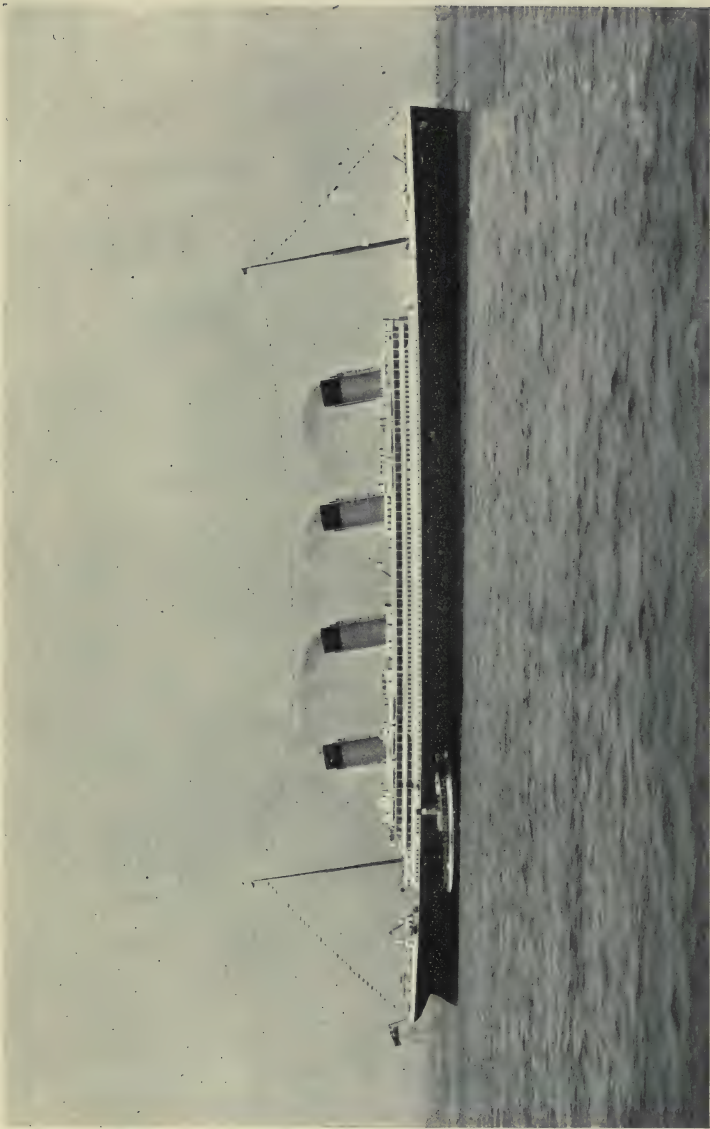
It is no exaggeration to say that the shipping interest of Great Britain has sacrificed more than any other leading industry—and the country does not realise the serious difficulties which are in front of shipowners if they are to “carry on” after the war and maintain our maritime position. Indeed, so far from the true position of the shipowner being realised, there appears to be a general impression that he has made undue profits out of the war, and is still in a privileged position, and is gathering in exceptional riches.

It will scarcely be disputed that the material prosperity of the country depends upon the existence of a great mercantile marine, and that our shipping

industry is vital to the existence of the nation. In times of peace we depend upon it to feed and clothe our people, and to bring us the necessary raw products, the manufacturing of which gives employment to our industrial population. We are apt to forget that we live upon an island, and with the exception of coal and iron, we depend almost entirely upon our shipping to supply the wants of our forty-five millions of people and to maintain our industries.

Were it not for our merchant ships the present war could not have been carried on. It would, ere now, have been lost, and the people of this country would be in the grip of famine. Nor have our shipowners merely supplied our commercial wants ; our merchant ships have been turned into armed cruisers, patrol ships, hospital ships, and transports, and have thus rendered the most effective assistance in the conduct of the war.

Anyone who realises these facts will see how important it is that our shipping interest should be supported, so that it may be in a position to resume its activities ; and that its individuality should not be crushed and extinguished by Government control and bureaucracy. As a proof of the successful enterprise of our shipowners in the twenty years prior to the war, our tonnage increased from 8,653,543 tons to 19,145,140 tons, and we owned 43 per cent. of the world's shipping.



SS. "OLYMPIC," 1911

It may be well to deal at once with the allegation that shipowners have made excessive profits. There is no doubt that during the first two years of the war ships earned large freights, not, however, due to what is commonly called "profiteering," but simply because the Government hesitated to check the imports of merchandise of a bulky character. After the Government had taken up the tonnage necessary for their transport purposes, what remained was not sufficient to convey the produce pressing for shipment. If imports had been regulated as they are now, the pressure for freight room would have been reduced and freights kept within moderate limits.

The urgent need for checking imports of a bulky character was, I know, urged upon the Government by shipowners who foresaw the scramble for freight space, but the Government failed to respond to these representations. Their hands were very full, the tonnage problem was a new and difficult one, opening up many embarrassing questions, viz., as to what imports should be checked, the effect of this upon our manufacturers, and what would be the result of checking trade in one direction, in causing its dislocation in another, and the consequent disturbance of our foreign exchanges. All these and others were points upon which we had little or no experience to guide us,

and the position was aggravated by the loss of tonnage due to the ravages of the submarine.

Taking a calm view of the retrospect, and the gigantic and unique task with which the Government has been faced, they have accomplished their work with fewer blunders than might have been expected. After all, freights have not bulked largely in the increased cost of produce; a freight of £10 per ton is only 1d per pound. If we are to find the true cause of our high cost of living we must look at the inflation and consequent depreciation of our currency, the high rate of wages, and increased spending power of our working classes, and the indifferent harvests of last year in all parts of the world.

The high freights earned by our shipping in 1914, 1915, and part of 1916 naturally caused the value of shipping to rapidly advance. Very few new merchant ships were being constructed; ships were being destroyed, and shipowners possessing established lines were forced to buy to maintain their services, and thus the value of secondhand steamers advanced to two, three, and even four times their pre-war values. Many holders, especially of tramp steamers, sold out and realised great fortunes, and these unexpected and unprecedented profits unfortunately escaped taxation, on the ground that they represented a return of capital; and it is these profits that have appeared unduly large in the public eye.

The shipowners who remained in business, and this comprised the great majority, were deprived of 80 per cent. of all their profits above their pre-war datum, and afterwards this tax on their excess profits was relinquished, and the Government requisitioned all tonnage on what are known as Blue Book rates—which on the basis of the present value of shipping yield only a poor return.

It is difficult to understand why the Government should have placed shipping on a basis of taxation differing from all other industries—it is the industry which beyond all others is essential to the conduct of the war, and which is exceptionally subject to depreciation. The Chancellor of the Exchequer (The Right Hon. A. Bonar Law) was undoubtedly carried away by his own amateur experience as a shipowner, and thought there was no limit to the extent he might filch away the shipowner's earnings, little recking that if the shipowner is unable to put on one side a reserve to replace the tonnage he loses, he is forced to go out of the trade; and also utterly disregarding the rapid headway being made by neutral countries, who are profiting by the high freights and using their profits to greatly extend their mercantile fleets.

In estimating the financial results of our shipowning industry during the early period of the war, allowance must be made for the increased cost of working a steamer. Coals, wages, insurance,

port charges, and cost of repairs, and upkeep were all very high ; indeed, it may be said that the nett results to the shipowner of the high freights which prevailed in 1915 and 1916 were not very excessive when all these things are considered, for in addition to the increased cost of working, there was heavy depreciation to provide for, the shipowner suffered a complete dislocation of his trade, and in many cases lost his entire fleet, the creation of long years of toil, and with this his means of making a livelihood.

2.—DIFFICULTIES OF RESTORATION

We have considered the position of shipping as the paramount industry of the country—its great services in the conduct of the war, and what it is suffering in consequence of the diffusion of fairy tales of the excessive profits made by shipowners. We can now turn our attention to the extraordinary difficulties which stand in the way of the restoration of the shipping industry, which are fraught with considerable peril to the future of our Empire.

Shipping may be divided into two classes, both of which are of national importance. The liners, which comprise fixed services of passenger and cargo

ships. These services must be maintained, and new tonnage built at whatever cost to replace lost ships. The other class is our cargo ships. Many of these conduct regular services ; others are what are known as "tramps," and go where the best freights offer. It is the owners of the tramp steamers who have realised large profits by selling their ships. The Government in their shipping policy have entirely failed to discriminate between these classes, not recognising that the liner services involve a complete and costly system of organisation both at home and abroad, which, once dislocated, is difficult to restore. The urgency for additional cargo ships prevents the building of liners, and there must be a considerable shortage of this description of vessel when the war ends.

