

# Merchant Shipping Law

*Development of National and Customary Law for Safety of  
Life at Sea*

By

**J. N. K. Mansell**

Merchant Shipping Law: Development of National and Customary Law for  
Safety of Life at Sea

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The difficulties which our sailors now have to encounter are not those which met their ancestors, who battled with the elements in small shallops no bigger than a modern fishing-smack, amid the dangers of unknown and uncharted seas. Rather is the modern difficulty that of dealing with the splendid instruments of commerce now in the vogue, and the immense increase in traffic, especially in the narrower seas - conditions which require in those who have the responsibility a higher scientific training and a greater alertness in the avoidance of accidents than was needed at any previous period of our history

Edward Blackmore\*

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\* Master Mariner; Shipmaster; Shipowner; Associate of Naval Architects; Formerly a resident Justice of the Peace for the County of Renfrew, New Brunswick; and a Member of the Institution of Engineers and Shipbuilders in Scotland

# Dedication

To the memory of the countless thousands lost at sea throughout the nineteenth century due to unseaworthy ships, long forgotten shipwrecks and the intransigence of politicians

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# Introduction

Throughout the nineteenth century Great Britain was the predominant maritime nation, leading the world in matters of tonnage, trade, technology and development of national and customary maritime law. In 1800 there were no commercial steamships and British merchant ships were entirely unregulated in matters of safety and seaworthiness. By the end of the century steamships had reached degrees of size, power, speed and sophistication unimaginable 100 years earlier. The Merchant Shipping Act, 1894, set the standard for many maritime nations and consolidated a vast body of merchant shipping law. A comprehensive regulatory regime was in place to determine whether ships were safe, seaworthy, and not overloaded. This account sets out to provide a previously unpublished authoritative record of the development of that law in the context of the political, economic, technical, and societal issues of the time, including many tragic and long forgotten shipwrecks.

At least 1,000 seafarers were lost at sea per year throughout the nineteenth century. Some years experienced far greater losses of ships along with their crews and passengers through collision, shipwreck, fire, overloading, unseaworthiness and often, errors of navigation or judgement of those in control or command. For the first half-century there was very little attempt by Parliament to enact legislation to address these issues. Statistics on shipwreck were compiled from the early 1830's and, along with public pressure, forced the appointment of a Select Committee on Shipwreck in 1836. Although the committee found that the causes of shipwrecks were many and various and confirmed the parlous state of the unregulated shipping industry, no legislation ensued. It was not until a public outcry arose in 1838 over proven allegations of cannibalism amongst the crews of waterlogged and unseaworthy timber ships that politicians were galvanized to enact the first, very limited, legislation for the safety of those particular seafarers. This legislation was arbitrarily and quietly repealed twenty-three years later in spite of annual statistics that had clearly demonstrated its efficacy.

For most of the century politicians took an extreme laissez faire approach to the shipping industry, believing that the shipowner knew best and that any attempt to legislate in detail would transfer his responsibility to

the Government; a view enthusiastically supported by a very active and influential shipowners lobby amongst Members of the House of Commons. Regulation was freely referred to by politicians as 'evil', 'vicious' and 'mischievous' throughout the century and although Parliament enthusiastically regulated other dangerous industries such as mining and railways, the most dangerous industry of all, seafaring, was literally out of sight and out of mind.

The Colonial Office had been proactive from 1803 in passing the first of many Passenger Acts dealing principally with the welfare of tens of thousands of emigrants to British colonies. The term 'seaworthy' was first enshrined in legislation through a Passenger Act in 1835 with the Controller of Customs having the power to require the ship to be surveyed if her seaworthiness was in doubt. In 1842 a Passenger Act was the first to legislate for carriage of a certain number of boats aboard passenger ships, powered by sail or steam.

For the first half of the nineteenth century no British seafarers in positions of responsibility were required to hold certificates of competency, unlike their counterparts aboard ships of other principal maritime nations. An 1836 report identified this lack of competency as one of the prime causes of shipwreck and recorded some alarming examples of incompetent and drunken masters. A further Select Committee on Shipwreck in 1843 heard vehement evidence from shipowners who were "decidedly hostile to the enforcement of examination by Act of Parliament considering such compulsion an unnecessary interference in the selection of persons as they think most likely to serve them best in the various duties they have to perform", in spite of evidence of children as young as fourteen being appointed by shipowners as masters of their ocean-going sailing ships. The committee made a strong recommendation that compulsory examinations should be held for prospective officers and masters but the Government introduced them, unsuccessfully, on a voluntary basis.

Steam was a significant driver for change. Marine steam engines slowly improved in efficiency and reliability over the first few decades of the century, operating at first solely in coastal trades with limited cargo capacity due to the large quantity of coal required for fuel. The catalyst for regulation of ships was the development of steam engines in the late 1830's

suitable to propel heavily subsidised paddle steamers across the North Atlantic on scheduled services. With very limited cargo carrying ability they carried only high value cargoes, royal mail and a limited number of first class passengers. The very few existing iron ocean-going steamships were first regulated in 1846 and required to carry boats to a different scale to those required under the Passenger Acts; a result of fractured and diverse administration of merchant ships which came under the umbrella of a number of different Government departments and offices.

Mid-century was a turning point in regulation and administration of merchant ships and in their ability to trade. In the late 1840s a ground swell of opposition built up against the archaic Navigation Laws that restricted trade between Britain and her colonies to British owned and crewed ships, stifling competition and, through outdated tonnage rules, ship design. This culminated with their repeal in 1849 introducing a new era of competition and resulting in a dramatic expansion of trade. In 1850 the Government addressed the vexed issue of oversight of ships and seafarers and created a Naval Department of the Board of Trade to be responsible for 'superintendence of matters relating to the British Mercantile Marine'. The Act also stipulated that examinations be instituted for persons intending to be masters or mates of foreign-going ships. A further Steam Navigation Act in 1851 included a table for the number of boats to be carried by sailing vessels and steam vessels based upon the registered tonnage of the ship rather than the total number of people aboard; a fatal flaw that was to have far reaching consequences. This folly was compounded when the Colonial Office introduced yet another Passenger Act the following year with different requirements to the 1851 Act for the carriage of boats for 'every passenger ship'. Mid-century also covered the tragic period when tens of thousands of emigrants fleeing the Irish famine died of typhoid or cholera (ship fever) while making their westbound passage in very unhygienic conditions aboard sailing ships usually employed in the timber trade from North America to Britain. Such emigrant ships were also often lost with their entire complement through foundering, stranding or unseaworthiness.