Probably the cause which has been most detrimental and disastrous to shipping was the obstinacy of the Admiralty in declining to recognise the urgent necessity for building more merchant ships. They filled all the yards with Admiralty work, and when the violence of the submarine attack aroused the nation to a sense of the danger before it, and the cry went up throughout the land "Ships, ships, and still more ships," the Government then--only then--responded, and decided that further merchant ships must be built at once. There was great delay in giving effect to their decision to build "standard" ships—plans had to be submitted

and obtain the approval of so many officials that many months elapsed before the keel of the first standard ship was laid, and in the meanwhile the losses through the submarine attack continued.

The destruction of tonnage by submarine attack in 1917 assumed very serious proportions, but latterly the number of vessels sunk has been gradually reduced, and we have the recent assurance of the Secretary to the Admiralty that our methods of dealing with submarines have improved, and that we are now achieving considerable success in destroying them. The following statement gives the position to-day in gross tonnage :—

	1917.	
	U.K.	World.
Sunk	4,009,537	6,623,623
Built	1,163,474	2,937,785
Nett loss	2,846,063	3,685,838

JANUARY-MARCH, 1918.

Sunk	687,576	1,123,510
Built	320,280	864,607
Nett loss	367,296	258,903

The nett loss of British tonnage of 367,296 tons during the first three months of 1918 was still very serious, but we were told that we were making distinct progress in our rate of shipbuilding, and the following returns seem to bear this out.

The United Kingdom monthly output of new ships from May, 1917, was in tons :—

May	...	...	...	...	...	69,773
June	...	...	...	...	...	109,847
July	...	...	...	...	...	83,073
August	...	...	...	...	...	102,060
September	...	...	...	...	...	63,150
October	...	...	...	...	...	148,309
November	...	...	...	...	...	158,826
December	...	...	...	...	...	112,486
January	...	...	...	...	...	58,568
February	...	...	...	...	...	100,038
March	...	...	...	...	...	161,674
April	...	...	...	...	...	111,533

In the year ended April, 1917, new U.K. ships totalled 749,314 tons, and for the year ended April, 1918, 1,279,337 tons.

The growing scarcity of shipping, the urgent need of providing tonnage for the food supplies, not only for this country, but also for our Allies, forced the Government to consider in what way they could make the most economical use of the tonnage available. The position was rendered more acute by the entry of America into the war, and the adoption of the "convoy" system as a protection against submarine attack.

There were two policies open for adoption by the Government. One was to marshal and organise shipowners, and place in their hands the provision

of the necessary tonnage, thus securing the co-operation and assistance of trained specialists. The other policy was to "control" the trade, requisition the whole of our shipping, and to work it themselves. They unfortunately adopted the latter policy, and by so doing they not only lost the individual enterprise and supervision of the trained shipowners, but practically placed shipowners out of business, and this at a time when "neutrals," who continue to benefit by the high freights, are making rapid strides as shipowners.

The shipping control, under the able direction of Sir Alexander Maclay, is doing its work on the whole better than might have been expected—thanks to the voluntary assistance of many of our younger shipowners. Under the control, the shipowner is paid at rates laid down in the Blue Book, and without going into figures it may be roughly stated that on the pre-war values of steamers these rates leave him 6 per cent. or 7 per cent. on his capital, and 6 per cent. for depreciation, but on to-day's values the return upon his capital is very poor. A steamer now costs to build at least three times its pre-war cost. Therefore, it is obvious a provision of 15 per cent. for interest and depreciation on pre-war cost is only 5 per cent. on to-day's values. This affords no inducement to enterprise, and it is not surprising that many shipowners have gone out of business.

The Government control has taken ships out of the long voyage trades and placed them in the Atlantic trade, where they are required as transports and for the conveyance of food. This policy, which was perhaps inevitable, may involve far-reaching consequences. The long voyage trades have been built up by shipowners at a heavy cost, and are also the creation of generations. These services involve costly adjuncts in the shape of docks, piers, barges, repairing shops, branch steamers, and through traffic arrangements. It may be said all this will be recovered after the war; but this loses sight of the difficulty of regaining a trade once its associations and connections are severed; and also of the probable competition of America and neutral countries. Certainly, the Blue Book rates give no compensation for such a disturbance.

The Government are making huge profits out of shipping, but what becomes of these profits we have been unable to discover; they do not appear in any returns we have seen. But the time has arrived when the "Blue Book" rates require to be revised—this, in view of the heavy cost of the repairs which will be necessary when the war is over, and the necessity of placing the shipowner in a position to replace his tonnage at the enhanced prices which will prevail.

3.—PROBLEMS TO COME WITH PEACE

We can now proceed to consider what will be the position of shipping after the war. This involves much clear thinking, and the discussion of several questions upon which no definite statement can be at present made.

We start with a tonnage deficit as compared with 1914 of approximately 3,000,000 tons. The out-put of new tonnage at present falls short of our losses ; last quarter to the extent of 367,296 tons. This is serious, but we are gradually overtaking it. We built last quarter 320,280 tons, and other countries did still better, turning out 864,607 tons, and it would appear as if we might now claim with some confidence that while the curve of the destruction by submarines is decreasing, the curve of the output of tonnage is increasing, and we may reasonably hope that at the end of the year our gains and losses of tonnage will balance. This will leave us still to make good the losses by submarine prior to this year. We have also to keep in mind that our shipbuilding yards are still much occupied with Admiralty work and with the repair of ships damaged by submarine attack.

After the war the Government will have to demobilise, and the repatriation of armies comprising 5,000,000 men, with their munitions and impedimenta, can scarcely occupy less than two years,

and will engage probably one-third of our available tonnage.

Europe will be very short of raw materials of every kind ; the importation of them will be very urgent, and food will also be short for some time.

With the heavy weight of taxation which we shall have to bear, an increased output of manufactures will be necessary if the prosperity of the country is to be restored. This will not be possible without an abundant supply of raw materials.

The repatriation of our armies and the urgent need for raw produce would indicate that the Government will retain their control of shipping for some time after the war.

The British and American Governments are building standard and wooden merchant ships, but they will not last long, and will have to be replaced by more substantial and suitable vessels.

The prospect before shipowners, therefore, is that there will be a prolonged period of Government control and of high freights, which will greatly benefit neutral shipowners. And the serious question arises, how is the British merchant service to be built up again ? The position is one full of difficulty. Prices of new ships will probably rule very high, and the Blue Book rates afford no encouragement to build. In America, France, and Germany the difficulty will probably be solved by the granting of subventions ; but in this country we have a profound

distrust of subventions, as they are invariably associated with Government control, which has always been destructive of enterprise.

Nothing could be more unfortunate than the prolongation of the shipping control one day longer than is necessary. It is undoubtedly paralysing the industry, and any attempt, such as has been fore-shadowed, to nationalise shipping would be most disastrous. How could a State department administer the shipping industry of this country in competition with foreign private enterprise ?

The national control of our shipping and other leading industries may be expedient in the present war crisis, but it has taught us that the nationalisation of any industry penalises it with so many restrictions, and surrounds it with so many unnecessary difficulties that it is foredoomed to failure, and would inflict infinite damage to the prosperity of the country.

Advances of money by the Government at a low rate of interest would no doubt be an encouragement—and those shipowners who can afford to be bold and accept the position will probably be rewarded ; but to go on building ships at the very high prices may be beyond the prudent reach of the average private shipowner. This rather points to the creation of large companies.

In shipowning, as in every other department of industrial life, "scale" may be the dominant factor, and the shipowning companies who, during the war, have been able to lay by large reserves, will find themselves in a position of great advantage. In view of the necessity for strengthening the hands of shipowners and enabling them to carry on in the difficult times before them, the Government is making a mistake in not giving more encouragement to shipowners.

Experience teaches us that shipowners may be trusted to quickly adopt every modern means to work their ships economically, and to adapt them to the trades they serve; but do our port authorities equally recognise their duties to provide the most up-to-date methods and machinery for the handling of our cargoes? We may economise in the working of our ships at sea, but if on their arrival in port they have to wait for berths to discharge and load, and if these operations are hampered by the lack of mechanical appliances or labour, the shipowners' exertions are in vain. Nor does the difficulty end here: docks lose their value and attractiveness if the cost of moving cargoes from the ship's side to the warehouse, or to the manufacturing districts, forms a heavy addition to the freight. In Liverpool we have, unfortunately, the costly, cumbrous, and old-fashioned system of cartage still prevailing. There is a lack of good road approaches to the docks

and railway termini—a wholly inadequate means of conducting the cross-river traffic. Our trade has out-grown our railway communications with the interior, and our railways continue, as they have always done, to strangle our trade by their excessive charges, and thus to deprive our port of the advantage of its unique geographical position. We want cheap and abundant water, and cheap electrical energy to extend our local manufacturing industries. All these things point to a quickening of Dock Board methods, but still more to the awakening of the City Council to its responsible duties as the custodians of a great seaport, and the urgent necessity that they should do their part in its restoration and development, and make it ready to do its share in the revival of trade after the war.

Our City Fathers cannot rest content with carrying out what Disraeli, in one of his ironical moods, called “a policy of sewage.” We want a wider outlook, and a more generous appreciation of the fact that Liverpool depends upon her commerce. Every expenditure which the city has made in the past upon its development has resulted not only in its growth and prosperity, but in the well-being of her people.

The British mercantile marine has for long been the envy of neighbouring nations, who are watching the opportunity to seize the business

which our ships have been compelled to abandon. We have lost a large proportion of our tonnage, and what is left is taken out of the control of the shipowner. The situation constitutes a serious national danger, and we may some day awake to the fact that we have lost beyond recovery the industry which is above and beyond all others, the great national asset, and shall rue the day when our Chancellor of the Exchequer became interested in four small vessels and drew conclusions from his experience which are not supported by the wider and more expert knowledge of the shipowner.

Such is the present position of shipping and its future outlook—

A considerable reduction in the available tonnage.

Government control for a lengthened period.

High freights and high cost of new ships.

The probability of a great increase in American and neutral shipping.

We cannot leave the subject without indicating that everything may be greatly changed by the attitude of labour. If the present "ca-canny" and "down tool" policies are to continue it is difficult to see how we can recover our prosperity. Labour will have to realise that it has its value, and that the receipt of wages carries with it the obligation to give an honest day's work. And equally employers will have to recognise that labour must have a

fuller share of the fruits of their labour and better conditions of life. Strikes will not settle these matters ; they only serve to intensify distrust and ill-feeling. We must hope that our men returning from the front will have a wider outlook and altered views of life, and that employers will also generously recognise the changed conditions. We trust also that the Whitley report may be quickly followed by the establishment of Industrial Councils, and that these Councils will be able to promote confidence and good feeling and remove the friction and distrust which has too long existed between capital and labour. Meanwhile a propaganda might be started to instruct our people in those elementary principles of economic science which govern their labour, and about which so much ignorance unhappily prevails.

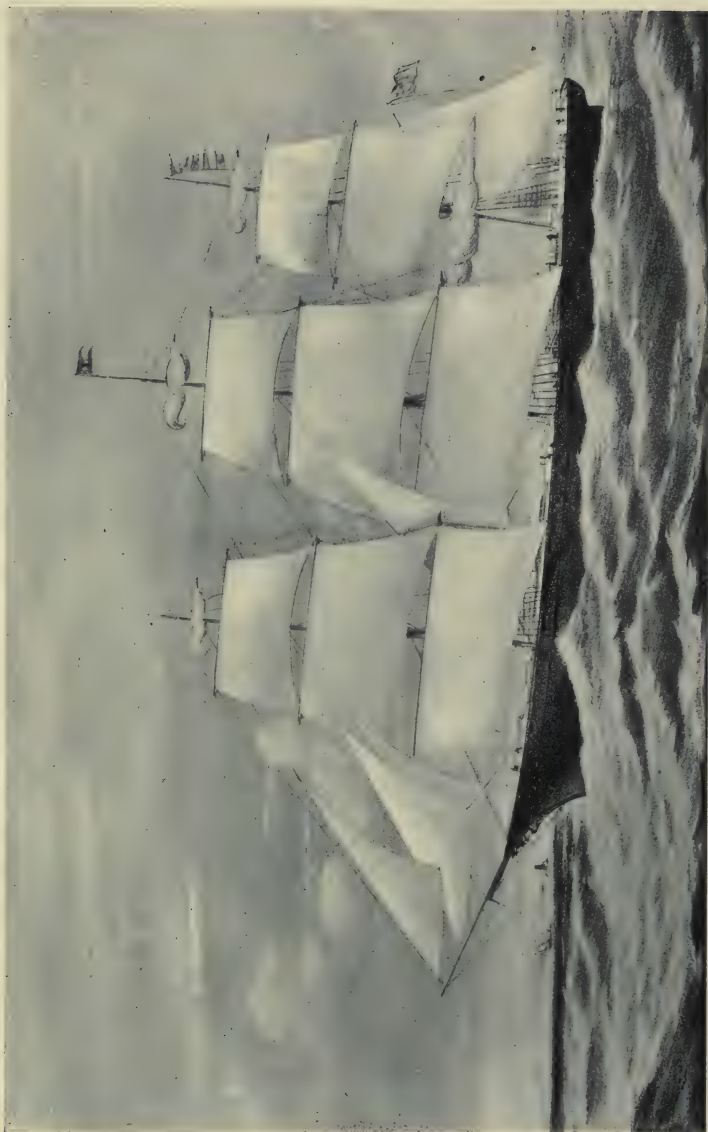
CHAPTER VII
THE "RED JACKET"
A REMINISCENCE OF 1857

We are justly proud of the development of our steamships—their size, speed, and magnificent equipment—and we are apt to forget that this has always been characteristic of British shipping. In the old sailing-ship days, about 1850-1860, a walk round the Prince's Dock, crowded with clipper ships, was something to fill an Englishman with pride. The beautiful symmetry of the hull, the graceful sweep of the sheer fore and aft, the tautness of the spars, the smartness of the gear and equipment attracted the eye; but, perhaps, above all, the romance of the sea attached itself to the sailing-ship and appealed to the imagination in a way which does not gather round a steamer, however large and magnificent. We realised that the sailing-ship had to do battle with wind and waves in far distant seas single-handed, relying entirely upon her sails and equipment and the skill of her crew; whereas a steamer tells us at once of her unseen power which makes her independent of winds and weather, and enables her to make her voyages with almost the regularity of the railway train. All this, the achievement of the steam engine and the development of the screw propeller, is very

splendid to think upon, but the old romance of the sea has gone.

The inspiring and wonderful sight of the Liverpool docks, a forest of the masts of English and American clippers; the river Mersey at high water, alive with splendid sailing vessels leaving or entering our docks, and at anchor in a line extending from the Sloyne to New Brighton, or towing out to sea, or may be sailing in from sea under their own canvas—all was activity and full of life and motion. I remember seeing one of Brocklebank's ships—the "Martaban," of 600 tons—sailing into the George's Dock Basin under full canvas; her halliards were let go, and sails were clewed up so smartly that the ship as she passed the Pierhead was able to throw a line on shore and make fast. It is difficult in these days to realise such a thing being possible. It was skill supported by discipline.

When I was young I was a keen yachtsman, and had the good fortune to make a voyage to Australia in one of the most famous of our clipper ships, the "Red Jacket." Some account of the first few days of my voyage may be of interest, and bring into contrast the ease and luxury enjoyed on board an Atlantic liner, with the hard life on board a first-class clipper ship. It is not too much to say that on board an Atlantic liner the weather does not count; on board an old sailing-ship the weather meant everything.



"RED JACKET," 1854

The "Red Jacket" was built in Maine, in 1854. She was 2,006 tons. Her length was 260 feet, and her beam 44 feet. She was an extremely good-looking ship. Her figurehead was a full-length representation of "Red Jacket," a noted Indian chieftain. She had been purchased by Pilkington & Wilson for £30,000, for their White Star Line of Australian packets. On her voyage from New York she had made the passage in thirteen days one hour—on one day she logged 415 miles.

On the morning of the 20th November, 1857, I embarked by a tender from the Liverpool Pierhead. It was nearly the top of high water. The crew were mustered on the fore-castle, under the 1st Mate, Mr. Taylor. An order comes from the quarter-deck, "Heave up the anchor and get under way." "Aye, aye, sir." "Now then, my boys, man the windlass," shouts the Mate, and to a merry chantie :

In 1847 Paddy Murphy went to heaven
 To work upon the railway,
 A-working on the railway, the railway, the railway,
 Oh, poor Paddy works upon the railway.

A good chantie man is a great help in a ship's crew. A song with a bright topical chorus takes half the weight off a long or a heavy haul. The chain cable comes in with a click, click of the windlass falls. "The anchor is away, sir," shouts the Chief Officer. "Heave it a-peak and cathead it," comes from the quarter-deck, and the tug "Retriever" forges ahead, and tightens the towrope

as we gather way. Bang, bang, went the guns, and twice more, for we were carrying the mails, and good-bye to old Liverpool, and the crowds which lined the pierhead cheered, for the "Red Jacket" was already a famous ship, and it was hoped she would make a record passage.

Next morning we were off Holyhead, with a fresh westerly breeze and southerly swell. We were making but poor headway, and shortly the hawser parted. "All hands on deck" was shouted by Captain O'Halloran, and a crew of eighty men promptly appeared on deck, for we carried a double crew. "Loose sails fore and aft; hands in the tops and cross-trees to see that all is clear and to overhaul gear; let royals and skysails alone."