Competition increased between steam passenger ships in the North Atlantic trade, with associated issues of achieving fast passages to meet the terms of their lucrative mail contracts regardless of adverse weather,

fog and icebergs. This recklessness resulted in some disastrous collisions, groundings and total disappearance of ships, often with great loss of life. The situation was heightened by unprecedented increases in size, power and passenger capacity that continued for the remainder of the century. Collisions continued throughout the century in spite of the development, principally by Great Britain and France, of customary law observed by all principal maritime nations for prevention of collision. Many stern warnings from Judges on the dangers of excessive speed in conditions of fog and ice did little to remedy matters.

The year 1854 saw the greatest number of ships and people lost at sea between 1848 and 1878, and enactment of one of the most comprehensive consolidations of merchant shipping law during the nineteenth century and the principal merchant shipping Act for the following forty years; the Merchant Shipping Act, 1854. Concerns about the quality of chain cables and anchors, the last resort for a vessel being driven onto a lee shore, led to regulation of the manufacturing and marking process in 1862 which, with a subsequent Act, was consolidated into the last merchant shipping legislation enacted during the nineteenth century, in 1899.

The term 'coffin ship' was coined in the 1830s to label the overladen and unseaworthy ships carrying timber principally from Canada to Great Britain, and also used during the Irish exoduses in the 1830s and mid-century. The lack of any limitation upon how much cargo could be loaded aboard a ship allowed some shipowners to operate unseaworthy, overladen and over-insured ships, in the expectation of losing the ship and its crew, to gain an insurance payout. This greed, exploitation and callous disregard for life also attracted the label of coffin ships. Seamen were frequently jailed for refusing to go to sea in such ships. There was a great reluctance amongst shipowners and politicians to address this issue until Samuel Plimsoll entered Parliament in 1868 and made it his mission in life to remedy the situation through legislation. Largely as a result of his efforts, by 1876 ships were required to be marked with a load line, which could however be placed where the shipowner thought appropriate for a particular cargo. It was not until 1890, long after Plimsoll had left Parliament, that the exact location of the load line was laid down in law.

Watertightness, integral to the safety and buoyancy of a ship, particularly

when damaged through stranding or collision, could only be achieved as ships became larger through effective subdivision by watertight bulkheads. A Parliamentary shipwreck committee in 1843 correctly noted that 'watertight divisions in steam vessels are calculated to prevent loss of vessel and machinery, and to ensure the preservation of life, by affording time for the preparation of boats for passengers and crew'. In 1846 iron passenger steamers of 100 ton and upwards were required to have watertight divisions fore and aft of the engine room. In 1854 this requirement was extended to all steamships which had to be 'divided by such partitions into not less than three equal parts'. The provisions of the 1854 Act were quietly repealed in 1862. The matter of whether any ship should have watertight bulkheads was left to the discretion of shipowners as it was their view, along with that of the Board of Trade, that 'the law concerning bulkheads in iron ships had proved mischievous'. However, as such bulkheads also served to provide transverse strength, particularly as ships became significantly longer and narrower during the second half of the century, it was necessary for transverse bulkheads to be designed into the structure of the ship to what were often subjectively deemed by Board of Trade inspectors to be 'effective' and 'satisfactory' standards as decreed by a Bulkheads Committee of experts in 1890.

By the early 1870s there was widespread concern that, in spite of increasingly comprehensive safety legislation, casualties to ships and loss of life were not diminishing. A summary of official inquiries into wrecks and casualties, excluding collisions, showed that from the year 1856 to 1872 inclusive, while 60 ships were known to have been lost from defects in the vessel or in the stowage, 711 ships were lost from neglect or bad navigation. After a lengthy investigation looking into matters such as load line, survey, remedial legislation, casualty inquiries and under-manning a Royal Commission on Unseaworthy Ships stated in 1877 that '...we have been anxious throughout our Report not to transfer responsibility from the shipowner to the executive government. It is the duty of the shipowner to keep his ship in a seaworthy condition, and to select competent officers and crew. We believe that under the arrangements suggested in our Report, the Board of Trade will have the means of ascertaining how far this duty has been fulfilled, and will then have the power to punish those persons who have been neglectful'.

In spite of this recommendation disasters at sea continued unabated, to the extent that, by 1884 a Royal Commission to Investigate the Saving of Life at Sea was established. From 1874 to 1883 inclusively '...No less than 699 vessels, with 8475 crew on, were reported as missing, with the cause of their loss unknown'. Statistics showed that many of these ships were carrying bulk grain or coal, both cargoes prone to shifting if not properly stowed, with coal having the added risk of fire. Once again, the conclusions of a Royal Commission were inconclusive. The general outcome of their inquiry was the Life-Saving Appliances Act, 1888, which 'did not touch the root of all evil, but only makes provision for the saving of life when accidents do occur'. Attention was paid by scientists to the dangers of bulk grain and coal with new stowage requirements being regulated for the former. New scientific advice addressing fires in bulk cargoes of coal determined that the accepted method of ventilating such cargoes was causing the fires.

The last decade of the century saw more legislation for merchant ships including the Merchant Shipping Act, 1894, at the time the largest statute ever enacted by the British parliament, and a consolidation of all British merchant shipping and mercantile shipping law. The 1894 Act became the template for shipping law throughout the British Empire until well into the twentieth century.

During the long course of the nineteenth century the ratio of crew to tonnage had steadily decreased to the point where it had been identified as a direct cause of loss of ships in a large number of accidents. A Manning Committee of the Board of Trade agreed in 1896 that there was a definite association between under-manning and unseaworthiness. Accordingly, the Merchant Shipping Act, 1897 made under-manning a detainable deficiency, applicable to British ships and to foreign ships in British ports. In spite of comprehensive rules for the prevention of collision there were three very serious collisions during the 1890's, involving British, German and French passenger ships, resulting in the loss of 1,443 passengers and crew.