The boatswain's whistle sounded fore and aft as the men quickly took their positions and laid hold of the halyards and braces. "Mr. Taylor, loose the head-sails." "Aye, aye, sir." The topsails, courses, and top-gallant sails were all loose and gaskets made up. "Sheet home your topsails." "Aye, aye, sir." "Now, then, my men, lead your topsail halyards fore and aft, and up with them." Away the crew walk along with the halyards, and then with a long pull and a pull all together the topsail yards are mastheaded to the chantie:—

Then up the yard must go,
Whiskey for my Johnny,
Oh, whiskey for the life of man,
Whiskey, Johnny.

"'Vast heaving—Belay there. Now brace up the yards, all hands on the lee fore braces."

So handy my boys, so handy, sang the chantie man. "Pass along the watch tackle, and have another pull. That will do. Belay there, and man the main braces. Down tacks." The jibs are run up and the spanker hauled out, and the good ship "Red Jacket" like a hound released from the leash, bounds forward, and runs the knots off the log reel.

Captain O'Halloran was hanging on to the rail to windward, munching, not smoking, his cigar, with an anxious eye to windward, asking himself, "Dare I do it? Will she carry them? Yes, I think she will. Mr. Taylor, stand by the royals, haul on the weather braces, steady the yard while the youngsters lay aloft—up boys"; and half a dozen or so youngsters scampered up the rigging, over the tops, and through the cross-trees, and quickly were the royals loosed and sheeted home. "Well done lads—tie up the gaskets—clear the clew lines and come down." But we not only wanted all sails, but every sail well set, for we were close on the wind. Jibs and staysails, courses and topsails, topgallant sails and royals must be braced sharp up at the same angle to the wind, and every tack and sheet pulling doing its work. The good ship felt that she had the bit in her mouth, and bounded along, throwing the seas in sparkling cascades to port and starboard. The man at the wheel kept his eyes upon

the weather-luff of the fore royal, and kept the sail just on the tremble, so as not to lose an inch to windward.

As evening approached, the wind increased with squalls, the Captain looked anxious, and shouted to Mr. Taylor, "See that all the halyards are clear, run life-lines fore and aft, sand the decks, and see that the lee scuppers are free." So the good ship plunged along, occasionally taking a sea over the bows, and in some of her lurches pushing her lee rail under water and throwing spray fore and aft; she was just flirting with the weather, romping along, seemingly enjoying every moment, and revelling in her element. "Keep her going," shouted the Captain to the man at the wheel, "full and bye; just ease her a few spokes when the squall strikes her." A loud report like a cannon—the second jib is blown clear out of the bolt ropes. "Hands forward—bend a new jib"—not an easy matter with seas coming over the forecastle; but with

Haul in the bowline, the bowline haul
the sail was mastheaded.

"Mr. Taylor, heave the log." "Aye, aye, sir." "What is she doing?" "Eighteen knots, sir, on the taffrail." "Good, we shall make over 400 knots by noon to-morrow." And we did.

We need not say that passengers under these conditions were not at home, or, indeed, wanted on deck, and the fifty saloon passengers and 600

steerage were on such days kept below in an atmosphere which was stifling ; but this was rather an exceptional day. We had also soft, bright, sunny days, when life was a delight, a luxury, a dream, and the sea heavenly, but we had something exciting almost every day—sail splits, spars and gear carried away, albatross circling overhead, Cape pigeons, icebergs off Kerguelen Land, and finally we made Port Philip Heads in sixty-four days—the record passage. Bravo, "Red Jacket."

I leave my readers to mentally compare a passenger's life on the "Red Jacket"—with its spirit of sport and adventure, its romance, its daily happenings, and its hardships—with the luxury on such a ship as the "Aquitania" or "Olympic" with all their attractions of a first-class hotel, bridge parties, dancing, and entertainment of every kind, regardless of weather—with everything, in fact, but that spirit of adventure which appeals so strongly to the imagination of the Britisher, and which, after all, has built up his character and made him the doughty man he is either on land or at sea.

CHAPTER VIII

THE "QUEEN OF THE AVON"

A REMINISCENCE OF 1858

The old-fashioned sailing-ship was handicapped by her inability to contend successfully with strong head winds. After the continuance of a succession of north-west gales the river Mersey and our docks became crowded and congested with outward-bound ships waiting for a shift of wind to enable them to get away, and when this took place the river was a wonderful sight. I remember, as a boy, standing on the shore at Seaforth and counting over three hundred sailing vessels of all sorts and sizes working their way out to sea on the ebb tide between the Rock Light and the Formby Light ship, and interspersed among them were also a number of sailing-ships towing out to sea. This crowd of shipping was not only very picturesque, with their divers rigs and tanned sails, but was interesting, as it contained many types of vessel now extinct. The "brig," square-rigged on both masts, was a good-looking, weatherly craft; the "billie boy," carrying a square sail forward and a jigger aft; the sloop, which did most of our coasting work, had a big square-cut mainsail and jib; and

the old Dutch galliot, with her bluff bows and paint of many colours ; all these have now practically disappeared.

The most trying winds, however, were the easterly gales, which prevailed in November and December, and also in the spring. With easterly gales blowing I have known Liverpool to be a closed port for weeks together, few or no vessels entering it ; and more than once this blockade of our port by easterly gales had a serious effect upon our stocks of cotton and produce. The inward-bound fleet was caught in the chops of the Channel, and was there detained until the wind changed. It is of such an experience I wish to write.

I had gone out to Australia in the celebrated clipper "Red Jacket." At Sydney I took my passage home in a small barque of 400 tons, called "Queen of the Avon." I was the only passenger, and selected this little ship purposely that I might learn something of the practical working of a ship at sea. I told the Captain of my wish, and found him quite sympathetic, and he offered to teach me navigation ; but when I showed him the log I had kept on the "Red Jacket," and the many observations I had taken and worked out, he said he felt he could not teach me much. He, however, agreed to my taking my trick at the wheel, and going aloft when reefing or making sail.

When the ship was ready for sea the police brought off our crew, for, in consequence of the lure of the goldfields, it was only possible for a ship to keep her crew by interning them with the police while she was in port—in other words, placing them in gaol. The police and the crew soon set our topsails and foresail, and with a fair wind we quickly passed down Sydney's beautiful harbour. When we reached the entrance the police, getting into their boat, left us, and we started upon our long voyage to Valparaiso. From Valparaiso we proceeded to Guayaquil, where we loaded a cargo of cocoa for Falmouth for orders.

Our voyage was uneventful. I obtained the knowledge of seamanship I desired, for we were fortunate in having in our small crew an old man-of-war's man named Amos. Amos was a splendid man, a stalwart in physique, and most estimable in character. He quickly took the lead in the forecabin, and exercised great moral influence. No "swear word" was heard when old Amos was present. When reefing he had the post of honour at the weather earing, and when he got astride the yardarm the weather earing was bound to come home. He taught me my knots, bends, and splices, and looked after me when aloft.

At the end of ninety days we sighted the Wolf Rock off the Land's End. In the afternoon we were off the Lizard, and stood off shore to clear the

Manacle Rocks. The crew were busy hauling up the cables from the chain locker, for we expected to be in Falmouth before sunset, and all hands were bright and gay at the early prospect of being on shore once more. The wind, however, became more easterly, and when we again tacked we failed to clear the Manacles. Standing out again we were blown off the land, and thirty days elapsed before we again made the Manacles, during which time we battled day after day with a succession of easterly gales. We were blown off as far west as the meridian of the Fastnet ; then we got a slant, and crawled up as far as the Scillies, only to be blown off again.

It was monotonous and weary work ; standing inshore during the day and off-shore at night, mostly under double-reefed or close-reefed topsails, or hove to with a heavy sea running. Indeed, we met many ships which apparently had given up the contest, and remained hove-to waiting for a change of wind. We had some bright sunny days, but mostly drab grey Atlantic days, and an easterly wind always. At the end of ten days H.M.S. "Valorus," a paddle sloop, came within hailing distance, and offered to supply us with fresh provisions. This offer our skipper declined, much to the disappointment of his crew, for our hencoops had been empty for weeks, and our one sheep and two pigs had been consumed long ago, and we were living upon hard biscuit and salt tack, boiled salt

beef and plum duff one day and roast pork and pea soup the next. There was no variation ; our food had become distinctly monotonous.