The influence of a shipowners lobby group in the House of Common was effective throughout the nineteenth century and was nowhere more evident than in the matters of watertight bulkheads and provision of lifeboats. The 1894 Act provided that ships of 12,000 gross tons and upwards were to carry 16 lifeboats under davits with the remainder of boat capacity in 'addi-

tional wood, metal, collapsible, or other boats or life-rafts, all of approved pattern, as conveniently placed for putting into the water as the ship's arrangements admit of'. This legislation took no account of the existing rapid growth in size of passenger ships and was outdated before it was enacted. There was no encouragement to fit more boats under davits due to legislation giving the shipowner the discretion to 'avoid encumbrance of the deck'. If effective watertight bulkheads were fitted that would enable the ship to remain afloat with two adjacent compartments flooded, the number of boats not under davits could be reduced by half (the Bulkhead Committee had recommended that no extra boats would be so required). By the end of the century the upper tonnage of 12,000 gross tons had been long overtaken. The Board of Trade stated in 1896 that they saw no reason to increase this limit and were not to even consider doing so until well into the twentieth century.

The entrenched *laissez faire* belief of Parliamentarians, Government officials and shipowners that 'the State should stand aside', and their misplaced concerns regarding their assumption of responsibility for the safety of ships were eventually allayed through a realisation that, due to the great size and complexity of the shipping industry and its importance to the British economy, prescriptive legislation for safety of life at sea was very necessary. This sea change in attitudes was helped by a pragmatic legislative model of consolidation which slowly developed whereby the parent legislation dealt with broad principals and responsibilities while frequently changing technical details were embodied in flexible secondary legislation; rules, regulation and Orders in Council.

The rising tide of loss of life at sea finally slackened and started to turn in the very last decade of the century.

# Chapter 1

## Seaworthiness

Central to the concept of seaworthiness is that a ship must be well enough constructed and equipped to withstand the perils of the sea and be adequately and efficiently crewed and operated to safely load, carry and deliver the cargoes entrusted to it by shippers. It must be seaworthy.

Today's world of more than 60,000 ships trading internationally, crewed by more than one and a half million seafarers, operate under a comprehensive regulatory regime of internationally agreed standards for safety and seaworthiness. These standards, which emanate from the United Nations Convention on the Law of the Sea<sup>1</sup>, are codified through statutory instruments by the member States of the International Maritime Organization and brought into effect by those States through their national law. Ships are required to meet 'generally accepted international regulations, procedures and practices governing, inter alia, the construction, equipment and seaworthiness of ships, as well as the manning of ships and the training of crews'<sup>2</sup>. Ships trading internationally are required to carry a number of mandatory certificates issued by their country of registration that attest to their seaworthiness and compliance with statutory IMO instruments. If found to be deficient in these standards, by their flag State or by other States, including lack of or out-of-date certificates, ships are unseaworthy and eligible for detention until deficiencies that affect the safety and security of the ship, its crew, and the marine environment are rectified.

In yesterday's very long world of shipping it is only in the very recent past that ships have suffered any form of city or State control. In the Middle Ages, as ships became larger, ventured further and carried more valuable cargoes, both States and private organisations began to use or adopt empirical standards to ensure seaworthiness, safe carriage of cargoes, and prevention of overloading. Some ships were subject to inspections and surveys to ensure those standards were met, both in construction of the ship and sometimes during the loading and discharging processes.

Records exist from the activities of the Hanseatic League in Northern Europe in 1412, 1417 and 1447 that surveys of ships were required. A Low Countries Ordinance of 1549 required a survey before and after loading. A law was introduced in Spain in 1563 requiring both the builders and owners of ships to ensure seaworthiness, check the laden draft and securely lash the cargo. In 1569, Venice forbade particular cargo from being stowed in certain locations in the ship. King Henri III of France issued an edict in 1584 that required ports to monitor the abilities of ships' masters. A Genoese law from 1607 required surveys to be undertaken by 'magnificent curators of the sea'. A requirement for a dual survey of French ships, at the commencement of the outward voyage and upon return, was introduced through a Royal declaration in 1779 followed by an Act of 1791 which placed a strict obligation on captains of ships proceeding upon a long voyage to ensure that a survey was carried out before the ship was equipped and loaded. Surveys were carried out by certain navigators, ship-builders or carpenters holding the office of Huissier-visiteur, appointed by the Commercial Courts of local mayor.<sup>3</sup>

In England there were historically no such measures, and little enthusiasm for any departure from the age-old methods of designing and building wooden ships. In 1737 a practical chemist named Jackson promoted a process to improve the durability of wood used in ship-building. However, the outcry from ship-builders that it would poison their workers and reduce their profits if ships were more durable succeeded in stopping experiments until a report received from the Royal College of Physicians verified that the substance was not harmful to health. A Treatise on Shipbuilding and Navigation was published in 1754. Although this was recognized as being the only available source on the subject that could lay claim to any science, both the author, Murray, and the book were 'consigned to the same unmerited obscurity'.<sup>4</sup>

The first voluntary standards for the hull and rig of a ship evolved in the mid-eighteenth century through what came to be known as classification societies. These organisations developed out of a need for merchant ship owners to be able to provide evidence to their insurers and charterers that their ship had been built and rigged to a suitable standard. The first classification society was that of Lloyds, named after the London coffee house where merchants, marine underwriters and others connected with ship-

ping gathered from the seventeenth century.<sup>5</sup> The owner of this establishment, Edward Lloyd, published a printed news-sheet, *Lloyd's News*, with information on foreign and war news, trials, executions and parliamentary proceedings, and marine news and gossip.<sup>6</sup> In 1760 a Register Society was incorporated, and, by 1764 a Register of Ships was published to give information on the condition of ships to merchants and marine underwriters.<sup>7</sup> The initial attempt to introduce a system of classifying ships by Lloyds, in 1798, met with widespread derision;

Instead of classing the ships of which they gave an account [to the insurers and shipowner] according to the actual state and condition ascertained by a careful surveyor, they stamped the character of a ship wholly by her age and the port at which she was built, without any regard to the manner in which she was built, the wear or damage she might have sustained, or the repairs she might from time to time have received, or even being new built thereby lessening the inducement to build ships on principles of durability, obviating the necessity of surveying their hulls, and taking away the encouragement to keep them in the best state of repair.<sup>8</sup>

The ratings provided by classification societies became an essential tool for underwriters but were not popular with ship owners and shipbuilders as they discriminated against certain shipbuilding areas, and the information was confidential to insurers. A ship would be registered as First Class, regardless of her standard of construction, for between six and twelve years after which it was the view of the industry that she would be... 'superannuated to be replaced by some hastily and cheaply built successor, expressly designed to last no longer than the allotted period of first class vessels... many of these frail barks foundered on their first voyage, few of the crews survived to give the melancholy account of their disaster, and of those who did survive not one in a thousand was capable of tracing it to its proper cause'.<sup>9</sup>

As a direct result of a Lloyds Register publication in 1797, which discriminated against any ship not built on the Thames, ship owners formed their own register. The two separate registers did not prove successful in the long term and merged in 1834 as the Lloyds Register of British and Foreign Shipping. The new organization, which included merchants, ship owners

and underwriters, published rules in 1834 for the survey and classification of ships; hence the commonly known term 'Class'.<sup>10</sup> Even with the establishment of Class ship owners were still free to be built to whatever standard the shipbuilder deemed appropriate if the ship was uninsured, and to allow the Masters of their ships, who were often part owners, to operate and navigate entirely autonomously as 'Master under God'.<sup>11</sup>

At the turn of the century Ireland followed the example of Scotland in 1707 and, albeit reluctantly, entered into political union with England in 1800;<sup>12</sup> thus making Britain 'Great'. The population of Great Britain was unknown in 1800 but the first official census in 1801 indicated a total of ten million in England, Scotland and Wales and a further 5.2 million in Ireland<sup>13</sup>. Statistics at this time showed 126,774 seamen<sup>14</sup> crewing 15,734 British ships with a total tonnage of 1,699,000 net registered tons<sup>15</sup>, giving an average sized ship of 107 ton crewed by 8 seamen. These ships and their crews were entirely unregulated in matters of safety and seaworthiness.

In 1803 the British Parliament brought into effect the first legislation to specifically deal with passengers aboard ships; the Passenger Vessels Act, 1803,<sup>16</sup> – *to regulate transportation of immigrants and to protect emigrants on board ship from exploitation by transportation companies, such as exorbitant rates and poor sanitary conditions*. The Act imposed better conditions relating to hygiene, food and comfort on passenger ships going to 'His Majesty's Plantations and Colonies in North America'. However, this law was not always rigorously applied by captains and the spread of contagious diseases accelerated.<sup>17</sup> Due to endemic overcrowding on emigrant ships, the Act introduced a relationship between tonnage and the maximum number of passengers and crew, including children, who could be carried. The ship was not to sail with more than one person, (including children and crew) to every two tons.<sup>18</sup> Although the Act was introduced to deal with humanitarian issues, an unintended consequence was a marked increase in the cost of passage, which acted as an impediment to emigration, possibly intentionally. Landlords feared the loss of their workers and tenants through emigration and lobbied extensively for this legislation. As a result, where it had previously been possible to emigrate to Canada for £3–4, the price for the same passage after introduction of the Act was, in some cases, more than £10. The ability to emigrate was consequently limited to a smaller and wealthier class of people.

The 1803 Act was amended a number of times in the following years to extend its coverage to Newfoundland,<sup>19</sup> Labrador,<sup>20</sup> the United States,<sup>21</sup> and to British Colonies in North America.<sup>22</sup> All of these Acts were repealed by The Passengers Vessels Act, 1823<sup>23</sup> – *An Act for Regulating the Carriage of Passengers from England to Foreign Parts*, which was in turn repealed by the Passenger Vessels Act, 1825.<sup>24</sup> These Statutes dealt solely with passenger welfare.

There was large loss of life in a number of shipwrecks during the early nineteenth century; many of them emigrant ships. It was estimated by Lloyds that a ship a day was lost in the year 1800 and an average of 1000 seamen were ultimately to be lost per year throughout the nineteenth century.<sup>25</sup> Many of these ships carried large numbers of crew and passengers although the average sailing ship was very small. Not all deaths were the direct result of unseaworthiness or overloading. Many were caused by navigational errors or simply force of weather. Seafaring, in the age of sail, was an inherently very dangerous occupation.

Almost 1000 persons were lost in one year alone, from the wrecks of four ships early in the century, many of them troops involved in the Napoleonic Wars. The East Indiaman *Earl of Abergavenny*, with about 400 persons on board, sailed from Portsmouth for the East Indies on 01 February 1805. On 15 February, when at anchor in the Portland roads, the ship struck the Shambles reef about two miles offshore. The decision was made to run the ship ashore and, despite the best endeavours of the crew, the ship became a total loss and 300 souls were lost.<sup>26</sup> The same year 340 persons were lost on the emigrant ship *Ameas* off Newfoundland and a further 300 were lost when the *Aurora*, carrying troops from Monkstown, Ireland to Hanover to take part in the Napoleonic War, was wrecked on the Goodwin Sands.<sup>27</sup> Half the 26<sup>th</sup> Regiment of Foot were lost in the wrecks of both the *Aurora* and another ship in the convoy of three, the *Maria*, on the Haak Sands off Texel. All were lost on the *Aurora* and only 17 survived from the *Maria*. In December 1805 a total of eight British troopships were lost along with their crews and 2000 troops on their way to Bremen.<sup>28</sup>

England, and her shifting cast of Continental allies, had been engaged in the Revolutionary Wars with France from 1793 until the uneasy, and short lived, peace brought about by the Amiens agreement in 1802. However,

'the Treaty of Amiens had nothing but mistrust'. Bonaparte taunted the British Government that 'in London there are two factions struggling for power; one of them has made peace, the other has sworn implacable hatred to France. While this partisan strife lasts, the Republic must take precautions. Half a million must be ready to defend and avenge her... Alone England can never resist her!'<sup>29</sup> By mid-May 1803, after protracted negotiations between Britain and France had failed, hostilities resumed and were to continue, with a brief respite during Bonaparte's incarceration on Elba, until his defeat at Waterloo in 1815. The scale of involvement of merchant ships as troop transports is demonstrated by the fleet gathered off Deal, Kent, in July 1809 readying for an expedition to destroy Antwerp. 40,000 men were embarked aboard nearly 400 transports, along with over two-hundred men-of-war, thirty-seven of which were temporarily fitted out to transport horses.<sup>30</sup>