The crowd of ships thus weather-bound increased day by day—ships from Calcutta and Bombay, deeply-laden rice ships from Rangoon, and large heavily-laden American ships with guano from the Chinchas. Some we met almost daily ; others came upon the scene now and again, and we welcomed them as old friends. The only vessels that got through to their port of destination in spite of the easterly gales were the fruit schooners conveying cargoes of oranges from the Azores. They were smart brigantines—perfect witches of the sea—well handled, and they never missed a chance. They seemed to have the power of sailing right into the teeth of the wind. At the end of a further ten days another relief ship hailed us, but our Captain again declined any supplies, arguing with himself that the east winds could not last much longer ; but another ten days had to pass before a gentle westerly swell told us that westerly winds were not far away, and before twenty-four hours had elapsed we squared away before a westerly breeze. We soon passed the Lizard, and the Manacles, and dropped our anchor in Falmouth, making the passage in 120 days, of which we had spent thirty in the chops of the Channel.

CHAPTER IX

THE "GREAT EASTERN"

A REMINISCENCE OF 1861

Some account of the memorable voyage of the "Great Eastern," when she broke down in the middle of the Atlantic, may be of interest. It is an old story, but it is memorable as marking an epoch in the history of the Atlantic trade, which owes not a little of its progress to its failures. The enterprise which produced these failures is entitled to our admiration for its boldness and courage.

The "Great Eastern" was a remarkable ship. She was, in a sense, twenty years ahead of her time. On the other hand, if she had possessed sufficient engine power for her displacement, she would have revolutionized steamship travel across the Atlantic and hastened the era of large and swift Atlantic liners.

The "Great Eastern" was designed by Brunel, and built in 1858 for the East India and Australian trades, for which routes a large coal carrying capacity was necessary. But she never entered those trades. Her speed in smooth water

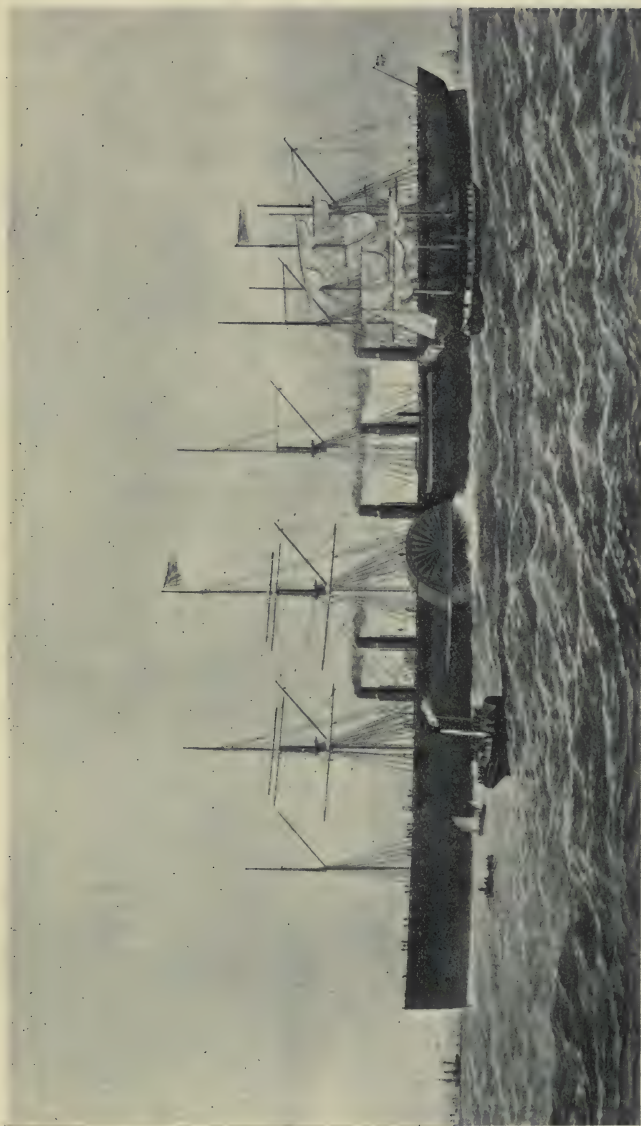
was twelve to thirteen knots, but in a head sea she could do little more than hold her own, hence the cause of her troubles.

The following figures give her dimensions, contrasted with the largest vessel of her time—the “*Scotia*”—and the ships of to-day:—

	Built.	Length.	Beam.	Depth.	Tonnage.
“ <i>Great Eastern</i> ” ...	1858	691	82	48.2	18,915
“ <i>Scotia</i> ” ...	1861	400	47	30.3	3,871
“ <i>Campania</i> ” ...	1893	620	65	43.0	12,950
“ <i>Aquitania</i> ” ...	1914	868.7	97	49.7	45,647

It will be seen from these figures how great was the departure of the “*Great Eastern*” from the largest vessel of her period, and how small she would appear to-day by the side of the “*Aquitania*.” Not only was she a great advance in size, but she had many other novel points. She was propelled by two sets of engines, oscillating paddle engines and horizontal screw engines, which together developed 11,000 horse-power. She was fitted with six masts and four funnels. Her cabin accommodation was unusually capacious and lofty. Speaking from memory, her saloon was 18 to 20 feet high. She had a smoking room, while in the “*Scotia*” smokers had still to be content with the fiddlee, sitting upon coils of rope. The “*Great Eastern*” had but few deck houses, so that her decks were magnificently spacious.

She sailed from Liverpool for New York on a beautiful afternoon in the early autumn of 1861.



SS. " GREAT EASTERN," 1858

We had on board about four hundred saloon passengers, and a considerable number in the second cabin. She was commanded by an ex-Cunarder, Captain Walker. The dock quays in Liverpool, margining the river, were lined with a vast concourse of people to see the great ship depart.

We had a splendid run down the Channel, and on the following evening we passed the Fastnet. Our people were having a gay time, singing and dancing on deck, and greatly enjoying themselves. In the middle of this revelry we passed the "Underwriter," one of the Black Ball sailing-packets, also bound for New York. She was under whole topsails, plunging into a head sea and throwing the spray fore and aft.

We looked upon her with admiration, but with feelings of immense superiority. The old order had passed away, and the new had arrived in the "Great Eastern." Many were the congratulations expressed upon the advance in naval architecture, and many indeed fancied that the perils and discomforts of the sea were things of the past. The next day was one of those drab grey days so frequent upon the Atlantic. The wind was increasing in force, and more northerly. The sea was getting up, but the great ship, meeting it almost dead ahead, scarcely heeded it. "She is as steady as a rock." "Wonderful!" were some of the remarks passed around as we took our morning constitutional.

By noon the scene had changed. The wind had veered round to the north, bringing up a heavy beam sea. The big ship began to lurch and roll heavily, taking heavy spray overall. Some of her movements were significant of danger—she hung when thrown over by a sea, and recovered very slowly. A huge sea striking her on the starboard bow swept her fore and aft, and carried away one of our paddle wheels and several boats. An ominous silence shortly prevailed, and it was whispered that the rudder had been carried away. The great ship fell into the trough of the sea and became unmanageable, lurching and rolling heavily and deeply. The seas, from time to time, striking her with great force, made her quiver fore and aft. The second paddle wheel was soon swept away, and boat after boat was torn from the davits, the wrecks in many instances being suspended by the falls. While destruction was being wrought on deck, the damage in the saloons and state-rooms was appalling. They were simply wrecked by the furniture getting loose and flying about, breaking the large mirrors which adorned the saloon, and adding broken glass to the dangerous mass of debris. Many of our passengers were badly wounded.

The engineers were trying to repair the broken rudder-stock by coiling round it iron chains to form a drum, so as to be able to get a purchase upon it. That night was a night of much anxiety,

but the behaviour of the passengers was exemplary. The ladies found a part of the saloon where they could sit on the deck in comparative safety, and here they knitted and sang hymns. There was a general effort to make the best of things.

The following morning the weather had slightly moderated, but the sea was still mountainous, and we rolled heavily. The chain cable stowed in one of the forward lower decks broke loose, and burst through the outer plating and hung in a festoon overboard. The cow-house had been destroyed, and one of the cows was suspended head downwards in the skylight of the forward saloon, and a swan which had been in the cow-house was found in the saloon.

The Captain sent for some of the passengers he knew, and told them that, as the crew had broken into the liquor store, he wished to form special guards to patrol the ship. Some twenty or thirty volunteered, and for four hours each day we patrolled the ship, having a white handkerchief tied round our left arm as our badge of office.

Food had become a difficulty. All the crockery had been smashed, so the victuals were brought down in large stew pans, and taking pieces of broken dishes, we helped ourselves as best we could.

In the afternoon the "Scotia," outward bound for New York, hove in sight. The great

Cunarder looked stately and magnificent, and as she gracefully rode over the big seas without any effort, simply playing with them, she told us what design, knowledge and equipment could do. After sailing round us, she bore away on her voyage. Another miserable night followed, and it was obvious that the mental strain was beginning to tell upon some of our people.