Troop transports were often merchant ships of all sizes depending upon need, often carrying great numbers of troops, their equipment, arms and horses. Upon news of Bonaparte's escape from Elba and re-entry to France in 1815, troops were immediately dispatched to Europe aboard small transports of shallow draft, owing to sandbars at Ostend. The 16<sup>th</sup> Light Dragoons were carried aboard colliers that could carry between ten and thirty-five horses 'standing on a ballast of beach stones with their backs to the boats sides and a manger down the centre to which they were tied'. The 16<sup>th</sup> disembarked by throwing the horses overboard and them hauling them ashore by a long rope attached to their head-collars. Other ships discharged theirs by 'swing-pulleys' with the troops wading into the water to bring them ashore. Twenty to thirty of these small ships would discharge their cargoes and then return for another voyage.<sup>31</sup>

These long and seemingly unending hostilities had a profound effect upon merchant shipping and seafarers. Many thousands of merchant seamen answered the call to man the increasing number of warships being rapidly brought into service and impressment was enforced without stint. The requirement under the Navigation Acts for three quarters of the crew of a merchant ship to be English was relaxed, along with apprentices of fishing smacks and certain other crew being free from impressment for two years. It was common for East Indiamen, anchored in the Downs after a six month voyage to India, to be boarded and their seamen impressed into the Royal

Navy.<sup>32</sup> To compound the problem, both English and French ships were subject to capture during the wars resulting in many British seamen sailing under the American flag and British shipowners investing in American ships. The English Government, annoyed by this wholesale desertion to American ships, insisted upon their right of search for British subjects. British warships 'took out those sailors who could not make good their claim to American citizenship. This became a prominent cause of the war with America, declared in 1812'.<sup>33</sup>

Another significant factor in the fortunes of British shipping at this time was the outcome of the 1812 to 1815 war with America; a war largely fought for reasons of trade, with blockades of American ports to prevent trade with France, and 'recovery' by the Royal Navy of British seamen from American registered ships. America had previously, as a British colony, enjoyed the benefits of the Navigation Acts and their ships traded freely between British and American ports. After gaining their independence, when their ships were treated by the British as foreign vessels, the Americans retaliated in 1790 to 1792 with the introduction of their own version of the Navigation Act which prevented British ships from carrying British goods into the America.<sup>34</sup>

In 1814, six months before the Battle of Waterloo, a peace treaty<sup>35</sup> was signed between Britain and America, one of the provisions of which was that the Navigation Laws of both countries were mutually rescinded; the first approach to reciprocity of trade granted by the English Government in centuries. 'The war had been disastrous for American foreign trade with a reduction from fifty to four million tons in three years'.<sup>36</sup> With the end of the Napoleonic Wars in 1815 shipping in Great Britain entered a ten year long slump. Despite the wars the British merchant fleet had increased to 24,418 vessels with a capacity of 2,616,000 tons burthen.<sup>37</sup> However, many of the ships were old and chasing insufficient cargoes; the advent of peace reintroduced a large number of ships that had been employed in Government service, and British and American ships, under the Treaty of Ghent, could carry cargo both ways across the North Atlantic, rather than in ballast for one of the passages.<sup>38</sup>

The effect of peace and of the American Treaty was to depress British shipping so that tonnage was absolutely at a standstill for many years.

There were several reasons for this. 'In the first place, the accession of peace threw upon the market a large amount of tonnage which had been employed by the Government; and, in the next place, both British and American ships, which had been travelling the Atlantic in ballast, were now getting cargoes both ways; and the curious fact is seen that American tonnage was for years in the same position. On the other hand, the shipping of the British colonies, principally in Canada, doubled itself in twenty years'.<sup>39</sup> A separate and unrelated initiative affecting freedom of trade was when the Government, in 1813, had thrown open the centuries old right of the venerable East India Company to trade exclusively to the East coast of India, due to opposition from some of the principal ports in England to this long-standing monopoly.

At the turn of the century there was a significant development in efficiency of the steam engines that had been powering the industrial revolution during the eighteenth century. Until the end of the eighteenth century steam engines had been 'atmospheric', using very low pressure and large boilers. The challenge, to obtain more power, was to design a boiler of sufficient strength to withstand the forces involved with design of the high-pressure engines necessary for steam locomotion over land, and the sea. This challenge was met and solved by Richard Trevithick of Cornwall who presented his prototype publicly in late 1801 and was granted a patent; 'Steam engines – Improvements in the construction thereof and Application thereof for driving carriages' in March 1802. This was a landmark in the history of steam, as described by H.W. Dickinson in *A Short History of the Steam Engine*;<sup>40</sup> 'It is difficult at the present day to realize what fundamental changes were involved in introducing the high-pressure engine. The ponderous beam see-sawing in a massive engine house crowded with valve gear, air pump and condenser, costly to install and run, was replaced by a faster-running direct-acting engine with a simple valve gear, occupying little space, requiring hardly any foundation, cheap in first cost and easy to work'.<sup>41</sup> It was of even greater significance for the development of ever larger and more powerful steamships and resulted in rapid growth of steam ship services on coastwise voyages.

The steamship had arrived, and Scotland became the principal home of ship construction, engine design and building for the entire nineteenth

century and beyond. The first commercial steamships were in a tiny minority with one steam vessel registered in Britain in 1814 and one more in the colonies,<sup>42</sup> increasing to 24 and 8 respectively in 1819.<sup>43</sup> As these small vessels operated mainly in local waters they had little or no impact upon the navigation of the thousands of trading sailing vessels, but their power and reliability made a great impression on the public who now began to appreciate the value of steamers. Prejudice vanished and travel by sea increased with such rapidity that, in 1816, it was not unusual for 500 or 600 passengers to enjoy, in the course of one day, water excursions on the Clyde'.<sup>44</sup> In 1815, the steam paddle wheeler *Margery*, built in Glasgow, was towed to London for service on the Thames. The ship was bought by a French company in 1816 for operation on the Seine and became the first steamer to cross the English Channel when proceeding from Newhaven to the mouth of the Seine on its delivery voyage.