The following day the weather was much finer and the sea moderate, but we were still helpless, a derelict on the wide Atlantic. No success had attended the effort to repair the rudder-stock; nothing would hold it. In the afternoon a small Nova Scotian brig hove in sight, and sailed round us, as we thought, within hailing distance. One of our passengers offered the Captain £100 per day if he would stand by us. No answer coming, an offer to buy both his ship and her cargo was conveyed to him, but still no answer came, and in the evening she sailed away. The Captain of the brig was apparently some time afterwards informed of what had taken place, and promptly claimed one day's demurrage, and was suitably rewarded.

It was now evident that our only hope was to hasten the repair of the rudder-stock. In our dire emergency a young American engineer, Mr. Towle, offered a new suggestion, to build a cross head on to the broken stock, and to steer the ship with tackles attached to it. After some hours' work

and the exercise of much ingenuity, he succeeded, to the great joy of everyone.

The screw engines were still in good order, and the big ship was soon on her way back to Queenstown, where we arrived five days after passing it on our outward voyage. The damage done to the ship was considerable, and some idea of the violence with which she had rolled can be formed from the fact that when the baggage room was opened, it was found that water having got into it, the baggage had been churned into a pulp, and was taken out in buckets.

The "Great Eastern" ended her somewhat inglorious career by laying cables across the Atlantic, and finally was broken up on the New Ferry shore at Birkenhead. She had served, however, one great purpose which had borne good fruit—she taught us that to successfully fight the Atlantic on its days of storm and tempest, which are many, the design of the engine and its power should receive as much consideration as the design of the ship's hull.

CHAPTER X
BUILDING AN EAST INDIAMAN
A REMINISCENCE OF 1856

*Build me straight, O worthy Master,
Staunch and strong, a goodly vessel
That shall laugh at all disaster,
And with wave and whirlwind wrestle.—*

LONGFELLOW.

The building of a wooden East Indiaman recalls much of what was romantic in the history of British shipping—much of what was essentially British in the art of the craftsman. The old shipwright with his black wooden toolbox slung over his shoulder, or plying his adze or the caulking iron, is a type of a British artisan unhappily now becoming extinct. He was no ordinary workman following day after day the same monotonous job, for his work called for the constant exercise of his own individuality, of his powers of observation, and his ingenuity in the application of the teachings of experience; the selection of suitable timber, of proper scantling, oak crooks for the floors, aprons and knees, the curved timber for the futtocks, all called for skill and knowledge, and he had to keep constantly in view, when building, the necessity for giving proper shifts to the scarfs and the butting

of the planks—all demanding not only thought, but daily presenting new problems which only a trained eye and experience could solve.

The rhythm of the old shipbuilding yard had a peculiar charm and attraction ; it was not the monotonous deafening roar of the hydraulic riveter heard in the modern yard, but the music of the adze and the humming of the caulking chisel made a sort of harmony not unpleasant to the ear ; while the all-prevailing smell of tar imported a nautical flavour which is entirely absent from the iron shipbuilding yard. We now only think in terms of angle iron, plates, butt straps, and rivets which follow one orthodox pattern. The iron ship is but a tank with shaped ends, or a girder, or a series of box girders, for every deck, and every row of pillaring constitutes a girder ; their size and shape are all set out by the draftsman in the drawing office, the work in the yard is purely mechanical ; the old skill of the craftsman is not called into play.

It was my good fortune, when I left school in 1856, to spend some time in the shipbuilding yard of George Cox & Son, of Bideford, in order that I might obtain some knowledge of the craft. The firm were engaged building the "Bucton Castle," of 1,200 tons register, for the Calcutta trade, to class thirteen years A1, the highest class at Lloyd's. It is of my experience in building that ship of which I purpose writing.

It will occur to many that Bideford was a strange out-of-the-way place for a shipyard. Bideford we only associate with Charles Kingsley and "Westward Ho!" with its long bridge of twenty-three arches, a bridge which has the repute of being a soul-saving bridge, an alms-giving bridge, a dinner-giving bridge, a bridge which owns lands in many parishes; but Bideford, with its wide expanse of sands and tidal bores, is about the last place to suggest shipbuilding. But Bideford, like Plymouth and Devonport in olden days, was in close proximity to large forests of oak and other woods essential to wooden shipbuilding.

The first thought of the builder of a wooden ship was to secure his timber, good natural oak crooks for the floor timbers, knees and aprons, and the futtocks forming the turn of the bilge, and good square timber for the frames, beams, etc. Not only had this to be carefully selected free from rends and shakes, but it had to be piled up in the yard and seasoned. In the same way elm timber required for the sheathing, and the pine necessary for the decks and inside ceiling, all required seasoning before being worked up.

The plans of the proposed ship having been prepared and duly laid off in the drawing loft, the first step was to provide the blocks upon which she was to be built, and the ways from which, when completed, she would be launched. Upon these blocks

the keel was laid, usually constructed of elm, which is tough and does not split. The keel was in several lengths, fastened together with long scarfs, bolted through. On each side a rabbit or groove was cut to receive the garboard strake (the first strake of planking). On the top of the keel the floor timbers were laid across alternately, long and short, and on the top of the floors the keelson was bolted. The keelson ran the full length of the ship. There were also sister keelsons on either side, covering the ends of the floors. To the end of the floors the first futtocks were scarped and bolted, and these formed the turn of the bilge, and above came the timbers forming the frame. The selection of the timber required for the floors and futtocks needed a very skilled eye ; pieces of timber which would require the least dressing must be chosen, and the piles of timber were examined over and over again to find the piece which would give the nearest approach to the curve required when the ship was in frame. Then came the planking or sheathing. This had to be carefully worked in proper shifts, to prevent the butts of the planking coming into close proximity. The upper strakes or sheer strakes and the bilge strakes were always doubled. In a similar way the interior of the ship was lined or ceiled, all with a view to strength. 'Tween deck beams and main deck beams were thrown across and rounded up, to give

strength and camber to the decks. They were fastened to longitudinal timbers running along the sides of the ship, called shelves, and these shelves were secured to the framing of the ship by wooden knees reinforced in high-class ships by iron knees. The structure was fastened by wooden treenails and metal through-bolts of copper or yellow metal. The butt end of every plank was secured by a metal bolt, in addition to treenails securing it to every timber.

I have said enough to prove that the shipwright of the olden time had to exercise more individuality and skill than is necessary to-day.

The shipbuilder's work was not completed when he had launched his ship ; she had to be rigged and fitted out, and copper-sheathed to prevent the ravages of worms and marine insects ; and in course of time the ship had to be salted, the spaces between the frames being filled with rock salt to preserve the timber from decay.

American ships, which were very numerous and handsome in design, were usually built with hacmatac frames and pine sheathing, and Canadian vessels were built entirely of soft wood with iron fastenings, and rarely received a higher class than nine years A1.

Although the reminiscences of the old wooden shipbuilding days are pleasant and interesting,

if we had been limited to wooden ships the progress of commerce and the spread of civilisation would have been greatly hindered. It was not possible to build a wooden ship of over 4,000 tons—I think this was the size of the “Great Republic”—and the number of vessels required to lift the merchandise now requiring to be carried by sea would have exhausted our available forests of timber. The iron and steel ships have saved the situation, not only enabling us to move the cargoes the world requires, but enabling us to construct steamers of large size and great speed which have built up a passenger trade which, even sixty years ago, was never dreamed of.

It is remarkable that in land travel, just as the growth of the population demanded it, we have had improvements in the means of locomotion—the pack-horse, the wheel, the steam engine, the railway, and electric traction have followed each other. So at sea—from the ancient galley to the wooden sailing ship, the clipper ship, the paddle steamer, the screw steamer, the high-pressure engine, the condensing engine, the double and triple expansion engine, the turbine, and we have in front of us looming largely oil fuel, to be followed probably by some form of electric propulsion. From this it would almost seem as if a Providence provided for us transport facilities in proportion to our needs for the conveyance of our products and for travel.

I was interested in recently visiting Bideford to find that the old shipbuilding slips still exist—although unused for nearly fifty years. They have this year been bought by the firm of Hanson & Co., who have a small ship under construction.

CHAPTER XI

OUR RIDDLE OF THE SANDS

Shortly before the late war a small volume entitled "The Riddle of the Sands" had a large circulation. It described the adventures of two friends, who, in a small yacht, spent their summer vacation in cruising on the Friesland Coast of Germany, and it gave a graphic account of their discovery of a wonderful network of canals and waterways which had been made through the sands, connecting the ports of Emden, Wilhelmshaven and Cuxhaven. Mysterious craft flitted about, and their own movements were carefully watched. What is this "riddle of the sands" they asked? The war gave the answer. It was a great submarine base for an attack upon England.

We in Liverpool have our riddle of the sands, which, although very different in character, has proved equally elusive. It has defied scientific solution, the teaching of hydrodynamics, and has from time to time almost threatened the existence of the port of Liverpool, and with it the prosperity of our manufacturing districts.

The approaches to the port have not been maintained (although assisted) by the use of mechanical or scientific means, but by encouraging the natural forces to do the work necessary to maintain the deep water entrances clear and serviceable. There are many now living who remember that the deep water approach to Liverpool was through the Rock Channel only with three feet of water at low water, with dangerous and shifting shoals off the Spencer Spit, and the long lee shore off the West Hoyle Bank. If these conditions had continued the Liverpool of to-day would not have existed. The development of the northern deep water approaches is an interesting study. Liverpool has solved her own "Riddle of the Sands," not by colossal ambitious engineering schemes which might have been fatal, but by patient watchfulness of what nature was doing, or trying to do, and judiciously assisting her efforts. Nature has practically closed the Rock Channel and the old Victoria Channel, and concentrated her forces and opened up the Queen's Channel with over 20 feet of water at low tide in the dredged cut at the Bar, thus making the port open for ordinary vessels during twelve hours out of the twenty-four, and making Liverpool the great port she is—the only deep water port on the West Coast capable of taking such great ships as the "Aquitania" and "Olympic."



SS. "AQUITANIA," 1914

The Riddle of the Sands as it presents itself to us, divides itself into two portions :—

The sands of the upper estuary ;

The sands of the sea channels ;

each forming a very interesting and entertaining subject of inquiry.

THE RIDDLE OF THE UPPER ESTUARY

We have an upper estuary of the Mersey formed like a huge bottle with a narrow neck entrance at Seacombe, through which the tide rushes at springs at the rate of five or six knots. At Rock Ferry this estuary, like a fan, spreads out to Widnes, Runcorn, Ellesmere Port, and Garston. This vast basin is filled by the tidal waters twice in each day, forming a great lake ; at low water we have a vista of sand-banks and water, very beautiful in their colour and light effects, the favourite haunt of wildfowl, which in olden time filled the decoys at Hale and Widnes.

During the Parliamentary Inquiry into the proposal to construct the Manchester Ship Canal, it was given in evidence that each tide brought into this bottle-necked estuary 100,000 tons of sand, which was held by the water in mechanical suspension and deposited on the banks at slack water, which takes place at the top of high water. The ebb tide carries this sand out again. About half ebb a process of erosion takes place. Tidal streams

form through the sand banks, and gradually underpin the sand, which falls into these streams and is carried out to sea. On a quiet summer evening the process of erosion going on can be heard at Bromborough, the loud reports caused by the falling sands being distinctly audible.

This Riddle of the Sands makes quite a fairy tale, so full of surprises, so wayward and erratic. Craft and even ships which have disappeared long since suddenly come into view. The coals which fall overboard when coaling our great liners in the Sloyne creep along the bottom and pile themselves on to the sandbanks, and form a welcome supply of fuel to the villagers. Wells of beautiful fresh spring water bubble up on the shore at Shodwell, and formerly supplied the Runcorn coasters with water.

At the mouth of the Alt, and also at Hoylake, the low tides expose the remains of two remarkable primeval forests, from which have been gathered many tokens of long bygone generations.

There is one thing these sands will not do. They will not obey the dictates of man unless they conform to their moods and methods.

The original scheme for the construction of the Manchester Ship Canal proposed to cut a channel through the sands from Runcorn to deep water at Garston, a distance of about ten miles, protected on either side by training walls of stone. The

Mersey Docks and Harbour Board very strongly and successfully opposed this part of the scheme, maintaining that by thus stereotyping the channel, the process of erosion would be destroyed and the estuary would become permanently silted up with sand. There would not be a sufficient head of water impounded each tide to keep the sea channels and approaches to the Mersey scoured and fit for navigation.

The magnitude of the reservoir of water gathered at high water in the upper estuary may be gauged by the fact that spring tides rise 30 feet and neap tides 20 feet, and form the mighty power for scouring the sea channels. The riddle of how to treat the upper estuary has therefore been solved by leaving nature severely alone and permitting no interference.

THE RIDDLE OF THE OUTER ESTUARY

When we come to consider the conditions affecting the outward estuary, which extends from the Rock Light to the Bar, we have to take into account not only the scouring power of the ebb tide, and its capacity as a sand carrier depending upon the force of the current and the volume of water, but also the action of waves which is very powerful in preventing the undue accumulation of sand upon

our shores and upon the great sandbanks lying off the entrance to the port.

Standing on the shore at Blundellsands at low tide and during a westerly gale, I have seen the shore from Hightown to Seaforth a moving mass of sand, spreading itself over the surface like a sheet. Placing a stick into the ground, in a few moments a heap of sand would accumulate on the windward side. These sand storms fill up all the mouths of the Alt, and pile the sand up in big banks. If there was no correcting force these sand storms would quickly fill up the shallow shores and destroy their capacity to impound the tidal water which assists the scouring power of the main stream; but at high water with a westerly gale the waves churn up these deposits of sand, and the ebb tide carries them out to sea. After a westerly gale I have seen the shores swept of loose sand down to the hard shore beneath, and the many outlets of the Alt washed clean, and the black marl which forms their banks exposed. I do not think that this wave action has been sufficiently considered in selecting the shallow flats on the west side of the Burbo Bank as the place of deposit for the sand dredged from the Bar. They are frequently violently disturbed by the action of the waves, and the sand is carried by the flood tide back again to the Bar.

There is another action of which we must take notice; every stream creates an eddy of slack

water, or, it may be, a counter current of much reduced velocity, in a stream heavily charged with sand such as our tidal streams, and these eddies may create inconvenient deposits of sand and accretions to the banks which have to be watched.

THE OLD SEA APPROACHES

Having set out the natural forces we have to deal with, we will proceed to consider their effect upon the outer approaches to the River Mersey. These approaches twenty-five years ago were very indifferent. The Bar only carried eight feet of water at low tide, and practically for vessels of any size Liverpool was a closed port for eighteen hours out of the twenty-four. By the employment of sand dredgers, which have removed millions of tons of sand, this difficulty has been overcome, but in deepening the Bar the Mersey Docks and Harbour Board have greatly added to the work which the ebb tide has to do. That work has to be supplemented by the almost continuous use of sand dredgers, and has been also assisted by the construction of the Revetment on the Taylor Bank. This has prevented the flood tide frittering its strength away over the Taylor Bank, and confines and concentrates the strength of the ebb stream ;

but still the formation of inconvenient lumps in the Crosby Channel suggests that the ebb tide has more than it can do. It has been suggested that by confining this channel with training walls constructed along the Burbo Bank and the Crosby shore the power of the ebb tide would be increased. It is, however, forgotten that the effect of training walls would be to diminish the volume of water, and therefore its sand-carrying capacity, and also that training walls along the Lancashire shore would rob the channel of the large amount of water now impounded at high water on the shore, which forms a valuable addition to the first part of the ebb.

The changes in the outer estuary during the past fifty years have been quite remarkable.

The old sea channel was the Rock Channel striking off to the west at the Rock Light, and the fairway was marked by two land marks which were prominent objects upon the Bootle shore; while the Hoylake and Leasowe Lighthouses indicated the fairway through the Horse Channel. The Rock Channel has shoaled, and is no longer used. The old Victoria Channel took its seaward course between the Great and Little Burbo Banks. This in process of time has shoaled and narrowed, and is no longer of any service, and the main channel pursues a north-west direction between the Little Burbo Bank and the Taylor Bank, and crosses the Bar through the new Queen's Channel.

The Taylor Bank, which now stretches from the Crosby Lightship almost to the Bar is of recent formation, and takes the place of the Jordan Flats. The rapid growth of the Taylor Bank no doubt induced the Dock Board to construct the Revetment, and it has proved an effective bulwark against the rebound of the stream round Askew Spit, and its extension to the north seems to be desirable. The strong flood coming through the Crosby Channel is no doubt mainly accountable for the erosion which has taken place at Hightown, and which is now taking place at Hall Road. The latter can be prevented by the erection of a timber groin to give a south-west direction to the flood stream.