As early as 1819 a small American 'side wheeler', the *Savannah*; a converted sailing ship of 350 tons, took 25 days to complete a passage between New York and Liverpool, but, as it used its steam propulsion for only eighty hours<sup>45</sup> this could not be claimed as the first trans-Atlantic crossing solely under steam power. The voyage of the *Savannah* emphasised the Achilles heel of steam propulsion at this time. No vessel could undertake a long ocean passage due to inability to carry sufficient coal for the voyage. Steam power was, accordingly, confined to coastal voyages with ready access to fuel until vessels increased in size and fuel capacity, and steam engines became more efficient.

The first regular steamship service in Great Britain was inaugurated by the *Comet* in 1819 between Glasgow and the Western Highlands and only operated for one year before the little ship was wrecked off the coast of Argyll in December 1820.<sup>46</sup> The same year, the first steamship company was formed in England, the General Steam Navigation Company, with their first ship, the 401 ton *City of Edinburgh*, being built in 1821.<sup>47</sup> The first scheduled Cross Channel service was operated by the *Rob Roy*, of 90 tons with a 30 HP engine, and the *Prince Coburg*, a steam packet, commenced service to the Isle of Wight; a service extended to Le Havre in 1823.<sup>48</sup> By 1822 forty-eight steamers had been launched from the Clyde.<sup>49</sup> In 1823 the recorded numbers of steamships, in Britain and the colonies respectively, were 101 and 10 requiring an amendment to tonnage measurement law to

allow for the non-earning space occupied by the steam propulsion machinery.<sup>50</sup> Steamships steadily grew in size, power and speed, with the *United Kingdom* of 1826 being 175 feet long and 500 tons with an engine of 200 horsepower.<sup>51</sup>

There was much interest at this time in extending the range of steamships, not least to severely test the reliability of steam machinery. In 1825 the East India Company chartered the 470-ton paddle steamer *Enterprise* to undertake a passage to India via Capetown, which the ship achieved in 113 days, 103 of which were solely under steam power. The passage time was similar to that achieved by the company's sailing ships. Keen observers of this increasing and expanding use of steam propulsion were the Admiralty who, after the Napoleonic wars, had become responsible for postal services to British possessions, delivering those services with small sailing packets. By 1830 their Lordships were confident enough of the benefits of steam propulsion to commence replacing their sailing vessels with steam ships, bringing about, for example, a reduction in a round voyage from the UK to Corfu from three months to one month.<sup>52</sup>

During this period of rapid developments in steam propulsion there were no scheduled passenger services across the stormy, fogbound and ice strewn North Atlantic. However, in 1815, with the end of the Napoleonic and North American conflicts, and the Ghent Treaty opening up trade between the United States and Great Britain, an opportunity arose for American designed and built ships to enter this challenging trade with sailing vessels far superior to their British counterparts in design, operation and crewing.

British ships and trades were still bound by the tonnage requirements of the Navigation Acts;<sup>53</sup> a regulatory regime focussed upon protection of trade to British colonies and possessions, which had, for two centuries, stifled any significant improvements in their design and performance. The mandatory tonnage rules had resulted in 'narrow, deep, flat-sided and full bottomed-ships – bad vessels in a seaway, slow, and often requiring a considerable quantity of ballast, even when loaded, to keep them from rolling over'.<sup>54</sup> An added factor in the lack of progress in ship design was the dominance over this same time frame of the Honourable East India Company ('The United Company of Merchant Venturers of England trading to the East Indies'), founded in 1600 under a Royal charter which

gave the 'John Company' the exclusive right to trade to East India and China. The East Indiamen were designed and operated along the same lines as naval frigates, including two decks of guns and large crews, but were more full-bodied for cargo carrying. They were, however, slow and cumbersome and undertook cautious passages with safety and comfort for the passengers foremost. Their guaranteed trade stifled initiative and development, with the ships remaining essentially unaltered for more than two hundred years and having the same design and stability shortcomings as other British merchant ships.<sup>55</sup>

During the late eighteenth century the predominant nation for ship design and construction was France. The finest frigates in the Royal Navy were captured French ships. During the Revolutionary war a number of French luggers and frigates operated in American waters and, when in dock, their lines were taken off by American shipwrights and studied as to the reasons why the French ships were so much faster. This resulted in fast American styled frigates, and privateers; ships that outsailed their British opponents; both warships and merchantmen, during the war of 1812.

In the early nineteenth century sailing ships ran to no set schedule but sailed when they were fully loaded. In 1817 the American Black Ball line introduced a scheduled service between New York and Liverpool with four full rigged sailing ships carrying mail, passengers and cargo. Known as 'packet boats' as they were carrying packets of mail under a Government subsidy, the ships ranged initially from 300 to 500 registered tons and averaged passages during their first 10 years of operation of 23 days Eastbound, and 40 days Westbound into the prevailing westerlies;

Their Captains were the finest men whose services money could secure, and to their care were entrusted the lives of eminent men and women, government despatches, the mails and specie. Rain or shine, blow high, blow low, one of the Black Ball liners sailed from New York for Liverpool on the first and sixteenth of each month, and for many years these were the European mail days throughout the United States.<sup>56</sup>

A number of other American owned lines entered the 'packet trade' with the size of the ships slowly increasing until, in the 1840s when they were competing with steamships, ships of 1400 tons were being built. 'By the late 1830s, twenty packet ships were running from New York to Liverpool, and

sixteen to Le Havre. Every month a dozen packets left New York for Europe and a dozen more arrived; an average of one ship every thirty hours, all year long<sup>57</sup>. The fastest passage recorded by a sailing packet was 14 days Eastbound and 16 days Westbound<sup>58</sup> but these were exceptional voyages. When the sailing packets were at their heyday the threat of competition from steam ships arose, as, with improved steam engines of greater power, and more economical fuel consumption, it became theoretically possible to traverse the 3000 miles from the United Kingdom to the United States in 15 days. This thinking was made possible by the development of the side-lever engine which lowered the weight, and centre of gravity, of the engine/s to reduce rolling and pitching at sea. Construction of the engine was in wrought iron, rather than cast iron, further reducing its weight. The engine was designed to be very strong and reliable for ocean crossings, and proved to so be. Boiler pressure was still limited due to inherent weaknesses in boiler construction, limiting pressure to a modest five pounds per square inch and increasing fuel consumption.