I have made these sands and sand banks a long study. The late Rev. Nevison Loraine and I explored, in our canoes, every nook and cranny of the sand banks, and loved to bathe in the pools which formed at low water on the Burbo Bank; but this long experience of the riddle of the sands makes me afraid to dogmatise—nature so often rebels and does the very opposite to what you expect, and the teaching of the past tells us that she has been a good friend to Liverpool, and had better be left alone, only helping her, as by the Revetment, to concentrate her energy in the direction she wishes to go. A step in the same direction might be taken by closing the channel which has formed across the Burbo Bank. In my canoeing days this

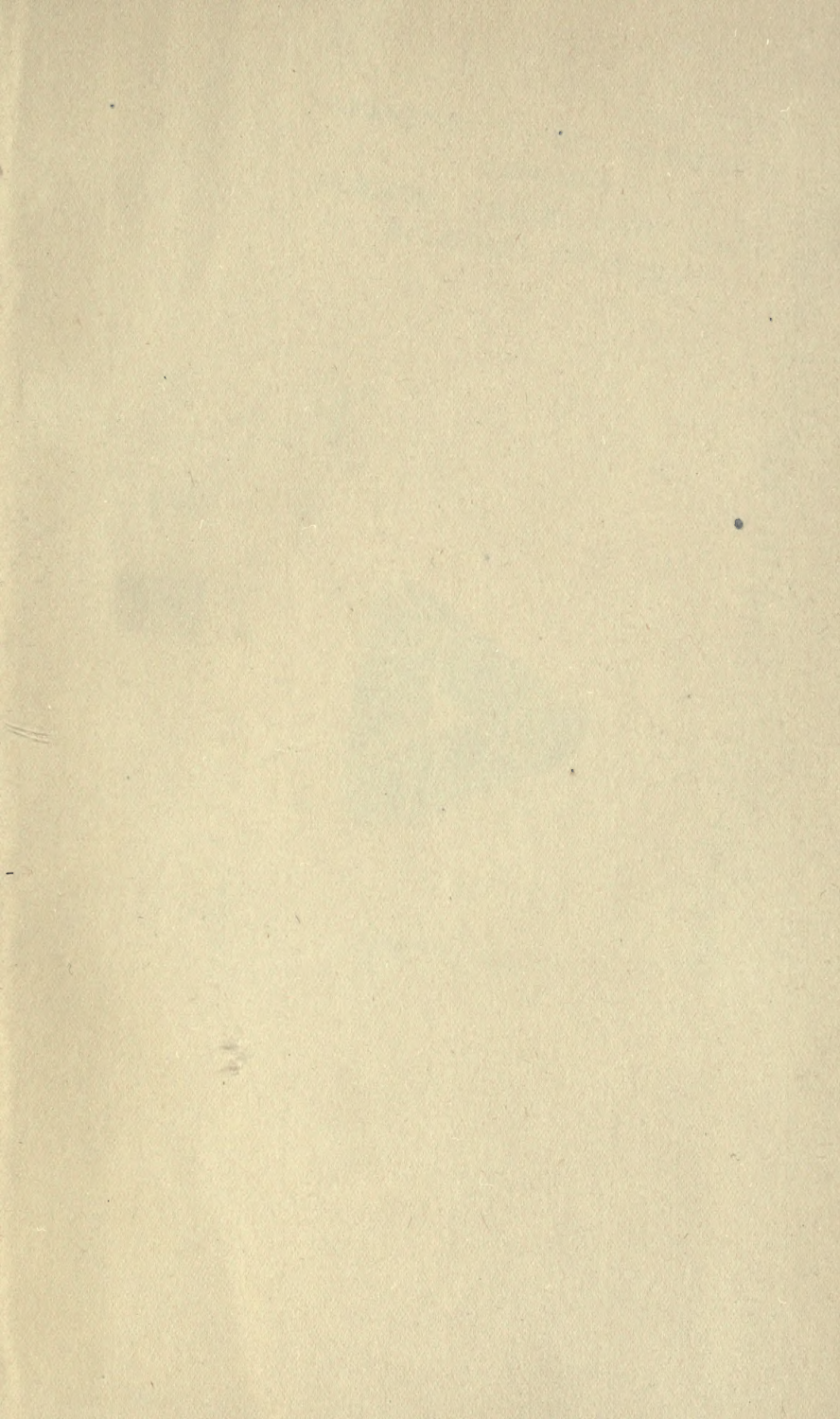
channel was a mere gutter, but now it is sufficiently large to abstract much water from the main stream. It has also often occurred to me that the old Formby Channel might also be diverted. It serves no useful purpose for navigation, and if the ebb tide which now flows through it could be turned into the present Formby Channel it would increase the scour; but experience may have demonstrated that the flood tide demands the old channel, and if so it has been wisely left open. I think it is probable that the flood tide making through this old Formby Channel strikes the main stream of the flood coming through the Crosby Channel and rebounds on to the Hightown and Hall Road shores, causing the erosion at these points.

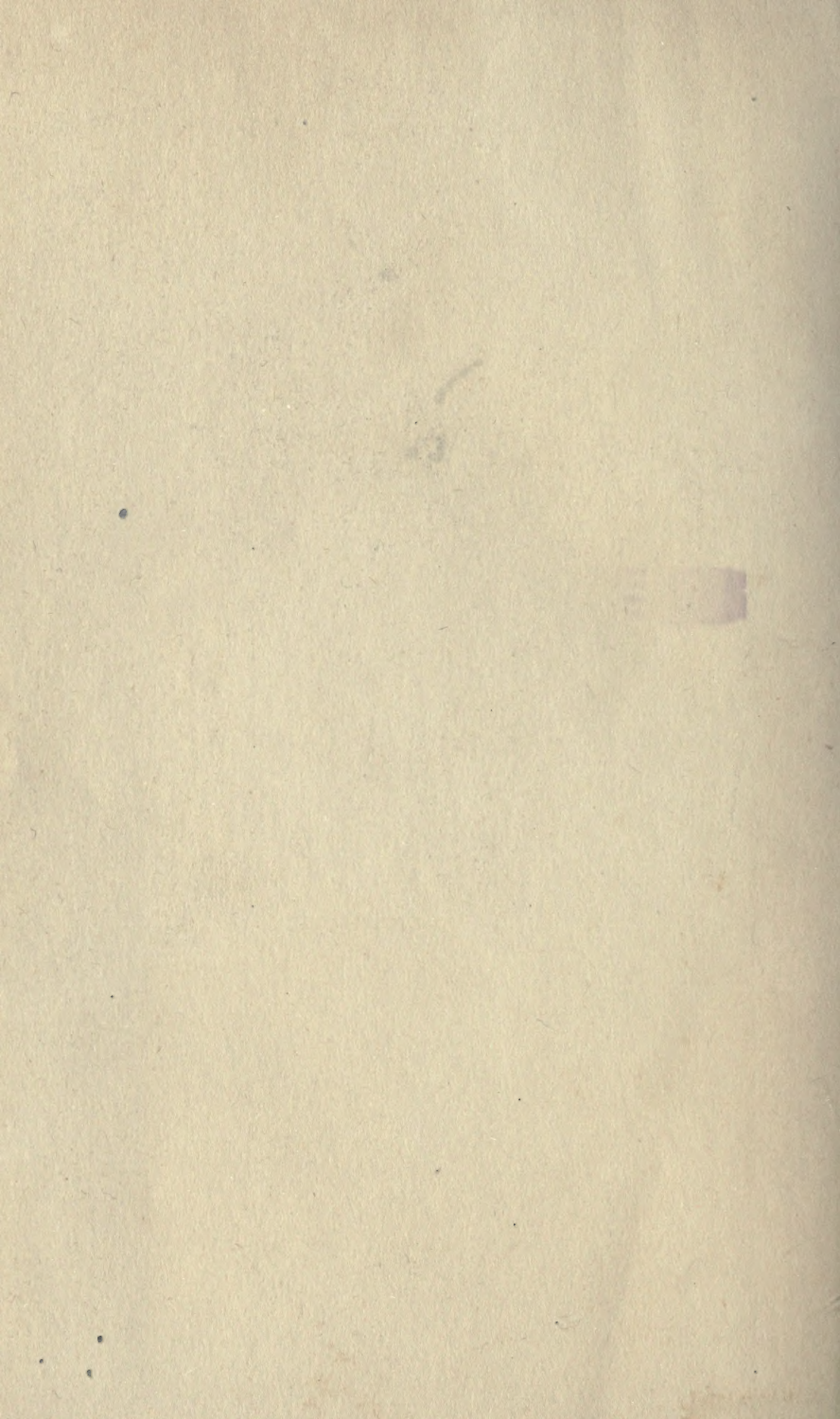
Great credit is due to the Conservators, the Mersey Docks and Harbour Board, and to Captain Mace, R.N., for the care and wisdom with which they have watched over the approaches to our port, and to the successful way they have handled our "Riddle of the Sands."

LIVERPOOL:

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1920.





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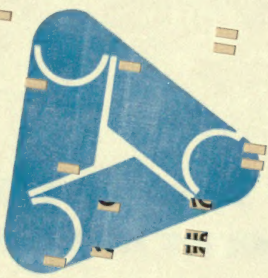
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Physics
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REMINISCENCES OF A LIVERPOOL SHIPOWNER
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LOCATION



MAIN ENTRY

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