An added complication to the undertaking of long voyages under steam was that of the necessity to mix cold seawater with steam in a condenser to cool the steam to condense it back to water and generate a vacuum. This saline feed water resulted in rapid scaling of the inside of the boiler plates, tubes and steam pipework as described by Colin Fleetney in an article published in *Paddle Wheels* in 1969.<sup>59</sup>

On a voyage lasting more than two or three days the boilers became foul, and the feed water increasingly more saline. It then became necessary to shut down, blow down, empty and clean each boiler in turn. I have intentionally omitted 'cool' from this list. Long before the boilers had time to cool the black gang would be inside, attending to this terrible job. In fair weather, or foul, each boiler demanded the attention of these toiling half-naked men. Neglect of the job could result in burnt plates and the very real possibility of an explosion. In 1834 this problem was largely solved through the introduction of the surface condenser; an iron container with an array of internal thin brass tubes through which the cool seawater was pumped so that the spent steam condensed on the outside of the tubes.<sup>60</sup>

In spite of these limitations, the first ship to complete an east-bound crossing of the North Atlantic, from Halifax, Nova Scotia to Cowes on

the Isle of Wight, almost entirely under steam power, was the Canadian built Royal William (1831); 160 feet long and 1370 gross tons, fitted with a paddle wheels and a 200 HP steam engine and rigged as a three-masted schooner. The Royal William had been built to operate on the difficult route between Halifax, Montreal and Quebec; a route which sailing ships, due to fog, ice and/or adverse currents would sometimes take five weeks to complete. The ship was placed into the management of a shipping agent in Halifax who'd been managing mail ships operating between Halifax, Boston and St. Johns, Newfoundland and as far afield as Bermuda for a number of years and who had earned a good reputation with British authorities. When asked in 1829 to become involved in a scheme for a steamship he'd stated 'We are entirely unacquainted with the cost of a Steam Boat and should not like to embark in a business of which we are quite ignorant and must therefore decline taking any part in the one you propose getting up'.<sup>61</sup>

This American, born into a Quaker family exiled to Nova Scotia after the American Revolution, was Samuel Cunard. Within a year of the above statement he had shrewdly obtained the power of general management and control of funds for a company which raised money to build a steamship for the Halifax, Montreal, Quebec route. After two unsuccessful years the Royal William was sold in 1833. After an abortive return trip to Boston under the new owners it was decided to send her to England to be sold again; a voyage conceived in financial desperation. She left Nova Scotia on 18 August 1833 with only seven intrepid passengers, 324 tons of coal and virtually no cargo and completed the voyage in nineteen days in spite of having to stop every four days to de-scale her boiler. Upon eventually proceeding to London from Cowes the ship was sold to the Portuguese Government.<sup>62</sup>

Although there was a complete void in legislation concerning the safety and seaworthiness of ships at this time, there was ongoing concern and interest from some individuals in these matters with attempts, usually unsuccessful, to bring them to the attention of Parliamentarians. In 1814, one Cadogan Williams had unsuccessfully attempted to submit a petition to Parliament through Lord Stanhope; a statesman and scientist, to increase the safety of merchant vessels by requiring four separate waterproof compartments, "so that if a leak were to spring in either of them it would not always endanger the safety of the ship, as her buoyancy would not be diminished one-third

with some description of cargo". Stanhope agreed and told Williams that he had already submitted a similar plan to the Lords of the Admiralty for thirteen compartments. Undeterred, Williams presented the same petition in September 1831 to the House of Commons Committee on Steam Navigation, for the safety of steam vessels; again unsuccessfully.<sup>63</sup>

A seaman at this time led a life of hardship and danger and had constant concerns regarding his employment, health, life, injury, living conditions and remuneration. 'Given a background of a general recession after the end of the Napoleonic War, government indifference, legislative quiescence and inferior vessels it is hardly surprising that the sailor's lot was unenviable. His wages had fallen 40% between the end of the Napoleonic wars in 1815 and 1833, and in the latter year the workforce was some 14% smaller than in the former'.<sup>64</sup>

Long hours were common in all walks of life, but seamen had the additional burden of broken and irregular rest periods due to the watch-and-watch system that gave them no more than three and a half hours of sleep at a time. Until the nineteenth-century was well advanced legislation relating to conditions for seamen centred chiefly on discipline and liability for naval service. Britain was at war for fifty of the seventy five years from 1740 to 1815, and with no long-service ratings in the Royal Navy the Imprest Service was more likely to be active than idle in those years. It was estimated that, during the 15 year Napoleonic wars, 30,000 merchant seamen were in naval service.<sup>65</sup> Many of these ended up begging on the streets in 1815 due to a severe downturn in merchant shipping.<sup>66</sup>

The end of the French war also saw 200,000 disbanded soldiers and sailors flooding the labour market. Government spending fell, and recession set in, causing widespread disorder. At home post-war demobilization and the adjustment to a peace-time economy brought widespread unemployment, social hardship and a long and difficult Tory administration under Robert Jenkinson, second Earl of Liverpool. Even after Liverpool's fall in 1827 he was succeeded by Tories: Canning, Lord Rippon briefly, and the Duke of Wellington, so it was 1830 before the election of Charles, Earl Grey, a Whig, initiated the belated reform of Parliament and the much needed social improvements which, in Britain at least, characterized the later 19<sup>th</sup> Century.<sup>67</sup>

In spite of the relaxation of trade restrictions between Britain and America 'the 1815 Parliament, still representing the landed interest', introduced an Importation Act which imposed a tariff on imported wheat as a means of sustaining farm incomes. This 'Corn Law' increased the price of bread and led to riots in the cities, while in the factories so-called Luddites smashed labour-saving machinery. This unrest, which was widespread across the provinces, terrified the authorities, with their recent memories of the 'sans culottes' of Paris. After the 'Peterloo massacre' in 1819 Liverpool was shocked into passing six acts as draconian as those of Pitt, restricting freedom of speech, publication and assembly; meeting to promote reform was considered 'an overt act of treasonable conspiracy'.<sup>68</sup> The Corn Laws proved to be an additional barrier to free trade for the thirty years they were in effect until finally being repealed in 1846. In the next few years restrictions of trade under the Navigation Acts lessened, brought about by the so-called 'sole-market' theory; a doctrine that nations should restrict trade to ships under their flag and crewed by their nationals, thus confining all foreign imports to their own ships and refusing to receive the products of other countries in ships registered in their countries.

Seamen had been regulated since at least the Navigation Act, 1660, but not regarding matters of safety, welfare and living conditions. The Navigation Acts had nothing to do with navigation as in ensuring a ship was safely navigated from one place to another, but in protection of trade as stated in s.1 of the 1660 Act; *For the increase of shipping and encouragement of the navigation of this nation wherein, under the good providence and protection of God, the wealth, safety, and strength of this kingdom is so much concerned.* The original focus of the 1660 Act was upon ensuring that British ships carried British goods to British colonies as stipulated in s.7 and that they must be crewed with a defined proportion of British seamen; the Master and at least three quarters of the crew, except in times of war. This requirement largely survived until repeal of the Navigation Acts in 1849.

Further relaxation of the Navigation Acts came about in 1823 when Prussia, recalling the actions of the Americans in 1812, closed its ports to British ships. This directly led to enactment of the so-called Reciprocity Acts<sup>69</sup> in 1823 and 1824 whereby the King in Council was empowered to grant reciprocity to such nations as would place them on an equal footing in matters of trade to Britain. 'Thus the back of our navigation law was broken,

although it survived for some years longer'.<sup>70</sup> The Acts also had the effect of rejuvenating trade and reversing the effects of the ten year long slump in shipping; the legacy of William Huskisson, President of the Board of Trade and an active proponent of free trade.

A series of Acts had dealt with the regulation and administration of seamen, dating from *An Act for the Increase of Seamen, and better Encouragement of Navigation and Security of the Coal Trade*<sup>71</sup> in 1703, to the Merchant Seamen Act 1833<sup>72</sup> – *An Act for Facilitating the Recovery of the Wages of Seamen in the Merchant Service*. These Acts covered such matters as prevention of desertion, seamen in the coasting trade, relief of seafaring men and boys, numbers of apprentices, and recovery of wages (in cases of desertion). The Acts also had a prime purpose of ensuring that there were sufficient merchant seamen available to crew Royal Naval vessels in time of war.

Meanwhile, at sea, loss of life continued. Another wreck causing large loss of life to the military was that of the transport *Seahorse*, wrecked in Tramore Bay, Ireland on 30 January 1816. The ship was carrying 16 officers and 279 soldiers of the 2<sup>nd</sup>/59 Regiment along with 71 women and children, a crew of eighteen and a young Naval officer. Only 30 survived the wreck.<sup>73</sup> The same year a total of 371 British ships were wrecked with the entire crews of sixteen ships being lost along with another 940 souls.<sup>74</sup>

In 1820, Robert Seppings, later to become Surveyor of the Navy, unsuccessfully attempted to have the advanced methods of construction he'd introduced aboard naval ships while Master Shipwright at Chatham, to merchant ships. But no progress was made; 'overbuilt, capacious, burdensome vessels still continue in repute with British shipowners, which necessarily induces shipbuilders to build them of that description and form. They build them to answer the rules of classification laid down at Lloyd's, and if they were to build on a superior principle they would get no credit for their pains.'<sup>75</sup>

During the terrible Northern European winter of 1820, 2000 ships and 20,000 seafarers were lost in the North Sea,<sup>76</sup> and the carnage continued both in terms of ships and numbers of persons lost, throughout the 1820s and 1830s without any form of responsive safety regulation for ships. Clearly, not all of these losses were due to unseaworthy ships or overloading. Many

were inevitably, in the age of sail, due to age old ‘perils of the sea’; force of weather, ice, collision, embayment and stranding. Lloyd’s List recorded that 677 British ships were lost in 1830.<sup>77</sup>

In 1828 the Passengers in Merchant Vessels Act<sup>78</sup> was introduced – An Act to Regulate the Carriage of Passengers in Merchant Vessels from the United Kingdom to the Continent and Islands of North America. The Act continued to deal solely with passenger welfare.

Conditions for seamen were primitive. W.S. Lindsay<sup>79</sup>, who was at sea in a 420-ton timber and sugar carrier in 1834, has left the following vivid pen-picture of his life on board.

The cook, ten seamen and three apprentices had their abode in the forecabin. This place, which was in the ‘tween decks at the extremity of the bow, may have been about twenty-one feet in width at the after or widest part, tapering gradually away to a narrow point at the stem. The length in midships was somewhere about twenty feet, but much less as the sides of the vessel were approached. The height was five feet from deck to beam, or about five feet nine inches from deck to deck; the only approach to it being through a scuttle or hole in the main deck, about two and a half feet square. Beyond this hole there was no means of obtaining either ventilation or light, and in bad weather, when the sea washed over the deck, the crew had to do as best they could without either, or receive the air mixed with spray, and sometimes accompanied by the almost unbroken crest of a wave, which in defiance to all tarpaulin guards, too frequently found its way through the scuttle. Here fourteen persons slept in hammocks suspended from the beams and had their daily food. There was no room for tables, chairs or stools so the tops of their sea chests in which they kept their clothes and all their worldly possessions were substituted for those useful and necessary household articles. ... At all times it was a foul-smelling and suffocating abode, and in bad weather the water and filth which washed about the deck and among the chests and casks created the most intolerable and loathsome stench. Here, however, these fourteen sailors and apprentices slept, washed, dressed and had their food, except in fine weather, when they took their meals on deck, their food consisting almost entirely of inferior salted pork or beef, which was sometimes as hard and unpalatable as the kits in which it was served, and brown biscuits, too often mouldy and full of maggots.